McMaster University | Health Forum

Rapid Evidence Profile

Processes and mechanisms for enabling evidence-informed decision-making in pandemic planning and responses

13 December 2024

[MHF product code: REP 85]

Appendices

1) Methodological details (Appendix 1)
2) Details about each identified synthesis (Appendix 2)
3) Details about each identified single study (Appendix 3)
4) Details from the jurisdictional scan (Appendix 4)
5) Documents that were excluded in the final stages of review (Appendix 5)
6) References

Appendix 1: Methodological details

We use a standard protocol for preparing rapid evidence profiles (REP) to ensure that our approach to identifying research evidence is as systematic and transparent as possible in the time we were given to prepare the profile.

Engaging subject matter experts

At the beginning of each rapid evidence profile and throughout its development, we engage a subject matter expert who helps us to scope the question and ensure relevant context is taken into account in the summary of the evidence.

Identifying research evidence

For this REP, we searched Health Systems Evidence and PubMed for:
1) evidence syntheses
2) protocols of evidence syntheses
3) single studies.

We searched Health Systems Evidence for evidence syntheses using an open text search for: (pandemic AND preparedness) AND (evidence OR research) OR (support OR infrastructure Or process OR mechanism). In PubMed, we used an open text search for: ((("pandemic"[Title/Abstract]) AND ("preparedness"[Title/Abstract])) AND (("research"[Title/Abstract] OR "evidence"[Title/Abstract] OR "intelligence"[Title/Abstract]))) AND ("infrastructure"[Title/Abstract] OR "support"[Title/Abstract])

Each source for these documents is assigned to one team member who conducts hand searches (when a source contains a smaller number of documents) or keyword searches to identify potentially relevant documents. A final inclusion assessment is performed both by the person who did the initial screening and the lead author of the rapid evidence profile, with disagreements resolved by consensus or with the input of a third reviewer on the team. The team uses a dedicated virtual channel to discuss and iteratively refine inclusion/exclusion criteria throughout the process, which provides a running list of considerations that all members can consult during the first stages of assessment.

During this process we include published, pre-print and grey literature. We do not exclude documents based on the language of a document. However, we are not able to extract key findings from documents that are written in languages other than Chinese, English, French or Spanish. We provide any documents that do not have content available in these

languages in an appendix containing documents excluded at the final stages of reviewing. We excluded documents that did not directly address the research questions and the relevant organizing framework.

Assessing relevance and quality of evidence

We assess the relevance of each included evidence document as being of high, moderate or low relevance to the question.

Two reviewers independently appraised the quality of the guidelines we identified as being highly relevant using AGREE II. We used three domains in the tool (stakeholder involvement, rigour of development and editorial independence) and classified guidelines as high quality if they were scored as 60% or higher across each of these domains.

Two reviewers independently appraise the methodological quality of evidence syntheses that are deemed to be highly relevant using the first version of the AMSTAR tool. Two reviewers independently appraise each synthesis, and disagreements are resolved by consensus with a third reviewer if needed. AMSTAR rates overall methodological quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. High-quality evidence syntheses are those with scores of eight or higher out of a possible 11, medium-quality evidence syntheses are those with scores between four and seven, and low-quality evidence syntheses are those with scores less than four. It is important to note that the AMSTAR tool was developed to assess evidence syntheses focused on clinical interventions, so not all criteria apply to those pertaining to health-system arrangements or implementation strategies. Furthermore, we apply the AMSTAR criteria to evidence syntheses addressing all types of questions, not just those addressing questions about effectiveness, and some of these evidence syntheses addressing other types of questions are syntheses of qualitative studies. While AMSTAR does not account for some of the key attributes of syntheses of qualitative studies, such as whether and how citizens and subject-matter experts were involved, researchers' competency, and how reflexivity was approached, it remains the best general quality-assessment tool of which we're aware. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, an evidence synthesis that scores 8/8 is generally of comparable quality to another scoring 11/11; both ratings are considered 'high scores.' A high score signals that readers of the evidence synthesis can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the evidence synthesis should be discarded, merely that less confidence can be placed in its findings and that it needs to be examined closely to identify its limitations. (*Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. Health Research Policy and Systems 2009; 7 (Suppl1):S8*).

Identifying experiences from other countries and from Canadian provinces and territories

For each REP, we work with the requestors to collectively decide on what countries (and/or states or provinces) to examine based on the question posed. For this REP, we looked for pandemic preparedness plans from 13 countries (Australia; Canada; France; Germany; Italy; Hong Kong; Japan; New Zealand; Norway; Switzerland; U.S.; U.K.) and from four multinational organizations (African CDC; European Centre for Disease Control; PAHO; WHO- Europe; WHO). For this REP, the requestor provided a repository of pandemic preparedness plans that listed many of the plans for the countries and multinational organizations listed. For other countries where the plans were not included in the repository, we searched relevant government and stakeholder websites including the agency or organization in each country responsible for public health to identify any pandemic preparedness plans. In Canada, a similar approach was used, searching the website of the Public Health Agency of Canada and Government of Canada webpages dedicated to COVID-19 responses. We also undertook a search for websites of multinational organizations including African CDC, European CDC, PAHO, and WHO among others to identify additional pandemic preparedness plans that cut across jurisdictions. While we do not exclude content based on language. Where information is not available in English, Chinese, French or Spanish, we attempt to use site-specific translation functions or Google translate. A full list of websites and organizations searched is available upon request.

Preparing the profile

Each included document is cited in the reference list at the end of the REP. For all included guidelines, evidence syntheses and single studies (when included), we prepare a small number of bullet points that provide a summary of the key findings, which are used to summarize key messages in the text. Protocols and titles/questions have their titles hyperlinked, given that findings are not yet available.

We then draft a summary that highlights the key findings from all highly relevant documents (alongside their date of last search and methodological quality) as well as key findings from the jurisdictional scan.

Upon completion, the REP is sent to both the subject matter expert and citizen partner for their review.

Appendix 2: Details about each identified evidence synthesis

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Living status	Quality (AMSTAR)	Last year literature searched	Availability of GRADE profile	Equity considerations

• Level of pandemic preparedness plan
  ○ National
  ○ International
• Components of evidence support infrastructure needed for pandemic planning and preparedness
  ○ Establish processes and mechanisms to access timely, demand-driven evidence support to inform planning and policy in public health
  ○ Mechanisms for streamlined approval regulatory and ethics processes
  ○ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health
	While traditional modelling approaches were most commonly used during past pandemics to inform clinical and public health policy and decision making, machine learning can be leveraged to improve the accuracy and performance of traditional modelling and optimize the implementation of practical solutions early on in pandemics (1)
	• Key use cases for machine learning to inform and advance pandemic preparedness planning and the corresponding suitable types of machine learning identified in this review include:
	  ○ forecasting infectious disease dynamics and the effects of interventions – recurrent neural networks
	  ○ surveillance and outbreak detection – natural language processing, support vector machines, transformer neural networks
	  ○ monitoring of adherence to public health recommendations in real time – proprietary facial recognition and computer vision
	  ○ detection of influenza-like illness in real time –neural networks, computer vision
	  ○ triage and timely diagnosis of infections – convolutional and transformer neural networks
	  ○ prognosis of illness and response to treatment – convolutional and recurrent neural networks, natural language processing
	• Machine learning can also play a role in genome sequencing to allow for the rapid detection of viral mutations and support contact tracing
	• Traditional modelling approaches were strongly relied on during past pandemics but there are additional areas where machine learning could be used to complement traditional modelling approaches, such as integrating diverse and complex data sources for prediction modelling and temporal modelling to improve accuracy and performance
	• Challenges that should be considered when employing machine learning include possible limitations in the availability and accessibility of data due to privacy and data sharing laws
		High	No	5/9	May 2020	No	None identified

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Living status	Quality (AMSTAR)	Last year literature searched	Availability of GRADE profile	Equity considerations
	or infrastructure limitations, the lack of comprehensive and diverse data, deployment of algorithms and tools in different contexts, and the interpretability of machine learning solutions						
• Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Governance of pandemic preparedness plan ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally ○ Funding for research and evidence support ▪ Core (non-emergency) funding for research and evidence support ▪ Time-limited and/or flexible funding arrangements with a plan for how it pivots/ramps p alongside a pandemic ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Mechanisms for streamlined approval, regulatory and ethics processes	The evidence synthesis notes a significant range of challenges and solutions in clinical research response during pandemics in high, middle and low income countries many of which also pertain to the evidence infrastructure (2) • The evidence synthesis aims to examine how challenges to delivering essential clinical research during acute epidemics and pandemics have been approached • The synthesis identified 76 articles that identified a range of solutions to different seven different categories of challenges, including: political, economic, administrative, regulatory, logistic, ethical and social • Key challenges included: ○ a lack of global coordination of funding and efforts as well as delays in mobilizing funds with approvals often taken longer than outbreak durations ○ lack of effective partnerships between countries and international organizations ○ the need for dedicated funding for emergency research with financial mechanisms to support the rapid release of funds ○ administrative and regulatory procedures and limited access to staff with research training were persistent challenges ○ multiple ethics committees, bureaucratic processes and inconsistencies between required documentation hurdles in low and middle income countries and high income countries ○ lack of agreed upon frameworks for emergency research to facilitate coordination, focus investments and to guide implementation of responses ○ fear and mistrust of international responses from community members • Proposed solutions to these challenges include: ○ establish effective, coordinated equitable collaborations between international and national organisations ○ establish dedicated funding and coordinated, accelerated funding mechanisms	High	No	5/10	2018	No	• Place of residence Social capital

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Living status	Quality (AMSTAR)	Last year literature searched	Availability of GRADE profile	Equity considerations
	○ invest in sustainable clinical research centres and research training ○ incentivise clinical research response networks ○ develop human resource and research capacity ○ train researchers, clinicians and other stakeholders for rapid deployment ○ develop international and national research, administrative and logistics support platforms with funded coordinating mechanisms ○ develop pre-designed and pre-approved study protocols and associated tools for difference scenarios ○ establish accelerated pathways for regulatory and ethical joint approvals ○ establish international data and sample sharing agreements and templates ○ establish coordinated, effective internal and external communication plans ○ engage and empower communities and stakeholders from the outset						
• Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Governance of pandemic preparedness plan ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Capacity building to enable the use of evidence in decision-making process	Comparison of pandemic preparedness plans and associated literature identified emergent themes that expanded on those described as part of the public health epidemic preparedness framework, including the importance of increasing scientific research capacity particularly by establishing knowledge sharing networks (3) • The evidence synthesis explored recent literature on priority areas and indicators for public health emergency preparedness with a focus on infectious disease emergencies • The synthesis included 36 records of which 10 described a public health epidemic preparedness framework, tool or model, 16 studies included content relevant to PHEP priority areas but did not explicitly describe a framework, and 10 grey literature publications described public health preparedness actions for infectious disease outbreaks • The analysis revealed additional themes that expanded on those included in the Resilience Framework for public health emergency preparedness, including one on research and evidence-informed decision-making • In particular, the expanded theme focused on building capacity for knowledge-sharing networks and the integration of data-,	High	No	4/9	2022	No	Not reported

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Living status	Quality (AMSTAR)	Last year literature searched	Availability of GRADE profile	Equity considerations
▪ Standard or requirements for transparency in how evidence is used to inform recommendations and decisions	scientific- and evidence-informed decision-making when planning for infectious disease and emergencies • Some of the indexed literature also included findings on what indicators should be used to operationalize and measure various areas of preparedness (e.g., equity impacts of emergencies, core public health and government capacities for emergency readiness and response), some identified examples of indicators include: o For public health and system readiness: adequate public health budget, capacity to deliver vaccines, proportion of the population getting vaccinated, licensed nurses' ability to practice in other regions or states, oversight of research on dangerous pathogens o For equity-related preparedness indicators: proportion of population in a defined region who are racialized or first generation immigrants, benchmarks for public health agency plans to embed the needs of racialized or marginalized populations, proportion of population with access to internet and technology, ratio of residential and nursing homes per 10,000, proportion of population with access to clear water						
• Components of evidence support infrastructure needed for pandemic planning and preparedness o Governance of pandemic preparedness plan ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate) ▪ Knowledge-management system to	While the COVID-19 pandemic demonstrated unprecedented levels of international scientific collaboration and data sharing, significant gaps remained in coordinating research priorities, avoiding duplication, and ensuring equitable access to benefits of shared knowledge (4) • The evidence synthesis examines the case for multilateral collaboration on threats from infectious disease in three areas: 1) research and information sharing; 2) vaccine development and distribution; and 3) travel policies • Prior to delving into the three areas, the synthesis notes that the generation of knowledge is a public good with the potential to also increase equity between countries that are able to afford the generation of high-quality scientific evidence and those that are not • With respect to research coordination, though the synthesis notes initial positive sharing of research evidence, there were also areas where more could be done, recommendations include:	High	No	1/9	May 2021	No	• Place of residence

