EVIDENCE SYNTHESIS BRIEFING NOTE

TOPIC: **BEST PRACTICES FOR KNOWLEDGE TRANSLATION OF PUBLIC HEALTH/EPIDEMIOLOGICAL INFORMATION TO HEALTH SECTOR LEADERS AND DECISION-MAKERS**

Information finalized as of October 23, 2020.[a]

This Briefing Note was completed by the Research, Analysis, and Evaluation Branch (Ministry of Health) in collaboration with a member of the COVID-19 Evidence Synthesis Network. Please refer to the Methods section for further information.

Purpose: This note provides a summary of best practices on how to package public health/epidemiological information in such a way that it will be useful for decision-makers and will impact their decision-making.

Key Findings:

- Challenges to working with decision-makers include: logistics and coordination (e.g., urgency of requests, time, information sharing, duplication of work), negotiating tensions and building shared understanding (e.g., aligning research and policy considerations, extrapolation of results from indirect evidence), and external constraints (e.g., changes in personnel, political priorities). Moreover, barriers to the uptake of evidence syntheses by decision-makers include lack of user-friendliness, inaccessible language, dense layouts, and lack of policy-relevant syntheses (e.g., contextualization).
- Enablers that advance evidence use by decision-makers include: organizational factors (e.g., leadership, dedicated funding, training, champions), personality traits of knowledge synthesizers (e.g., pragmatic, political acuity, credible, persuasive), and stakeholder relationship building among knowledge synthesizers and users (e.g., goals-setting, establishing virtual/physical communication spaces, using knowledge brokers).
- Some health care organizations have formal knowledge translation plans designed to share evidence with end-users, which may include decision-makers in health care and government, while others offer advice on communicating with non-researchers or advocating for health issues that can be applied to these audiences.
- The research evidence and health care organizations across jurisdictions suggest a wide range of formats for presenting health and research data to decision-makers, for example: decision-support tools (e.g., evidence or policy briefs), systematic reviews, rapid reviews, guidances, presentations, teleconferences, face-to-face meetings, consultations, conferences, workshops, executive or advisory committees, networking events, endorsements, newsletters, digital resource materials, social media, and media press releases.
- Key principles to consider in evidence synthesis outputs include: rigour, relevance, contextualization, readability (e.g., plain language, brief bulleted summaries, visuals), and resources (e.g., time, funding, staff).

Analysis for Ontario:

- Public Health Ontario provides scientific support to the government and the health sector through a variety of methods (e.g., written products, stakeholder engagement). The Registered Nurses Association of Ontario recommends starting with low-profile advocacy approaches (e.g., letter writing campaigns) and then gradually increasing to medium- and high-profile strategies (e.g., policy briefs, alliance-building).

Implementation Implications:

- The end user needs to be considered and involved in knowledge translation strategies, including determining how much detail is preferred and how much knowledge can be feasibly comprehended from the evidence source. Multifaceted strategies are likely to be more effective in fostering evidence-informed policy-making.

[a] This briefing note includes current available evidence as of the noted date. It is not intended to be an exhaustive analysis, and other relevant findings may have been reported since completion.

Context

According to Health Canada, knowledge translation is an active process that includes the synthesis, dissemination, exchange, and implementation (application) of knowledge to improve the health of people. Effective knowledge translation can accelerate the use of knowledge by:

- Focusing attention and resources on high priority research questions;
- Ensuring that the knowledge being used is based on the best available evidence;
- Ensuring that the knowledge is being implemented as intended;
- Ensuring important outcomes are being evaluated so that scarce resources are not wasted; and
- Supporting spread and scale-up of evidence-based practices, programs, and policies.[1]

Supporting Evidence

Table 1 below summarizes best practices for knowledge translation of public health/epidemiological information to health sector leaders and decision-makers from scientific evidence and Canadian/international organizations. Additional details are provided in Table 2 (for scientific evidence documents on best practices for knowledge translation), Table 3 (for publicly available knowledge translation resources from Canadian organizations), and Table 4 (for publicly available knowledge translation resources from international organizations) in the Appendix.

Table 1: Best Practices for Knowledge Translation of Public Health/Epidemiological Data to Health Sector Leaders and Decision-Makers

Scientific Evidence[b]	• **Barriers**:
	  ○ Challenges of Working with Decision-Makers: These include: logistics and coordination (e.g., resource use, urgency of requests, time, information sharing, duplication of work by other knowledge synthesizers), negotiating tensions and building shared understanding (e.g., aligning research and policy considerations, extrapolation of results from indirect evidence, knowledge dissemination), and external constraints (e.g., changes in personnel, political priorities).[2,3,4]
	  ○ Barriers to Uptake of Evidence Syntheses by Decision-Makers: These include lack of user-friendliness, inaccessible language, dense layouts, and lack of policy-relevant syntheses (e.g., contextualization, equity-sensitive findings).[5,6,7]
	• **Enablers**:
	  ○ Organizational Factors that Advance Research Use in Policy Organizations: These include: knowledge translation strategic plans, aligned visions, clear expectations/responsibilities, high-level of recognition/commitment, phased approaches and incremental changes, dedicated funding, management of research integration, systems and infrastructures of research use, institutional structures and rules for policy-making, training/mentoring, culture, leadership, staff engagement, networks and communication, capacity building, champions, resources, evaluation, and monitoring and feedback.[8,9,10,11,12,13]
	  ○ Personality Traits of Knowledge Synthesizers: These include being: pragmatic, flexible, positive, persuasive, politically savvy, entrepreneurial, proactive, enthusiastic, comfortable working in a dynamic environment, credible, open-minded, autonomous, independent, self-sufficient, self-motivated, creative, and committed to principles of equity, inclusivity, respect, and cultural competence.[14,15]
	  ○ Building and Maintaining Stakeholder Relationships among Knowledge Synthesizers and Users: Much of the identified literature focused on this topic, with strategies including: setting goals and priorities, governance, determining the level of engagement needed for each phase of knowledge development and translation processes, establishing virtual and physical communication spaces, project management documents, working groups, flexibility, education and training, and monitoring and feedback.[16,17,18,19,20,21]
	  ▪ One particular strategy highlighted in the literature includes the use of knowledge brokers who work collaboratively with key stakeholders to facilitate the transfer and exchange of information in a given

[b] Publicly available scientific evidence documents included systematic reviews, reviews, and rapid reviews, published within the last five years (2015-20); these were not critically appraised.

	context. While they have operated in the private sector for years, their adoption by the health sector has been rather limited until recently. Their main activities include: identify, engage, and connect stakeholders; identify and obtain relevant information; facilitate development of analytic and interpretative skills; create tailored knowledge products (e.g., resource binders, policy briefs, logic models, journal article summaries, presentations, websites) and translate relevant findings to the local context; project coordination; and support communication and information sharing.[22] • **Knowledge Translation Strategies**: ○ Communication Formats: A wide range of approaches to increase the uptake and use of evidence in practice were highlighted in the research literature, including: decision-support tools (e.g., evidence or policy briefs), systematic reviews, rapid reviews, web portals and access to digital resource materials, teleconferences, face-to-face meetings, consultations, conferences, exchange forums, workshops, executive or advisory committees, networking events, presentations, newsletters, and media press releases.[23,24,25,26,27] ○ Principles: Characteristics to consider when matching users' knowledge needs with an appropriate evidence synthesis output includes: rigour, relevance (e.g., local context), readability (e.g., plain, non-technical language, brief bulleted summaries, visuals), and resources (e.g., time, funding, personnel).[28,29,30,31] ○ Examples highlighted in the research literature include: ▪ *Systematic Reviews*: Two reviews (2016 and 2018) summarized the key features of a systematic review: title framed as a question; one-page summary including clear take-home messages written in plain language; sections on relevance, impact, and applicability for decision-makers; methods section focusing only on the critical elements; bulk of the report focusing on results and interpretation; a liberal amount of white space with bullet points to avoid dense text; and simple tables. Researchers should consider tailoring different versions of reviews with key messages for relevant audiences.[32,33] ▪ *Rapid Reviews*: A review (2016) noted there is no agreed definition or methodology for rapid reviews, and there are a wide range of 'shortcuts' used to make rapid reviews faster than a full systematic review (e.g., limiting the scope, limiting data extraction to key characteristics and results, restricting the study types included). Consideration should be given to being transparent about the review methods, enabling a fair quality assessment (e.g., AMSTAR ratings[c]), and maintaining a larger highly skilled and experienced staff who can be mobilized quickly and understand the type of products that might meet the needs of the decision-maker.[34] • Similarly, a recent commentary (2020) on how rapid review methods are more challenging during COVID-19 recommended the following knowledge translation strategies: use collaborative tools (e.g., online meeting platforms, email) for stakeholder involvement; use COVID-19 repositories and research/resource guides with lists of traditional and grey literature sources (e.g., LitCovid, COVID-END); limit methodological assessments to only studies that are included in the analysis; use summary of findings tables without a descriptive writeup of results; consult experts to provide evidence contextualization at the review completion; disseminate above and beyond publishing in peer-reviewed journals (e.g., one-page evidence summaries with key messages highlighted upfront, infograms, podcasts, YouTube, LinkedIn, Twitter, media releases); and work with decision-makers to reconsider funding structures to allow living rapid reviews to be conducted on an ongoing basis during COVID-19.[35] • **Limitations**: Some literature suggests there are limited studies on non-clinical decision-makers and diverse knowledge translation strategies employed that make it difficult to identify which interventions are effective in fostering an organizational culture supportive of evidence-informed policymaking.[36,37,38,39]
International Scan	Knowledge translation resources were identified from the World Health Organization (WHO), American Public Health Association (APHA), United States' Centers for Disease Control and Prevention (CDC), Australian Healthcare and Hospitals Association (AHHA), Joanna Briggs Institute (JBI), Centre for Reviews and Dissemination (CRD), Cochrane Collaboration, and National Institute for Health and Care Excellence (NICE). • **Principles**: The WHO lists six principles for effective communications: actionable, accessible, relevant, timely, understandable, and credible.[40,41] It is important to engage decision-makers during all phases of the evidence synthesis process (i.e., conception and design of research, search and data collection, data synthesis and interpretation, and knowledge dissemination and application), for example through advisors/members of expert

