Evidence Brief

Ensuring That the Health-related Decisions Affecting Canadian Military Personnel, Veterans, and Their Families are Informed by the Best Available Evidence

16 October 2022

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McMaster Health Forum

The McMaster Health Forum's goal is to generate action on the pressing health and social issues of our time. We do this based on the best-available research evidence, as well as experiences and insights from citizens, professionals, organizational leaders, and government policymakers. We undertake some of our work under the Forum banner, and other work in our role as secretariat for Rapid-Improvement Support and Exchange (RISE), COVID-19 Evidence Network to support Decision-making (COVID-END), and the Global Commission on Evidence to Address Societal Challenges (Evidence Commission).

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Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the evidence brief. The funders played no role in the identification, selection, assessment, synthesis, or presentation of the evidence profiled in the evidence brief.

Merit review

The evidence brief was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and system relevance.

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KEY MESSAGES

What's the problem? Many missed opportunities to ensure that health-related decisions affecting Canadian military personnel, Veterans, and their families are informed by the best available evidence

- There are many domains and types of decisions for which evidence is needed in DND and VAC (Table 1).
- Challenges on the evidence-demand side – as identified from work done across government, not specifically DND and VAC – include unevenly distributed capacity, an unevenly supportive culture, and insufficient enablers (Table 2). The unevenly distributed capacity is part of a more general 'hollowing out' of policy capacity in the public service, but also includes widespread lack of awareness of foundational concepts (and the related tendency to assert 'we do this already'). The unevenly supportive culture has two dimensions to it: 1) assumption that evidence support still cannot work with the same speed as policy processes; and 2) lack of commitment to transparency in the evidence provided as inputs to advisory and decision-making processes.
- Challenges at the interface between the evidence-demand and evidence-supply sides include a fragmented approach to requests and responses (Figure 1) and insufficient resources/staff, although there are assets that can be leveraged (and gaps that can be relatively easily filled) in the evidence-support functions available to or within DND and VAC (Table 3).
- Challenges on the evidence-supply side include a mix of (and sometimes no) standards for decision-relevant forms of evidence and for what is included in different types of responses, as well as inconsistent public sharing of responses, although again there are assets that can be leveraged (and gaps that can be relatively easily filled) among the evidence-support functions offered through DND's and VAC's three health-focused evidence partners, namely CIMVHR, Atlas and CPCoE (Table 4).

What do we know about three elements of a potentially comprehensive approach? (Tables 5-7)

- Element 1 – DND/VAC, alone and in collaboration with central agencies, to build capacity, address the culture, and leverage enablers for evidence use in government
  - Two strategic levers to address an unevenly supportive culture include: 1) engaging in a process to address the assumption that evidence support still cannot work with the same speed as policy processes and to raise awareness of foundational concepts related to evidence support; and 2) committing to transparency in the evidence provided as inputs to advisory and decision-making processes (but not the advice included in memorandums to cabinet or other privileged communications), recognizing that leadership for this likely needs to come from the Privy Council Office.
  - Building capacity for evidence support, as well as leveraging the enablers and filling the gaps in these enablers (and addressing the barriers) described in Table 2, are in many cases more within the sphere of influence of DND and VAC (compared to challenges like the lack of commitment to transparency)
- Element 2 – DND/VAC and CIMVHR/Atlas/CPCoE to formalize and strengthen the 'interface.' between the evidence-demand side and the evidence-supply side
  - Formalizing and strengthening the military/Veterans demand and supply interface could involve a transition from the current system depicted in Figure 1 to something like the potential future system depicted in Figure 2. The hallmarks of the future system could include: 1) better coordination among the requesters (i.e., those on the evidence-demand side), including horizon scanning and prioritization of questions, and a one-window request process; and 2) better coordination among those responding to requests (i.e., those on the evidence-supply side).
- Element 3 – CIMVHR/Atlas/CPCoE to develop and implement standards for key forms of evidence, key types of evidence products and processes, and their public sharing
  - A variety of standards are needed in the military/Veterans health evidence-support system (and exemplars exist for many of them that could be adapted), including: 1) standards for decision-relevant forms of evidence, especially for evidence syntheses and guidelines (or expert panels); 2) standards for what is included in different types of responses to requests from policymakers, on what timelines, and at what price points; and 3) agreement about what constitutes appropriate public sharing of responses, such as an anonymized list of requests among eligible requesters and of the evidence response without attribution to the original requester.

What implementation considerations need to be kept in mind? (Tables 8 and 9)

REPORT

CONTEXT

The Global Commission on Evidence to Address Societal Challenges identified four aspects of the current context that are salient for ensuring that health[1]-related decisions – in this case, those affecting Canadian military personnel, Veterans, and their families – are informed by the best available research evidence (which we shorten to 'best evidence' hereafter):

1) lessons learned from what did not go well in the COVID-19 evidence response
2) innovations that emerged as part of the COVID-19 evidence response
3) growing recognition of the need to formalize and strengthen evidence-support systems
4) emerging understanding about what an evidence-support system needs to be able to do.(1)

We address each of these aspects before turning to the specifics of supporting evidence-informed policymaking affecting Canadian military personnel, Veterans, and their families. (Details about the approach used to prepare this evidence brief are provided in Box 1.)

Lessons learned from what did not go well in the COVID-19 evidence response

The Evidence Commission report argues that we cannot continue to allow a low signal-to-noise ratio to be a hallmark of the evidence response to societal challenges like COVID-19. Related lessons learned have been considered by many to be the 'burning platform' for improving the use of evidence, both in routine times and in future global crises. The three dimensions of the low signal-to-noise ratio with COVID-19 evidence are:

1) **uneven coverage** of key priorities, with few evidence syntheses about economic and social responses to COVID-19, more about health-system arrangements to address COVID-19 surges and care backlogs, even more about public-health measures to prevent and manage COVID-19 at a population level, and a great many about the clinical management of COVID-19
2) **low quality** of most of the evidence products prepared for policymakers, with about one-in-four evidence syntheses being low quality and one-half being medium quality
3) **outdatedness** of these same evidence products, with most evidence syntheses rapidly outdated as the context and evidence base evolves.

Box 1: Approach to preparing the evidence brief

This evidence brief mobilizes both global and local research evidence about a problem, three elements of a potentially comprehensive approach to addressing the problem, and key implementation considerations. Whenever possible, the evidence brief summarizes research evidence drawn from a synthesis of the research literature and occasionally from single research studies. An evidence synthesis is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies and to synthesize data from the included studies. The evidence brief does not contain recommendations, which would have required the authors of the brief to make judgments based on their personal values and preferences, and which could pre-empt important deliberations about whose values and preferences matter in making such judgments.

The preparation of the evidence brief involved five steps:

1) convening a Steering Committee comprised of representatives from the Chronic Pain Centre for Excellence and the McMaster Health Forum;
2) developing and refining the terms of reference for an evidence brief, particularly the framing of the problem and three viable approach elements for addressing it, in consultation with the Steering Committee and a number of key informants, and with the aid of several conceptual frameworks that organize thinking about ways to approach the issue;
3) identifying, selecting, appraising and synthesizing relevant research evidence about the problem, approach elements and implementation considerations;
4) drafting the evidence brief in such a way as to present concisely and in accessible language the global and local research evidence; and
5) finalizing the evidence brief based on the input of several merit reviewers.

The three approach elements for addressing the problem were not designed to be mutually exclusive. They could be pursued simultaneously or in a sequenced way, and each approach element could be given greater or lesser attention relative to the others.

The evidence brief was prepared to inform a stakeholder dialogue (called a roundtable in this instance) at which research evidence is one of many considerations. Participants' views and experiences and the tacit knowledge they bring to the issues at hand are also important inputs to the dialogue. One goal of the stakeholder dialogue is to spark insights – insights that can only come about when all of those who will be involved in or affected by future decisions about the issue can work through it together. A second goal of the stakeholder dialogue is to generate action by those who participate in the dialogue and by those who review the dialogue summary.

[1] We use the term 'health' in the sense of health and well-being (as captured by the well-being domains listed in Table 1).

(For more details about these empirical findings, see section 4.6 in the Evidence Commission report.) A global investment in an evolving suite of high-quality living evidence syntheses about COVID-19 would have saved us from tremendous amounts of research waste globally, and would have allowed countries like Canada to focus on contextualizing this global evidence alongside national evidence in equity-sensitive ways. (For background on what we mean by an evidence synthesis, see Box 2.)

The report also argues that we can't continue to respond to policymakers' questions with preprints, squeaky-wheel experts and old-school expert panels, instead of the best available evidence. (For a visual representation of this and the next challenge, see section 4.8.) Preprints (and peer-reviewed papers) need to be independently appraised for quality, and interpreted based on their quality alongside all others addressing the same question (typically in the form of an evidence synthesis), so decision-makers understand what the best available research evidence does and does not tell us. Scientific experts need to speak in a way that makes it possible to judge their accuracy, which includes being explicit about how they identified, selected, assessed and synthesized the evidence on which they are basing their claims. Expert panels should: 1) convene people with the right mix of issue-specific knowledge, evidence-appraisal expertise, and lived experience; 2) follow rigorous processes to develop their recommendations; and 3) adjust their recommendations as the evidence and situation evolve.

The report argues that we also can't continue to respond to policymakers' questions with only select forms of evidence (such as data analytics, modeling and one-off evaluations), instead of the right mix of forms of evidence. We return to this point in the final sub-section of this context section of the evidence brief.

Innovations that emerged as part of the COVID-19 evidence response

Many of those involved in the COVID-19 evidence response indicated that they had participated in or witnessed more innovation in evidence support in the past 2.5 years than they had in the previous 25 years. Four innovations can now be considered part of the 'new normal' in responding to policymakers' questions.

A first such innovation is **ultra-rapid evidence syntheses**. Prior to COVID-19, the briefest response times were in the range of weeks to months. During the pandemic, networks like COVID-END were routinely responding in timelines of four hours to three business days with rapid-evidence profiles (e.g., on crisis management in long-term care homes, and on vaccine roll-out), and in timelines of five to 10 days for more fulsome rapid evidence syntheses.

Box 2: What is an evidence synthesis?

Policymakers seeking the best evidence to answer a question would ideally be provided with both national evidence (what has been learned in Canada) and global evidence (what has been learned from around the world, including how it varies by groups and contexts). An evidence synthesis can summarize:

1) both national evidence and global evidence in a timely, demand-driven, contextualized, equity-sensitive way (as will be discussed in more detail later in the evidence brief); and
2) global evidence, and such syntheses are sometimes called global public goods because they can be used by anyone around the world, including those preparing timely, demand-driven syntheses for a specific national context.

An evidence synthesis systematically and transparently identifies, selects, assesses and synthesizes all of the scientific reports addressing a specific question. It includes explicit quality assessments specific to the type of scientific report (e.g., for a randomized controlled trial or for a qualitative study) and does not accept a journal's peer review as synonymous with quality. An evidence synthesis can itself be assessed for quality (e.g., using the AMSTAR tool). Many 'one-stop shops,' which bring together all evidence syntheses in a given policy domain, include quality assessments so that a user can within minutes find the highest-quality evidence synthesis addressing their question. One such example is Health Systems Evidence, which includes all evidence syntheses addressing governance, financial and delivery arrangements in health systems and the implementation strategies that determine whether the right health programs, services and products get to those who need them. Some one-stop shops also provide additional details to help find the best evidence synthesis, such as the recency of search for research reports (as is done with the COVID-END inventory addressing all aspects of the COVID-19 response).

An evidence synthesis can address any question (including questions about stakeholders' views about and experiences with a problem) and synthesize any type of evidence (from conceptual papers to qualitative studies to randomized controlled trials). An evidence synthesis can also describe how much certainty can be placed on particular findings (e.g., using GRADE).