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Living status	Quality (AMSTAR)	Last year literature searched	Availability of GRADE profile	Equity considerations
enable evidence support	○ major research funders creating a process for advance agreement on generic protocols and streamlined ethics approval ○ strengthening disease surveillance infrastructure such as vital registration and laboratories in a coordinated manner and with interoperable systems ○ create better systems for sharing tacit knowledge						
• Level of pandemic preparedness plan ○ International • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Connections to advisory and decision-making processes and/or learning improvement platforms ○ Governance of pandemic preparedness plans ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally	The new European Health Union proposal takes a significant step to enhance EU-wide pandemic preparedness through expanded powers of existing agencies and better coordinated mechanisms, however its effectiveness will be determined by Member States' willingness to cede control over health emergency responses (5) • The evidence synthesis aims to review to institutional arrangements for pandemic preparedness and response in the European Union using the Public Health Emergency Preparedness model and then reviews the proposed amendments to identify the inadequacies that have surfaced during the COVID-19 pandemic • Under the pre-existing structure (pre-2020) the main bodies involved in pandemic preparedness are the European Centre for Disease Prevention and Control, the European Commission and the Health Security Commission, with the EU historically playing a supportive role with crisis management large under the purview of individual countries • Key changes proposed under the European Health Union would include: ○ creating a large role in surveillance and obliging member states to collect and share select surveillance data with the European CDC as well as operating a network of reference laboratories ○ strengthening the European CDCs auditing capabilities to review Member States' preparedness plans ○ expanding the EU's role in management medical countermeasures through the Health Emergency Preparedness and Response Authority ○ formalizing the health security committees role ○ creating an EU-wide pandemic preparedness plan ○ establishing an EU Health Taskforce to assistance Member States	High	No	2/9	2022	No	• Not reported

Appendix 3: Details about each identified single study

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations

• Level of pandemic preparedness plan
  ○ National
• Components of evidence support infrastructure needed for pandemic planning and preparedness
  ○ Connections to advisory and decision-making processes and/or learning and improvement platforms
  ○ Governance of pandemic preparedness plan
  ▪ Mechanisms to enable domestic and global data and evidence sharing
  ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate)
  ▪ Knowledge-management system to enable evidence support
	During the COVID-19 pandemic, Clinical and Translational Science Award Program (CTSA) hubs specializing in informatics services acted as resources for collecting, assessing and producing data on the pandemic for local and regional decision-makers but had challenges in responding to data requests quickly enough in the midst of the evolving public health crisis (6)
	• This report summarized the Adaptive Capacity and Preparedness Working Group's findings on the adaptive capacity and preparedness of CTSA hubs
	• Services provided by the CTSA hubs included COVID-19 data dashboards, an engagement platform for clinical research and COVID-19 education activities for communities
	• To enable rapid integration of clinical data, the National COVID Cohort Collaborative was designated to aggregate COVID-19 clinical data across multiple organizations in partnership with CTSA hubs
	• Nationally, the CTSA Program Response to COVID-19 Discussion Forum was formed as a space for CTSA researchers to discuss organizational issues and concerns
	• Effective communication was highlighted as a key enabler of rapid response to future emergencies
		High	Publication date: May 2022
			
			Jurisdictions studied: United States
			
			Methods used: Environmental scan
				None identified

• Level of pandemic preparedness plan
  ○ National
• Components of evidence support infrastructure needed for pandemic planning and preparedness
  ○ Connections to advisory and decision-making processes and/or learning and improvement platforms
  ○ Governance of pandemic preparedness plan
  ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience (including those from equity-deserving populations)
  ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate)
	Across the pandemic preparedness plans of 14 European countries, there was a lack of implementation strategies identified in pandemic plans that aimed to strengthen health financing and the health workforce, ensure the delivery of public health services and availability of medical infrastructure and equipment, and govern the generation of resources (7)
	• Pandemic preparedness and response plans submitted by 14 European countries were mapped onto the Health System Performance Assessment Framework for Universal Health Coverage to determine how well health systems were accounted for in the plans
	  ○ The framework contained 54 implementation strategies that linked to 54 assessment areas under four core health system functions – governance, financing, resource generation, service delivery
		Low	Publication date: June 2024
			
			Jurisdictions studied: 14 European countries
			
			Methods used: Document analysis
				None identified

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations

	• Results indicated that pandemic preparedness plans did not consider all health system functions but rather focused on specific aspects of government
	  ○ Governance: Nearly all plans had clear objectives of a strategic vision and engaged multiple stakeholders in policy decisions and communications but there was a lack of implementation strategies to strengthen monitoring systems
	  ○ Financing: Explicit references to financial management mechanisms that govern that allocation, use and accountability of public health funds was largely absent in pandemic plans
	  ○ Resource generation: Most plans' implementation strategies were focused on ensuring mechanisms were in place for a surge in workforce through recruitment of retired workers and medical students and in the availability of medical equipment but there was little consideration given to the well-being of health workers or the means of distribution and maintenance of healthcare resources during a pandemic
	  ○ Service delivery: Only a small number of countries (Finland, Spain, U.K.) provided clear implementation strategies across all service delivery assessment areas and only half of the national plans included strategies that support the safety of services when delivered (e.g. infection prevention and control measures for health workers)
	  ○ There was no specific mention of the use of evidence support mechanisms as part of pandemic preparedness plans in this review			

• Level of pandemic preparedness plan
  ○ International
• Components of evidence support infrastructure needed for pandemic planning and preparedness
  ○ Connections to advisory and decision-making processes and/or learning and improvement platforms
  ○ Governance of pandemic preparedness plan
  ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience (including those from equity-deserving populations)
  ▪ Mechanisms to enable domestic and global data and evidence sharing
	Scientists working on COVID-19 advisory boards across five European countries faced similar core challenges: working effectively across disciplines, ensuring evidence was understood and used by governments, and managing new public-facing roles without clear boundaries (8)
	• Scientists struggled with interdisciplinary collaboration on advisory boards, with initial dominance of biomedical perspectives over other disciplines like social sciences
	• They faced challenges in providing rapid evidence-based recommendations while dealing with limited or changing evidence, and ensuring governments understood and acted on their advice
	• Scientists found themselves in undefined new roles, becoming public figures who had to balance maintaining relationships with government, communicating with media, and informing the public, while sometimes receiving hostile reactions.
		High	Publication date: 2021
			
			Jurisdiction studied: Belgium, The Netherlands, UK, Sweden, Germany
			
			Methods used: Qualitative study using semi-structured interviews
				No

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations
▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate) ▪ Knowledge-management system to enable evidence support o Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Priority setting processes for new research or the focus for evidence-support processes ▪ Processes, standards and reporting for determining who is requested/commissioned to provide evidence support and/or produce new flows of evidence ▪ Capacity building to enable the use of evidence in decision-making processes ▪ Standards or requirements for transparency in how evidence is used to inform recommendations and decisions ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) to inform pandemic preparedness planning and response • Outcomes o Use of evidence in decision-making ▪ Instrumental use (i.e., direct connection between evidence and decisions or plans put in place) ▪ Conceptual use (i.e., informing ways of thinking over time) ▪ Political use (i.e., use of evidence to justify decisions or plans already made) Public trust				
• Level of pandemic preparedness plan o National • Components of evidence support infrastructure needed for pandemic planning and preparedness o Connections to advisory and decision-making processes and/or learning and improvement platforms o Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using	COVID-19 evidence ecosystem (CEOsys) was a German network of 18 university hospitals and research institutions that synthesized COVID-19 evidence and created guidelines between 2020-2021, producing 31 evidence syntheses and supporting three living guidelines while facing challenges of late startup and evolving pandemic information (9) • Proved that a nationwide evidence ecosystem can work effectively during a pandemic, with strong collaboration between methodologists and clinical experts producing 31 evidence syntheses and three living guidelines	High	Publication date: 2024 Jurisdiction studied: Germany Methods used: A descriptive analysis	No

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations
existing flows of evidence) to inform pandemic preparedness planning and response	• Success factors included partnerships with national guideline groups, use of collaborative technical tools, and formation of methodologist-clinician tandems for reviewing evidence • Main barriers were late startup (5 months after pandemic began), time spent building infrastructure while needing to produce work, and difficulty maintaining sustainability without permanent funding.			

• Level of pandemic preparedness plan
  ○ International
• Components of evidence support infrastructure needed for pandemic planning and preparedness
  ○ Connections to advisory and decision-making processes and/or learning and improvement platforms
  ○ Governance of pandemic preparedness plan
  ▪ Mechanisms to enable domestic and global data and evidence sharing
  ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate)
  ▪ Knowledge-management system to enable evidence support
  ○ Funding for research and evidence support
  ▪ Core (non-emergency) funding for research and evidence support
  ▪ Time-limited and/or flexible funding arrangements with a plan for how it pivots/ramps up alongside a pandemic
  ○ Activities described within the pandemic preparedness plan that support the integration of evidence
  ▪ Priority setting processes for new research or the focus for evidence-support processes
  ▪ Capacity building to enable the use of evidence in decision-making processes
  ▪ Implementing and aligning enablers to support the use of evidence in decision-making
  ▪ Standards or requirements for transparency in how evidence is used to inform recommendations and decisions
  ▪ Prioritization and coordination process for requesting evidence support
  ▪ Mechanisms for streamlined approval, regulatory and ethics processes
	Integrating social sciences into epidemic preparedness and response requires comprehensive investments across three interconnected areas - core response capacities, applied/basic science strengthening, and a supportive ecosystem - on par with allied disciplines like epidemiology and virology (10)
	• Social science integration in epidemic response remains inadequate, fragmented and under-funded compared to other disciplines like epidemiology and virology
	• A comprehensive integration framework requires investments in three main areas: core response capacities, applied/basic science development, and a supportive ecosystem
	• Social science should not be siloed into just risk communication but integrated "transversally" across all aspects of epidemic preparedness and response
	• Integration needs to be grounded in country-led capacity building, with investments and infrastructure development happening at multiple levels.
		High	Publication date: 2020
			
			Jurisdiction studied: Africa, Asia and Europe
			
			Methods used: Descriptive analysis
				No

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations
▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health (e.g., for one or more of the forms of evidence listed above)				
• Level of pandemic preparedness plan o National • Components of evidence support infrastructure needed for pandemic planning and preparedness o Connections to advisory and decision-making processes and/or learning and improvement platforms o Governance of pandemic preparedness plan ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate) ▪ Knowledge-management system to enable evidence support o Funding for research and evidence support ▪ Core (non-emergency) funding for research and evidence support ▪ Time-limited and/or flexible funding arrangements with a plan for how it pivots/ramps up alongside a pandemic o Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Processes, standards and reporting for determining who is requested/commissioned to provide evidence support and/or produce new flows of evidence ▪ Standards or requirements for transparency in how evidence is used to inform recommendations and decisions ▪ Mechanisms for streamlined approval, regulatory and ethics processes ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health (e.g., for one or more of the forms of evidence listed above)	The COVID-19 pandemic in Canada revealed the need to shift from an ad-hoc approach to a more institutionalized science advisory system for public health emergencies, as the current system involved multiple advisory bodies with unclear coordination and time-limited mandates (11) • Canada's COVID-19 response relied on an ad-hoc approach to science advice, with multiple temporary advisory bodies being formed across federal departments with unclear coordination • The pandemic revealed significant gaps in how science advice is organized and delivered during public health emergencies in Canada • There is a pressing need to institutionalize science advisory bodies with more permanent structures and clearer coordination mechanisms, rather than relying on temporary solutions • The COVID-19 pandemic presents a policy window opportunity to strengthen and better institutionalize Canada's federal science advice ecosystem for future public health emergencies.	High	Publication date: 2023 Jurisdiction studied: Canada Methods used: Jurisdictional case study with document analysis	No
• Level of pandemic preparedness plan o National	Rapid evidence products were considered invaluable to decision making during COVID-19, with success depending on the credibility of evidence providers, close relationships between producers and users,	High	Publication date: 2023	No

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations

• Components of evidence support infrastructure needed for pandemic planning and preparedness
  ○ Connections to advisory and decision-making processes and/or learning and improvement platforms
  ○ Governance of pandemic preparedness plan
  ▪ Membership of governance body includes interdisciplinary perspectives
  ▪ Mechanisms to enable domestic and global data and evidence sharing
  ▪ Knowledge-management system to enable evidence support
  ▪ Explicit plan for how evidence supports will pivot/ramp up alongside a pandemic
  ○ Funding for research and evidence support
  ▪ Time-limited and/or flexible funding arrangements with a plan for how it pivots/ramps up alongside a pandemic
  ○ Activities described within the pandemic preparedness plan that support the integration of evidence
  ▪ Priority setting processes for new research or the focus for evidence-support processes
  ▪ Processes, standards and reporting for determining who is requested/commissioned to provide evidence support and/or produce new flows of evidence
  ▪ Standards or requirements for transparency in how evidence is used to inform recommendations and decisions
  ▪ Prioritization and coordination process for requesting evidence support
  ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) to inform pandemic preparedness planning and response,
  ▪ Mechanisms for streamlined approval, regulatory and ethics processes
  ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health (e.g., for one or more of the forms of evidence listed above)
• Outcomes
  ○ Use of evidence in decision-making
	and having highly skilled adaptable teams to meet demanding workloads (12)
	• Rapid evidence products were considered invaluable for both policy-making and clinical decision-making during COVID-19, providing essential support for urgent responses
	• The credibility of evidence providers and trust in their work was critical, particularly when evidence providers had established reputations or were fellow clinicians
	• Close working relationships between evidence producers and users were crucial for success, though the general practitioners service faced some communication challenges
	• Having highly skilled and flexible staff who could adapt quickly was essential for meeting the substantial workload demands and tight turnaround times required during the pandemic.
			Jurisdiction studied: Ireland
			