[c] AMSTAR (A MeaSurement Tool to Assess systematic Reviews) is an instrument used in assessing the methodological quality of systematic reviews.

	panels or steering groups. It is also important to enhance the policy relevance of evidence syntheses (e.g., integration of qualitative and quantitative findings, contextualization).[42] • **Communication Formats**: The recommended types of knowledge translation strategies vary across organizations, and may include: written reports (e.g., policy briefs or statements, white papers, guidances), public meetings, radio interviews, podcasts, and videos.[43,44,45,46,47,48,49,50,51,52] For example: ○ Health Impact Assessments: These allow for the strategic evaluation of the potential effects of a policy, program, or project on a population, particularly vulnerable groups, based on democracy, equity, sustainable development, and ethical use of evidence. This provides decision makers with data and information that is typically hard to obtain – the realities of the local environment.[53,54] ○ Policy Statements: The APHA suggests that policy statements represent substantially new content with externally directed action steps, or a major modification (revision or extension) of an existing policy statement. They should describe and endorse a defined course of action (e.g., legislation and regulations desired, new policies required for non-governmental organizations or private enterprises). Proposed policy statements should: present an objective summary of the problem; be concise; be written in plain language; accurately use 50 or fewer references to justify the call for defined action; and not exceed 10 pages.[55,56] ○ Guidances: NICE produces guidance and standards that are fit for an audience's needs. They ensure that relevant audiences know about the guidance recommendations (e.g., ongoing access to all standards and recommendations through a website, digital sources, and journals), and encourage improvement through tailored local engagement (e.g., educational training, financial rewards, regulation and inspection requirements, data collection and monitoring systems, patient and third-sector organizations, share local examples of successful initiatives).[57] ○ Reviews: Cochrane produces systematic reviews of primary research in human health care and policy. Each review addresses a clearly formulated question and includes Plain Language Summaries (PLSs) to help people understand research findings. Averaging 400-700 words, PLSs are created using standard content, structure, and language to ease understanding and translation.[58] Sections include: "What is the aim of this review?", "Key Messages", "What was studied in the review?", and "What are the main results of the review?".[59] ○ Evidence Syntheses: Many organizations (e.g., WHO, JBI, CRD) suggest including: one-page summaries with key messages tailored to the relevant audience; information on background, interventions, harms/risks, costs, and implications; summary tables; references; and plain language. Evidence synthesis products should be embedded in databases targeted to decision-makers and policy networks or other collaborative structures.[60,61,62] ○ Face-to-Face Meetings: To help communicate health care issues with elected officials and decision makers, the AHHA recommends that communications be planned (e.g., one-page agenda with bullet points), focused (e.g., up to three key messages or actions), relevant, and purposeful (e.g., clear call-to-action).[63]
Canadian Scan	Knowledge translation resources were identified from the Canadian Agency for Drugs and Technologies in Health (CADTH), Canadian Institutes of Health Research (CIHR), Canadian Public Health Association (CPHA), College of Family Physicians of Canada (CFPC), Health Canada, and the International Development Research Centre (IDRC) Global Health Policy. • **Principles**: Some organizations suggest engaging potential knowledge users throughout the research process.[64] This includes identifying the need, adapting knowledge to the local context, identifying barriers and facilitators to knowledge use, tailoring and implementing knowledge translation strategies, monitoring knowledge use, evaluating outcomes, and sustaining knowledge use.[65] • **Communication Formats**: The types of knowledge translation strategies vary according to the knowledge user, but examples include: research questions, reports, guidelines, position statements, advisories, endorsements via letters of support, letters to political parties and members of the public service, in-person meetings, and media releases.[66,67,68,69,70,71] For example: ○ Policy Briefs: IDRC recommends including the following sections: one-page of take-home messages, three-page executive summary, statement of the problem, background and/or context to the problem and its importance, pre-existing policies, policy options, critique of policy options, policy recommendation, and sources consulted or recommended. Pro-tips include, for example: using a professional tone as opposed to an academic one; limiting the focus to a particular problem or issue; being succinct, using short sentences/paragraphs, subsections, and plain language; using visuals (e.g., colours, images, quotes); ensuring recommendations are practical and feasible; including cost implications.[72] ○ Economic Evaluation Reports: CADTH reports generally include a preface, executive summary, abbreviations, glossary, objectives, background, review of economic evidence, methods, results, discussion,

	conclusions, references, and appendices. Wherever possible, plain language and visual graphics should be used and technical terms defined so that information can be easily understood by a reader without a technical background.[73] ○ Conferences: CIHR's Best Brains Exchanges are one-day in-person meetings with senior policy makers, researchers, and implementation experts to discuss high priority health topics. The meetings consist of short, high-level presentations by researchers, followed by question-and-answer periods and facilitated discussions. The focus is on informal dialogue and contextualization of the evidence to the policy context.[74]
Ontario Scan	• Public Health Ontario provides expert scientific and technical support to government, local public health units, and health care providers through a variety of methods (e.g., written products, videos, stakeholder engagement). This involves: 1) understanding the specific steps in the adoption process for policy implementation in the targeted organizations; 2) writing the policy; and 3) communicating the policy by emphasizing relationship building with key stakeholders and decision-makers.[75] Specific recommendations include: ○ Identifying which decision-makers will be the focus of support-building efforts since choosing people at the wrong level or time can waste resources and may even jeopardize future strategies. Consider whether these decision-makers are most driven by: media coverage; their own beliefs and values; the needs of their clients or constituency; and other influential people or groups.[76] ○ Identifying the human and financial resources needed for implementation and development of a realistic and logically sequenced timeline. ○ Encouraging decision-makers to prepare for organizations and/or people who are not supportive. Consider working with them to brainstorm who may oppose the policy. ○ Determining if a shift from a supportive role to an advocacy one is needed if decision-makers resist or defer policy adoption.[77] • The Registered Nurses Association of Ontario recommends a range of advocacy approaches, starting with low-profile strategies (e.g., letter writing campaigns to elected representatives) first, then gradually increasing to medium (e.g., meetings with government officials, policy briefs) and high (e.g., posters, media releases, alliance-building) profile strategies if necessary. Important steps for approaching decision-makers include: framing the issue for the meeting to help prioritize their attention and resources; being clear and succinct; suggesting solutions; and assessing and re-evaluating outcomes of the meeting.[78]

Methods

The COVID-19 Evidence Synthesis Network is comprised of groups specializing in evidence synthesis and knowledge translation. The group has committed to provide their expertise to provide high-quality, relevant, and timely synthesized research evidence about COVID-19 to inform decision-makers as the pandemic continues. The following member of the Network provided an evidence synthesis product that was used to develop this Evidence Synthesis Briefing Note:

- Centre for Effective Practice. October 8, 2020. COVID-19 Evidence Synthesis Network: Evidence Support for Request #16: What are the best practices for knowledge translation of public health/epidemiological information to health sector leaders?

For more information, please contact the Research, Analysis and Evaluation Branch (Ministry of Health).