A second innovation is **'living' evidence syntheses**. Prior to COVID-19, a common standard for considering updates to evidence syntheses was four years (and the median actual time much longer, as reported in the Cochrane handbook). During the pandemic, networks like COVID-END, COVID-NMA and the Living Evidence Consortium, were updating living evidence syntheses as often as weekly (e.g., effectiveness of all COVID-19 drug treatments, and effectiveness of COVID-19 vaccines among adults and over time). With living evidence syntheses, new evidence is added as it is made available, based on its quality, so that we have a continually evolving picture of what the entire evidence base, not just the newest study, tells us. Machine learning has dramatically reduced the very labour-intensive identification and selection steps of living evidence syntheses. With living guidelines – a counterpart to living evidence syntheses – new evidence, new lived experience and new contexts are considered regularly, and recommendations adjusted accordingly.

A third innovation is **one-stop shops of evidence syntheses** that help to identify the 'best' evidence synthesis for a given decision. Prior to COVID-19, a quality rating and the year of publication were usually the only variables that could be used to identify the best synthesis on a given topic (e.g., in Health Systems Evidence and Social Systems Evidence). During the pandemic, COVID-END assigned a label of 'best' evidence synthesis for any given decision based on: 1) quality rating; 2) recency of search for eligible scientific reports; and 3) availability of a GRADE evidence profile. Two years into the pandemic, this had improved the signal-to-noise ratio from more than 13,000 evidence syntheses from high-yield sources (not counting the many thousands from low-yield sources) to just over 650 'best' evidence syntheses.

A fourth innovation is **evidence-supply coordination**. Prior to COVID-19, a policymaker seeking to commission an evidence synthesis would typically have to work within the constraints of a willing funding agency (e.g., no negotiation over scope and approach, no minimum standards, and no performance management) and have to wait months for a team to be chosen and then many months more for a response. During the pandemic, COVID-END acted as an evidence-supply coordinator and typically had a scoping call with the requester and interested team(s) within one business day, an approved team and scope notes within another day, and a high-quality response in whatever time frame was requested by the policymaker (typically one to 10 business days).

Box 3: Equity considerations

A problem may disproportionately affect some groups in society. The benefits, harms and costs of approach elements to address the problem may vary across groups. Implementation considerations may also vary across groups.

One way to identify groups warranting particular attention is to use PROGRESS-Plus, which is an acronym formed by the first letters of the following ways that can be used to describe groups:

- place of residence (e.g., rural and remote populations)
- race, ethnicity, culture and language (e.g., Indigenous peoples and minority ethnic, cultural and linguistic groups within a country)
- occupation or labour-market experiences more generally (e.g., those in precarious work arrangements)
- gender and sex
- religion
- educational level (e.g., health literacy)
- socio-economic status (e.g., economically disadvantaged populations)
- social capital/social exclusion.

Plus refers to:

+ personal characteristics associated with discrimination (e.g., age, disability)
+ features of relationships (e.g., parents who smoke, school expulsions)
+ time-dependent relationships (e.g., leaving the hospital, other instances where a person may be temporarily at a disadvantage).

Normally an evidence brief would strive to address everyone affected – in this case all military personnel, Veterans and family members – while also giving particular attention to one or two equity-deserving groups (e.g., military personnel, Veterans and family members): 1) with concurrent mental illness and/or addictions; and/or 2) living in rural/remote communities). Given the focus of this evidence brief, which involves calling for such an equity-driven approach to be embedded in the evidence-support system, a separate analysis was not conducted.

Source: Cochrane Methods – Equity. PROGRESS-Plus. London: Cochrane; 2021. https://methods.cochrane.org/equity/projects/evidence-equity/progress-plus (accessed 27 October 2021).

Growing recognition of the need to formalize and strengthen evidence-support systems

An evidence-support system is distinct from:
1) the research system, which is typically focused on advancing generalizable knowledge (or contributing to the flow of new scientific insights) and which typically measures contributions in relation to peer-reviewed grants and peer-reviewed publications
2) the innovation system, which is typically focused on creating new products and processes (or contributing to the flow of new innovations) and which typically measures contributions in relation to patents and licences and related revenue streams.

An evidence-support system is grounded in an understanding of a national context (including time constraints) and demand-driven, is typically focused on contextualizing the (existing stock of) evidence for a given decision in an equity-sensitive way, and typically measures contributions in relation to informing decisions by government policymakers, organizational leaders, professionals, and citizens. Examples of needed infrastructure include:
1) evidence-support units that can combine the power of national evidence and the power of global evidence
2) expert panels that include people with methods expertise and lived experience, pre-circulate evidence summaries, and clarify what evidence and experiences underpin the recommendations, as well as citizen- and stakeholder-engagement processes that provide ways in for evidence
3) government science advisors who speak in a way that makes it possible to judge their accuracy
4) processes to:
    a) elicit and prioritize evidence needs
    b) find and package evidence that meets these needs within set time constraints (and build additional evidence as part of ongoing evaluations and other types of research)
    c) strengthen capacity for evidence use (e.g., evidence-use workshops and handbook)
    d) incorporate evidence use into routine processes (e.g., memoranda to cabinet, budget proposals, spending plans).

Emerging understanding about what an evidence-support system needs to do

An evidence-support system needs to be able to:
1) match a policymaker's question to the right form of evidence (e.g., data analytics for understanding problems and for monitoring implementation; evaluations and modelling for selecting options; and qualitative insights for understanding how particular groups, such as racialized communities, view and experience problems and options for addressing them)
2) look in the right places for the right form of evidence (e.g., the right one-stop shop for the policy area)
3) combine different forms of evidence – including national evidence (in the form of data analytics, modeling, evaluations, behavioural/implementation research, and qualitative insights) and global evidence (evidence syntheses) – in responding comprehensively to these questions in ways that are timely, demand-driven and sensitive to the policy and political context.

An evidence-support system may also need to make or use recommendations – typically in the form of technology assessments and guidelines – that are grounded in best evidence and the lived experiences of those who will be affected by any future decisions.

The frequent use of data analytics, modeling and one-off evaluations to inform the COVID-19 response was of course better than nothing, but the response could have been even more robustly informed by using the right mix of forms of evidence for any given question. Similarly, the frequent convening of expert panels (at least 17 convened by the Canadian federal government alone, all but one of which appeared to follow what is called a GOBSATT – good old boys sitting around the table – approach) was also better than nothing, but the response could have been even more robustly informed by following the example of Australia's living COVID-19 guidelines that adhered to best practices. (For more detail about these topics, see Appendix A1.)

THE PROBLEM:

Many missed opportunities to ensure that health-related decisions affecting Canadian military personnel, Veterans, and their families are informed by the best available evidence

An understanding of the problem and its causes was developed using three approaches:

1) a 'rapid-jurisdictional assessment' of the **federal government**'s evidence-support system, which included central agencies bringing a whole-of-government perspective (Privy Council Office including the Impact and Innovation Unit, Department of Finance, and Treasury Board Secretariat as well as the Canada School of Public Service), the science and technology department (Innovation, Science and Economic Development Canada including related entities like Statistics Canada and the federal granting agencies), several key line departments (Global Affairs Canada, Economic and Social Development Canada, Health Canada, and Public Health Agency of Canada), and key parliamentary bodies (Office of the Auditor General, Office of the Parliamentary Budget Officer, and Library of Parliament)
2) a similar assessment of the **health-engaged elements of** the Department of National Defence (**DND**) and Veterans Affairs Canada (**VAC**) and three of their health-focused evidence partners, namely the Canadian Institute for Military and Veterans Health Research (hereafter CIMVHR), the Atlas Institute for Veterans and Families (hereafter Atlas), and the Chronic Pain Centre of Excellence for Canadian Veterans (hereafter CPCoE)
3) a similar assessment of the **pan-Canadian health** evidence-support system, which includes the health-engaged elements of the federal government and the seven 'pan-Canadian health organizations' (and this assessment will eventually include the health-engaged elements of all provincial and territorial governments).

Box 4: Mobilizing research evidence about the problem

The available research evidence about the problem was sought from a range of published and 'grey' research literature sources. Published literature that provided a comparative dimension to an understanding of the problem was sought using three health services research 'hedges' in MedLine, namely those for appropriateness, processes and outcomes of care (which increase the chances of us identifying administrative database studies and community surveys). Published literature that provided insights into alternative ways of framing the problem was sought using a fourth hedge in MedLine, namely the one for qualitative research. Grey literature was sought by reviewing the websites of a number of domestic and international organizations, such as the Government of Canada and its many departments and agencies, the Canadian Institute for Military and Veterans Health Research, the Atlas Institute for Veterans and Families, the Chronic Pain Centre of Excellence for Canadian Veterans, and the North Atlantic Treaty Organization.

Priority was given to research evidence that was published more recently, that was locally applicable (in the sense of having been conducted in Canada), and that took equity considerations into account.

The seven pan-Canadian health organizations include:

1) Canadian Institute for Health Information (CIHI), which provides data analytics and modeling related to provincial and territorial health systems
2) Canadian Agency for Drugs and Therapeutics in Healthcare (CADTH), which provides technology assessments and evidence syntheses related to drugs, devices and other health technologies
3) Canada Health Infoway (Infoway), which invests in digital-health solutions
4) Canadian Centre on Substance Use and Addiction (CCSA)
5) Mental Health Commission of Canada (MHCC)
6) Canadian Partnership Against Cancer (CPAC), which is focused on supporting the implementation of Canada's cancer-control strategy
7) Healthcare Excellence Canada, which is focused on quality and safety innovations.

The first two organizations are primarily providers of evidence, the next three are both providers and users of evidence, and last two are primarily users of evidence.

Each assessment involved:
1) website review – focused on organizational charts – to identify potential evidence-support units available in-house, through formal domestic partnerships, and (if applicable) through connections to the global evidence architecture (e.g., technical units in the UN system and related entities like OECD or NATO)
2) website/document review – focused on the what and the how of evidence support – to identify what's going well (that needs to be systematized or scaled up), where are the problems, and what are the likely causes of the problems
3) calls to seek feedback on a preliminary understanding of the problem and its causes (and on a draft list of priorities).

The calls with DND and VAC staff focused primarily on us providing context and requesting feedback on the information derived from the website and document review, including specifically:
1) context for decision-making within DND and VAC, particularly the decisions faced (which we address in this sub-section) and the enablers for and barriers to evidence use (which we address in the next sub-section)
2) assets and gaps among the evidence-support functions available to or within DND and VAC
3) assets and gaps among the evidence-support functions offered through DND's and VAC's three health-focused evidence partners (CIMVHR, Atlas and CPCoE).

Here we begin with the **context for decision-making**, which includes both the three reviews underway in the federal government (comprehensive strategic policy review, re-examination of planned spending announced in Budget 2022, and comprehensive defence review) and the many domains and types of decisions for which evidence is needed in DND and VAC (see Table 1).