			Methods used: Descriptive analysis	

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations
▪ Instrumental use (i.e., direct connection between evidence and decisions or plans put in place) ▪ Conceptual use (i.e., informing ways of thinking over time) ▪ Political use (i.e., use of evidence to justify decisions or plans already made) Public trust				
• Level of pandemic preparedness plan o National • Components of evidence support infrastructure needed for pandemic planning and preparedness o Connections to advisory and decision-making processes and/or learning and improvement platforms o Governance of pandemic preparedness plan ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Knowledge-management system to enable evidence support ▪ Explicit plan for how evidence supports will pivot/ramp up alongside a pandemic o Funding for research and evidence support ▪ Time-limited and/or flexible funding arrangements with a plan for how it pivots/ramps up alongside a pandemic o Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Processes, standards and reporting for determining who is requested/commissioned to provide evidence support and/or produce new flows of evidence ▪ Capacity building to enable the use of evidence in decision-making processes ▪ Standards or requirements for transparency in how evidence is used to inform recommendations and decisions ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) to inform pandemic preparedness planning and response ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and	The Washington State Department of Health and University of Washington successfully created and implemented a daily COVID-19 literature review system (Lit Rep) that analyzed over 150,000 scientific articles, produced more than 4,300 article summaries reaching over 5,600 subscribers, and effectively supported evidence-based public health decision-making during the pandemic through academic-practice partnership (13) • The Literature Report processed over 150,000 scientific articles and produced more than 4,300 summaries, reaching over 5,600 subscribers from public health practice, academia, and the general public • A survey showed high effectiveness, with 92% of users finding the content relevant to their work and 81% regularly using the reports, demonstrating its value in supporting evidence-based decision-making • The academic-practice partnership between the Washington State Department of Health (WA DOH) and University of Washington proved successful in managing the increasing volume of COVID-19 literature (from 10-20 articles daily in January 2020 to over 150 by April 2020) while providing practical benefits like student training and strengthened institutional collaboration • The model established a potential framework for how public health organizations can respond to future emerging health threats through systematic literature review and evidence communication	High	Publication date: 2022 Jurisdiction studied: USA Methods used: Qualitative case study	No

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations

policy in public health (e.g., for one or more of the forms of evidence listed above)
• Outcomes
  ○ Use of evidence in decision-making
  ○ Research costs				

• Level of pandemic preparedness plan
  ○ National
• Components of evidence support infrastructure needed for pandemic planning and preparedness
  ○ Connections to advisory and decision-making processes and/or learning and improvement platforms
  ○ Governance of pandemic preparedness plan
  ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience
  ▪ Mechanisms to enable domestic and global data and evidence sharing
  ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally
  ▪ Knowledge-management system to enable evidence support
  ▪ Explicit plan for how evidence supports will pivot/ramp up alongside a pandemic
  ○ Funding for research and evidence support
  ▪ Time-limited and/or flexible funding arrangements with a plan for how it pivots/ramps up alongside a pandemic
  ○ Activities described within the pandemic preparedness plan that support the integration of evidence
  ▪ Priority setting processes for new research or the focus for evidence-support processes
  ▪ Processes, standards and reporting for determining who is requested/commissioned to provide evidence support and/or produce new flows of evidence
  ▪ Capacity building to enable the use of evidence in decision-making processes
  ▪ Implementing and aligning enablers to support the use of evidence in decision-making
	The study found that South Korea's successful management of research ethics during COVID-19 was rooted in their previous MERS epidemic experience in 2015, which served as "pandemic ethics immunization" and enabled them to develop effective frameworks balancing rapid response with ethical principles through transparency, openness, and democracy (14)
	• South Korea implemented a two-phase approach: an initial urgent response phase (2020-2021) that accelerated ethical reviews and allowed temporary adjustments to research procedures, followed by a long-term preparedness phase (2021-2023) that established permanent institutional frameworks
	• The success of Korea's research ethics management during COVID-19 was largely built on lessons learned from their 2015 MERS epidemic experience, which served as "pandemic ethics immunization" and helped them develop better preparedness
	• The Korean government maintained ethical principles while enabling rapid research through measures like expedited IRB reviews, non-face-to-face consent processes, and the establishment of centralized oversight institutions, all while adhering to core principles of transparency, openness and democracy
	• Unlike many other countries, Korea's medical system did not collapse during the pandemic and was able to conduct research with careful ethical considerations, demonstrating that rapid response and ethical integrity can be balanced effectively
		High	Publication date: 2024
			
			Jurisdiction studied: South Korea
			
			Methods used: Document analysis
				No

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations
▪ Standards or requirements for transparency in how evidence is used to inform recommendations and decisions ▪ Prioritization and coordination process for requesting evidence support ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) to inform pandemic preparedness planning and response ▪ Mechanisms for streamlined approval, regulatory and ethics processes ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health (e.g., for one or more of the forms of evidence listed above) • Outcomes o Use of evidence in decision-making ▪ Instrumental use (i.e., direct connection between evidence and decisions or plans put in place) ▪ Conceptual use (i.e., informing ways of thinking over time) ▪ Political use (i.e., use of evidence to justify decisions or plans already made) ▪ Public trust				
• Components of evidence support infrastructure needed for pandemic planning and preparedness o Governance of pandemic preparedness plan ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence methods expertise and lived experience o Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Priority setting processes for new research or the focus for evidence-support processes ▪ Establish processes and mechanisms to access timely, demand-driven evidence support to inform pandemic preparedness planning and response • Outcomes o Use of evidence in decision-making ▪ Instrumental use	The rapid evidence infrastructure established afforded the opportunity to conduct expedited research and quality improvement to answer questions related to COVID-19 and has now been written into the institutions pandemic playbook (15) • The study reports on the experience of the Children's Hospital Colorado setting up a scientific advisory council to advice on clinical aspects of the pandemic by reviewing the existing literature and providing timely feedback on high priority questions • The team that was assembled included those with a diversity in: clinical setting, subspecialty, research expertise, training and career stage • Evidence needs generally fell into four categories: 1) clinical course and epidemiology; 2) clinical treatment; 3) diagnostic testing; and 4) infection control • A process was developed for clarifying scientific issues, priority-setting, rapid evidence assessment and reporting findings	High	Publication date: October 2020 Jurisdiction studied: U.S. Methods used: Qualitative case study	None reported

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations
	• The case study notes that the scientific advisory committee supported the development of 20 clinical guidance resources to guide local care teams and these were frequently updated based on new evidence			

• Level of pandemic preparedness plan
  ○ National
• Components of evidence support infrastructure needed for pandemic planning and improvement platforms
  ○ Mechanisms to enable domestic and global data and evidence sharing
  ○ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally
  ○ Funding for research and evidence support
  ▪ Core (non-emergency) funding for research and evidence support
  ○ Activities described within the pandemic preparedness plan that support the integration of evidence
  ▪ Mechanisms for streamlined approval, regulatory and ethics processes
	Lessons from the COVID-19 pandemic from the U.S. emphasized the importance of collaboration, communication, continued funding and public involvement as being critical elements of the research infrastructure that led to wins in the U.S. pandemic response (16)
	• Findings from a day and half long public workshop are reported on in the study and include a section with the intention of reflecting on critical scientific infrastructure for stakeholder coordination and innovations that can facilitate rapid and effective responses to emerging threats, however much of the round table focused on R&D and science to support manufacturing
	• The deliberations from the workshop were into three areas that are particularly relevant, including
	  ○ Equitable scientific collaborations, partnerships and coordination within the U.S.
	  ○ Equitable scientific collaboration partnerships and coordination on the global scale
	  ○ Coordination and partnering between scientific researchers, policymakers, and the general public
	• Though many of the findings were specific to vaccines and industry-adjacent research a few key lessons emerged in each of the chapters:
	  ○ importance of balancing rapidity and safety in research, and ensuring there are processes in place for continued monitoring and surveillance
	  ○ collaboration across all those that are willing, including across academia, across government departments and with industry
	  ○ maintaining investments in science and considering the impacts of those investments in both short and long timeframes
	  ○ devolving science to take place not just at the federal level but ensuring that scientific resources across the ecosystem are being leveraged
	  ○ involvement of the public and community in academic and research to contend with issues of misinformation
		High	Publication date: 2023
			
			Jurisdiction studied: United States
			
			Methods used: Deliberative workshop
				None reported

• Level of pandemic preparedness plan ○ National • Components of evidence support infrastructure needed for pandemic planning and preparedness	The study found that creating a pre-determined network of evidence synthesis providers and maintaining close relationships between those requesting evidence and those providing it was critical to enabling a rapid response (17)	High	Publication date: October 2024	None reported

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations
○ Connections to advisory and decision-making processes and/or learning and improvement platforms ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Priority setting processes for new research or the focus for evidence-support processes ▪ Capacity building to enable the use of evidence in decision-making processes ▪ Established processes and mechanisms to access timely, demand-driven evidence support to inform pandemic preparedness planning and response, based on one or more of the eight different forms of evidence that can be used to inform decision-making	• The study aims to examine informed responses to new evidence demands by examining a case study of evidence synthesis practices during the COVID-19 pandemic in Canada • In particular, it aims to examine how procedures within the field of evidence synthesis evolved and adapted as a result of the pandemic and the barriers and challenges of procuring evidence syntheses and their utility during a pandemic • The use of networks and coordination on each the demand and supply side supported the prioritization of requests for evidence syntheses • The study reported the following challenges in working with decision-makers: ○ a lack of understanding regarding what types of evidence were needed to answer certain research questions ○ a lack of standardization in the evidence syntheses being produced ○ limited understanding of how traditional evidence syntheses compare to other types of evidence and how to interpret results ○ transparency in methods as typical quality-assurance mechanisms were being bypassed ○ maintain relationships between synthesis requestors and producers		Jurisdiction studied: Canada Methods used: Qualitative case study	
• Components of evidence support infrastructure ○ Connections to advisory and decision-making processes and/or learning and improvement platforms ○ Governance of pandemic preparedness plan ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally ▪ Knowledge-management system to enable evidence support ○ Funding for research and evidence support ▪ Core (non-emergency funding for research and evidence support ▪ Time-limited and/or flexible funding arrangements with a plan for how it pivots/ramps up alongside a pandemic ○ Activities described within the pandemic preparedness plan that support the integration of evidence	Strong research infrastructure and capacity enabled scientific breakthroughs during the COVID-19 pandemic • The study aims to examine the ways in which the structures of the health research system contributed to the development of life saving technologies and the use of locally and globally produced evidence to inform healthcare practice and policies • The study focuses on seven countries where the health research system made differing contributions and draws lessons accordingly • Eleven lessons were identified in the study, including: ○ existing or rapidly established coordination was key to effective responses and reduced risk of wasted resources ○ effective priority setting was important in: rapidly testing new therapies, reducing waste of resources, considering the needs of diverse communities ○ the ability to accelerate ethics and protocol approvals to enhance data access and sharing increased the speed and efficiency of research production	High	Publication date: 2022 Jurisdiction studied: Methods: Qualitative description	None reported

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristic	Equity considerations
▪ Establish processes and mechanisms to access timely, demand-driven evidence support to inform pandemic preparedness planning and response, based on one or more of the eight different forms of evidence that can be used to inform decision-making ▪ Mechanisms for streamlined approval, regulatory and ethics processes ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health	○ the substantial and immediate benefits from rapid research progress provide enhanced opportunities and need for impact assessment ○ unprecedent level of public and private financing for research where collaboration between the two helped to achieve major successes but also led to concerned about wasted resources ○ mobilization of capacity to conduct primary and secondary research and enhance interdisciplinary cooperation led to important contributions ○ accelerating research production through new platforms and adaptive trials produced results but also led to quality concerns ○ translation of research into new products occurred at unprecedented speed and reflected significant investments that had been put in ○ there was considerable divergence in the use of evidence to inform policies and to promote equity in policies ○ pre-existing health research strategies enhanced the effectiveness of specific steps and opportunities but did not ensure informed action ○ the pandemic damaged aspects of the health research system including by reducing resources available for non-covid-19 research, as well as for early career, female and minority researchers			

Appendix 4: Details from the jurisdictional scan about integrating research evidence into pandemic preparedness plans

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)

Australia
 	
Australian Health Management Plan for Pandemic Influenza (2019)
 	