APPENDIX

Table 2: Scientific Evidence Documents on Best Practices for Knowledge Translation of Public Health/Epidemiological Data to Health Sector Leaders and Decision-Makers[d]

Reference	Key Best Practices
Brown A, Barnes C, Byaruhanga J, McLaughlin M, Hodder RK, Booth D, Nathan N, Sutherland R, Wolfenden L. (2020). Effectiveness of Technology-Enabled Knowledge Translation Strategies in Improving the Use of Research in Public Health: Systematic Review. J Med Internet Res.22(7):e17274.	• Changes in technology have provided considerable opportunities for knowledge translation (KT) strategies to improve access and use of evidence in decision making by public health policy makers and practitioners. This study aims to examine the effectiveness of digital technology enabled knowledge translation (TEKT) strategies in (1) improving the capacity for evidence-based decision making by public health policy makers and practitioners, (2) changing public health policy or practice, and (3) changes in individual or population health outcomes. • The studies examined the impact of digital TEKT strategies on health professionals, including nurses, child care health consultants, physiotherapists, primary health care workers, and public health practitioners. Overall, five of the interventions were web-training programs. The remaining three interventions included simulation games, access to digital resource materials and the use of tailored messaging, and a web-based registry. The findings suggest that digital TEKT interventions may be effective in improving the knowledge of public health professionals, relative to control, and may be as effective as a face-to-face KT approach. The effectiveness of digital TEKT strategies relative to a control or other digital KT interventions on measures of health professional self-efficacy to use evidence to enhance practice behaviour or behavioural intention outcomes was mixed. The evidence regarding the effects on changes to health policy or practice following exposure to digital TEKT was mixed. No trials assessed the effects on individual or population-level health outcomes. • Despite its potential, relatively few trials have been undertaken to investigate the impacts of digital TEKT interventions. The findings suggest that although a digital TEKT intervention may improve knowledge, the effects of such interventions on other outcomes are equivocal.
Tricco AC, Garritty CM, Boulos L, Lockwood C, Wilson M, McGowan J, McCaul M, Hutton B, Clement F, Mittmann N, Devane D, Langlois EV, Abou-Setta AM, Houghton C, Glenton C, Kelly SE, Welch VA, LeBlanc A, Wells GA, Pham B, Lewin S, Straus SE. (2020). Rapid review methods more challenging during COVID-19: commentary with a focus on 8 knowledge synthesis steps. J Clin Epidemiol.126:177-183.	• Guidance is available on the conduct of rapid reviews. However, the COVID-19 pandemic has created several unique challenges. • Challenges to the conduct of rapid reviews include the urgency of the request from decision-maker organizations, identification of and access to sources of evidence for inclusion in the rapid reviews, extrapolation of results from indirect evidence, and dissemination of results widely. • There is a need for coordination of efforts internationally to reduce the risk of duplication, and to effectively use global collective evidence synthesis resources. • The review outlines several methodological challenges and solutions in conducting rapid reviews that have become apparent during the COVID-19 pandemic using an eight-step framework that follows the knowledge synthesis process: ○ **Conceptualizing the question and scope through stakeholder involvement (e.g., experienced rapid review teams)**. Teams can make use of collaborative tools, such as online meeting platforms and email, to interact with decision-makers to help conceptualize the rapid review. Some teams consult with experts to provide their insight on contextualizing the rapid review findings via quick telephone calls at the end of the review.

[d] Publicly available scientific evidence documents included systematic reviews, reviews, and rapid reviews, published within the last five years (2015-20); these were not critically appraised.

	○ **Conducting a literature search for COVID-19 rapid reviews**. COVID-19 repositories and research/resource guides with lists of traditional and gray literature sources (e.g., WHO COVID-19, LitCovid, COVID-END) can be used to ensure the rapid review includes relevant studies that may not be captured by electronic databases. For COVID-19 rapid reviews, studies in all languages should be considered for inclusion, which requires access to quick and trusted translations; membership in international networks such as Cochrane could help facilitate this. Teams can consider contacting their librarian as soon that they know a rapid review is on the horizon so that they can plan the literature search to meet the quick timeline. As well, based on our collective experience, some teams have prioritized specificity rather than sensitivity to make the literature searches more manageable for COVID-19 rapid reviews. Updating the literature search the same week as the rapid review becomes publicly available is one approach that ensures rapid reviews are up to date. ○ **Conducting screening, data abstraction, and assessment of methodological limitations for COVID-19 rapid reviews**. Methods must be transparently reported and limitations need to be discussed. Appraising the methodological limitations takes time yet can be incorporated into applying GRADE (or GRADE CERQual) of the evidence. This provides an indication of how trustworthy the rapid review results are and might be particularly important for COVID-19 rapid reviews, which often rely on non–peer-reviewed sources. However, more time might be required to appraise evidence from non–peer-reviewed sources. Some teams are limiting methodological assessments to only studies that are included in the analysis (whether qualitative or quantitative) to make the review more feasible. ○ **Synthesis and interpretation of results for COVID-19 rapid reviews**. Researchers should be specific and transparent about what might have been lost in the process and what needs to be addressed in the future, perhaps through a more comprehensive review, and when such a review should be performed. If a meta-analysis was not feasible, it is important to report effect sizes with confidence intervals. In qualitative synthesis, it may not be possible to conduct subgroup analyses but this can be addressed in future updates. Some teams provide decision-makers with summary of findings tables without a descriptive writeup of results to facilitate completion in a shorter period. Working closely with decision-makers to interpret the rapid review results will ensure that the end product is relevant and fit for purpose (e.g., consulting experts to provide evidence contextualization at the review completion). ○ **Dissemination of COVID-19 rapid reviews**. To quickly disseminate rapid review findings, researchers can consider other mechanisms, such as the Open Science Framework, Zenodo, or preprint servers. Use of short (e.g., one-page) evidence summaries can facilitate uptake of results with key messages highlighted upfront for the end user. Considering targeted dissemination mediums, such as infograms, podcasts, YouTube, LinkedIn, Twitter, ResearchGate, and media releases, might be required for dissemination above and beyond publishing in a peer-reviewed journal. Linkages with teams of data mobilizers and academic detailers, as well as communication teams, can facilitate dissemination of results. Use of evidence-informed dissemination strategies should be considered to ensure wide uptake of results. ○ **Updating COVID-19 rapid reviews**. Some teams are making use of automation in searching and screening to convert their rapid reviews into living rapid reviews. As well, some teams are working with their decision-makers to reconsider funding structures to allow living rapid reviews to be conducted on an ongoing basis during COVID-19. Organizations such as Cochrane and the Campbell Collaboration have processes in place for the regular updates of published reviews.
Hoekstra F, Mrklas KJ, Khan M, et al. A review of reviews on principles, strategies, outcomes and impacts of research partnerships approaches: a first step in synthesising the research	• The review included 86 reviews using terms describing several research partnership approaches (e.g., community-based participatory research, participatory research, integrated knowledge translation). After the analyses, the review authors synthesized 17 overarching principles and 11 overarching strategies and grouped them into one of the following subcategories: relationship between partners; co-production of knowledge; meaningful stakeholder engagement; capacity-building, support and resources; communication process; and ethical issues related to the collaborative research activities. Similarly, the authors synthesized 20 overarching outcomes and impacts on researchers, stakeholders, the community or society, and the research process.

partnership literature. (2020). Health Res Policy Syst.18(1):51.	• Initial guidance for research partnerships includes: ○ **Build and maintain relationships between academic researchers and stakeholders**; the relationship may be built upon values important for all partnership members such as trust, respect, transparency, and credibility. ○ **Determine the level of stakeholder engagement** (e.g. inform, consult, involve, collaborate, empower) for each phase in the research process (planning phase, conducting phase, disseminating phase). ○ **Contextualization**: **Select and/or adapt principles and strategies relevant for your research partnership in your research area**; principles and strategies need to align with the desirable level of stakeholder engagement and need to align with the needs and preferences of all members of the partnership; principles and strategies may differ between different phases of the research process. ○ **Communicate, monitor, and report the principles, strategies, outcomes, and impacts of the research partnership**; this information will provide the opportunities to individually learn from as well as from others successes and challenges related to collaborative research activities, and may contribute to advancing the science of research partnerships.
Zych MM, Berta WB, Gagliardi AR. Conceptualising the initiation of researcher and research user partnerships: a meta-narrative review. (2020). Health Res Policy Syst. 18(1):24.	• A total of 7779 unique results were identified and 17 reviews published from 1998 to 2017 were eligible. All reviews identified a partnership initiation phase referred to as 'early' or 'developmental', or more vaguely as 'fuzzy', across six traditions - integrated knowledge translation, action research, stakeholder engagement, knowledge transfer, team initiation, and shared mental models. The partnership initiation processes, enablers, barriers, and outcomes were common to multiple narratives and summarized in a Partnership Initiation Conceptual Framework. • The results of the review are similar to other studies of researcher and research user partnerships in several ways. The partnership initiation processes identified in other partnership studies were also identified in this review; they include setting priorities, establishing virtual and physical communication space, clarifying and establishing vision, goals, roles, mission and other project management documents that help to develop the purpose of the partnership, and identifying leaders and stakeholders. • Our review revealed limited use or generation of theory in most included reviews, and little empirical evidence testing the links between partnership initiation processes, enablers or barriers, and outcomes for the purpose of describing successful researcher and research user partnership initiation.
Esmail R, Hanson HM, Holroyd-Leduc J, et al. (2020). A scoping review of full-spectrum knowledge translation theories, models, and frameworks. Implement Sci. 15(1):11	• Application of knowledge translation (KT) theories, models, and frameworks (TMFs) is one method for successfully incorporating evidence into clinical care. This study sought to identify and describe available full-spectrum KT TMFs to subsequently guide users. • This scoping review provides a summary of the full-spectrum KT TMFs that could be used as a foundation for clinicians, researchers, and policy makers, undertaking KT projects within the health care context. The application of an existing KT TMF is recommended for all applied KT projects and interventions.
Jakobsen MW, Eklund Karlsson L, Skovgaard T, Aro AR. (2019). Organisational factors that facilitate research use in public health policy-making: a scoping review. *Health Res Policy Syst*. 17(1):90.	• Five main categories of organizational factors that advance research use in policy organizations – 1) individual factors, 2) the management of research integration, 3) organizational systems and infrastructures of research use, 4) institutional structures and rules for policy-making, and 5) organizational characteristics – were derived as well as 18 subcategories and a total of 64 specific factors, where 27 factors were well supported by research. • The review findings confirm the importance of an intra-organizational perspective when exploring research use, showing that many organizational factors are critical facilitators of research use but also that many factors and mechanisms are understudied. The synthesis shows a lack of studies on politicians and the need for more theoretically founded research. • The authors conclude that, despite increased efforts to update the existing evidential and theoretical basis of research use, frameworks that combine different approaches and theories to help us grasp the complex organizational mechanisms that facilitate research use in policy settings are still needed.