Table 1: Domains and types of health decisions

<table>
<tr><th></th><th>DND</th><th>VAC</th></tr>
<tr><td rowspan="2">Domains where health decisions are faced</td><td>• Primary care, including women's health
• Mental health and substance use, including prevention of PTSD, other mental health conditions, and suicide
• Sexual misconduct response
• Traumatic injuries, including prevention of chronic pain and return to work
• COVID-19 response and recovery (including health misinformation)
• Health-related aspects of workforce planning, recruitment, training, performance, retention and well-being
• Health-related aspects of humanitarian assistance</td><td>• Prevention and management of:
o Chronic pain
o PTSD (e.g., through operational stress-injury clinics)
o Other mental health conditions
o Other 'physical' health conditions
• Rehabilitation services
• Long-term care access
• Homeless/housing assistance
• Disability determination (e.g., thresholds)
• Benefits determination (e.g., income replacement, disability, caregiver recognition, and training)</td></tr>
<tr><td colspan="2">• Transitions to civilian life (e.g., casualty support and transition services, including screening tool and nine regional transition units and 32 transition centres)
• Well-being domains
o Health (physical, mental, addiction, social, spiritual, pain, suicide)
o Employment or other main activity
o Financial
o Social integration
o Life skills/preparedness
o Housing/physical environment
o Cultural/social environment (healthcare focused on above health sub-domains)</td></tr>
<tr><td>Types of health</td><td>• Procurement of drugs, devices, and other health technologies</td><td>• Online supports (e.g., mental health)
• Case management and (less-intensive) guided support</td></tr>
</table>

decisions faced	• Programs:
	  ○ case management
	  ○ mental health services
	  ○ operational stress injury social support (OSISS)
	  ○ sexual misconduct response centre
	• Delivery arrangements, including composition of health teams and roles of contributing members
	• Complaints management
	• Population-health management
	• Resource allocation across programs
		• Rehabilitation planning (medical, psychosocial and vocational)
		• Entitlements and assessments (for disability benefits)
		• Wait-times management
		• Complaints management
		• Population-health management
		• Contracting with service providers (e.g., mental health professionals, long-term care homes)

Two additional features of the context that are important to bear in mind are:
1) evidence is just one input among many to decision-making processes (alongside institutional constraints, stakeholder interests, values), and the weight given to it will vary by context, issue and decision-maker
2) evidence – and again here we mean research evidence – is just one input to the advice that public servants provide to elected officials (but an essential one that some portion of their credibility hinges on).

Challenges on the evidence-demand side: Unevenly distributed capacity, unevenly supportive culture, and insufficient enablers

The two most important challenges to using evidence identified by federal government policymakers are unevenly distributed capacity and an unevenly supportive culture, with insufficient enablers a more distant third. Given our finding about the two most important challenges emerged through many calls with policymakers in central agencies and in line departments other than DND and VAC (and these calls took place after the early wave of calls with policymakers in DND and VAC), it will be important at the roundtable to confirm the applicability of these findings to health-related decision-making in DND and VAC.

The unevenly distributed **capacity** is part of a more general 'hollowing out' of policy capacity in the public service, but also includes widespread lack of awareness of foundational concepts (and the related tendency to assert 'we do this already').

The widespread lack of awareness of foundational concepts can lead policymakers to miss out on best evidence. Examples include: 1) taking peer review as a proxy for quality of evidence can lead policymakers to look at lots of low-quality (peer-reviewed) evidence, and miss lots of high-quality (non-peer-reviewed) evidence – both for scientific reports describing single studies and for scientific reports providing an evidence synthesis across all studies addressing the same question; 2) taking publication by an eminent body (e.g., UN agencies) as a proxy for quality of evidence can again lead policymakers to look at lots of low-quality evidence and miss lots of high-quality evidence; 3) requesting expert opinion can lead policymakers to hear about researchers' own research and their personal values and preferences, and miss the best national and global evidence and the opportunity to hear experts interpret what this national and global evidence means for a given decision; 4) convening GOBSATT-style expert panels can lead policymakers to the same challenges as expert opinion, to hear lots of groupthink, and to miss the insights of people with lived experiences; and 5) requesting just one form of evidence (such as data analytics, modeling or evaluations) can lead policymakers to get only partial answers to their questions, and miss more comprehensive answers. The related tendency to assert that 'we do all of this already' can lead policymakers to ignore assessments using explicit criteria and comparisons to other jurisdictions, as was undertaken by the Evidence Commission, which brings with it a risk that opportunities for improvement won't be considered. The Evidence Commission report provides most if not all of the foundational concepts about evidence and evidence use that policymakers need in 2022.

The unevenly distributed capacity can be attributed in part to a lack of fit-for-purpose capacity building for evidence use, which:

1) needs to cover all steps from ideas to results (including how problems are initially framed and which options are initially put forward, which options are examined in detail, what implementation plan is considered, and how implementation is monitored and impact evaluated – see Appendix A1 for more details)
2) involves leveraging all relevant forms of existing evidence relevant to any given step, as well as building new evidence over time when appropriate
3) requires incremental grafting into all relevant existing policy approaches (including to policy analysis as described in Appendix A1, systems analysis, and political analysis; stakeholder engagement; and regulatory processes)
4) can be titrated based on roles (leaders expected to build a culture for evidence use and to leverage enablers and address barriers to evidence use, managers expected to supervise staff who need to use evidence, and 'worker bees' expected to use evidence in their day-to-day work).

For those seeking to use evidence to strengthen health systems and get the right health programs, services and products to those who need them, capacity building for evidence use can be understood as building capacity for a rapid-learning health system – see Appendix A2 for more details.

The unevenly supportive **culture** has two dimensions to it:

1) assumption that evidence support still cannot work with the same speed as policy processes
2) lack of commitment to transparency in the evidence provided as inputs to advisory and decision-making processes.

The assumption that evidence support still can't work with the same speed as policy processes, especially for strategic policy that frequently operates in timelines of hours and days, leads policymakers to turn to management-consulting firms (despite their high costs and limited evidence-support capacity), traditional partners (despite their frequent reliance on GOBSATT processes), and internal research staff (despite their frequent focus on conducting one type of research, not drawing together many forms of evidence). There is also a related assumption that incremental improvements to regulatory policy – such as using evidence syntheses for impact estimates and related benefits costing – can't be made without disrupting well-established frameworks and processes. Turning only to these 'other' sources brings with it a risk of being called out on low-quality processes, sub-optimal results or significant opportunity costs. The COVID-19 evidence innovations described in the preceding section suggest that these two assumptions no longer hold.

The lack of commitment to transparency in the evidence provided as inputs to advisory and decision-making processes was frequently attributed to the cabinet confidentiality that is a hallmark of Westminster parliamentary systems. The lack of commitment to transparency brings with it a risk of being called out on GOBSATT-driven decisions. However, there are notable exceptions like the Parliamentary Budget Officer who operates with full transparency about the evidence underpinning his work, and there have been a number of cases where serious reservations about transparency have been overcome and 'the sky didn't fall' when transparency became mandatory (such as the public posting of deputy minister briefing materials and of travel and expense claims).

While insufficient **enablers** was the third-most important challenge to using evidence identified by federal government policymakers, we describe this challenge here because it is connected to culture and is a helpful precursor to capacities. We list in Table 2 the few cross-government enablers for and barriers to evidence use, which are typically the purview of central agencies and not line departments like DND and VAC. The only potential enabler suggested as specific to DND or VAC is DND's decision-support templates (and participants will be encouraged to identify more at the roundtable).

Table 2: Enablers for (and barriers to) evidence use for health decisions in government

	Central agencies (Privy Council Office, Department of Finance, and Treasury Board Secretariat)
Enablers for evidence use in health decisions	• Mandate letters encouraging ministers' use of evidence and engagement of the Chief Science Advisor • Standards for aspects of three of the eight forms of evidence: o data analytics (annual departmental data strategies and chief data officers) o evaluation (policy and directive on results, evaluation standards, annual departmental evaluation plans, and heads of evaluation) o cost-benefit analysis, which we call technology assessment/cost-effectiveness analysis (e.g., in Appendix A1), but here is applied primarily to regulation (although we are not aware of guidance to draw upon evidence syntheses for benefit estimates) • Technical advice for aspects of two of the eight forms of evidence: o evaluation (specifically advice about experimentation from Treasury Board Secretariat) o behavioural/implementation research (specifically jointly supervised hires through the Privy Council Office's Impact Canada Fellows)
Gaps in enablers (and barriers) to evidence use for health decisions	• No standards for evidence use in memoranda to cabinet, mandate letters (to ministers) or commissions of inquiry • No standards for five of the eight forms of evidence (with standards for evidence synthesis likely the most critical gap after the three listed under enablers) • No standards for government science advice or for expert panels (potential examples of which were noted earlier in this evidence brief) • No related government-wide initiatives (beyond the 2018 data strategy) or deputy minister committees (beyond the Canada School of Public Service Advisory Committee) • No related budget-proposal requirements or spending-submission requirements, at least that are publicly available (although the Quality of Life Strategy for Canada may provide a way in for data analytics in future) • Fixed policy and program objectives and five-year evaluation cycles, which inhibit ongoing evidence-driven learning and improvement • No checklists for briefings, handbooks for staff, metrics for performance or other more holistic supports for evidence use • No training in evidence support – at all steps from ideas to results – explicitly foregrounded through the Canada School of Public Service or Defence Learning Network, or explicitly enabled through the 'policy' or other communities of practice

Challenges at the interface between the evidence-demand and evidence-supply sides: Separate requests and responses and insufficient resources/staff

Two key challenges in using evidence exist at the interface between those needing (and ideally asking for) evidence to inform their decisions and those responding to these needs:

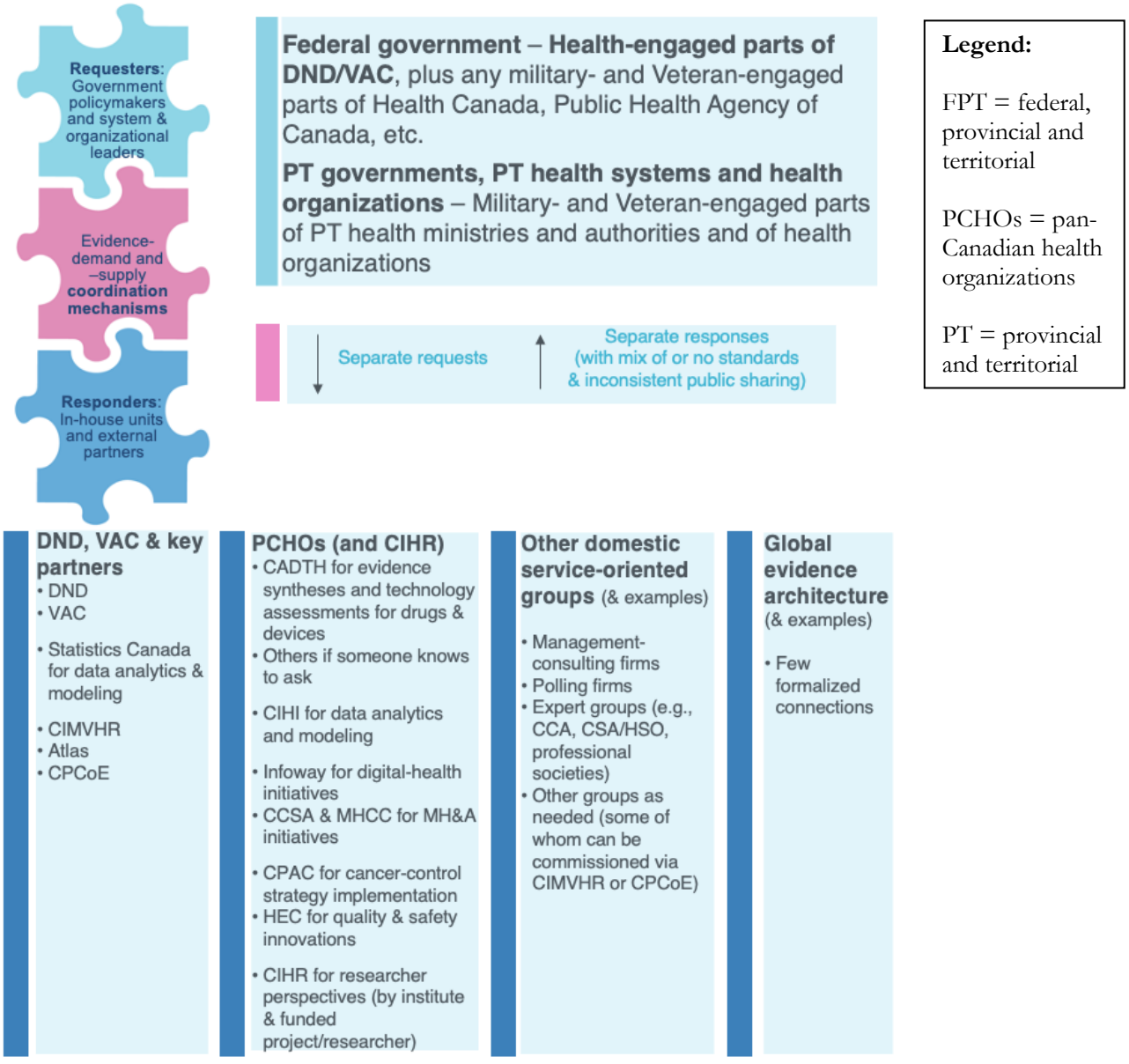
1) **separate requests** for evidence are sent out to potential responders, typically with little demand-side coordination (e.g., horizon scanning and prioritization of requests) or expectations of supply-side coordination (e.g., finding groups doing work that can be built upon)
2) **separate responses** are typically sent back, with varying degrees of formalization in process, with varying coverage of the forms of evidence relevant to the question, and with the requester often expected to do the integration across forms of evidence.