Commonwealth government COVID-19 response inquiry (2024)
	• Level of pandemic preparedness plan
	  ○ National
	• Components of evidence support infrastructure needed for pandemic planning and preparedness
	  ○ Connections to advisory and decision-making processes and/or learning and improvement platforms
	  ○ Governance of pandemic preparedness plan
	  ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience (including those from equity-deserving populations)
	  ▪ Secretariat support with documented capacity for evidence coordination and support, including specification of evidence needs and alignment with priority policy questions
	  ▪ Mechanisms to enable domestic and global data and evidence sharing
	  ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate)
	  ▪ Knowledge-management system to enable evidence support
	  ▪ Explicit plan for how evidence supports will pivot/ramp up alongside a pandemic
	  ○ Activities described within the pandemic preparedness plan that support the integration of evidence
	  ▪ Priority setting processes for new research or the focus for evidence-support processes
	  ▪ Capacity building to enable the use of evidence in decision-making processes
		• As part of the Australia Health Management Plan for Pandemic Influenza, the federal government will commission research to determine the effectiveness of public health measures which will inform the decisions of different levels of governments and any updates to pandemic plans
		• Among the preparedness activities include researching pandemic influenza management strategies, such as alternative measures for different pandemics
		• A process to facilitate rapid and directed research funding will be in place during a pandemic
		• The Australian government launched an independent inquiry into its COVID-19 response which identified lessons for improving future pandemic preparedness summarized in a report released on October 2024; it included recommendations for implementing processes and mechanisms for evidence-informed decision-making which are not yet in place.
		• One recommendations was to establish a permanent Australian Centre for Disease Control (CDC) with the functions of:
		  ○ a national repository of evidence
		  ○ behavioural insights capability to assess pandemic response effectiveness
		  ○ real-time collection, analysis and synthesis of evidence through a nationally coordinated approach, and an evidence strategy to inform this process
		  ○ having evidence to inform decision on adjusting public health measures through data sharing across jurisdictions and organizations and linking dataset linkage
		  ○ curating evidence tools in advance for pandemic preparedness, including protocols and pre-agreements with clinical partners to set up clinical trial platforms, case cohort studies, and a collection of statistical models for rapid adaptation to specific pandemic threats
		  ○ supporting the research community to advise on research gaps while not functioning as a research organization itself
			• None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
	▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) to inform pandemic preparedness planning and response, based on one or more of the eight different forms of evidence that can be used to inform decision-making (data analytics, modelling, evaluation, behavioural/implementation research, qualitative insights, evidence syntheses, technology assessment/cost-effectiveness analysis, guidance and other types of information and knowing, including Indigenous ways of knowing) ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health (e.g., for one or more of the forms of evidence listed above)	○ evidence support for decision-makers and advising the government on decisions about funding for pandemic research priorities ○ being advised by a council with broad expertise, including in pandemic response, communicable disease epidemiology, behavioural insights and priority cohorts, international representation, adaptability to dynamic risk environments, and knowledge of industry stakeholders' interests	
Canada Public Health Agency of Canada's 2024-25 departmental plan (2024) Report of the Expert Panel for the Review of the Federal Approach to Pandemic Science Advice and Research Coordination: The time to act is now (2024) Evaluation of the National Collaborating Centres for Public Health Programs 2018-19 to 2022-23 (2024) Strengthening the Use of Science for Emergency Management in Canada (2024)	• Level of pandemic preparedness plan ○ National • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Governance of pandemic preparedness plan ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience (including those from equity-deserving populations) ▪ Secretariat support with documented capacity for evidence coordination and support, including specification of evidence needs and alignment with priority policy questions ○ Funding for research and evidence support ▪ Core (non-emergency) funding for research and evidence support	• The Canadian government used different components of evidence support infrastructure for their pandemic preparedness, particularly related to the lessons learned from the COVID-19 pandemic, where they provided rapid investments, collaboration, new teams, and coordination of evidence syntheses and experts ○ There was limited information about mechanisms to enable domestic and global data, evidence sharing and collaboration with other levels of government and governance, priority-setting, mechanisms for streamlined approval, and evaluations of their plans prior to the pandemic (such as their 2015 and 2018 plans, which do mention the need for using evidence-informed decision-making) • In PHAC's 2024-2025 departmental plan, they describe that they will continue to enhance monitoring of trends of infectious diseases, strengthen collaboration for a One Health approach, develop guidelines, and incorporate lessons learned from the Canadian Pandemic Influenza Preparedness guides to inform the development of a Canadian Pandemic Preparedness Plan	• The 2024 evaluation of the National Collaborating Centres for Public Health notes that the National Collaborating Centres have continues to meet the three core functions laid out for them and play a critical role in identifying public health knowledge gaps, further they play an important role in networking and connecting with other research organizations across the country ○ The evaluation also notes the important role that the National Collaborating Centres play with regards to capacity building and knowledge translation, namely producing tools, publications, podcasts, webinars and training activities

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
Report 8: Pandemic preparedness, surveillance and border control measures (2021) Public Health Agency of Canada's COVID-19 Response: Lessons learned (2023) Canadian pandemic influenza preparedness: Planning guidance for the health sector (2018) Canadian pandemic influenza preparedness: Planning guidance for the health sector (2015) Evaluation of the pandemic preparedness strategic research initiative (2014)	▪ Time-limited and/or flexible funding arrangements with a plan for how it pivots/ramps up alongside a pandemic ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Capacity building to enable the use of evidence in decision-making processes ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health • Outcomes ○ Use of evidence in decision-making ▪ Changes in intentions to use evidence (as a proxy for actual use) ▪ Instrumental use (i.e., direct connection between evidence and decisions or plans put in place) ▪ Conceptual use (i.e., informing ways of thinking over time) ▪ Political use (i.e., use of evidence to justify decisions or plans already made)	and address recommendations from the Public Health Intelligence Network and the Auditor General on pandemic preparedness • In the PHAC's COVID-19 Response Lessons Learned report, it was noted that scientific capacity, collaboration, and evidence-based decision making was strengthened by rapid investments, implemented a new scientific collaboration governance, added policy development support and modelling team, and the behavioural science office, and coordinated evidence syntheses and mobilization activities (including 62 unique evidence syntheses produced by COVID-END and 15 expert consultations and engagements) ○ The report indicated that the rapid availability, contextualization and mobilization of scientific evidence was foundational and should be built into emergency planning, indicating an opportunity to formalize and build upon these mechanisms • The Canadian government's Centre for Research on Pandemic Preparedness and Health Emergencies (within CIHR) aims to strengthen coordination and capacity of health emergency research system (through knowledge creation, capacity building), collaborative leadership, knowledge mobilization, and continuous improvement at CIHR (using new methods, tools and data analytics) ○ The list of members involved in the steering committee is publicly available, with the primary focus to identify and coordinate priorities, investments and knowledge mobilization across different organizations • The Evaluation of the National Collaborating Centres for Public Health program 2018-19 to 2022-23 • The 2015 and 2018 pandemic influenza preparedness plans both describe that evidence-informed decision-making is one of the key guiding principles that underpin Canada's pandemic preparedness, which includes the collection, analysis and, sharing of information in a timely manner to different stakeholders ○ Canada is also guided by a protective approach in the early stages of the pandemic, where data and evidence is evolving and requires ethical and societal values to be embedded in the decision-making	○ The evaluation reveals challenges in meeting expectations without supplementary funding from the Public Health Agency, affecting their ability to address long-term capacity gaps ○ Further, the evaluation notes room for improvement in coordinating between the national collaborating centres and the Public Health Agency, namely in better sharing priorities in a systematic manner • The Report of the Expert Panel for the Review of the Federal Approach to Pandemic Science Advice and Research Coordination identified the following challenges during the response to the COVID-19: ○ incomplete surveillance systems that were not consistently available to public health providers ○ insufficient guidance for diagnostics, therapeutics, non-pharmaceutical interventions and patient care ○ limited coordination of science advice coming to the Chief Science Advisor of Canada ○ lack of public communication of advice from the federal advisory bodies ○ limited prioritization of evidence needs ○ challenges with existing data systems and the timely collection and sharing of data

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		○ The plans also describe the role of research and evidence-informed decision-making, where it's important to identify the research needs, networks, rapid research response (e.g., seroprevalence studies), knowledge translation, prepare pandemic planning scenarios, and the use of risk management that supports evidence-informed decision-making ○ The report recognizes that mechanisms are needed to integrate new research findings into evidence-informed practice ○ The public health measures in the 2018 appendix indicated that decisions related to public health measures should be based on the best available evidence • Recommendations from the Chief Science Advisor's report on Strengthening the Use of Science for Emergency Management in Canada (2024), include: ○ establishing governance structures for integrating science into decision-making during emergencies ○ ensuring interoperable data and sustainable data infrastructure ○ institute a dynamic process of identifying existing gaps, prioritizing them and coordinating efforts to address them among relevant stakeholders ○ embedding multidisciplinary into science advice ○ effective prioritization of research needed through funding projects with established research networks ○ ensuring credible communication that is trusted by the public ○ develop a comprehensive national health risk register ○ implementing a One Health Approach ○ developing capacity for biomanufacturing and for the access and scale up of medical and non-medical tools and countermeasures for infectious and non-infectious threats	○ despite these challenges, the report also highlighted the following positive attributes of Canada's response: ▪ efforts by the federal government to seek science advice through established structures and newly created ad hoc advisory bodies, however the effectiveness of these structures varied • The 2021 Auditor General of Canada report about the pandemic preparedness, surveillance and border control measures for the COVID-19 pandemic indicated that while the Public Health Agency of Canada prepared plans and national guidance, it did not complete a planned testing exercise, update the plans and guidance, did not address the shortcomings in health surveillance information that impeded effective exchange of health data between agencies and provinces • A 2014 evaluation of the Pandemic Preparedness Strategic Research Initiative indicated that the Government of Canada allocated $422 million in funding to support preparedness for avian and pandemic influenza, including $21.5 million for pandemic influenza research ○ The report found that new knowledge was generated, contributed to building capacity and pandemic response

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
			systems at organizations such as the Bill and Melinda Gates Foundation, Public Health Agency of Canada, World Health Organization and the Ontario Health Plan for an Influenza Pandemic, research findings were adopted by health professional regulatory bodies in Ontario and Nova Scotia

France
 	
Global health strategy 2023-27 (2023)
 	
One health – human, animal and environment: Lessons from a crisis (2022)
	• Level of pandemic preparedness plan
	  ○ National
	• Components of evidence support infrastructure needed for pandemic planning and preparedness
	  ○ Connections to advisory and decision-making processes and/or learning and improvement platforms
	  ○ Governance of pandemic preparedness plan
	  ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience (including those from equity-deserving populations)
	  ▪ Secretariat support with documented capacity for evidence coordination and support, including specification of evidence needs and alignment with priority policy questions
	  ▪ Mechanisms to enable domestic and global data and evidence sharing
	  ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate)
	  ○ Activities described within the pandemic preparedness plan that support the integration of evidence
	  ▪ Priority setting processes for new research or the focus for evidence-support processes
		• In 2022, according to the One Health report the former scientific council was replaced by a committee for monitoring and anticipating health risks with the objective of maintaining a more independent and transparent multidisciplinary scientific advisory committee and to provide an integrated approach to health
		  ○ The committee includes expertise from a wide range of field including human health, animal health and environmental sectors as well as three civil society representatives
		  ○ The committee is responsible for responding to the French government's requests for information and can identify specific priority areas itself
		  ○ The committee also maintains links to human and animal health agencies and their respective expert groups and research teams
		• France's global health strategy for 2023-2027 places a significant emphasis on research as a tool to improve global health outcomes, particularly emphasizing partnerships, capacity building and evidence support for decision-making
		  ○ One of the underpinning values identified in the framework is that the approach is based on scientific results and methods
		  ○ The report is clear in noting that this requires the use of high-quality data on people's health and their environment, setting up evaluation mechanisms and conducting impact studies on efforts that are pursued
		• The strategy has three main thematic priorities (to promote equitable, sustainable, resilient, adaptive and people-centred health systems to achieve universal health coverage;
			•