Lawrence LM, Bishop A, Curran J. (2019). Integrated Knowledge Translation with Public Health Policy Makers: A Scoping Review. Healthc Policy. 14(3):55-77.	• Evidence to support best practices for integrated knowledge translation is lacking, particularly in a public health context and with non-clinical decision-makers. • The authors suggested that knowledge user involvement was beneficial to the quality and potential impact of research activities, although corroborating evaluation data were unavailable. Broad research-knowledge user partnerships spanning multiple projects, as well as flexible involvement of knowledge users, enhanced engagement and supported the integrated knowledge translation process. • Engaging knowledge users in research process: Authors' descriptions of knowledge user involvement across all aspects of the integrated knowledge translation research were often unclear, making it difficult to discern the level of engagement. Based on unequivocal descriptions of involvement, knowledge users helped to: 1) develop research questions; 2) inform methods; 3) collect and analyze data; 4) interpret results and craft the overall message; and 5) share findings and move research into practice. • In addition to meetings with knowledge users (e.g., face-to-face, teleconference, project launch), engagement activities included exchange forums or think tanks, as well as using existing planning events to work with knowledge users. Other integrative knowledge translation activities included workshops, online communities and using knowledge brokers. Surveys were used to elicit specific information from knowledge users, while consultation and small work groups and individual interviews were used to support larger knowledge user engagement efforts. More general methods of knowledge user contribution included executive or advisory committees, site-specific or local advisory groups and networking events. • Strategies for sharing information, plans, and research proposals with knowledge users included regular updates or reports/newsletters, distributing summaries or briefs, media press releases, conferences, presentations, website content and teleconference updates. • The challenges of working with knowledge users reported by a minority of authors fell into three broad categories: logistics and coordination (e.g., resource use, time, information sharing), negotiating tensions and building shared understanding (e.g., aligning research and policy considerations), and external constraints (e.g., changes in personnel and political priorities). • It remains unclear what political decision makers contribute to public health integrated knowledge translation research relative to other types of knowledge users, and how this particular relationship can be better supported. The findings also indicate that “overview” programs of research typically appear to have more dedicated resources for supporting integrated knowledge translation development and are thus more successful at building meaningful relationships with knowledge users.
Tate K, Hewko S, McLane P, Baxter P, Perry K, Armijo-Olivo S, Estabrooks C, Gordon D, Cummings G. (2018). Learning to lead: a review and synthesis of literature examining health care managers' use of knowledge. J Health Serv Res Policy. 24(1):57-70.	• The purpose of this review was to evaluate the effectiveness of interventions to enhance health care managers (HCMs) use of research evidence in practice. • Interventions to enhance research use by HCMs included: informal and formal training, computer-based application, executive-level knowledge translation activities, and residency programs. Studies did not report efficacy of interventions or impacts of increasing managers' use of research on staff or patient outcomes. Meta-synthesis yielded four contextual factors influencing the perceived effectiveness of interventions to enhance research use by HCMs: organizational culture, competing priorities, time as a resource, and capacity building. Included studies differed in how they defined research and demonstrated varying understandings of research among HCMs, limiting the generalizability of work in this field. • HCMs are increasingly called upon to make evidence-based decisions in practice, but the small number of studies and diverse strategies employed hinder our ability to identify any intervention to increase use of evidence as superior. Future studies in this area should clearly articulate the definition of research evidence they base their decisions on.
Mallidou AA, Atherton P, Chan L, Frisch N, Glegg S, Scarrow G. (2018). Core knowledge translation competencies: a scoping review. BMC Health Serv Res. 18(1):502.	• From both the academic and grey literature, the study categorized 19 knowledge translation core competencies into knowledge (e.g., understanding the context), skills (e.g., knowledge brokering), or attitudes (e.g., valuing research). • The literature presents personal characteristics or personality traits that cannot be listed as competencies per se, but nonetheless have been identified in both the academic and grey literature as being useful for individuals taking on a knowledge translation role and may have

	considerable importance in addition to learned competencies. These personality traits include being pragmatic and flexible, positive, persuasive, entrepreneurial, proactive, enthusiastic; comfortable working in a dynamic environment, credible, open-minded, autonomous, independent, self-sufficient and self-motivated, creative, and committed to principles of equity, inclusivity, respect and cultural competence. • Drawn primarily from the grey literature, the study identified only a few interventions and strategies (e.g., hands-on training), and suggestions for interventions to improve and expand knowledge translation competencies, the majority of which refer to educational sessions and strategies, as well as to leadership and communication strategies, or funding a knowledge translation champion one day per week.
Marquez C, Johnson AM, Jassemi S, Park J, Moore JE, Blaine C, Bourdon G, Chignell M, Ellen ME, Fortin J, Graham ID, Hayes A, Hamid J, Hemmelgarn B, Hillmer M, Holmes B, Holroyd-Leduc J, Hubert L, Hutton B, Kastner M, Lavis JN, Michell K, Moher D, Ouimet M, Perrier L, Proctor A, Noseworthy T, Schuckel V, Stayberg S, Tonelli M, Tricco AC, Straus SE. (2018). Enhancing the uptake of systematic reviews of effects: what is the best format for health care managers and policy-makers? A mixed-methods study. Implement Sci. 13(1):84.	• Systematic reviews are infrequently used by health care managers (HCMs) and policy-makers (PMs) in decision-making. HCMs and PMs co-developed and tested novel systematic review of effects formats to increase their use. • Respondents reported that inadequate format and content influenced their use of systematic reviews. Most respondents reported they would be more likely to use systematic reviews if the format was modified. Findings from 11 interviews (five HCMs, six PMs) revealed that participants preferred systematic reviews of effects that were easy to access and read and provided more information on intervention effectiveness and less information on review methodology. • Fourteen HCMs and 20 PMs co-created prototypes, one for HCMs and one for PMs. HCMs preferred a traditional information order (i.e., methods, study flow diagram, forest plots) whereas PMs preferred an alternative order (i.e., background and key messages on one page; methods and limitations on another).
Li SA, Jeffs L, Barwick M, Stevens B. (2018). Organizational contextual features that influence the implementation of evidence-based practices across healthcare settings: a systematic integrative review. Syst Rev. 7(1):72.	• Six main organizational contextual features (organizational culture; leadership; networks and communication; resources; evaluation, monitoring and feedback; and champions) were most commonly reported to influence implementation outcomes in the selected studies across a wide range of health care settings. • Organizational contextual features did not influence implementation efforts independently from other features. Rather, features were interrelated and often influenced each other in complex, dynamic ways to effect change. • Organizational culture was most commonly reported to affect implementation. Leadership exerted influence on the five other features, indicating it may be a moderator or mediator that enhances or impedes the implementation of evidence-based practices. • Future research should focus on how organizational features interact to influence implementation effectiveness.
Bornstein S, Baker R, Navarro P, Mackey S, Speed D, Sullivan M. (2017). Putting research in place: an innovative approach to providing contextualized evidence synthesis for decision makers. Syst Rev. 2017;6(1):218.	• The Contextualized Health Research Synthesis Program (CHRSP), developed in 2007 by the Newfoundland and Labrador Centre for Applied Health Research, produces contextualized knowledge syntheses for health-system decision-makers. The program provides timely, relevant, and easy-to-understand scientific evidence; optimizes evidence uptake; and, most importantly, attunes research questions and evidence to the specific context in which knowledge users must apply the findings. CHRSP: ○ Involves intensive partnerships with senior health care decision-makers who propose priority research topics and participate on research teams; ○ Considers local context both in framing the research question and in reporting the findings; ○ Makes economical use of resources by utilizing a limited number of staff; ○ Uses a combination of external and local experts; and ○ Works quickly by synthesizing high-level systematic review evidence rather than primary studies.

	• CHRSP has published 25 syntheses on priority topics chosen by decision-makers in the provincial health care system to inform local policy and practice decisions, including:
	  ○ Clinical and cost-effectiveness: telehealth, rural renal dialysis, point-of-care testing;
	  ○ Community-based health services: helping seniors age in place, supporting seniors with dementia, residential treatment centers for at-risk youth;
	  ○ Health care organization/service delivery: reducing acute-care length of stay, promoting flu vaccination among health workers, safe patient handling, age-friendly acute care; and
	  ○ Health promotion: diabetes prevention, promoting healthy dietary habits.
	• CHRSP studies have directly informed a number of policy and practice directions, including the design of youth residential treatment centres, a provincial policy on single-use medical devices, and most recently, the opening of the province's first Acute Care for the Elderly hospital unit.