A third challenge is that, with the aforementioned 'hollowing out' of policy capacity in government, the closure of departmental libraries, and other developments, there are typically **insufficient resources/staff** to coordinate requests and responses.

As shown in Figure 1, the key requesters are the health-engaged parts of DND and VAC, although there may also be requesters in any military- and Veteran-engaged parts of the Health Portfolio (e.g., the Chronic Pain Policy Team in Health Canada), of provincial and territorial health ministries and authorities, and of health

organizations. Currently the key responders to these requests are within DND and VAC themselves, although there may also be responders in Statistics Canada, in three of DND's and VAC's health-focused evidence partners (CIMVHR, Atlas and CPCoE), in any of the seven pan-Canadian health organizations or in the Canadian Institutes of Health Research, in other domestic service-oriented groups such as management-consulting firms, or in the broader global evidence architecture (e.g., NATO). In this subsection we focus on responders in the health-engaged parts of DND and VAC (and the central agencies that support them), and in the next sub-section we turn to CIMVHR, Atlas and CPCoE, as well as to the mix of or no standards in the evidence response provided and inconsistent public sharing. While DND and VAC groups were given the opportunity to respond to an early draft of the assets and gaps, it will be important at the roundtable or shortly thereafter to confirm the accuracy of key statements.

Figure 1: Current military/Veterans health evidence-support system



The key **assets** among the evidence-support functions available to or within DND and VAC include:
1) DND's Director General Military Personnel Research and Analysis (DGMPRA) has been engaging in annual priority-setting processes within their scope of evidence support and is now adding more regular touchpoints with key decision-makers to prioritize evidence needs
2) DND and VAC support significant flows of two forms of evidence (data analytics and evaluation) for health-related decisions
3) central agencies (Privy Council Office, Department of Finance, and Treasury Board Secretariat) support flows of some key forms of evidence (data analytics and evaluation) and more narrowly defined flows of other forms of evidence (modeling, behavioural/implementation research, and technology assessment/cost-effectiveness analysis), some of which may be relevant to health-related decisions
4) Statistics Canada supports flows of two key forms of evidence (data analytics and modeling), some of which may be relevant to health-related decisions.

Additional details about 1 and 2 are available in Table 3.

Some potential **gaps** among the evidence-support functions within DND and VAC include:
1) there are many areas of decision-making with no explicit process to prioritize evidence needs, either on a regular (e.g., annual) basis or on a weekly-to-monthly basis as the context and issues change
2) there is little support for regular flows of many forms of evidence, most notably for evidence synthesis (including living evidence synthesis)
3) there is little leveraging of stocks of existing evidence (e.g., Health Systems Evidence for quality-appraised evidence syntheses about governance, financial and delivery arrangements within health systems and about how to get the right health programs, services and products to those who need them)
4) there are no standards for government science advice and no science advisors who are explicitly dedicated to evidence support per se, however, there are a number of advisors focused on substantive topics who may draw on the best available evidence
5) there are no standards for expert panels, however, there are many expert panels that may draw on the best available evidence.

Also, there is no apparent training in evidence support per se and no standards for commissioning evidence to address needs or for ensuring that evidence-support providers use the right strategies, have the right skills, and meet the right standards for evidence products and processes.

Table 3: Assets and gaps among the evidence-support functions available to or within DND and VAC

	Central agencies	DND	VAC
Prioritizing evidence needs	• No explicit process identified	• Defence Research Development Canada (DRDC) has an explicit priority-setting process • Director General Military Personnel Research and Analysis (DGMPRA) has had an explicit priority-setting process for evidence needs and is now using a more agile approach to prioritization	• No explicit process identified
Supporting flows of key forms of evidence 1) Data analytics 2) Modeling 3) Evaluation 4) Behavioural/ implementation research	• PCO: Impact and Innovation Unit (4) • Finance: economic research & analysis, and budget-proposal requirements (1, 2, 3, 7) • TBS: evaluation, spending submissions, and regulatory affairs (1, 3, 7)	• Data, Analytics and Innovation branch (1) • Audit and Evaluation division (3) • Review Services branch (3) • Surgeon General's Health Research Program (3)	• Policy and Research division (1, 2, 5) • Audit and Evaluation division (3) • Program Policy division: Research funded through the

5) Qualitative insights 6) Evidence synthesis 7) Technology assessment/ CEA 8) Guidelines	• Statistics Canada (1, 2) – e.g., Canadian Armed Forces Health Survey • Health portfolio: CADTH (7), CIHI (1), and CIHR (3)	• Transition Group's analytics support centre and embedded scientist (1, 3, 5) • Innovation for Defence Excellence and Security (IDEaS) program – Note plans for an Innovation Centre of Excellence • Mobilizing Insights in Defence and Security (MINDS) program • DRDC o DGMPRA (1, 3, 4, 5 and 6 through contracts) ▪ Director Personnel Science Policy Integration (DPSPI) o Centre for Operational Research and Analysis (CORA) (2) • Ombudsman (1)	Veteran and Family Well-being Fund (1, 3) • Service Delivery Program Management – Business intelligence unit (1, 3, 5) • Chief Financial Office and Corporate Services (1, 2) • Commemoration division (1) • Communications division (1) • Ombudsman (1)
Leveraging stocks of existing evidence	• No relevant examples identified	• No relevant examples identified	• No relevant examples identified
Providing government science advice	• Office of the Chief Science Advisor of Canada has a model policy on scientific integrity, however, this is only for departmental staff involved in the conduct of research • No standards for departmental science advisors or more generally for those providing evidence support	• Assistant Deputy Minister for DM for Defence Research and Development Canada acts as the chief science advisor to DND/CAF • Technical chain of command (versus chain of command), under the Military Personnel Command, provides technical advice, some of which may be based on best evidence	• No designated science advisor per se
Convening expert panels	• No standards for expert panels •	• Expert panels within DND (e.g., Seamless Transition Task Force), across the Five Eyes (e.g., technical cross-program panels), and organized by NATO • Mention of increasing academic outreach in Strong, Secure, Engaged: Canada's Defence Policy	• Review committees within VAC (e.g., benefit and mental health) • Ministerial advisory groups (e.g., care and support, mental health, and families)

Challenges on the supply side: Mix of standards and inconsistent public sharing

The five key challenges in providing evidence support that were identified include:

1) mix of (and sometimes no) **standards for decision-relevant forms of evidence**, especially for select forms of evidence (evidence syntheses beyond technologies, as well as guidelines) and for government science advice (e.g., no standards for Best Brains Exchanges organized by the Canadian Institutes for Health Research) and expert panels

2) mix of (and sometimes no) **standards for what is included in different types of responses** to requests from decision-makers from the following list of options:
   - evidence scan (to leverage all forms of evidence relevant to the question asked)
     - some forms of national evidence are often missed (e.g., qualitative insights) or engaged with informally (e.g., behavioural/implementation research), and global evidence (in the form of an evidence synthesis) is often missed
     - some opportunities are missed to leverage (and enhance) the global evidence architecture, including the growing stock of living evidence syntheses and living guidelines
   - jurisdictional scan (to leverage experiences from across all provinces and territories and across select countries and learnings from any evaluations of innovations)
   - horizon scan (to leverage foresight work done nationally and globally)
   - key-informant interviews (to leverage experiences from implementers, researchers and others)
   - deliberative processes (to leverage citizens' values and lived experiences and stakeholders' insights and experiences)
3) absence of **roster of service-oriented evidence-support providers** meeting these standards
4) absence of a common approach to describing and adjudicating **calls for evidence support**
5) **inconsistent public sharing** of responses.

Two related points warrant mention: 1) regarding the second challenge, there is also a mix of (and sometimes no) standards for the question intake and scoping process and for what is done on what timelines, within what policy, system or political analysis frameworks, and with what complementary forms of stakeholder engagement; and 2) regarding the fifth challenge, recognizing that the nature of the request can be considered confidential by the requester, and that publicly sharing a rapidly pulled together slide deck or briefing note can be anxiety-provoking for the responding group, the lack of sharing – of an anonymized list of requests among eligible requesters and of the evidence response without attribution to the original requester – means that there is likely duplication and sub-optimal responses.

While in Figure 1 and in the above list of challenges we are addressing the full spectrum of current and potential responders to DND and VAC requests, here we focus on three of DND's and VAC's health-focused evidence partners (CIMVHR, Atlas and CPCoE). While the three partners were given the opportunity to respond to an early draft of the assets and gaps, it will be important at the roundtable or shortly thereafter for them to confirm the accuracy of key statements.

Regarding the context in which the partners operate:

1) there is some **division of labour** in their mandates (e.g., CIMVHR focuses on military personnel, while all three focus on Veterans; all three conduct research and Atlas has plans to scale up its implementation supports; CPCoE focuses on chronic pain and Atlas focuses on mental health conditions, while CIMVHR addresses many topics)
2) there is some difference in scale of **funding** ($2.5 million plus per year for CIMVHR, although this is complemented by significant industry and philanthropic funding, $4.6 million per year for CPCoE, and $9.2 million per year for Atlas) and in target of funding (e.g., in the balance between in-house staff versus externally supported evidence providers)
3) no '**theory of change**' (i.e., a comprehensive description of how and why desired changes are expected to happen in a particular context) was identified for any of the three partners, and CPCoE's statement of work (which it helpfully shared) suggests a 'black box' between processes (research partnerships, completed projects, and disseminated projects) and outcomes (improved Veterans' well-being).

Additional details about the evidence partners' context are provided in Table 4.

The **assets** among the evidence-support functions offered through the three partners include:

1) partners have advisory and reference groups (although we return below to the lack of explicit priority-setting processes)
2) partners support flows of several forms of evidence for health-related decisions, namely:

a) data analytics (CIMVHR directly and with support from IBM, and CPCoE using registries and administrative data)
b) evaluation (CIMVHR directly and with support from True Patriot Love, Atlas, and CPCoE)
c) evidence synthesis (CPCoE and possibly Atlas and CIMVHR depending on what is meant by 'literature reviews')
d) guidelines (CPCoE using the BMJ Rapid Recs methodology, as well as Atlas).

Some potential **gaps** among the evidence-support functions within the three partners are:
1) there is no explicit process to prioritize evidence needs, either on a regular (e.g., annual) basis or on a weekly-to-monthly basis as the context and issues change
2) there is little support for regular flows of many forms of evidence, most notably for behavioural/ implementation
3) there is little leveraging of stocks of existing evidence (and the sources that are mentioned are not explicit about their basis in evidence)
4) there are no standards for government science advice and no science advisors who are designated as focusing on evidence support per se
5) there are no standards for expert panels, however, CPCoE has experience with a robust guideline methodology that incorporates expert panels.