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
	▪ Capacity building to enable the use of evidence in decision-making processes	promoting people's health and well-being preventing and combating diseases at all stages of life; driving better anticipation, prevention, preparation and response to public health emergencies and climate change, as part of a one health approach) as well as two cross-cutting priorities (a new global health architecture based on complementarity of bilateral and multilateral action; and make research and public private expertise levels for the French action and influence global health) • Under the third priority area the following are relevant actions: o The plan highlights France's intention to contribute to global networks including by contributing to the financing of pandemic prevention, preparedness and response via the Financial Intermediary Fund for Pandemic Prevention Preparedness and Response hosted by the World Bank o Support bilateral and multilateral projects and initiatives aimed at improving surveillance capacities include the International Association of National Public Health Institutes and Team Europe Initiative o Support the construction of interoperable databases, common standards and harmonised regulatory frameworks • Under the second cross cutting theme – make research and public and private expertise levers for the French action and influence in global health o Improve coordination between French, francophone and European players in global health such as supporting the European and developing countries clinical trials partnership o Support exchanges and actions to capitalize on information between regional health surveillance networks o Facilitate the engagement and monitoring of the pool of experts from French agencies and institutions o To promote open science with partner countries and the basis of reciprocity, respect for ethical frameworks and the sharing of data across the research continuum o To promote a research agenda to support the priority themes and promote impact assessment	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		○ Coordinate the work of research facilities and French networks to encourage transdisciplinary knowledge and create synergies in the identification of priority areas ○ To introduce training for embassy staff and scientists in the major challenges of global health diplomacy	
Germany Robert Koch Institute 2025 (2025)	• Level of pandemic preparedness plan ○ National • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Connections to advisory and decision-making processes and/or learning and improvement platforms ○ Governance of pandemic preparedness plan ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience (including those from equity-deserving populations) ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate) ○ Activities described within the pandemic preparedness plan that support the integration of evidence ○ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) to inform pandemic preparedness planning and response, based on one or more of the eight different forms of evidence that can be used to inform decision-making (data analytics, modelling, evaluation, behavioural/implementation research, qualitative insights, evidence syntheses, technology assessment/cost-effectiveness analysis, guidance and other types of	• The Robert Koch Institute's 2025 plan (RKI 2025) highlights targeted initiatives for promoting research evidence, and knowledge sharing/transfer in decision-making processes: ○ Investments in IT infrastructure and artificial intelligence to advance digital epidemiology and unlock new data sources (e.g., the use of structured and unstructured data sets in real-time, coupled with epidemiological surveillance data will help detect, evaluate, and respond to emerging health threats) ○ For non-communicable diseases, various data sources, such as health insurance companies, government statistics, and geographical information systems will be used to form the basis of policy recommendations ○ The development of evidence-based methods for audience-specific communication (e.g., graphical representation of data) ○ Fostering a strong network of national and international stakeholders/academic institutions to support data sharing and inform policy recommendations ○ Leverage interdisciplinary cooperation in veterinary medicine and environmental public health to adopt a "One Health" perspective ▪ Initially, at the national level and will be supported through an improved model of data sharing to allow for more accurate assessments of health risks and potential interventions ○ New organizational structures to support greater efforts on global health issues ○ The development of an interdepartmental working group to coordinate healthy aging and monitor demographic changes when considering the development of health policy recommendations ○ Joint development of training exercises and national preparedness protocols to support crisis management	• None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
	information and knowing, including Indigenous ways of knowing)	• The German Epidemic Preparedness Team (SEEG), which features cross-sectoral experts focused on supporting pandemic prevention and early detection, are part of an international and regional cooperation network on the One Health approach ○ Since 2015, SEEG has been a critical component of Germany's rapid response team engagement in over 60 countries, providing actional expertise in epidemic and pandemic preparedness and response, intersectoral collaboration, and tailored solutions for effective infectious disease management • As a member state of the World Health Organization committed to drafting the International Pandemic Accord, Germany is focused on strengthening regional, national, and global capacities to help the international community be better prepared for future health crises and respond to emerging pandemics • During the COVID-19 pandemic, Germany employed a joint-decision making strategy, including consensus-building strategies to develop national public health guidelines to curb infection rates The Robert Koch Institute (RKI) supported the development of preparedness plan in 2007, leveraging the use of an advisory board on influenza	

Italy	• Level of pandemic preparedness plan
	  ○ National
	• Components of evidence support infrastructure needed for pandemic planning and preparedness
	  ○ Governance of pandemic preparedness plan
	  ○ Funding for research and evidence support
	  ▪ Core (non-emergency) funding for research and evidence support
	  ▪ Time-limited and/or flexible funding arrangements with a plan for how it pivots/ramps up alongside a pandemic
	  ○ Activities described within the pandemic preparedness plan that support the integration of evidence
		• The Italian government's preparedness plan for influenza outbreaks developed in 2021 adhere to the international health regulations established by the WHO and integrates recommendations by the ECDC, which involves engaging with multidisciplinary stakeholders (i.e., public health experts, virologists, bioethicists, policymakers), establishing formal agreements for sharing real-time epidemiological data between national agencies and global health bodies, establishing digital platforms for research and evidence with core investments that are also flexible to allocate to emergency situations, and establishing mechanisms for transparency in evidence use
		  ○ The plan states that decisions and recommendations are rooted in evidence with clear documentation and rationale, which are accessible to stakeholders and the public.
			• None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
	▪ Priority setting processes for new research or the focus for evidence-support processes ▪ Capacity building to enable the use of evidence in decision-making processes ▪ Standards or requirements for transparency in how evidence is used to inform recommendations and decisions ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health	○ A three-year evaluation cycle is proposed, in addition to "after action reviews", and simulation and testing, though these have not been evaluated yet • Their preparedness plan for influenza outbreaks describes the need to use international guidelines, using epidemic intelligence by establishing real-time surveillance systems and tools to monitor outbreaks (i.e., simulation exercises and epidemiological/virological studies), use of "After Action Reviews" post-pandemic to gather lessons learned and importance of periodic evaluations during inter-pandemic periods, to ensure nationwide training, ○ The document describes the role of advisory bodies like the Italy's National Institute of Health, coordination required by centralized health agencies with specific roles in evidence management policymaking, structured frameworks for priority setting, evidence commissioning (i.e., systematic reviews, risk modelling and technology assessments), and stakeholder involvement ○ It also describes the need for developing communication strategies to enhance public trust through transparent sharing of data and scientific rationale • Their national recovery and resilience plan briefly describes research funding for improving the innovation, research and digitization of the national health service (such as new governance for research and care facilities), however specific information on what this actually entails was challenging to identify ○ A general report on Italy's national recovery and resilience plan reported that the government is allocating EUR 524 million to strengthening treatment and research capabilities of rare diseases	
Hong Kong Preparedness and response plan for novel infectious disease of public health significance Preparedness and response plan for influenza pandemic	• Level of pandemic preparedness plan ○ National • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Connections to advisory and decision-making processes and/or learning and improvement platforms ○ Governance of pandemic preparedness plan	• In the Centre for Health Protection's Preparedness and Response Plan for Novel Infectious Disease of Public Health Significance and Preparedness and Response Plan for Influenza Pandemic, risk assessments (including on disease vector or animal reservoir, at-risk populations, case fatality ratio, complication rate, reproductive number, and other transmission data) will be reviewed by the government periodically to inform the activation of appropriate response and measures	• None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
	▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience (including those from equity-deserving populations) ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Capacity building to enable the use of evidence in decision-making processes • Outcomes ○ Use of evidence in decision-making ▪ Political use (i.e., use of evidence to justify decisions or plans already made) ▪ Public trust	• On an ongoing basis during normal times, the Scientific Committees of the Centre for Health Protection are to review and recommend evidence of effectiveness of public health control measures • In addition to the two reports, we identified a case study on COVID-19 that explores the role of experts in Hong Kong's initial policy response • The study notes that a temporary advisory panel on COVID-19 vaccines was formed at the end of 2020 with interdisciplinary expertise from various medical fields (epidemiology, paediatrics, geriatrics, pharmacology, etc.) • This panel and the Scientific Committees of the Centre for Health Protection prepared for the distribution of COVID-19 vaccination by reviewing global scientific evidence • Despite formal scientific advisory mechanisms, low public trust led to defiance of public health decisions, shifting the role of public communication to more trustworthy scientific experts	
Japan	• Level of pandemic preparedness plan ○ National • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Governance of pandemic preparedness plan ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate) ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Priority setting processes for new research or the focus for evidence-support processes ▪ Capacity building to enable the use of evidence in decision-making processes	• While a more recent plan was not identified, Japan's 2013 emphasizes coordination within the government involving the prime minister, relevant ministries and an expert panel for decision-making, in addition to using research findings to establish a national surveillance system with international and national entities ○ The plan also describes the need for training local governments and experts to conduct rapid epidemiological surveys and diagnostic tests, ensuring a collaborative and cohesive effort to pandemic preparedness ○ Mechanisms and processes to use both existing and new flows of evidence were not reported in detail • The most recent national action plan for pandemic influenza and new infectious diseases is from 2013, which describes the governance structures before and after an outbreak, countermeasures, research activities, communication, and medical care. ○ Related to governance, the prime minister, chief cabinet secretariat, Minister of Health, Labor and Welfare, related ministries meet to discuss countermeasures, which they also seek opinion from a panel of experts on pandemic influenza and new infectious diseases	• Not identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		○ The related information is trickled down to local governments and public institutions ○ The plan describes that Japan will cooperate with the WHO and other entities to develop a national surveillance system (including the National Institute of Infectious Diseases, Hokkaido University's OIE reference laboratory, ministries within the government) ○ The plan recommends that the government develop ways to train experts and local governments to conduct epidemiological surveys and diagnostic tests quickly • Japan, South Korea and China pledged that they will encourage relevant joint research and seek to build long-term cooperation mechanisms such as strengthening efforts and collaboration across their national public health institutes for disease control	
Netherlands	• Level of pandemic preparedness plan ○ National • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Governance of pandemic preparedness plan ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Capacity building to enable the use of evidence in decision-making processes ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health	• Publicly available reports or plans were limited; however, Netherlands provided details about their efforts to establish processes such as the development of research programs and to be part of Europe-wide initiatives to use evidence in their preparation for future zoonotic disease outbreaks. • There are limited details how these activities and evidence support infrastructures will be operationalized. • The 2023 pandemic preparedness plan is based on social and behavioural science, which includes two components: ○ Knowledge sharing and exchange, where the National Institute for Public Health and the Environment (RIVM) acts as a knowledge broker among government, professionals in the field, and experts abroad in order to transfer knowledge policymakers and identify what knowledge is needed ○ Preparation of research protocols and assessment tools to regularly update behavioural science resources to increase scale-up in case of an outbreak • The government is involved in pan-organizations and pan-national efforts such as: ○ UNITED4Surveillance (January 2023 to December 2025), which aims to integrate surveillance systems across 24 countries in Europe to analyze gaps and needs, integrate policies, identify promising approaches to conduct pilots, disseminate best practices, and share experiences and	• None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		knowledge through capacity-building for infectious disease prevention and control ○ BE READY (Building a European strategic REsearch and Innovation Area in Direct SynergY), which aims to develop a research and innovation framework to improve the European Union's preparedness to predict and respond to infectious health treats using a One Health approach ▪ As part of these efforts, a gap analysis on Netherlands was conducted to determine priorities for preparedness and response; they reported that there was a need to develop a research and innovation agenda, encourage collaboration, strengthen preparedness and research capacity ○ The Netherlands Organisation for Health Research set up the ERRAZE@WUR (Early Recognition and Rapid Action in Zoonotic Emergencies) research and investment program, which encourages collaboration across various disciplines to establish the scientific basis required to avoid future pandemics (using a One Health approach) ▪ This program will directly develop tools that provide specific support policy ○ The Netherlands Organisation for Health Research Pandemic Preparedness program will focus on zoonotic diseases and aim to support measures and policies for the prevention, detection and control of these diseases	
Norway National health preparedness plan (2018) National emergency plan against outbreaks of serious infectious diseases (2018) Coronavirus commission's report (2021) A resilient health emergency preparedness: From pandemic to war in Europe (2023)	• Level of pandemic preparedness plan ○ National • Components of evidence infrastructure needed for pandemic planning and preparedness ○ Connections to advisory and decision-making processes and/or learning and improvement processes ○ Governance of pandemic preparedness plan ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Knowledge-management system to enable evidence support ▪ Explicit plan for how evidence supports will pivot/ramp up alongside a pandemic	• Identified documents from Norway adhere to the international health regulations established by the WHO and generally highlight the decision-making structures related to pandemics and emergencies, highlighting the roles and responsibilities of each of the identified organizations • The plans include some details regarding investments in surveillance systems and digital platforms that support the sharing of data as well as in international collaborations that they take part in at a Nordic, European and Global scale • The two more recent documents - one of which is a review of the experience during COVID-19, while the second is a series of recommendations to parliament – highlight additional processes and mechanisms including ○ clarifying advisory structures with expert committees feeding into them,	• The coronavirus commission identified that insufficient information flow between digital platforms during the pandemic was found to contribute to additional work, duplication and manual processing of data, this led to recommendations for parliament on how to improve the integration of data, particularly between different levels of governance (e.g., national vs municipal)