Gauvin FP, Waddell K, Lavis JN. (2017). Rapid synthesis: Fostering an organizational culture supportive of evidence-informed policies. Hamilton, Canada: McMaster Health Forum.	• Most of the retrieved literature focuses on identifying barriers and facilitators to foster a culture shift or to increase policymakers' use of research evidence, and there was a paucity of literature examining the effectiveness of interventions to foster an organizational culture supportive of evidence-informed policymaking.
	• The literature on fostering organizational culture change found:
	  ○ Relatively little evidence quantifying the extent to which decision-makers use evidence;
	  ○ A variety of factors influencing organizational culture change (e.g., types of change, degree of change, financial stability of the organization, strategy fit between the proposed change and the organization, public opinion, staff perceptions, and readiness for change of internal and external stakeholders); and
	  ○ Some interventions that appear promising to improve decision-makers' use of evidence (e.g., communication and access to evidence interventions when coupled with efforts to increase motivation; interventions that built skills when coupled with efforts to enhance motivation; light-touch interactions between researchers and decision-makers; bulletins used to summarize findings from systematic reviews when they present a clear message, propose achievable change, and where there is a growing evidence base that change is required).
	• The literature on sustaining cultural changes in health organizations found:
	  ○ Strategies that can be used to manage culture change include identifying existing commitments and connections, thinking about what needs to be changed, understanding management, practising and piloting the change, and capitalizing on existing momentum; and
	  ○ Six guiding principles to influence the sustainability of organizational culture change: align vision and action; make incremental change; foster distributed leadership; promote staff engagement; create collaborative interpersonal relationships; and continually assess and learn from cultural change.

Wickremasinghe D, Kuruvilla S, Mays N, Avan BI. (2016). Taking knowledge users' knowledge needs into account in health: an evidence synthesis framework. Health Policy Plan. 31(4):527-537.	• The authors developed an evidence synthesis framework classifying 10 distinct evidence synthesis outputs under four domains (key features, utility, technical characteristics, and resources) in relation to six primary groups of users, one of which are policy makers.
	• The authors propose a process for matching users' knowledge needs with an appropriate evidence synthesis output, using four essential characteristics to consider when planning an output:
	  ○ **Rigour** relates to the systematic and transparent application and recording of the method used.
	  ○ **Relevance** refers to planning the scope of the evidence synthesis to fit the knowledge requirements of potential users, ensuring timely production and identifying the primary audience – why the research topic is important to them and what the context is.
	  ○ **Readability** includes using plain, non-technical language, clarity of thought, and a brief summary or visual display of the conclusions reached.

	○ **Resources** available for production (including time, funding and personnel). This helps determine a feasible and relevant scope for the synthesis output within the time available. • Rapid reviews are useful for policy makers because they provide a rapid overview of key issues and publications for a specific, immediate purpose (e.g., workshop input, speech, timely policy decisions, initial scoping). They are useful to help identify key issues and/or questions for more in-depth reviews.
Andermann A, Pang T, Newton JN, Davis A, Panisset U. (2016). Evidence for Health II: Overcoming barriers to using evidence in policy and practice. Health Res Policy Syst.14:17.	• It is not enough to simply produce evidence, nor even to synthesize and package evidence into a more user-friendly format. New evidence needs to be critically appraised and considered in light of the larger body of existing scientific literature, both local and international. Particularly at the policy level, political savvy is also needed to ensure that vested interests do not undermine decisions that can impact the health of individuals and populations. • Many different models are being developed to increase the uptake and use of evidence in practice. These often involve some form of evidence summaries or decision-support tools. For instance: ○ The EVIPNet Portal includes a repertory of EVIPNet Policy Briefs which synthesise the research evidence and offer evidence-informed and contextualised policy options in a user-friendly format to support well-informed policy decisions. ○ Public Health England's *Longer Lives*/*Healthier Lives* website is another example that provides statistical data tools that allow people to see how their local area compares to the rest of the country in terms of specific health indicators and provides a route to existing evidence summaries produced by the UK's National Institute for Health and Clinical Excellence. • Indeed, such policy briefs, which are free from technical jargon and highlight key messages in a brief executive summary, dramatically increase the likelihood that policymakers will read, consider, and apply the evidence where appropriate. The EVIPNet partners with multiple organizations to produce these policy-relevant evidence syntheses, including the Alliance for Health Policy and Systems Research, the Health Evidence Network, and Supporting Policy relevant Reviews and Trials. Similarly, the Cochrane Collaboration produces Cochrane Summaries' to make their systematic reviews more readily accessible to a wider audience of knowledge users.
Tricco AC, Cardoso R, Thomas SM, et al. (2016). Barriers and facilitators to uptake of systematic reviews by policy makers and health care managers: a scoping review. Implement Sci. 11:4.	• A scoping review was conducted on the barriers and facilitators to use of systematic reviews by health care managers and policy makers, including consideration of format and content, to develop recommendations for systematic review authors and to inform research efforts to develop and test formats for systematic reviews that may optimize their uptake. • Facilitators to use of systematic reviews include: ○ **Attitudes**: The usefulness of systematic reviews, belief in their relevance, and their applicability to policy facilitated their use. ○ **Knowledge**: Familiarity or awareness of systematic reviews were potential facilitators of their use. ○ **Skills**: Skills in seeking, appraising, and interpreting systematic reviews facilitated their use. For example, training in basic searching skills was identified as a facilitator. ○ **Behaviour**: Extrinsic factors that were perceived to facilitate use included creating collaborations between policy makers and researchers whereby researchers could provide systematic reviews of relevance to policy makers in a timely fashion and facilitate their interpretation. • Format features to facilitate use of systematic reviews include: ○ A one-page summary of the review including clear "take home" messages written in plain language, the publication date of the review, and sponsoring logos. ○ The summary should include sections on relevance, impact, and applicability for decision-makers. ○ The report for the full review should use a liberal amount of white space with bullet points (avoiding dense text) and simple tables (less than one page in length), and consider tailored versions with targeted key messages for relevant audiences. ○ Frame the title of the systematic review as a question. • Content features to facilitate use of systematic reviews:

	○ Frame the evidence in terms of policy application, including implications of implementation and potential outcomes. ○ The details in the methods section should be minimized to focus on the critical elements and that the bulk of the report should focus on the results and interpretation. ○ Ways to make study quality of included studies easy for users to interpret, such as providing a graphical summary, were suggested. ○ Consistent approaches be used to report effect sizes of interventions throughout the review report.
Gagliardi AR, Berta W, Kothari A, Boyko J, Urquhart R. (2016). Integrated knowledge translation (IKT) in health care: a scoping review. Implement Sci. 2016;11:38.	• Enablers of integrated knowledge translation approaches include: capacity/infrastructure, clear expectations/responsibilities, high-level recognition/commitment, IKT specific strategic plan, leadership, training/mentoring, champions/facilitators, performance incentives, forums for interaction, pre-existing relationships, data to inform activities, dedicated funding, formalized branding, phased approach, establishing partnerships early in the research process, researches are embedded in the decision-maker settings, partners are open to collaboration, shared governance, and periodic external review. • Integrated knowledge translation approaches include: evidence briefs, web portal, consultation, deliberative dialogue, priority-setting, training sessions, applying for funding, joint research, committees/working groups, and meetings (conferences, presentations, workshops).
Haby MM, Chapman E, Clark R, Barreto J, Reveiz L, Lavis JN. (2016). What are the best methodologies for rapid reviews of the research evidence for evidence-informed decision making in health policy and practice: a rapid review. Health Res Policy Syst. 14(1):83.	• There is no evidence available to suggest that rapid reviews should not be done or that they are misleading in any way. • Five systematic reviews and one randomized controlled trial (RCT) that investigated methodologies for rapid reviews met the inclusion criteria. None of the systematic reviews were of sufficient quality to allow firm conclusions to be made. Thus, the findings need to be treated with caution. There is no agreed definition of rapid reviews in the literature and no agreed methodology for conducting rapid reviews. While a wide range of 'shortcuts' are used to make rapid reviews faster than a full systematic review, the included studies found little empirical evidence of their impact on the conclusions of either rapid or systematic reviews. There is some evidence from the included RCT (that had a low risk of bias) that rapid reviews may improve clarity and accessibility of research evidence for decision-makers. • Users of rapid reviews should request an AMSTAR rating and a clear indication of the shortcuts taken to make the review process faster. • Producers of rapid reviews should give greater consideration to the 'write-up' or presentation of their reviews to make their review methods more transparent and to enable a fair quality assessment. This could be facilitated by including the appropriate elements in templates and/or guidelines. If a shorter report is required, the necessary detail could be placed in appendices. • When deciding what methods and/or process to use for their rapid reviews, producers of rapid reviews should give priority to shortcuts that are unlikely to impact on the quality or risk of bias of the review. Examples include limiting the scope of the review, limiting data extraction to key characteristics and results, and restricting the study types included in the review. When planning the rapid review, the review producer should explain to the user the implications of any shortcuts taken to make the review faster, if any. • Producers of rapid reviews should consider maintaining a larger highly skilled and experienced staff, who can be mobilized quickly, and understands the type of products that might meet the needs of the decision-maker. Consideration should also be given to making the process more efficient. These measures can aid timelines without compromising quality.
Bornbaum CC, Kornas K, Peirson L, Rosella LC. (2015). Exploring the function and effectiveness of knowledge brokers as facilitators of knowledge translation in health-related settings: a systematic review and thematic analysis. Implement Sci.10:162.	• Knowledge brokers work collaboratively with key stakeholders to facilitate the transfer and exchange of information in a given context. They represent the human component of knowledge translation strategies as they work to facilitate interaction; develop mutual understanding of stakeholders' goals and contexts; identify emerging areas of concern warranting attention; expedite the identification, evaluation, and translation of evidence into practice and/or policy; and facilitate the management of relevant knowledge. While they have operated in the private sector for years, their adoption by the health sector has been rather limited until recently. • As knowledge managers, linkage agents, and capacity builders, knowledge brokers performed many and varied tasks to transfer and exchange information across health-related stakeholders, settings, and sectors. Ten main activities included: identify, engage, and connect stakeholders; facilitate collaboration; identify and obtain relevant information; facilitate development of analytic and interpretative skills, create tailored knowledge products (e.g., resource binders, policy briefs, logic models, journal article summaries, presentations, websites)