More generally, two of the partners (CIMVHR and CPCoE) appear optimized more for the research system than for an evidence-support system (i.e., providing timely, demand-driven, reliable and coordinated evidence support drawing on all eight forms of evidence and relevant policy, systems and political analysis frameworks) and the third (Atlas) mentions support for evidence implementation, but they are still scaling up this function. None of the partners provide a list of evidence products and processes they provide and the timelines and standards they follow for them.

Table 4: Assets and gaps among the evidence-support functions offered through DND's and VAC's three health-focused evidence partners

	CIMVHR	Atlas	CPCoE
Context: Focus of activity	• Conducts research and supports other centres to conduct research that maximizes the health and well-being of military personnel, Veterans, and their families (and maintains a journal, hosts an annual research forum, and leads an annual graduate webinar)	• Conducts research and mobilizes evidence about mental health, convenes stakeholders and facilitates networks focused on mental health, and builds capacity for service providers to use evidence-based practices in delivering mental healthcare for Veterans and their families	• Conducts research to prevent and manage chronic pain in Veterans, and supports its implementation through a national network of interdisciplinary pain clinics
Context: Scale and target of funding	• $2 million for operations per year, as well as additional industry and philanthropic funding that is much larger per year • Funds 16 FTE staff, three advisors/scientists, occasional visiting fellows, select students, and research projects (e.g., four in 2021)	• $9.2 million per year • Funds 41 FTE staff to: o conduct research using a co-creation model (e.g., launched 11 new PTSD studies in 2021) o mobilize evidence o support implementation of evidence-based practices, which includes coaching and training (under development)	• $4.6 million per year • Funds 10 FTE staff, Masters and PhD students, and research projects

	CIMVHR	Atlas	CPCoE
		○ partner and engage with others as a 'network of networks'	
Context: Theory of change	• None identified and no statement of work shared	• None identified and no statement of work shared	• None identified and statement of work suggests a 'black box'
Prioritizing evidence needs	• No explicit process identified	• No explicit process identified	• No explicit process identified
Supporting flows of key forms of evidence 1) Data analytics 2) Modeling 3) Evaluation 4) Behavioural/ implementation research 5) Qualitative insights 6) Evidence synthesis 7) Technology assessment/ CEA 8) Guidelines	• List of forms supported via Public Services and Procurement Canada (1, 3, 6 but called 'literature reviews'), plus expert advice • One form supported by IBM (1) • One form supported by True Patriot Love (3)	• Select forms of evidence supported (3, 4, 5, 6, 8) • While there's a note indicating they "identify the best health treatment approaches" and a conceptual framework to help with this, the connection to the knowledge hub and services directory below aren't explicit	• Select forms of evidence supported (1 using registries and administrative data, 3, 6 with both evidence syntheses and overviews of evidence syntheses, and 8 with BMJ rapid recs)
Leveraging stocks of existing evidence	• No source with quality ratings or other decision-relevant information identified • Prepared a 'heat map' of CIMVHR-connected research by DND/VAC-relevant categories (but not searchable) • Use the Clearinghouse for Military Family Readiness • Link provided to the U.K.'s Veterans and Families Research Hub	• No source with quality ratings or other decision-relevant information identified • Knowledge hub for summaries, fact sheets, research reports, guides, etc. (with 69 documents available as of May 2022) • Services directory	• No source with quality ratings or other decision-relevant information identified
Providing government science advice	• No formally designated science advisors per se, but researchers may provide advice	• No formally designated science advisors per se. but researchers may provide advice	• No formally designated science advisors per se, but researchers may provide advice
Convening expert panels	• Engage with Five Eyes and other expert panels	• No expert panels per se	• Rigorous process used for guidelines (BMJ Rapid Recs)

THREE ELEMENTS OF A POTENTIALLY COMPREHENSIVE APPROACH FOR ADDRESSING THE PROBLEM

Many approaches could be selected as a starting point for deliberations about ensuring that the health-related decisions affecting Canadian military personnel, Veterans, and their families are informed by the best available evidence. To promote discussion about the pros and cons of a viable way forward, we have selected three elements of a potentially comprehensive approach:

1) DND/VAC, alone and in collaboration with central agencies, to build capacity, address the culture, and leverage enablers for evidence use in government
2) DND/VAC and CIMVHR/Atlas/CPCoE to formalize and strengthen the 'interface' between the evidence-demand side and the evidence-supply side
3) CIMVHR/Atlas/CPCoE to develop and implement standards for key forms of evidence, key types of evidence products and processes, and their public sharing.

The elements could be pursued separately or simultaneously, or components could be drawn from each element to create a new (fourth) element. They are presented separately to foster deliberations about their respective components, the relative importance or priority of each, their interconnectedness and potential of or need for sequencing, and their feasibility.

The principal focus in this section is to present each element and to describe what is known about these elements based on findings from evidence syntheses. Unfortunately, there are relatively few evidence syntheses on these exact topics, and most were conducted before many of the innovations described earlier in this evidence brief.

We present the findings from the few evidence syntheses we found along with an appraisal of whether their methodological quality (using the AMSTAR tool) (9) is high (scores of 8 or higher out of a possible 11), medium (scores of 4-7), or low (scores less than 4) (see Appendix B for more details about the quality-appraisal process). We also highlight whether they were conducted recently, which we define as the search being conducted within the last five years. In the next section, the focus turns to the barriers to adopting and implementing these elements, and to possible implementation strategies to address the barriers.

Box 5: Mobilizing research evidence about approach elements **for addressing the problem**

The available research evidence about approach elements for addressing the problem was sought primarily from Health Systems Evidence (www.healthsystemsevidence.org), which is a continuously updated database containing more than 9,500 evidence syntheses and nearly 3,000 economic evaluations of delivery, financial and governance arrangements within health systems. The reviews and economic evaluations were identified by searching the database for reviews addressing features of each of the approach elements.

The authors' conclusions were extracted from the reviews whenever possible. Some reviews contained no studies despite an exhaustive search (i.e., they were 'empty' reviews), while others concluded that there was substantial uncertainty about the approach element based on the identified studies. Where relevant, caveats were introduced about these authors' conclusions based on assessments of the reviews' quality, the local applicability of the reviews' findings, equity considerations, and relevance to the issue. (See the appendices for a complete description of these assessments.)

Being aware of what is not known can be as important as being aware of what is known. When faced with an empty review, substantial uncertainty, or concerns about quality and local applicability or lack of attention to equity considerations, primary research could be commissioned, or an approach element could be pursued and a monitoring and evaluation plan designed as part of its implementation. When faced with a review that was published many years ago, an updating of the review could be commissioned if time allows.

No additional research evidence was sought beyond what was included in the systematic review. Those interested in pursuing a particular approach element may want to search for a more detailed description of the approach element or for additional research evidence about the approach element.

Element 1 – DND/VAC, alone and in collaboration with central agencies, to build capacity, address the culture, and leverage enablers for evidence use in government

Strategic levers to address an unevenly supportive culture are hard to come by, but at least two levers could be considered:

1) engaging in a process to address the assumption that evidence support still cannot work with the same speed as policy processes, and to raise awareness of foundational concepts related to evidence support (which could culminate in a brief document that can be widely shared among public servants and key external partners)
2) committing to transparency in the evidence provided as inputs to advisory and decision-making processes (but not the advice included in memorandums to cabinet or other privileged communications), recognizing that leadership for this likely needs to come from the Privy Council Office and that many exemplars can be provided (e.g., Parliamentary Budget Officer reports and the public posting of deputy minister briefing materials and of travel and expense claims).

Building capacity for evidence support, as well as leveraging the enablers and filling the gaps in these enablers (and addressing the barriers) described in Table 2, are in many cases more within the sphere of influence of DND (e.g., through the Defence Learning Network) and VAC (compared to challenges like the lack of commitment to transparency).

We identified findings from one overview of systematic reviews, seven systematic reviews, and one primary study that were relevant to this element. While most findings addressed the effectiveness of interventions to build capacity for evidence use, a case study identified six enabling elements of a shift in organizational culture:

- ensuring visible, stable leadership and commitment from the highest level of the organization that is also displayed through resource allocation (including supporting the additional time that tasks associated with enabling evidence use take)
- re-orienting/re-organizing the structure of select teams or functions to highlight the roles and tasks that enable evidence-informed decision-making
- employing additional staff responsible for evidence synthesis and other evidence-informed decision-making tasks in every unit (rather than have the available staff located in just one unit or a few units)
- creating an evidence repository to enable easy sharing of information
- setting internal expectations for methods and tools used to conduct evidence syntheses
- providing responsive training opportunities that adapt to emerging and anticipated needs, challenges and opportunities.(2)

With respect to capacity building, mixed effects were found for the use of training to support staff in gaining skills needed for evidence use.(3-5) However, one older overview of reviews found that capacity-building efforts were effective when training was targeted to match individual decision-makers' organizational and institutional background, and when training was aligned with formal organizational processes and tools such as staff supervision of evidence use.(3)

Two older reviews (one high quality and one medium quality) reported increases in evidence use when formal evidence-support roles were assigned to internal staff, such as 'knowledge brokers,' or to external organizations.(6, 7) One recent medium-quality review found that internal knowledge brokers were frequently tasked with capacity-building activities, including designing and delivering tailored training or educational sessions, providing assistance with finding and interpreting research evidence, supporting peer-to-peer learning, and preparing evidence syntheses and other products.(6)

A summary of the key findings from the synthesized research evidence is provided in Table 5. For those who want to know more about the evidence syntheses contained in Table 5 (or obtain citations for the syntheses), a fuller description of the evidence syntheses is provided in Appendix B1.

Table 5: Summary of key findings from evidence syntheses relevant to Element 1 – DND/VAC, alone and in collaboration with central agencies, to build capacity, address the culture, and leverage enablers for evidence use in government

Category of finding	Summary of key findings
Benefits	• Mixed effects were found from evidence syntheses (one older overview of syntheses, one older high-quality evidence synthesis, and one older medium-quality evidence synthesis) on the use of training to build capacity for evidence use, with surveys included in one of the evidence syntheses reporting positive short-term outcomes on evidence use, but challenges in maintaining this over the medium-to-long term (3-5) • The older overview of syntheses found that these interventions are often effective when they are coupled with approaches that try to enhance both capability and motivation to use research evidence, which could include: o targeting training to match individual decision-makers' organizational and institutional background, and using real-world datasets in the training o aligning training with formal organizational processes and tools to supervise staff use of evidence (3) • The same older overview also noted that capacity-building interventions may be best targeted at senior decision-makers to simultaneously build their skills to supervise staff's evidence use and support a wider organizational change (3) • One older high-quality evidence synthesis reported positive effects on knowledge and practices of evidence use among staff who worked closely with knowledge brokers within their organizations (6) • One older medium-quality review found that the use of evidence from economic evaluations increased in countries (such as the U.K. and Portugal) that had formally mandated organizations to provide evidence (7) • One case study of organizational change to enable evidence-informed decision-making noted that literature on the 'active ingredients' that enable culture and capacity change are relatively sparse, however, the case study identified the following enablers of a shift towards evidence-informed decision-making: o ensuring visible, stable leadership and commitment from the highest level of the organization that is also displayed through resource allocation (including supporting the additional time that tasks associated with enabling evidence use take) o re-orienting/re-organizing the structure of select teams or functions to highlight the roles and tasks that enable evidence-informed decision-making o employing additional staff responsible for evidence synthesis and other evidence-informed decision-making tasks in every unit (rather than have the available staff located in just one unit or a few units) o creating an evidence repository to enable easy sharing of information o setting internal expectations for methods and tools used to conduct evidence syntheses o providing responsive training opportunities that adapt to emerging and anticipated needs, challenges and opportunities(2)
Potential harms	• One older overview of evidence syntheses found the following interventions had no effect on enhancing the culture or building capacity to use evidence: o simple dissemination tools that take a passive approach to communicating evidence o multi-component interventions that take a passive approach to building evidence-use capacity, such as seminars and communities of practice that do not have active educational components o skill-building interventions that are applied at a low intensity such as one-off seminars o unstructured interactions between decision-makers and researchers (3) • One older high-quality evidence synthesis noted that capacity-building interventions may be less effective when there is high organizational turnover and insufficient exposure to the intervention (6) • One older medium-quality evidence synthesis found that path dependency, particularly