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
	○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Prioritization and coordination processes for requesting evidence support ▪ Mechanisms for streamlined approval, regulatory and ethics processes	○ the development of an explicit plan for how evidence and in particular data analysis capacity should ramp up during a pandemic ○ establishing a knowledge platform that can house information on pandemic control measures ○ continuing to invest in surveillance systems and data sharing ○ participating in international knowledge networks ○ considering ways to increase the pace of new flows of research evidence (e.g., exemptions from regulatory and ethics reviews) • The National health preparedness plan largely describes governance structures in place should there be an emergency, but notes the following key elements that relate to governance of evidence processes and mechanisms: ○ The Norwegian Institute of Public Health acts as the secretariat for the Pandemic and Epidemic Committee, while the crisis support unit provides secretarial support to the Crisis Council (the highest coordinating body at the administrative level) ▪ The Crisis Council provides support for analyses and is responsible for establishing a common understanding of a crisis situation as a basis for decisions, however no specific mention of how (i.e., using what methods or processes) this is done ○ International cooperation with: ▪ other Nordic countries including to inform and consult each other about measures taken in crisis situations and to promote cooperation ▪ countries in the European Parliament to share epidemiological surveillance and monitoring as well as having the Institute of Public Health participate in expert networks and advisory forums for international monitoring and development of recommendations for infection control • The National emergency plan against outbreaks of serious infectious diseases does not include a section related to the mechanisms and processes of enabling evidence-informed decisions prior to or during a pandemic, however it does note the Institute of Public Health's cooperation with international	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)

		organizations including the WHO and European Commission on monitoring and advising on pandemic preparedness and control measures
		• The Coronavirus Commission report highlights a number of key sections that reflect on processes and mechanisms for evidence, including:
		  ○ The section related to systems for monitoring and knowledge production focuses predominantly on surveillance systems and the need to be integrate real-time data from the infection disease reporting system with municipal data systems and with the national vaccination register and electronic patient records
		  ○ The section detailing events from the first weeks and months of the pandemic notes the use of evidence generated from Imperial College and comparisons to other Scandinavian countries as being used to inform decisions, however there is no mention of how this organization was chosen to provide modelling and data support
		  ○ The section on the division of efforts notes that the Norwegian Institute for Public Health is primary responsible for summarizing and communicating knowledge to contribute to good public health, which includes monitoring epidemiological situations and carrying out research
		• The recommendations to parliament describe the following recommendations coming out of the experience of the COVID-19 pandemic that relate to strengthening the processes and mechanisms for evidence:
		  ○ Development of a Health Emergency Preparedness Council which unifies different sectors across government and has an advisory expert committee for health crises to allow for improvement prioritization and coordination of the health sector daily and in crisis
		  ▪ The council is supported by a preparedness secretariat which will operate on a day to day basis as well as during crises
		  ▪ The advisory expert committee will be made up of interdisciplinary experts with areas of expertise being dependent on the specific crisis that has arisen, this committee will be responsible for performing	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		comprehensive assessments on the knowledge base for the strategy and management of crisis and to maintain contact with knowledge environments to draw on broader competences and if needed set up specific thematic groups to cover the key needs for knowledge (e.g., a modelling group) ○ The recommendations also include a section on strengthening knowledge and knowledge-based management, including: ▪ establish systems that link data together as well as provide common platforms to access information ▪ establish a knowledge environment at the Norwegian Institute of Public Health which will contribute towards improving knowledge about each measure for health protection in efforts to avoid future implementation of measures during crises that have limited infection control ▪ changes to the Health Research Act that exempt pure register studies for approval as well as providing the Regional Committees for Medical and Health Research Ethics with the opportunity to grant exemptions from the requirement for consent from research participants if there is no risk to harm ▪ developing a framework for how analysis capacity and infrastructure can be quickly scaled up in a crisis, including assessing where scale up would be needed (we were unable to find this report) ▪ sharing data internationally to contribute to global monitoring and knowledge production, including participating in international networks ▪ knowledge preparedness, rapid access to data and encouraging better evaluations should all feature more prominently in future drafts of the pandemic preparedness plan	
New Zealand New Zealand pandemic plan: A framework for action (2024)	• Level of pandemic preparedness plan ○ National • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Governance of pandemic preparedness plan	• There is limited publicly available information on priority setting, processes, standards and reporting on evidence support and/or new flows of evidence and how they are used to inform recommendations and decisions • The pandemic plans (the most recent plan was published in 2024) generally describe the governance bodies that are	• None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
New Zealand pandemic response policy for aged residential care (2020) New Zealand pandemic plan (2010)	○ Activities described within the pandemic preparedness plan that support the integration of evidence	established during a pandemic; however there is little description on the actual processes (i.e., which subject-matter experts are engaged, who the secretariat is, mechanisms to enable evidence-sharing). • The pandemic plan describes the types of existing and new flows of evidence that they pull, which were similar across the 2010, 2017, and 2024 pandemic plans that were publicly available online. ○ The 2024 New Zealand Pandemic Plan indicated that as part of their Coordinated Incident Management System (CIMS), the government gathers and assesses surveillance (including epidemiological and behavioural), conducts structured risk assessments (including modelling), assesses impacts on health services and non-health services, reviews virology and mortality data, and undertakes other research ○ The Ministry of Health and Health New Zealand will work with other agencies to collect and analyse data, which includes ensuring domestic surveillance systems are fit for purpose and processes are in place to obtain intelligence to monitor the international and domestic situation, assess the effectiveness of response activities, and use data to support reviews and lessons-learned exercises ○ In the considerations to inform risk assessments and actions to be taken in a pandemic response and mounting a response, the government expects to glean from global epidemiological trends, modelling, and international experience ○ The Intersectoral Pandemic Group includes 11 work streams that each address a critical national pandemic response, and during the pandemic all-of-government communications and legislation issues will be led by the Ministry of Health ○ The Officials' Committee for Domestic and External Security Coordination is responsible for high-level policy decisions on security and intelligence matters • Similar to the 2024 pandemic plan, The 2017 New Zealand Pandemic Plan indicated that their 'Intelligence' activities include enhanced training on surveillance for government staff, carry out extensive surveillance in health and non-health	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		services, monitor trends domestically and overseas, develop intelligence summaries, advise WHO on any border measures, and develop response-evaluation programs ○ The Environmental Science and Research Ltd was the WHO National Influenza Centre and reference laboratory in New Zealand, where they were responsible for the coordination of national, real-time notifiable disease surveillance and data analysis, scientific advice and communication to agencies within New Zealand and internationally ○ The plan outlined key groups that they would engage with such as the Pandemic Influenza Technical Advisory Group, Ministry of Health Executive Leadership Team, Cross-Ministry Emergency Management Steering Group, Cross-Ministry Emergency Management Advisory Group, in addition to all-of-government committees ▪ The Pandemic Influenza Technical Advisory Group would provide expert clinical, virological, epidemiological, infection control and ethical advice (including key messaging for communications, public health interventions) to the Ministry of Health during pandemic response planning ○ The activities related to intelligence (i.e., gathering evidence related to surveillance, clinical) was adapted in the 2024 updated report ○ To monitor the impact on the community and population groups, they used data from epidemiological surveys and research conducted by the Ministry of Health, public health units, Ministry of Education, and State Services Commission • The 2010 New Zealand Pandemic Plan similarly outlined key groups and intelligence activities as the 2017 version. • The 2020 New Zealand Pandemic Response Policy for Aged Residential Care indicated that the Health Quality & Safety Commission are responsible for supporting the sector with evidence-based resources, tools, guidance and complement national policies and frameworks such as advice on hand hygiene and PPE based on the latest international experience, research and guidance	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		• New Zealand is involved with WHO to negotiate an international legal instrument on global pandemic prevention, preparedness and response (referred as the pandemic treaty)	

United Kingdom
 	
UKHSA science strategy 2023 to 2033: securing health and prosperity
 	
UK Influenza Pandemic Preparedness Strategy 2011
	• Level of pandemic preparedness plan
	  ○ National
	• Components of evidence support infrastructure needed for pandemic planning and preparedness
	  ○ Connections to advisory and decision-making processes and/or learning and improvement platforms
	  ○ Governance of pandemic preparedness plan
	  ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience (including those from equity-deserving populations)
	  ▪ Mechanisms to enable domestic and global data and evidence sharing
	  ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate)
	  ▪ Explicit plan for how evidence supports will pivot/ramp up alongside a pandemic
	  ○ Activities described within the pandemic preparedness plan that support the integration of evidence
	  ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) to inform pandemic preparedness planning and response, based on one or more of the eight different forms of evidence that can be used to inform decision-making (data analytics, modelling, evaluation, behavioural/implementation research, qualitative insights, evidence syntheses, technology assessment/cost-effectiveness analysis, guidance and
		• The UK Health Security Agency, launched on 1 October 2021, published a 10-year science strategy that will underpin its work within the United Kingdom to protect the health of residents and the most vulnerable; this plan details key evidence-based initiatives that support decision-making efforts:
		  ○ Catalyse a collaborative health security campus through new partnerships; enable data sharing with international, national, local, and academic partners
		  ○ Strengthen genomics surveillance and artificial intelligence efforts to enable detection, evaluation, and response (e.g., advanced modelling capabilities, access to data through secure systems, investments in laboratory-based services, and data-enabled research platforms and technologies)
		  ○ Develop a Vaccine Development and Evaluation Centre (VDEC) which brings together laboratory expertise in vaccine discovery and development
		  ○ Adopt a 'One Health' approach and work with content experts from in the NHS and universities
		  ○ Create a central data and analytics platform for improved knowledge transfer among scientists and researchers
		  ○ Engage with patients and community groups to ensure high-risk populations are at the centre of their care
		  ○ Establish evidence hubs on health security and reinforce partnerships with the National Institute for Health and Care Research (NIHR) Health Protection Research Units
		  ○ Investments in behavioural, social, and implementation science
		• The United Kingdom committed to the 100 Days Mission to reduce the impact of future pandemics
		  ○ 100 Days Mission is a global collaboration to respond to a new pandemic threat within 100 days through vaccine/therapeutic development
		• The UK Influenza Preparedness Strategy 2011 was developed to provide a UK-wide strategic approach for responding to the influenza pandemic; it consisted of:
		  ○ Surveillance and modelling
			None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
	other types of information and knowing, including Indigenous ways of knowing) ▪ Mechanisms for streamlined approval, regulatory and ethics processes	○ Reducing the risk of transmission ○ Activating the National Pandemic Flu Service (automated system for antiviral authorization) ○ Advanced purchase agreements ○ A surge capacity plan to support health care services in hospital and community settings • In the UK, pandemic preparedness plans integrate findings from local and national 'exercises', as they allow for the sharing of ideas, cross government meetings, and identifying best practices ○ Exercise Cygnus was a cross-government exercise to test the pandemic response to the influenza pandemic preparedness plan – a key component of which assessed organizations' ability to operate during the peak of a pandemic ▪ The exercise led to 22 recommendations which emerged, and in collaboration with scientific expert advice helped inform the region's response to the COVID-19 pandemic ▪ One recommendation included drafting the Pandemic Influenza Bill which can be used in the case of future pandemic events – this allowed necessary legislation to be streamlined and pass rapidly during the COVID-19 pandemic	
United States* National COVID-19 preparedness plan NIAID pandemic preparedness plan (2021) Pandemic influenza plan (2017) National Strategy for pandemic influenza (2005) **some of the documents included as part of U.S. scan*	• Level of pandemic preparedness plan ○ National • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Connections to advisory and decision-making processes and/or learning and improvement platforms ○ Governance of pandemic preparedness plan ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience (including those from equity-deserving populations) ▪ Secretariat support with documented capacity for evidence coordination and support, including specification of	• The White House National COVID-19 Preparedness Plan lays out a roadmap following the COVID-19 pandemic and highlights the following administrative plans regarding processes and mechanisms for evidence use: ○ The Administration plans to strengthen data infrastructure and interoperability to facilitate data linking across jurisdictions ○ Investments have been made to expand data infrastructure for the collection of health equity data and reporting for high-risk populations ○ Quantitative and qualitative data are utilized to inform timely, equity-centred decisions and to evaluate response effectiveness ○ The health status and outcomes of those in high-risk settings (e.g., long-term care homes) are tracked in real time in collaboration with state, local, Tribal, and territorial	The White House National COVID-19 Preparedness Plan • The collection of equity data has informed equity-driven decision-making on delivering vaccines and treatments • When the Omicron variant emerged, the Administration coordinated between networks of government, academic and private scientists to quickly assess the effectiveness of vaccines, tests, and treatments that helped to inform clinical and public guidance