	and translating relevant findings to the local context; project coordination; support communication and information sharing; network development, maintenance, and facilitation, facilitate and evaluate change; and support sustainability. • How effectively they fulfilled their role in facilitating knowledge translation processes is unclear; further rigorous research is required to answer this question and discern the potential impact of knowledge brokers on education, practice, and policy.

Table 3: Publicly Available Knowledge Translation Resources from Canadian Health Organizations for Presenting Health/Epidemiological Data to Health Sector Leaders and Decision-Makers

Organization	Purpose	Key Best Practices
Canadian Agency for Drugs and Technologies in Health (CADTH)	• CADTH's *Guidelines for the Economic Evaluation of Health Technologies: Canada (4th Edition; 2017)* provide best practices for those undertaking economic evaluations of health care technologies in Canada in order to produce credible standardized economic information that is relevant and useful for decision-makers in Canada's publicly funded health care system.[79]	**Communication Method** • Economic evaluation reports. **Content** • Reports should generally include: preface, executive summary, abbreviations, glossary, objectives, background, review of economic evidence, methods, results, discussion, conclusions, references, and appendices.[80] **Format** • Wherever possible, researchers should use plain language, and define jargon or technical terms that may be unfamiliar to the reader or user. • An executive summary should be included at the beginning of the evaluation and written in a manner that is easily understood by a reader without a technical background. • The reporting of the economic evaluation should be clear, detailed, well structured, and easy to follow, and the analysis and results should be presented in a transparent manner. • Researchers should provide enough information to enable the reader or user (e.g., decision-maker) to critically assess the evaluation, including how each element of the economic evaluation, as outlined in the Guidelines, has been handled. • To facilitate understanding, researchers are encouraged to present the results of the analysis in graphical (or visual) and tabular forms. All tables and graphics should be appropriately discussed and not used to replace a written description or interpretation of the results. • To enhance clarity and facilitate the comparison of economic evaluations, researchers can use the structured reporting format in Appendix 1.[81]

Canadian Institutes of Health Research (CIHR)	• Best Brains Exchanges (BBEs) are one-day, by invitation only meetings that bring senior policy makers together with researchers and implementation experts to discuss a high priority, health-related topic of shared interest.
	• The objectives of the BBE Program are to:
	  ○ Provide senior policy makers with high-quality, timely, and accessible research evidence and advice from leading researchers and implementation experts;
	  ○ Engage policy makers and researchers in an open dialogue around the applicability of the evidence to the current policy context; and
		Communication Method
		• One-day, by invitation-only meetings with presentations and discussion periods.[83]
		Content
		• Canadian policy makers at the Provincial/Territorial or Federal levels are invited to submit health-related topics for a BBE session at any point in the year. Successful applicants will work with CIHR to plan and host the sessions.[84]
		• BBEs are planned based on the identified needs and timelines of Canada's policy maker partners. CIHR curates a panel of experts to participate, as appropriate, based on best fit with the topic of the session.[85]
		Format
		• The first half of the BBE typically includes short, high-level presentations by the researchers, followed by question and answer periods. The remainder of the session is dedicated to facilitated discussions. The focus is on informal dialogue and contextualization of the evidence to the policy context.

	○ Foster the development of relationships between policy makers, researchers and implementation experts.[82]	• A BBE can accommodate approximately 40 people, including speakers, facilitator(s), participants, the organizing team and observers. A networking reception is held the evening prior to the BBE to provide an opportunity for participants to meet informally and set the stage for open and direct dialogue the following day.[86]
	• Knowledge User Engagement: A knowledge user is defined as an individual who is likely to be able to use research results to make informed decisions about health policies, programs and/or practices. A knowledge user's level of engagement in the research process may vary in intensity and complexity depending on the nature of the research and on his/her information needs. A knowledge user can be, but is not limited to, a practitioner, a policy maker, an educator, a decision-maker, a health care administrator, a community leader or an individual in a health charity, patient group, private sector organization or media outlet.[87]	**Communication Method** • CIHR has two broad approaches to knowledge translation: ○ Integrated Knowledge Translation: Potential knowledge users are engaged throughout the research process. This approach should produce research findings that are more likely to be directly relevant to and used by knowledge users. ○ End-of-Grant Knowledge Translation: The researcher develops and implements a plan for making potential knowledge-user audiences aware of the knowledge that is gained during a project. This approach can involve more intensive dissemination activities that tailor the message and medium to a specific audience and, even further along the spectrum, can involve moving research into practice.[88] **Content** • Type of projects varies according to knowledge user, but examples include: research questions, new treatment or adaptive strategies, baseline data, evaluations, new outpatient health programs, treatment guidelines, and policy interventions.[89] **Format** • Practical tips for facilitating effective Integrated Knowledge Translation processes include: ○ Hire members of the integrated knowledge users' community (even professional community of practice) to work as coordinators of the project or research assistants in data collection and analysis. ○ Make use of e-mail to circulate, on a regular basis, news about the project and solicit integrated knowledge user participation on any special issues that may arise (e.g., low recruitment rates). ○ Encourage face-to-face contact by 'piggy-backing' on other events that may bring partners together (e.g., conferences, clinical team meetings). ○ Cycle the location of meetings between research settings (e.g., university, hospital) and integrated knowledge user settings (e.g., community centres, group practices, local health agencies). ○ Rotate meeting chairs on a regular basis, so that everyone feels included in the running of the project.[90]
Canadian Public Health Association (CPHA)	• The Policy Development Process is used for creating policies to advocate for public health issues using the best available evidence.[91]	**Communication Method** • Endorsements via letters of support or press releases, position statements, and policies that imply a commitment to action and resources.[92] **Content** • CPHA advocates for the improvement of personal and community health. Issues are often broad and varied, and are not associated with any single discipline.[93]

		Format • No information identified.
College of Family Physicians of Canada (CFPC)	• CFPC actively promotes family medicine and primary care to elected officials and decision-makers. • The CFPC's Health Policy and Government Relations Department monitors federal and provincial politics, policies, and legislation that affect primary care and family medicine. The CFPC collaborates with other medical and health care organizations to influence policy outcomes, specifically supporting CFPC Chapters in provincial matters.[94]	**Communication Method** • Senior leaders from the CFPC meet regularly with Members of Parliament and members of the public service. • Letters to political parties and members of the public service.[95] • Policy papers, position statements, reports, guides, advisories, and family practice resources. • Formal endorsements of documents from external organizations, when appropriate.[96] **Content** • Health care, family medicine, and primary care issues and policies.[97] **Format** • No information identified.

Health Canada	• Health Canada's Knowledge Translation Planner provides a practical and evidence-informed approach to disseminating and implementing knowledge with the aim of improving Canada's health care system and the health of Canadians.[98]	**Communication Method**
		• No information identified.
		Content
		• Health information.
		Format
		• The Knowledge Translation Planner's framework for knowledge dissemination and implementation is:
		  ○ Identify need. Identify, review, and select knowledge.
		  ○ Adapt knowledge to local context
		  ○ Identify barriers and facilitators to knowledge use. Select appropriate knowledge translation strategies.
		  ○ Tailor and implement knowledge translation strategies
		  ○ Monitor knowledge use.
		  ○ Evaluate outcomes.
		  ○ Sustain knowledge use.[99]

International Development Research Centre Global Health Policy	• A Knowledge Translation Toolkit was developed for researchers in health systems and policy research, seeking to strengthen their capacity on the individual and the organizational level, from particular research projects to larger issues of organizational development.[100]	**Communication Method** • Policy briefs.[101] **Content** • Health policy and systems issues.[102] **Format** • Components include: title, executive summary (overview of the problem, its relevance, the reasons why action is necessary, and specific recommendations), statement of the problem, background and/or context to the problem and its importance, pre-existing policies, policy options, critique of policy options, policy recommendation, and sources consulted or recommended. • Keep the audience in mind while writing: use a professional as opposed to an academic tone. • Ground the argument in strong and reliable evidence.