Category of finding	Summary of key findings
	when faced with issues with a high degree of uncertainty, and high rates of staff turnover, limited the use of research evidence within government bureaucracies (7)
Costs and/or cost-effectiveness in relation to the status quo	• No relevant documents identified
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	• Uncertainty because no evidence syntheses were identified o Not applicable • Uncertainty because no studies were identified despite an exhaustive search as part of an evidence synthesis o Two older high-quality evidence syntheses found little evidence on interventions encouraging the use of evidence syntheses by health policymakers and managers (8, 9) • No clear message from studies included in an evidence synthesis o Not applicable
Key elements of the policy option if it was tried elsewhere	• One recent medium-quality evidence synthesis found face-to-face and online teaching were equal in terms of improving skill levels of public-health staff to find and use evidence, however, blended formats were less effective than both (10) • One older high-quality review found that internal knowledge brokers were frequently tasked with capacity building, which included designing and delivering tailored training or educational sessions, providing assistance with finding and interpreting research evidence, supporting peer-to-peer learning, and preparing evidence syntheses and other products (6)
Stakeholders' views and experience	• One recent medium-quality evidence synthesis found that public-health staff attending capacity-building training did not express a preference for face-to-face teaching over online training but noted that the face-to-face format was favoured in terms of perceived effectiveness, responsiveness of the instructor, and clarity of presentation, whereas online training was favoured for benefits of attitudes, comfort and flexibility (10)

Element 2 – DND/VAC and CIMVHR/Atlas/CPCoE to formalize and strengthen the 'interface' between the evidence-demand side and the evidence-supply side

Formalizing and strengthening the demand and supply side interface could involve a transition from the current system depicted in Figure 1 to something like the potential future system depicted in Figure 2 below. The hallmarks of the future system could include:

1) better coordination among the requesters (i.e., those on the evidence-demand side), including horizon scanning and prioritization of questions, and a one-window request process
2) better coordination among those responding to requests (i.e., those on the evidence-supply side), including:
   a) urgent scoping calls to understand the nature of the question (problem, options, implementation considerations, and monitoring and evaluation) and whether the response needs to include one or more of an evidence scan, jurisdictional scan, horizon scan, key-informant interviews, and deliberative processes (like the roundtable)
   b) rapid solicitation of one or more of the eight forms of evidence from DND and VAC, their three health-focused evidence partners (CIMVHR, Atlas and CPCoE), the pan-Canadian health organizations (and CIHR), other domestic service-oriented groups, and (directly or indirectly) contributors to the global evidence architecture
   c) rapid preparation of a response that integrates multiple forms of evidence as well as other inputs.

The evidence-supply coordination could happen within DND or VAC, or via a health-focused partner, and exemplars like COVID-END or the Library of Parliament can be drawn upon in designing a workable model for coordination. Adjustments to the health-focused evidence partners' statements of work and reporting and results framework would likely be needed to accommodate such evidence-support activities alongside their research activities.

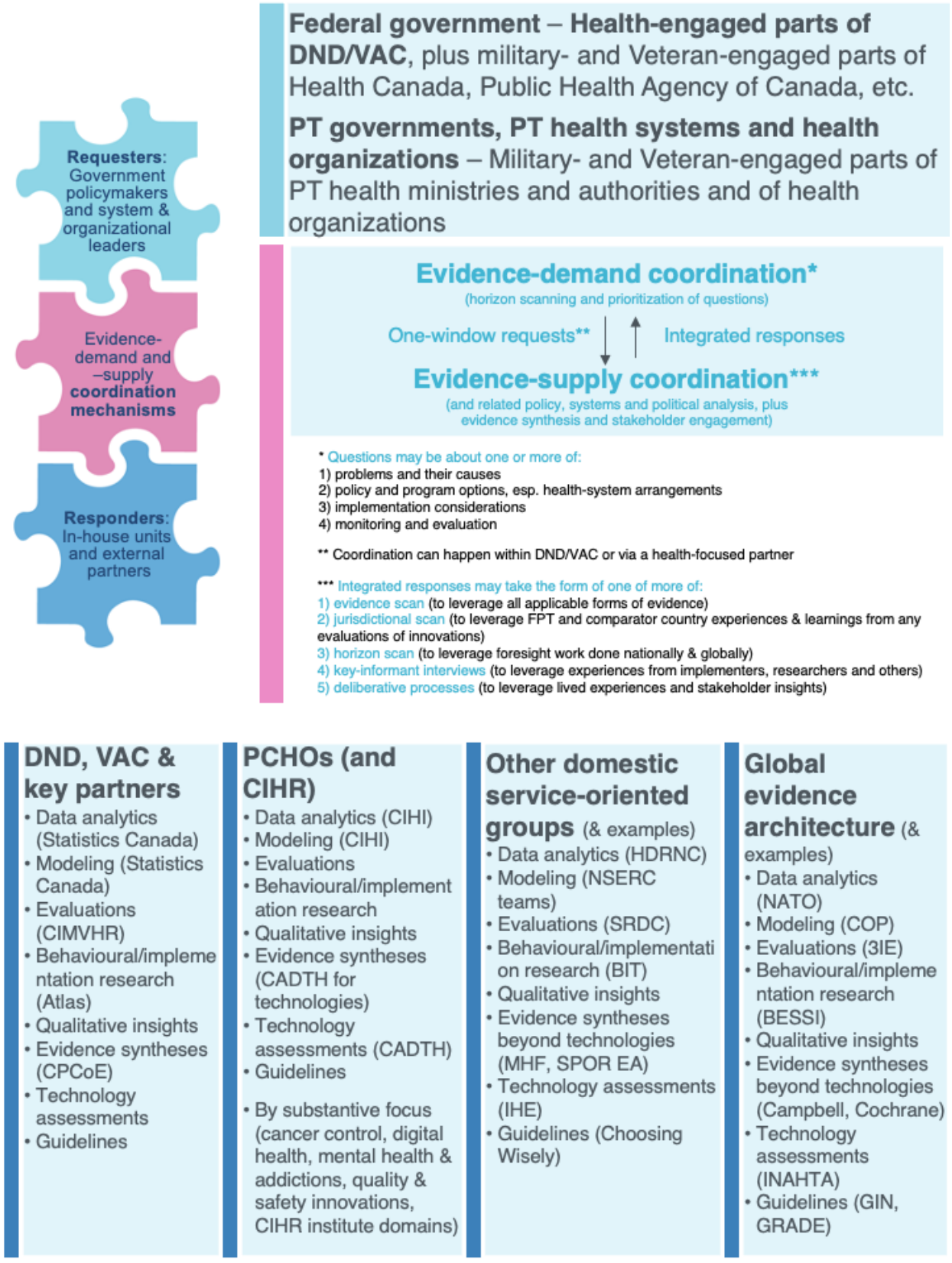
Little evidence was identified relating to strengthening the evidence-support system. We identified two evidence syntheses – one older medium-quality evidence synthesis and one older high-quality evidence synthesis – and one primary study.

The older medium-quality synthesis found that evidence syntheses that were commissioned through a rapid-response program, as opposed to those that were identified through other means, were perceived as useful to inform decision-making.(2) In addition, the same synthesis highlighted that a barrier to using evidence when making policy decisions was the absence of a mechanism in place to capture and address policymakers' changing evidence needs.(4) The older high-quality evidence synthesis found that internal knowledge brokers can fulfil many of the tasks needed within the evidence-support system.(6)

In addition to the synthesized evidence, we identified one primary study examining the U.S. Veterans Affairs' (VA) Evidence Synthesis Program. Results of a survey of program partners found that it increased the uptake of evidence to inform the VA's time-sensitive decision-making needs, with the majority of requested rapid syntheses being used immediately to inform actions ranked highly on the Institute of Medicine's 'degrees of impact' framework. The primary study attributed this is in part to a transparent process for prioritization, which requires the demonstration of urgency and presence of a mechanism for implementation following the evidence synthesis (i.e., assurance that findings could be acted upon).(11)

In addition to the two evidence syntheses, we identified additional primary studies related to methods for undertaking rapid syntheses, studies documenting the establishment of rapid-response units in select low- and middle-income countries, and evaluations of the WHO-sponsored Evidence-Informed Policy Network (EVIPNet), which includes many groups providing evidence support to their respective governments. These studies are available upon request, but are not described here given their focus on methods and on low- and middle-income countries.

Figure 2: Potential future military/Veterans health evidence-support system



A summary of the key findings from the synthesized research evidence is provided in Table 6. For those who want to know more about the evidence syntheses contained in Table 6 (or obtain citations for the syntheses), a fuller description of the evidence syntheses is provided in Appendix B2.

Table 6: Summary of key findings from evidence syntheses relevant to Element 2 – DND/VAC and CIMVHR/Atlas/CPCoE to formalize and strengthen the 'interface' between the evidence-demand side and the evidence-supply side

Category of finding	Summary of key findings
Benefits	• One older medium-quality evidence synthesis found that syntheses commissioned through a rapid-response program were perceived as useful for policy decision-making, and identified that out of eight commissioned syntheses, two had direct policy impacts (4)
Potential harms	• One older medium-quality evidence synthesis identified that the absence of mechanisms in place to capture policymakers' changing evidence needs and to ensure timely and targeted relevant syntheses was an impediment to evidence use (4)
Costs and/or cost-effectiveness in relation to the status quo	• No relevant documents identified
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	• Uncertainty because no evidence syntheses were identified o Not applicable • Uncertainty because no studies were identified despite an exhaustive search as part of an evidence synthesis o Not applicable • No clear message from studies included in an evidence synthesis o Not applicable
Key elements of the policy option if it was tried elsewhere	• One older high-quality evidence synthesis found that knowledge brokers can fulfil many of the tasks needed within the evidence-support system, which could include: o identifying opportunities to integrate evidence into decisions o defining problems or research questions o facilitating collaboration and coordination between stakeholders on the supply and demand side o identifying implications for local policies, programs or practices o tailoring resources to stakeholder needs or local context (6) • One primary study – reporting on the results of a survey issued to operational partners of the U.S. Veterans Affairs' (VA) Evidence Synthesis Program – found that the program increased the uptake of evidence to inform the VA's time-sensitive decision-making needs (11) o The survey further found that the majority of requested rapid reviews were used immediately and informed actions ranked highly on the Institute of Medicine's 'degrees of impact' framework, which was attributed in part to a transparent process for prioritization that requires the demonstration of urgency and presence of a mechanism for implementation following an evidence synthesis (i.e., assurance that findings could be acted upon)
Stakeholders' views and experience	• No relevant documents identified

Element 3 – CIMVHR/Atlas/CPCoE to develop and implement standards for key forms of evidence, key types of evidence products and processes, and their public sharing

A variety of standards are needed in the military/Veterans health evidence-support system (and exemplars exist for many of them and could be adapted):

1) standards for decision-relevant forms of evidence, especially for:
    - evidence syntheses beyond questions involving technologies such as drugs and devices (with AMSTAR being an example of a related tool)
    - guidelines or expert panels more generally (with AGREE II, AGREE-HS and GRADE being examples of related tools)
2) standards for what is included in different types of responses to requests from policymakers, on what timelines, and at what price points (with COVID-END being an example of an initiative with such a menu)
    - evidence scan (to leverage all forms of evidence relevant to the question asked)
    - jurisdictional scan (to leverage experiences from across all provinces and territories and across select countries and learnings from any evaluations of innovations)
    - horizon scan (to leverage foresight work done nationally and globally)
    - key-informant interviews (to leverage experiences from implementers, researchers and others)
    - deliberative processes (to leverage citizens' values and lived experiences and stakeholders' insights and experiences).