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
have since been taken down and are no longer accessible via the URLs	evidence needs and alignment with priority policy questions ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate) ▪ Knowledge-management system to enable evidence support ▪ Explicit plan for how evidence supports will pivot/ramp up alongside a pandemic ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Priority setting processes for new research or the focus for evidence-support processes ▪ Processes, standards and reporting for determining who is requested/commissioned to provide evidence support and/or produce new flows of evidence ▪ Capacity building to enable the use of evidence in decision-making processes ▪ Implementing and aligning enablers to support the use of evidence in decision-making ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) to inform pandemic preparedness planning and response, based on one or more of the eight different forms of evidence that can be used to inform decision-making (data analytics, modelling, evaluation, behavioural/implementation research, qualitative insights, evidence syntheses, technology assessment/cost-effectiveness analysis, guidance and	health entities to inform research into evidence-based interventions ○ A variant playbook has been developed to rapidly evaluate the impact of new variants on the effectiveness of vaccines, tests and treatments; the resulting evidence informs clinical and public guidance through a coordinated infrastructure between the National Institute of Health, the Food and Drug Administration, and the Center for Disease Control and Prevention • The * Department of Health and Human Services Pandemic Influenza Plan from 2017 notes the following structures and processes related to the use of evidence in decision-making: • Scientific Infrastructure and Preparedness is one of seven domains of the plan with the objectives of: ○ Ensuring capacity for clinical, behavioural and epidemiological research that provides evidence to inform pandemic planning ○ Supporting basic and translational research to improve prevention, diagnosis and treatment in collaboration with government agencies, academic institutions, and the private sector ○ Putting in place a preparedness framework with the ability to integrate scientific research into public health practice while aligning the two • The department's system of scientific preparedness infrastructure is intended to be agile in: ○ Enabling scientists to quickly identify research priorities and collect, analyze and share time-sensitive data ○ Providing the best available evidence for decision-makers ○ Supporting the collection and sharing of data prior to a pandemic ○ Responding to immediate questions of decision-makers during a pandemic • Key actions of the scientific infrastructure and preparedness include: ○ Creating validated tools to facilitate the initiation of scientific response, including pre-approved protocols for clinical trials of multiple interventions, pre-agreements with clinicals networks for clinical evaluation of medical	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
	other types of information and knowing, including Indigenous ways of knowing) ▪ Mechanisms for streamlined approval, regulatory and ethics processes ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health (e.g., for one or more of the forms of evidence listed above) • Outcomes ○ Use of evidence in decision-making ○ Instrumental use (i.e., direct connection between evidence and decisions or plans put in place)	countermeasures, and platforms for data sharing that informs pandemic planning and responses ○ Enhancing clinical trial evaluation networks, regulatory processes, databases and systems for rapid evaluation of safety and effectiveness of multiple interventions ○ Investigating factors for low vaccination levels and measures to increase uptake in certain populations • Homeland Security Council National Strategy for Pandemic Influenza and Implementation Plan ensure the sharing of scientific information among governments, scientific entities and the private sector • The Secretary of Health and Human Services will be responsible for coordinating the pandemic public health response, including epidemiological assessment, outbreak modelling, virus research, new countermeasures, and rapid diagnostics • The Department of the Interior's National Wildlife Health Center collaborates with departmental bureaus, state and federal governments, and Tribal entities to investigate and provide scientific support for wildlife diseases • National Institute of Allergy and Infectious Diseases Pandemic Preparedness Plan describes the use of a dedicated preparedness coordination team ensures adequate allocation of resources to cover scientific gaps while working with other federal agencies and international funders with capabilities in preparedness and planning	
Switzerland Swiss Influenza Pandemic Plan: Strategic and measures to prepare for an influenza pandemic (2018)	• Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Governance of pandemic preparedness plan ▪ Mechanisms to enable domestic and global data and evidence sharing	• Relatively little information was found for Switzerland with only one pandemic preparedness plan identified, most of which is focused on highlighting the proposed control measures to be implemented in case of a pandemic rather than the mechanisms or processes needed to support ongoing use of evidence in decision-making, though there was some discussion of the use of ongoing use of surveillance systems that adhere to the international health regulations • The Swiss Influenza Pandemic Plan, which formulates preparatory measures and actions application to the management of a health pandemic is currently being revised to include lessons learned from the COVID-19 pandemic and will be released in 2025	• None reported

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		• The current strategy includes a section related to the principles and information useful to understanding the strategy for preparing for and combatting a pandemic laid out in the rest of the document ○ However, the section is focused on synthesizing what is already known about influenza and control measures rather than on the infrastructure necessary to support ongoing evidence generation and use	

African Centre for Disease Control
 	
African CDC Strategic Plan for 2023-27 (2023)
 	
Mpox continental preparedness and response plan for Africa (2024)
 	
A coordinated research roadmap for the mpox virus: Immediate research next steps to contribute to outbreak and control (2024)
 	
Strategic framework for strengthening cross-border surveillance and information sharing in Africa (2024)
	• Components of evidence support infrastructure needed for pandemic planning and preparedness
	  ○ Connections to advisory and decision-making processes and/or learning and improvement platforms
	  ○ Governance of pandemic preparedness plans
	  ▪ Mechanisms to enable domestic and global data and evidence sharing
	  ○ Funding for research and evidence support
	  ○ Activities described within the pandemic preparedness plan that support the integration of evidence
	  ▪ Mechanisms for streamlined approval, regulatory and ethics processes
	  ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health
		• Documents from the African CDC highlight the key role the organization plays in coordinating responses across the continent, in particular playing a prominent role in coordinating research efforts and setting priorities, developing and building capacity for data collection and sharing, and implementing and aligning enablers to support the use of evidence in decision-making
		  ○ Further, a number of efforts have been noted that aim to support streamlined approval, regulatory and ethics processes across the 22 countries
		• Though not a pandemic preparedness plan per se, the African CDC Strategic Plan for 2023-27 has “ensure robust emergency preparedness and response capabilities for all public health emergencies” as a priority and the following as enablers:
		  ○ enhanced and integrated digital and analytics approaches to public health in Africa
		  ○ strengthened public health research and innovation to improve public health decision making and practice, which in turn includes:
		  ▪ developing a research prioritisation framework across member states and public health research priorities
		  ▪ increase coordinated health research funding
		  ▪ promote collaboration among existing networks to conduct research on priority issues
		  ▪ strengthen translation of research into policy and practice by proactively identifying when new guidance in needed (in emergency and non-emergency contexts), regularly publishing findings from African member states and providing member states with technical assistance to support the translation of policies into practice
			• None reported

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)

		• The mpox preparedness and response plan has ten pillars, of which research and innovation is pillar eight
		  ○ The research and innovation pillar has two strategic objectives: 1) to coordinate and conduct mpox operational and clinical research across the continent to address critical knowledge gaps and support response efforts; 2) to coordinate and enhance research and development for the manufacturing of countermeasures, including vaccines, therapeutics and diagnostics to ensure rapid deployment during outbreaks
		  ○ The first strategic objective includes:
		  ▪ developing a continent research coordination mechanism to bring together research efforts across Africa
		  ▪ launching rapid research to address key questions, including the uptake of vaccines and therapeutics and to enhance diagnostic capacity
		  ▪ mobilizing resources to accelerate research and enhance the response
		  ○ The second strategic objective includes:
		  ▪ initiate rapid operational and clinical research
		  ▪ implement a robust data-sharing framework to ensure timely dissemination of research findings across the continent that is linked to national public health strategies and policy decisions
		  ▪ encourage cross-border collaborations and partnerships to enhance research capacity and knowledge exchange among African nations
		  ▪ ensure that research outcomes are translated into actionable policies and practices that can be rapidly implemented during mpox outbreaks
		  ▪ engage policymakers, public health authorities and communities in the research process to align efforts with public health needs and priorities
		• The related research roadmap identified 10 immediate next steps in research for a coordinated response to mpox
		• The research roadmap was developed during a scientific conference whereby there was a comprehensive effort to align existing research initiatives across 22 countries with the aim of	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		enhancing collaboration and outlining timelines for addressing research gaps ○ The document provides an example of prioritizing research needs and global collaboration to address them during a crisis and while much of the content of the roadmap is focused on particular areas where research evidence is needed for example additional data on mpox transmission, new therapeutics for mpox, and evaluations of clinical care, there are highlighted examples of processes and mechanisms to support the use of evidence, including: ▪ the use of the continent Incident Management Team who takes on a coordination role to ensure evidence is being used in the response and is unifying research initiatives ▪ leveraging cooperative/joint regulatory reviews and ethical reviews to accelerate new flows of evidence • The continent strategic framework on strengthening cross-border surveillance information sharing in Africa provides guidance and proposed interventions that member states should adopt and implement to strengthen cross-border surveillance and support the sharing of timely information and data • Specific mechanisms and processes suggested for this include: ○ support harmonization and interoperability of standardized reporting protocols and tools for data collection ○ support the development and utilization of digital technologies, standardized data collection, sharing platforms and tools for real-time data transmission ○ support the development and harmonization of data and information-sharing policies and guidelines ○ integrate operational research into surveillance, preparedness and response to inform policy decisions	
European Centre for Disease Control European Centre for Disease Control single	• Level of pandemic preparedness plan ○ International • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Governance of pandemic preparedness plan	• The ECDC have evidence-based tools, measures, and resources for their Member States to prepare pandemic preparedness plans, and distinguishes their role in supporting and strengthening the needs of their constituents, particularly around capacity-building initiatives (i.e., gap analyses, after-action reviews, case studies, simulation exercises),	• None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
programming document 2024-2026 (2024) European Centre for Disease Control one health framework (2024) Public health and social measures for health emergencies and pandemics in the EU/EEA: Recommendations for strengthening preparedness planning (2024)	▪ Secretariat support with documented capacity for evidence coordination and support, including specification of evidence needs and alignment with priority policy questions ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally (as appropriate) ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Priority setting processes for new research or the focus for evidence-support processes ▪ Capacity building to enable the use of evidence in decision-making processes ▪ Standards or requirements for transparency in how evidence is used to inform recommendations and decisions ▪ Establish processes and mechanisms to access timely, demand-driven evidence support (i.e., using existing flows of evidence) to inform pandemic preparedness planning and response,	surveillance systems, collaboration with external partners, and financial support in their efforts • Specifically, their recent 2024-2026 workplan outlines the mechanisms and processes by which they will enable the use of research evidence to inform these work plans such as the use of the Scientific Advice Repository and Management System, forecast and modelling analyses to support priority-setting • There was limited information on processes about membership of governance body, flows of new research evidence, regulatory and ethics processes, and outcomes (given that their first analysis of each EU country began in 2024) • In the ECDC's 2024-2026 workplan, they lay out specific new and recurring activities related to the use of research evidence in their mandate related to emergency preparedness and response planning ○ They will continue to support Member States with strengthening their surveillance systems through capacity-building initiatives and develop guidelines and scientific advice (related to relevance, accessibility, and utility of the advice informed by epidemiological modelling, foresight, and scenario development), to foster evidence-based policymaking ○ They will continue to improve internal tools like the Scientific Advice Repository and Management System, design custom information and knowledge management to improve access and flow of knowledge, ○ They will assess all EU countries every three years, offering support if they identify any gaps such as after-action reviews, case studies, simulation exercises, and other capacity-building activities ○ ECDC will also include modelling and forecasting analyses and integrate them into national threat prioritization and risk ranking ○ They will also further strengthen collaboration with external partners such as the other EU agencies, WHO, and Centers for Disease Control globally ○ Their budget related to supporting the development of preparedness plans is EUR 8.4 million (including for	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		building a community of practice, early warning and response systems, and fellowship programs), whereas their evidence-informed decision-making information and recommendations through surveillance analysis, scientific advice, and epidemic intelligence activities is costing EUR 16.3 million • The ECDC developed a framework for how they will strengthen, develop and implement a One Health approach for the prevention and control of communicable diseases, including preparedness and response to emergency health crises, which involves the following mechanisms: ○ Coordination with other relevant European agencies (i.e., Health Security Committee, Advisory Forum and Management Board) ○ Development of a research agenda by identifying evidence gaps, prioritization, and consultations ○ Development of a joint risk assessment (including simulation exercises) and scientific advice with common standard operating procedures and responsibilities • The ECDC also published key strategic and operational considerations during pandemic preparedness planning in the design and implementation of public health and social measures (based on evidence), which states that extensive cross-governmental collaboration and consultations are required	
Pan-American Health Organization Catalyzing ethical research in emergencies: Ethics guidance, lessons learned from the COVID-19 pandemic and pending agenda (2022) Developing respiratory pathogen pandemic preparedness plans (2024)	• Level of pandemic preparedness plan ○ Multinational (e.g., WHO, PAHO, Africa CDC, European CDC) • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Governance of pandemic preparedness plan ▪ Membership of governance body includes interdisciplinary perspectives, subject-matter expertise, evidence-methods expertise and lived experience (including those from equity-deserving populations) ▪ Mechanisms to enable domestic and global data and evidence sharing ▪ Mechanisms to enable collaboration with other levels of government and	• PAHO's Catalyzing Ethical Research in Emergencies. Ethics Guidance, Lessons Learned from the COVID-19 Pandemic, and Pending Agenda recommends the establishment of mechanisms to gather and share information about research studies that have been reviewed and not approved, and the creation of communication channels for the public to access research ○ The guidance also recommends approaches to increase the speed of research while maintaining its ethical development by creating national bodies that are responsible for overseeing trials during pandemics under modified ethics/regulatory requirements (e.g., streamlined reviews, binding single reviews) • PAHO published a guidance document in 2024 for developing and updating respiratory pathogen pandemic preparedness	• None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
Framework of a national program for preventing and controlling diseases caused by respiratory viruses with epidemic and pandemic potential (2024) Sustainable Health Agenda for the Americas 2018-2030: A call to action for health and well-being in the region (2018)	governance, domestically and globally (as appropriate) ○ Funding for research and evidence support ▪ Core (non-emergency) funding for research and evidence support ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Capacity building to enable the use of evidence in decision-making processes ▪ Mechanisms for streamlined approval, regulatory and ethics processes ▪ Processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health (e.g., for one or more of the forms of evidence listed above)	plans that includes four steps: prepare, draft the plan, evaluate and disseminate the plan, and implement, monitor and improve the plan ○ While the plan does not specify any particular processes or mechanisms to support the use of evidence, there is mention of the need for experts and technical advisors to provide input during all steps of the development and implementation process of the pandemic preparedness plan • PAHO also published guidance for member states on developing a framework for the prevention and control of respiratory diseases that includes five objectives to analyse national response capacities, one of which is to promote operational research ○ Under the objective of promoting operational research, the document recommends regularly communicating the findings of operational research and analysis of virus surveillance to stakeholders and surveillance system participants • As part of the Sustainable Health Agenda for the Americas 2018-2030, three goals specifically emphasized the importance of evidence in attaining high standards of ethical care the countries of the Americas, namely: ○ Goal five: Ensure access to essential medicines and vaccines, and to other priority health technologies, according to available scientific evidence and the national context ○ Goal six: Strengthen information systems for health to support evidence-based policies and decision-making ○ Goal seven: Develop capacity for the generation, transfer and use of evidence and knowledge in health, promoting research, innovation and the use of technology ○ In particular, goal six targets the need to strengthen information systems and the capacity for analysis and use of information by decision-makers and the national and subnational level, while goal seven targets the need to develop policies for funding at least 2% of the health budget for public health research and to develop institutional capacity and infrastructure, technology, and human resources for public health research	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)