		• Limit the focus to a particular problem or issue. • Be succinct and to the point, using short sentences and paragraphs. • Use language that is simple and provide enough information to allow the reader to follow the argument effortlessly; • Make it accessible by subdividing the text to guide the reader through it. • Make it interesting and attractive through the use of colours, images, quotes, photographs, boxes, and more. • Make sure that recommendations are practical and feasible. • Avoid jargon or acronyms. • Provide an overview of any and all cost implications for implementing a preferred option. • Consider the supporting documents behind a policy brief (e.g., one-pager of take-home messages, a three-paged executive summary, and a 25-paged scientific paper, with each tailored for specific audiences).[103]
Public Health Ontario	• Public Health Ontario links public health practitioners, frontline health workers, and researchers to the best scientific intelligence and knowledge from around the world. They provide expert scientific and technical support to government, local public health units, and health care providers relating to the following: ○ Communicable and infectious diseases ○ Infection prevention and control ○ Environmental and occupational health ○ Emergency preparedness ○ Health promotion, chronic disease and injury prevention ○ Public health laboratory services.[104]	**Communication Method** • Variety of methods (e.g., written products, videos, stakeholder engagement).[105] **Content** • Policies to improve health.[106] **Format** • Engaging decision-makers in policy uptake involves sharing information gathered, helping to create the products produced during the policy-making process, and being a resource and sounding board. This involves: 1) understanding the specific steps in the adoption process for policy implementation in the targeted organizations; 2) writing the policy; and 3) communicating the policy by emphasizing relationship building with key stakeholders and decision-makers. • Policy adoption needs to happen before moving to policy implementation. If decision-makers resist policy adoption, consider using advocacy strategies (e.g., sharing evidence-based recommendations, raising awareness about the problem and how the policy is a solution, strengthening partnerships and social mobilization). The intent is to help decision-makers see the need for change. • Work with decision-makers to help them develop a plan to promote, disseminate, implement, enforce, monitor, and evaluate the policy. This involves encouraging them to identify the human and financial resources needed for implementation and development of a realistic and logically sequenced timeline. • Share relevant information and results from a communication plan. For example, develop an awareness campaign plan, post the plan online, and provide updates on its implementation, or develop written and video media releases to post/broadcast on traditional news networks (e.g., television, newspapers) and social media outlets. Stakeholders could also promote the message. • Encourage decision-makers to prepare for organizations and/or people who are not supportive. Consider working with them to brainstorm who may oppose the policy.

		• Determine if you need to shift from a facilitative/supportive role to advocacy if decision-makers resist or defer policy adoption.[107] • Decide which decision-makers will be the focus of support-building efforts. Choosing the wrong people can waste resources and may even jeopardize future strategies if one approaches people at the wrong level or wrong time. Find out about how these individuals make decisions. For example, consider whether they are most driven by: media coverage; their own beliefs and values; the needs of their clients or constituency; and other influential people or groups.[108]

Registered Nurses Association of Ontario	• RNAO developed a toolkit to support effective political action by providing practical instruction, examples, and templates to guide advocacy efforts.[109]	**Communication Method**
		• Range of advocacy approaches (e.g., letters to political members, in-person discussions, protests, marches, join committees or coalitions, submissions or briefs).
		• Start with low-profile strategies first, then gradually increase the profile if necessary.[110]
		Content
		• Health care and nursing issues.[111]
		Format
		• Low Profile Strategy: Letter writing campaign to elected representative.
		  ○ Remember to: state the problem, explain the impact of the problem, include a personal story if possible, provide recommended option as the solution, and state the date/time for expected responses.
		• Medium Profile Strategy:
		  ○ Meet with relevant MPPs, MPs, and/or government officials.
		  ○ Arrange public meetings in the politician's riding.
		  ○ Release briefs to the other political parties and/or Cabinet Ministers.
		  ▪ Identify the benefits of/need for the policy change.
		  ▪ Substantiate arguments with local data, evidence, personal experiences, or those of other jurisdictions.
		  ▪ Link to strategic direction or current government priorities.
		  ▪ Respond to concerns raised by acknowledging them and providing supporting evidence.
		• High Profile Strategy:
		• Follow up with written responses.
		• Picketing or leafleting the politician's riding.
		• Put up posters in the politician's riding.
		• Release briefs to the news media.
		• Have a news conference/news release.
		• Demonstrations/picketing at the Legislative Assembly, politician's riding office, or outside relevant hospitals/health care settings.
		• Build alliances.
		• Approaching decision-makers:

		○ Frame the issue for the meeting. Creating a frame helps decision-makers prioritize their attention and resources. ○ Express information clearly and succinctly. ○ Suggest solutions. ○ Assess and re-evaluate the outcomes.[112]

Table 4: Publicly Available Knowledge Translation Resources from International Health Organizations for Presenting Health/Epidemiological Data to Health Sector Leaders and Decision-Makers

Organization	Purpose	Key Best Practices

World Health Organization (WHO)	• The WHO Strategic Communications Framework describes a strategic approach for effectively communicating WHO information, advice, and guidance across a broad range of health issues.[113]	**Communication Method**
		• Messages, products, and engagements.[114]
		Content
		• Broad range of health issues.[115]
		Format
		• The Framework's six principles for effective communications are:
		  ○ Actionable: Helping communicators develop messages and campaigns focused on behaviour change by understanding the audiences. Tactics include: move audiences to action, behaviour change campaigns, and communicate in emergencies.
		  ○ Accessible: Effective mapping of communications channels will ensure WHO's messages are disseminated through multiple channels so that audiences receive WHO information, advice, and guidance several times from a range of sources (e.g., mass media, organization and community, and interpersonal). Tactics include: identify effective channels, make information available online, and ensure accessibility.
		  ○ Relevant: For policy-makers, health issues are perceived as relevant if they are represented as a high priority for constituents, or are linked to other national and community values, such as security and economic prosperity. Tactics to make communications relevant: know, listen to, and motivate the audience, and tailor the message.
		  ○ Timely: Communicating in a timely way means engaging the audiences at the time when the health guidance is needed, and when they are receptive to hear and act on it. During health emergencies, for example, this means communicating rapidly what is known and unknown, and providing frequent and reliable updates. Tactics include: communicate early and at the right time, and build the conversation.
		  ○ Understandable: To influence decisions to improve health, communications products must be clear and actionable for a wide range of people in diverse circumstances. Tactics include: use plain language, tell real stories, make it visual, and use familiar language.
		  ○ Credible: Reinforce public trust in WHO by demonstrating competence, openness and honesty, dependability, commitment, and caring. Tactics to make communications credible is to be transparent, have technical accuracy, coordinate with partners, speak as one WHO, and WHO branding.
		• Communicate evaluation of messages, products, and engagements based on their effectiveness at reaching specified goals and principles.[116]

	• Health impact assessment (HIA) is a valuable tool for helping to develop policy and assist decision-makers by drawing on the needs and	**Communication Method** • Proposal for project, policy, or program.[119]

	opinions of all stakeholders connected to a project, policy, or program. Decision-makers can use the HIA to help decide between multiple policy options that are put forward to them, or to assist in deciding on policy changes based on the HIA recommendations.[117]
	• HIA is based on four values that link the HIA to the policy environment in which it is being undertaken: democracy, equity, sustainable development, and ethical use of evidence.[118]
		Content
		• Health impacts.[120]
		Format
		• During the scoping stage of HIA, explore the policy's context by answering the questions:
		  ○ What is at stake (proposals, potential health impacts, other interests).
		  ○ How does the policy come about (is there a consultation of stakeholders and citizens or is decision-making undertaken by one central actor) and how can HIA connect with this process.
		  ○ Who are involved in the policy making process (decision-maker(s), stakeholders, researchers and other experts, and citizens).
		  ○ What does the institutional context look like (formal decision-making procedures, communication rules, and informal relations between the several actors involved).
		• Produce an HIA that has a plan for active dissemination of HIA messages at key stages. Announcing the HIA (when it begins, and at other key steps), disseminating preliminary findings, and using discussion groups will help to put health interests on the agenda of agencies.
		• HIA practitioners should try to establish long-term relationships with decision-makers. Gaining the commitment of the 'health authority/department' will help achieve this during intersectoral policy development.
		• Where appropriate, include a wide variety of stakeholders in the process, and draw on the best available qualitative and quantitative evidence. Policy makers appreciate these HIA values as they also underpin their own work. The inclusion of local communities provides policy makers with data and information that is typically hard to get, which is grounded in the realities of the local environment and is rich in experience.
		• Ensure that a longer-term follow-up of the HIA can be made to determine the actual impacts from the policy or project on the health awareness among others, on the health determinants and finally on health itself.[121]

	• Evidence Synthesis for Health Policy and Systems: A Methods Guide provides a rationale for synthesizing evidence from health policy and systems research to support health policy-making and health systems strengthening.[122]	**Communication Method**
		• Evidence syntheses.[123]
		Content
		• Health policy and systems research.[124]
		Format
		• Key approaches and related insights to enhancing the uptake of review findings in health policy-making and health systems strengthening:
		  ○ Engaging decision-makers during phases of evidence synthesis process (conception and design of research, search and data collection, data synthesis and interpretation, and knowledge dissemination and application) via advisors/members of expert panels or steering group.
		  ○ Enhancing the policy relevance of evidence syntheses (e.g., integration of qualitative and quantitative findings, contextualization).