To complement these standards, the military/Veterans health evidence-support system also likely needs:

1) a roster of service-oriented evidence-support providers meeting the above standards
2) a common approach to describing and adjudicating calls for evidence support, such as:
    - whether what is needed is new primary research, a summary of existing evidence (and complementary insights from jurisdictional scans, etc.), and/or specific knowledge-mobilization activities
    - supporting context (e.g., what steps have already been taken to understand the question and to document what has been done to respond to it nationally and globally)
    - explicit evaluation criteria (e.g., for evidence syntheses, AMSTAR; for knowledge-mobilization strategies, the applicable theory and/or empirical findings from behavioural/implementation research, the 'theory of change,' proposed process and outcome indicators, and any plan for rigorous evaluation)
3) agreement about what constitutes appropriate public sharing of responses, such as an anonymized list of requests among eligible requesters and of the evidence response without attribution to the original requester.

We identified two evidence syntheses and two primary studies that related to this element, however, neither of them identified specific standards for decision-relevant forms of evidence or for what is included in different types of responses to requests from policymakers. Instead, the literature identified some considerations that could be used in the development of standards, such as:

- applying methodologies systematically and transparently (i.e., documenting search strategies and inclusion/exclusion decisions)
- ensuring a fit between the evidence product and the question asked (e.g., through providing opportunities for feedback from knowledge users)
- defining appropriate resourcing to support a timely response (i.e., financial resources, human resources, and time)
- using plain, non-technical language to describe conclusions so that the evidence product can be understood by all relevant stakeholders.

In addition, one primary study documented some solutions that the U.S. Veterans Affairs' Evidence Synthesis Program has integrated into its evidence syntheses to contend with evidence on complex health interventions, including:

- invest time in developing a conceptual framework and/or taxonomy of interventions with stakeholders

- adapt existing frameworks and/or taxonomies to better address stakeholder needs
- use frameworks and taxonomies to summarize variation in elements, interpret findings, and determine their applicability
- develop broad search strategies with multiple databases, use manual searches of included studies, request expert referrals, and consider grey literature
- query authors and consider qualitative studies to provide more information on intervention elements and local context
- conduct additional searches focused on implementation barriers and facilitators
- provide 'bounding scenarios' and discuss the role and importance of factors in trade-offs for benefits, harms and implementation
- highlight future research needs to better understand implementation factors.(12)

A summary of the key findings from the synthesized research evidence is provided in Table 7. For those who want to know more about the evidence syntheses contained in Table 7 (or obtain citations for the evidence syntheses), a fuller description of the evidence syntheses is provided in Appendix B3.

Table 7: Summary of key findings from evidence syntheses relevant to Element 3 – CIMVHR/Atlas/CPCoE to develop and implement standards for key forms of evidence, key types of evidence products and processes, and their public sharing

Category of finding	Summary of key findings
Benefits	• One older medium-quality evidence synthesis identified considerations that should be taken into account to match information needs with the appropriate evidence-synthesis output (and which could be considered when setting standards for evidence products), which include: o systematic and transparent application and recording of the methodology and methods-related decisions o fit of the evidence product to the question asked (or the knowledge gap identified) o timely production o use of plain, non-technical language to describe conclusions o resources needed to produce different types of products (13)
Potential harms	
Costs and/or cost-effectiveness in relation to the status quo	• No relevant documents identified
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	• Uncertainty because no evidence syntheses were identified o Not applicable • Uncertainty because no studies were identified despite an exhaustive search as part of an evidence synthesis o One primary study examining guidance for collaborations between research institutions and health-system leaders found an absence of evidence on stated requirements for partnerships, criteria for engaging in health organization research partnerships, and assessment of collaboration between health regions and researchers (14) • No clear message from studies included in an evidence synthesis o Not applicable
Key elements of the policy option if it was tried elsewhere	• One recent high-quality evidence synthesis examined evaluations of activities and outputs from knowledge-translation (KT) platforms and identified key success factors for rapid-evidence services, which include: o awareness of user needs o opportunity for feedback from users (i.e., being a personalized service) o working with current norms and behaviours of users

Category of finding	Summary of key findings
	○ ensuring the product was policy relevant and completed within the right time frame (15) • One primary study documenting challenges experienced by the U.S. Veterans' Affairs' Evidence Synthesis Program in reporting on complex health interventions and their suggested approaches to overcome them, including: ○ invest time in developing a conceptual framework and/or taxonomy of interventions with stakeholders ○ adapt existing frameworks and/or taxonomies to better address stakeholder needs ○ use frameworks and taxonomies to summarize variation in elements, interpret findings, and determine their applicability ○ develop broad search strategies with multiple databases, use manual searches of included studies, request expert referrals, and consider grey literature ○ query authors and consider qualitative studies to provide more information on interventions elements and local context ○ conduct additional searches focused on implementation barriers and facilitators ○ provide 'bounding scenarios' and discuss the role and importance of factors in trade-offs for benefits, harms and implementation ○ highlight future research needs to better understand implementation factors (12)
Stakeholders' views and experience	• No relevant documents identified

IMPLEMENTATION CONSIDERATIONS

A number of barriers might hinder implementation of the three elements of a potentially comprehensive approach to ensuring that the health-related decisions affecting Canadian military personnel, Veterans, and their families are informed by the best available evidence (Table 8). Such barriers need to be factored into any decision about whether and how to pursue any given element. It will be important at the roundtable to confirm whether any of the potential barriers identified below are likely to apply and whether any barriers are missing.

Table 8: Potential barriers to implementing the elements

Levels	**Element 1 –** DND/VAC, alone and in collaboration with central agencies, to build capacity, address the culture, and leverage enablers for evidence use in government	**Element 2 –** DND/VAC and CIMVHR/Atlas/CPCoE to formalize and strengthen the 'interface' between the evidence-demand side and the evidence-supply side	**Element 3 –** CIMVHR/Atlas/ CPCoE to develop and implement standards for key forms of evidence, key types of evidence products and processes, and their public sharing
Government policymakers	Both politicians and public servants may resist commitments to transparency in the evidence provided as inputs to advisory and decision-making processes Public servants in DND and VAC may resist commitments to transparency until a government-wide change is made	Public servants may not see value in better coordination among the requesters of evidence, including horizon scanning and prioritization of questions, or a one-window request process (and prefer more ad hoc engagement with trusted individuals)	Public servants may resist the public sharing of an anonymized list of requests among eligible requesters and of the evidence response without attribution to the original requester (or whatever other agreement is reached about what constitutes appropriate sharing of responses)
Health providers	No potential barriers identified	No potential barriers identified	Health providers working under contract may resist high-quality guidelines that require a change in their service mix
Military personnel, Veterans and their families	No potential barriers identified	No potential barriers identified	Veterans and their families may resist the incorporation of evidence into stakeholder-engagement processes (while appreciating the value being accorded to engaging people with lived experience in expert panels and other evidence-related processes)
Researchers	Researchers may resist efforts to address the assumption that evidence support still cannot work with the same speed as policy processes and to raise awareness of foundational concepts related to evidence support (and prefer the status quo of the research system to the challenges of participating in an evidence-support system)	Researchers may not see value in better coordination among those responding to requests, including urgent scoping calls, rapid solicitation of one or more of the eight forms of evidence from a range of internal and external groups, and rapid preparation of a response that integrates multiple forms of evidence as well as other inputs (and prefer more ad hoc opportunities to conduct primary research in their areas of interest)	Researchers may resist standards for decision-relevant forms of evidence and standards for what is included in different types of responses to requests from policymakers Researchers may resist a roster of service-oriented evidence-support providers meeting the above standards

Many windows of opportunity could provide a 'way in' for one or more of the three elements of a potentially comprehensive approach to ensuring that the health-related decisions affecting Canadian military personnel, Veterans, and their families are informed by the best available evidence (Table 9). Roundtable participants can confirm whether any of the potential windows of opportunity identified below are likely to apply.

Table 9: Potential windows of opportunity for implementing the elements

Type	**Element 1 –** DND/VAC, alone and in collaboration with central agencies, to build capacity, address the culture, and leverage enablers for evidence use in government	**Element 2 –** DND/VAC and CIMVHR/Atlas/ CPCoE to formalize and strengthen the 'interface' between the evidence-demand side and the evidence-supply side	**Element 3 –** CIMVHR/Atlas/ CPCoE to develop and implement standards for key forms of evidence, key types of evidence products and processes, and their public sharing
General	• Lessons learned from what did <u>not</u> go well in the COVID-19 evidence response (and about needing to have evidence supports in place that can pivot to address future crises) o Can't continue to allow a low signal-to-noise ratio to be a hallmark of the evidence response to societal challenges, which includes uneven coverage of key priorities and low quality and outdatedness of most of the evidence products prepared for policymakers o Can't continue to respond to policymakers' questions with preprints, squeaky-wheel experts and old-school expert panels, instead of the best available evidence o Can't continue to respond to policymakers' questions with select forms of evidence (such as data analytics, modeling and one-off evaluations), instead of the right mix of forms of evidence		
Element-specific	• Cadre of politicians and public servants who have personal experience with what worked well during COVID-19 and what could work better (and with how their counterparts in other countries appeared to be better supported with best evidence) • Comprehensive Strategic Policy Review and re-examination of planned spending announced in Budget 2022, which offer powerful test cases for how the federal government uses evidence to make key decisions	• Growing recognition of the need to formalize and strengthen evidence-support systems • Emerging understanding about what an evidence-support system needs to be able to do	• Innovations that emerged as part of the COVID-19 evidence response (e.g., ultra-rapid evidence syntheses, living evidence syntheses, one-stop shops of evidence syntheses, and evidence-supply coordination) •

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APPENDIX A1: Policy analysis (and finding and using evidence to inform a policy analysis)

Matching the 'policy analysis' question to the right form of evidence

Steps	Related questions	Examples of helpful forms of evidence
1	**Indicators** – How big is the problem?	Data analytics
	Comparisons – Is the problem getting worse or is it bigger here than elsewhere?	Data analytics *(e.g., using administrative databases or community surveys)*
	Framing – How do different people describe or experience the problem and its causes?	Qualitative studies *(e.g., using interviews and focus groups)*
2	**Benefits** – What good might come of it?	Evaluations *(e.g., effectiveness studies like random controlled trials)*
	Harms – What could go wrong?	Evaluations *(e.g.,observational studies)*
	Cost-effectiveness – Does one option achieve more for the same investment?	Technology assessment / cost-effectiveness evaluation
	Adaptations – Can we adapt something that worked elsewhere while still getting the benefits?	Evaluations *(e.g., process evaluations that examine how and why an option worked)*
	Stakeholders' views and experiences – Which groups support which option?	Qualitative studies *(e.g., using interviews and focus groups to understand what is important to citizens)*
3	**Barriers and facilitators** – What (and who) will get in the way or help us in reaching and achieving desired impacts among the right people?	Qualitative studies *(e.g., using interviews and focus groups to understand barriers and facilitators)*
	Benefits, harms, cost-effectiveness, etc. of implementation strategies – What strategies should we use to reach and achieve desired impacts among the right people?	Behavioural / implementation research See also 'selecting an option'
4	Is the chosen option reaching those who can benefit from it?	Data analytics
	Is the chosen option achieving desired impacts at sufficient scale?	Evaluations