		○ Improving the format of evidence syntheses (e.g., one-page summaries with key messages tailored to the relevant audience, information of harms/risks and costs, summary tables, plain language, videos). ○ Using frameworks to support the uptake of reviews. ○ Embedding syntheses in complex policy and systems (e.g., policy networks, collaborative structures, databases targeted to policymakers). • Four principles to share evidence syntheses: inclusive, rigorous, transparent, and accessible.[125]
United States (US)		
American Public Health Association (APHA)	• The policy statement development process is the mechanism by which the APHA leverages member expertise to draft evidence-based and/or evidence-informed statements addressing issues of concern and importance to the public health community. • The process is intended to develop policy statements on significant public health issues inclusive of action steps that should be taken by entities external to APHA. • These adopted policy statements help to inform APHA's position on legislative, regulatory, scientific and health policy and practice issues related to public health and can be used by members to support policy priorities and actions across a variety of areas.[126]	**Communication Method** • Policy statement.[127] **Content** • Each proposed policy statement should represent substantially new content with externally directed action steps, or a major modification (revision or extension) of an existing policy statement. If the new proposal updates or supersedes an existing APHA policy statement, the new proposal should explicitly call for the archiving of the older existing policy statement. • Policy statements should describe and endorse a defined course of action, ranging from legislation and regulations desired to needed new policies of non-governmental organizations and private enterprises. • Support for legislation or regulations should not include language with specific bill numbers, names, year or presidential administration so as not to date the policy statement.[128] **Format** • Proposed policy statements should identify a public health problem and present an objective summary of the problem. • Proposals should be concise, written in plain English, and accurately and effectively use references to justify the call for defined action by entities external to APHA. • The recommended format for proposed policy statements is relatively simple, and should facilitate clear and succinct expression. APHA uses a modern, international format. Supporting evidence is presented in paragraph form, with action steps listed in clause form. • Proposals cannot exceed 10 pages (1.5 line spacing) in narrative text length (from the start of Section VI. Problem Statement to the end of Section XII. Action Steps) and should include 50 or fewer unique references.[129,130]
Centers for Disease Control and Prevention (CDC), US Department of Health and Human Services	• CDC's Office of the Associate Director for Policy works to translate science into policy by developing policy tools and products.[131] • The CDC is committed to using plain language in information for the public since their information is relevant to many groups. • The Plain Writing Act of 2010 requires all federal agencies to write plainly when they communicate	**Communication Method** • Writing, presentations, public meetings, radio interviews, podcasts, and videos.[133] **Content** • All CDC published content.[134] **Format** • CDC uses the Clear Communication Index to assess and improve their public communication materials.[135] • CDC websites follow the best practices in web design and navigation.

	with the public, and CDC is taking many steps to use plain writing.[132]	• CDC trains staff in plain language.[136]
		• To help describe and disseminate the results of policy analyses with key stakeholder groups, including state, tribal, local, and territorial governments, other federal agencies, community-based organizations or groups, and decision-makers, the CDC's Policy Analytical Framework recommends:
		  ○ A background white paper that summarizes data related to health impact, feasibility, and budget and economic impact of prioritized policy;
		  ○ A bibliography and data compendium;
		  ○ A presentation of policy priorities or recommendations; and
		  ○ A policy brief or multiple policy briefs that summarize policy options or recommend actions.[137]

Australia		
Australian Healthcare and Hospitals Association	• Provides guidance for advocates for health care issues to help them communicate with elected officials and decision-makers.[138]	**Communication Method** • A face to face meeting is the best way to present views.[139] **Content** • Any type of health care issue.[140] **Format** • *Planned*: Prepare an agenda that includes specific concerns and what you want your elected official/decision-maker to do. Keep it to one page and use bullet points. • *Focused*: Prepare up to three key messages or actions. • *Relevant*: How does your issue relate to the elected official/decision-maker, their electorate, and their constituents? • *Purposeful*: Have a clear and concise call to action or purpose, understand local and national perspectives, and be prepared to answer questions.[141]

Joanna Briggs Institute (JBI)	• JBI is an international research organization that develops and delivers unique evidence-based information, software, education, and training designed to improve health care practice and health outcomes.[142]
	• Via the JBI Model of Evidence-based Healthcare, in order to provide those who work in and use health systems globally with world class information and resources, JBI globally disseminates information in appropriate, relevant formats to inform health systems, health professionals and consumers (i.e., evidence transfer).[143]
		Communication Method
		• Evidence synthesis products.[144]
		Content
		• Health care issues.[145]
		Format
		• Across all evidence transfer strategies the end user needs to be considered and preferably involved. When designing and implementing transfer strategies, there is a need to consider how much detail the end user prefers (which may differ across user groups), and how much knowledge can feasibly be comprehended from the evidence source.
		• Three key elements:
		  ○ Active dissemination: A communicative function aimed at spreading knowledge/evidence on a large scale within and across geographic locations, practice settings, and other networks of end users. Important features are they are more participatory, the importance of context is recognized, and successful dissemination requires interaction with the end user.
		  ○ Education: This might include education regarding the evidence related to a particular intervention or practice; it could involve continuing professional development or broader

		programs at award and non-award levels. Additionally, the more active learning involved in any educational program, or the more a participant plays a part in their own education, the more effective the education will be in achieving an impact. ○ Systems Integration: This includes mechanisms in place to ensure evidence is embedded and integrated within local systems. This is informed by knowledge management, which is often classified into organizational knowledge management (with a focus on organizational structures), ecological knowledge management (focusing on people relationships), and technocentric knowledge management (focusing on technology and the process of designing technology to enable and facilitate the flow of knowledge and the storage of information).[146]
United Kingdom		
Centre for Reviews and Dissemination (CRD)	• *Effectiveness Matters* is a summary of reliable research evidence about the effects of important interventions for practitioners and decision-makers in the National Health Service and public health. It is produced by the National Institute for Health Research Centre for Reviews and Dissemination at the University of York in collaboration with subject area experts.[147]	**Communication Method** • Four-page report.[148] **Content** • Summary of reliable research evidence about the effects of important interventions.[149] **Format** • Key findings summarized on first page. Sections include for example: background, issue, evidence on interventions, implications for practitioners and commissioners, and reference list. • *Effectiveness Matters* is extensively peer reviewed.[150]
Cochrane Collaboration	• Cochrane is for anyone interested in using high-quality information to make health decisions. Cochrane produces systematic reviews of primary research in human health care and policy. Each Cochrane Review addresses a clearly formulated question. • Cochrane's Plain Language Summaries (PLSs) help people to understand and interpret research findings and are included in all Cochrane Reviews. PLSs are created using standard content, structure, and language to ease understanding and translation.[151]	**Communication Method** • Reviews.[152] **Content** • Primary research in human health care and policy.[153] **Format** • Recommended length of a PLS is 400-700 words. Sections include: "What is the aim of this review?", "Key Messages", "What was studied in the review?", and "What are the main results of the review?". • The summary should include a reference to the quality or certainty of the evidence, and any important research gaps. It should not include recommendations. • Avoid jargon. • Use qualitative statements when reporting the effects of an intervention (i.e., an expression of the results in plain language, using similar words and expressions for similar levels of effect). • State when the review authors searched for the included studies (i.e., how up to date is the review). • PLS guidance available here.[154]
National Institute for Health and Care Excellence (NICE)	• NICE guidance provides recommendations across a defined area of care. NICE quality standards focus on a few key priorities within a defined area of care that are most likely to need	**Communication Method** • Guidance and quality standards.[157] **Content** • Variety of care areas.[158] **Format**

	improvement, along with providing information about how to measure progress.[155] • NICE's strategic objective is to both drive and enable the design and the effective delivery of services provided by the health and care system. Their knowledge of the evidence for good quality care and outcomes and their ability to convert it into guidance and other forms of information can be used to improve decisions.[156]	• Principles for putting evidence-based guidelines into practice: o Commitment to quality improvement among national organizations responsible for overseeing quality across public health and social care; o Effective leadership; o Right culture; and o Working together.[159] • Implementation strategy: o Produce guidance and standards that are fit for the audience needs. o Ensure relevant audiences know about the guidance recommendations (e.g., ongoing access to all NICE recommendations and standards through the website, digital sources, leaflets, journals). o Motivate and encourage improvement through tailored local engagement (e.g., educational training, financial rewards, regulation and inspection requirements, data collection and monitoring systems, patient and third-sector organizations). o Highlight practical support to improve local capability and opportunity (e.g., endorse third-party products, share local examples of successful initiatives). o Evaluate impact and uptake.[160]

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