Looking in the right places for the right form of evidence

		About clinical & public health issues	About health and social system issues
Clarifying a problem	1 What is the **problem (and its causes)**? • A risk factor or condition • A program, service or product being used • Current health- and social-system (governance, financial and delivery) arrangements within which programs, services and products are provided • Current degree of implementation of an agreed course of action		
	2 How did the problem come to **attention** and has this process influenced the prospect of it being addressed?	• e.g., for Canada **www.cihi.ca** for national health and healthcare utilization databases • e.g., for all countries **www.lexisnexis.com/hottopics/lnacademic/** for media coverage of health and social issues	
	3 What **indicators** can be used, or collected, to establish the magnitude of the problem and to measure progress in addressing it?		
	4 What **comparisons** can be made to establish the magnitude of the problem and to measure progress in addressing it?	**PubMed HSR Queries** **www.nlm.nih.gov/nichsr/hedges/search.html** → Process assessment → Outcomes assessment	**Health Systems Evidence** for health-system arrangements **www.healthsystemsevidence.org**
	5 How can a problem be **framed** (or described) in a way that will motivate different groups?	**PubMed HSR Queries** **www.nlm.nih.gov/nichsr/hedges/ search.html** → Qualitative research	**Social Systems Evidence** for social challenges and social-system arrangements **www.socialsystemsevidence.org**

			About clinical & public health issues	About health and social system issues
Framing options	1	Has an appropriate set of **options** been identified to address the problem (within one or more of the areas where problems were identified)? • Introducing, changing or discontinuing a program, service or product • Introducing, changing or discontinuing a health- or social-system arrangement that contributes to whether the right mix of programs, services and products get to those who need them • Implementing an agreed course of action		
	2	What **benefits** are important to those who will be affected and which benefits are likely to be achieved with each option?	**ACCESSSS (or Cochrane Library)** for clinical programs, services and drugs www.accessss.org (or www.cochranelibrary.com) **Health Evidence** for public health programs and services www.healthevidence.org	**Health Systems Evidence** for health-system arrangements www.healthsystemsevidence.org **Social Systems Evidence** for social challenges and social-system arrangements www.socialsystemsevidence.org
	3	What **harms** are important to those who will be affected and which harms are likely to arise with each option?		
	4	What are the local **costs** of each option and is there local evidence about their cost-effectiveness?	**ACCESSSS (or PubMed HSR Queries)** for economic evaluations of any option www.accessss.org (or www.nlm.nih.gov/nichsr/hedges/search.html → Costs or economics)	
	5	What **adaptations** might be made to any given option and might they alter its benefits, harms and costs?	**PubMed HSR Queries** www.nlm.nih.gov/nichsr/hedges/search.html → Qualitative research	
	6	Which stakeholders' **views and experiences** might influence the acceptability of an option and its benefits, harms and costs?		

			About clinical & public health issues	About health and social system issues
Identifying implementation considerations	1	What are the potential **barriers** to and **facilitators** of the successful implementation of the policy or program (at each of the following levels)? • Patients/citizens (e.g., awareness of the availability of a free program) • Providers (e.g., adherence to guidelines) • Organizations (e.g., performance management) • Systems (e.g., enforcement of regulations)	**PubMed HSR Queries** www.nlm.nih.gov/nichsr/hedges/search.html → Qualitative research	
	2	What strategies should be considered in order to facilitate the necessary behavioural changes among **patients/citizens**?	**Health Systems Evidence** for health-system arrangements www.healthsystemsevidence.org **Social Systems Evidence** for social challenges and social-system arrangements www.socialsystemsevidence.org	
	3	What strategies should be considered in order to facilitate the necessary behavioural changes among **providers**?		
	4	What strategies should be considered in order to facilitate the necessary **organizational changes**?		
	5	What strategies should be considered in order to facilitate the necessary **system changes**?		

Hints about searching these databases

1) use AND, OR or NOT to refine your search	
2) use quotation marks to find exact phrases	"user fees" ≠ user fees
3) use brackets to group parts of a search	(doctor AND nurse) OR pharmacist ≠ doctor AND (nurse OR pharmacist)
4) use an asterix to find a word that may have many endings	nurs* = nurse OR nurses OR nursing

Look for quality ratings (e.g., AMSTAR) or, if you're lucky, designations of the best available systematic review to address a given question. For example, the COVID-END inventory defines the 'best' (available) evidence syntheses based on the quality of the review, the recency of search, and the availability of a GRADE evidence profile.

Appendix: Matching the right form of evidence to the right step

Decision-makers need both local evidence (i.e., what has been learned in their own country, state/province or city) and global evidence (i.e., what has been learned around the world, including how it varies by groups and contexts). They also may benefit from recommendations that draw on both local and global evidence.

Vantage point	Forms of evidence	Definitions	Steps where it adds great value
Local (national or sub-national) evidence	Data analytics	Systematic analysis of raw data to make conclusions about that information	1 4
	Modeling	Use of mathematical equations to simulate real-world scenarios (i.e., what is likely to happen if we don't intervene) and options (i.e., what happens if we intervene) in a virtual environment	1 2
	Evaluation	Systematic assessment of the implementation (monitoring) and impacts (evaluation) of an initiative for the purposes of learning or decision-making	2 4
	Behavioural/ implementation research	Study of methods to promote the systematic uptake of effective approaches into routine practices at the personal, professional, organization and government levels (implementation research) Systematic examination of what people (citizens and professionals) do, what drives them to do it, and what can sustain or change what they do (behavioural research)	3
	Qualitative insights	Study of (typically non-numerical) data – obtained from interviews, focus groups, open-ended questionnaires, first-hand observation, participant-observation, recordings made in natural settings, documents, and artifacts – to understand how individuals and groups view and experience problems, options, implementation considerations (barriers, facilitators and strategies), and metrics	1 2 3 4
Global evidence	Evidence synthesis	Systematic process of identifying, selecting, appraising and synthesizing the findings from all studies that have addressed the same question in order to arrive at an overall understanding of what is known, including how this may vary by groups (e.g., racialized communities) and contexts (e.g., low socio-economic neighbourhoods)	1 2* 3 4
Local (national or sub-national) recommendations or evidence support informed by local and global evidence	Technology assessment/ cost-effectiveness analysis	Assessment of all relevant aspects of a 'technology' (e.g., a product or service), including safety, effectiveness, and economic, social and ethical implications (technology assessment), with an evidence synthesis often contributing to the assessment of effectiveness Comparison of the relative outcomes (effectiveness) and costs of two or more options, again with an evidence synthesis often contributing to the assessment of effectiveness	2* 3 4
	Guidelines	Systematically developed statements that recommend a particular course of action, often for citizens and professional and sometimes for organizations and governments, with one or more evidence syntheses contributing to the assessment of effectiveness, values and preferences, and other factors	2

**Adds the greatest value in this step but can add value in other steps.*

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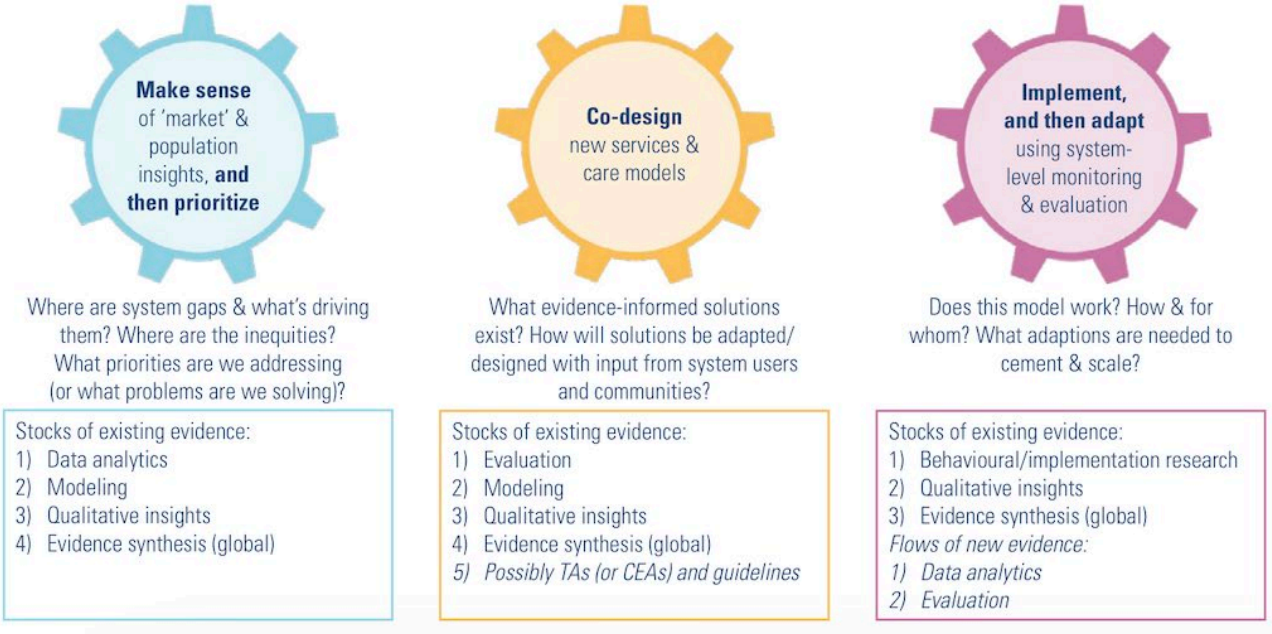
APPENDIX A2: Rapid-learning health systems (and finding and using evidence to support learning and improvement)

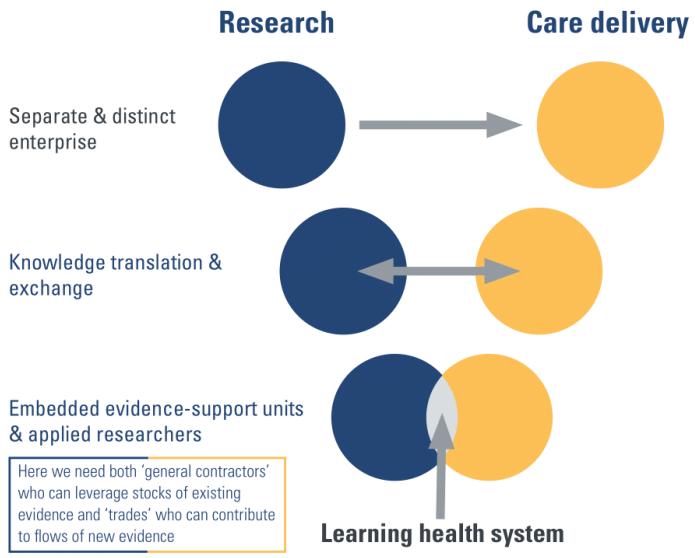
Much of the thinking related to supporting evidence-informed decision-making (EIDM) can be applied to supporting ongoing rapid learning and improvement. Here we illustrate such applications by 'superimposing' EIDM concepts onto three 'rapid learning health system' frameworks. The EIDM concepts appear in boxes in each illustration.

'Layers' involved in 'learning and improving' to achieve health-system goals (such as the quadruple-aim metrics)

Steps involved in 'learning and improving' and the related questions that can be answered with evidence (ideally supported by a 'general contractor' who brings in the right 'trades')



Evolution of research paradigm (again with a construction analogy)



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The three 'rapid learning heatlh system' frameworks are adapted from ones first developed by Robert Reid, Walter Wodchis and Nakia Lee-Foon N at the Institute for Better Health, Trillium Health Partners.

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APPENDIX B: Related evidence syntheses [see separate document/file]

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