World Health Organization – European Office
 	
Health emergency preparedness, response and resilience in the WHO European Region 2024-29 (2024)
 	
Health emergency preparedness, response and resilience in the WHO European Region 2024-2029: Implementation guide (2024)
	• Level of pandemic preparedness plan
	  ○ Multinational
	• Components of evidence support infrastructure needed for pandemic planning and preparedness
	  ○ Governance of pandemic preparedness plan
	  ▪ Mechanisms to enable domestic and global data and evidence sharing
	  ▪ Mechanisms to enable collaboration with other levels of government and governance, domestically and globally
	  ○ Funding for research and evidence support
	  ▪ Core (non-emergency) funding for research and evidence support
	  ○ Activities described within the pandemic preparedness plan that support the integration of evidence
	  ▪ Capacity building to enable the use of evidence in decision-making processes
	  ▪ Establish processes and mechanisms to access flows of new research evidence needed to inform planning and policy in public health
		• The documents identified for WHO Euro emphasize the role of the regional body in capacity and convening
		• Across the identified documents there were mentions of processes and mechanisms to support the use of evidence, though many of these relate specifically to surveillance systems and data sharing as well as setting up international networks for sharing other forms of evidence and information
		• The Preparedness 2.0 report aims to strengthen health emergency prevention, preparedness, response and resiliency across Member States and is grounded in the Health Emergency Preparedness and Response framework, using the five core components as the backbone
		• Preparedness 2.0 is in line with WHO's international health regulations and the 2024 amendments as well as other international efforts including the Intergovernmental Negotiating Body draft of the WHO convention
		• The role of scientific evidence, research data sharing and transparency in decision-making are highlighted as part of the good governance objective of the strategy
		• The report highlights five strategic areas, each of which have suggested actions for Member States, those relevant to mechanisms and processes to enable evidence use in decision-making include:
		  ○ collaborative surveillance which includes building up surveillance systems as well as prioritizing and interlinking existing surveillance to support data sharing as well as building up laboratory capacity
		  ○ community resilience and protection emphasizes developing community-centred emergency health systems including integrating evidence-based public health and social measures and accelerating rapid, high-quality operational research that is context specific
		  ○ safe and scalable care focuses on establishing and maintaining national health care systems that can be scaled up or down to provide timely and flexible responses, notably this also includes contributing to the generation of evidence to guide decision-making through accessible and timely information systems
			• None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		○ access to countermeasures within national health systems that are supplemented by international collaborative mechanisms ○ emergency coordination ensures that member states have legal, accountability and ethical frameworks to guide their responses including establishing contingency budgets to rapidly secure flexible funding, clearly established governance mechanisms including central coordination committees, and established information governance systems to ensure the interoperability of health data • The report also notes actions for WHO-EURO, which primarily focus on enabling capacity building within Member States by co-developing tools, developing knowledge sharing networks such as communities of practice, and in select cases funding operational research. • Finally, the report notes that it is intended to be a living document that will be regularly monitored and evaluated • A companion implementation guide has been developed to support the implementation of the new action plan and strategy ○ The document includes mentions of initiatives and tools that exist (WHO-Euro; WHO and non-WHO) to support the implementation of each of the identified actions for Member States ○ These include highlighting international networks and initiatives that Member States may wish to participate in as well as tools for planning and capacity building within national health systems • In comparison, the older action plan (Action plan to improve public health preparedness and response in the WHO European Region 2018-2023) is comprised of three strategic pillars: 1) build, strengthen and maintain States parties' core capacities required under the international health regulations; 2) strengthen event management and compliance with requirements under the international health regulations; and 3) measure profess and promote accountability • Similar to the new pandemic preparedness plan, the strategy lays out a range of actions for Member States and for the regional office of WHO, those that relate to the mechanisms	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		and processes to support evidence use in decision-making include: ○ Establish, maintain and strengthen national and international referral systems for biological and environmental specimens ○ Link networks of laboratories to effective reporting mechanisms and surveillance systems ○ Strengthen formalized data-sharing procedures and tools across sectors and between regional and national levels ○ Facilitate training and capacity building for surveillance systems and risk assessments ○ Voluntary assessment of capacities through voluntary tools	
World Health Organization Pandemic influenza preparedness framework: Partnership contribution high-level implementation plan 3 – 2024-2030 (2024) Mpox global strategic preparedness and response plan (2024) Strategic preparedness, readiness and response plan to end the global COVID-19 emergency in 2022 (2022) R&D Blueprint: A scientific framework for epidemic and pandemic research preparedness (2023)	• Level of pandemic preparedness plan ○ Multinational • Components of evidence support infrastructure needed for pandemic planning and preparedness ○ Governance of pandemic preparedness plan ▪ Mechanisms to enable domestic and global data and evidence sharing ○ Funding for research and evidence support ▪ Core (non-emergency) funding for research and evidence support ○ Activities described within the pandemic preparedness plan that support the integration of evidence ▪ Priority setting processes for new research or the focus for evidence-support processes ▪ Capacity building to enable the use of evidence in decision-making	• The WHO documents related to pandemic preparedness highlight their role in supporting global capacity building and collaboration in the mechanisms and processes available to support evidence-informed decision-making • Across the many documents there is a consistent emphasis on global priority setting for scientific evidence, with a particular focus on building up local capacity in low and middle income countries, setting standards for particular types of evidence as well as on continuing the use of and building capacity for surveillance and monitoring systems that support the sharing of high-quality data • WHO is in the process of developing an accord for pandemic prevention, preparedness and response accord to be published in mid 2025 ○ The treaty has the objective is to foster an all of government and all of society approach to strengthening national, regional and global capacities and resilience to future pandemics and would include enhancing global cooperation • Key pillars in the pandemic influenza preparedness framework: partnership contribution high-level implementation (2024) related to processes and mechanisms for enabling evidence use in decision-making include: ○ Operationalization of enablers for whole-of-society preparedness and response by strengthening capacities of scientists, media and multisectoral government officials in knowledge translation	• None identified

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		• Within the mpox preparedness and response plan, one of the strategic objectives is to promote research and equitable access to medical countermeasures, which include investing in research and development efforts to address critical gaps in epidemiology, transmission, clinical presentation and evaluating the effectiveness of interventions as well as to fill critical knowledge gaps in mpox ecology, modes and proportions of zoonotic transmission o Other approaches to noted in the plan include ▪ establishing global coordination mechanisms through the Global Research Collaboration for Infectious Disease Preparedness (GloPID-R) to streamline efforts and prevent duplication in research priorities ▪ establishing research and data sharing using existing mechanisms such as WHO BioHub system ▪ use established standards for new clinical trials and ensure transparent and rapid sharing of trial results ▪ promoting standardized research methods to facilitate data sharing and rapid dissemination of results ▪ enhancing collaboration and information sharing by establishing data exchange protocols • The strategic preparedness, readiness and response plan to end the global COVID-19 emergency 2022 includes five core components, two of which related to mechanisms and processes for using evidence: o Surveillance laboratory and public health intelligence ▪ capturing and sharing high quality data linked to epidemiological and clinical characteristics ▪ maintaining research agenda pertaining to clinical characterization and management of COVID-19 to continue to understand evolving variants of concern o Research development and equitable access to countermeasures and essential supplies ▪ ensuring high quality data that can be shared and analysed rapidly, including moving beyond epidemiological data to integrate outbreak analysis ▪ continuing to follow priorities laid out in the R&D Blueprint for Epidemics	

Jurisdiction and title of pandemic preparedness plan	Dimensions of the organizing framework	Approaches taken within plans to integrate research evidence	Outcomes from plans (if evaluated)
		▪ resource regional research and development infrastructure in low-income and middle-income countries ▪ ensuring behavioural evidence is linked to strong communication for public health campaigns • The report - From emergency response to long-term COVID-19 disease management: Sustaining gains made during the COVID-19 pandemic – picks up where the pandemic preparedness plan left off to reflect the evolving situation and outline a strategy from 2023 to 2025 which has the objective of supporting Member States to transition from crisis response to sustainable integrated longer-term and strengthened COVID-19 disease management, which includes following actions related to mechanisms and processing for enabling the use of evidence: ○ the need to maintain robust surveillance systems and to develop stronger data collection and reporting systems to report more meaningful impactful data as well as to applying multiple approaches to surveillance that feed into existing networks ○ countries should continue to invest in research to address critical unknowns about epidemic and pandemic pathogens in ways that fill knowledge gaps without duplicating work • The R&D Blueprint for Epidemics has been updated since 2015 and provides a blueprint for coordinating research efforts globally and ensuring that the outputs are globally accessible ○ The blueprint highlights focusing on families of viruses that could cause pandemics, and in particular a few areas for research focus, including: ▪ discovering and monitoring new pathogens ▪ basic research into microbiology, pathogenesis and immunology ▪ applied research into developing vaccines and treatments. ○ The blueprint highlights the range of basic, applied and research infrastructure that should continue to be prioritized (e.g., clinical trial sites, availability of laboratories to perform assays, development of CORE protocols)	

Appendix 5: Documents excluded at the final stages of reviewing

Document type	Hyperlinked title
Single studies	Influenza pandemic preparedness in the World Health Organization Eastern Mediterranean Region
	Prioritizing knowledge translation in low- and middle-income countries to support pandemic response and preparedness
	Optimizing pandemic preparedness and response through health information systems: Lessons learned from Ebola to COVID-19

Waddell KA, Bhuiya A, Chen K, Alam S, Wu N, Bain T, Lavis JN, Wilson MG. Rapid evidence profile #85: Processes and mechanisms for enabling evidence-informed decision-making in pandemic planning and response, Hamilton: McMaster Health Forum 13 December 2024.

This rapid evidence profile was funded by the Public Health Agency of Canada. The McMaster Health Forum receives both financial and in-kind support from McMaster University. The views expressed in the rapid evidence profile are the views of the authors and should not be taken to represent the views of the Public Health Agency of Canada or McMaster University.

References

1. Syrowatka A, Kuznetsova M, Alsubai A, et al. Leveraging artificial intelligence for pandemic preparedness and response: A scoping review to identify key use cases. *NPJ Digital Medicine* 2021;4(1): 96.
2. Sigfrid L, Maskell K, Bannister PG, et al. Addressing challenges for clinical research responses to emerging epidemics and pandemics: A scoping review. *BMC Medicine* 2020;18(1): 190.
3. Lee JM, Jansen R, Sanderson KE, et al. Public health emergency preparedness for infectious disease emergencies: A scoping review of recent evidence. *BMC Public Health* 2023;23(1): 420.
4. Jit M, Ananthakrishnan A, McKee M, Wouters OJ, Beutels P, Teerawattananon Y. Multi-country collaboration in responding to global infectious disease threats: Lessons for Europe from the COVID-19 pandemic. *The Lancet Regional Health – Europe* 2021;9.
5. Eerens D, Hrzic R, Clemens T. The architecture of the European Union's pandemic preparedness and response policy framework. *European Journal of Public Health* 2023;33(1): 42-48.
6. Ragon B, Volkov BB, Pulley C, Holmes K. Using informatics to advance translational science: Environmental scan of adaptive capacity and preparedness of Clinical and Translational Science Award Program hubs. *Journal of Clinical and Translation Sciences* 2022;6(1): e76.
7. Radford KH, Karanikolos M, Cylus J. Pandemic preparedness and health system resilience in 14 European countries. *Bulletin of the World Health Organization* 2024;102(8): 571-581.
8. Colman E, Wanat M, Goossens H, Tonkin-Crine S, Anthierens S. Following the science? Views from scientists on government advisory boards during the COVID-19 pandemic: A qualitative interview study in five European countries. *BMJ Global Health* 2021;6(9).
9. Kunzler AM, Iannizzi C, Burns J, et al. Informing pandemic management in Germany with trustworthy living evidence syntheses and guideline development: Lessons learned from the COVID-19 evidence ecosystem. *Journal of Clinical Epidemiology* 2024;173: 111456.
10. Bardosh KL, de Vries DH, Abramowitz S, et al. Integrating the social sciences in epidemic preparedness and response: A strategic framework to strengthen capacities and improve Global Health security. *Global Health* 2020;16(1): 120.
11. Bhatia D, Allin S, Di Ruggiero E. Mobilization of science advice by the Canadian federal government to support the COVID-19 pandemic response. *Humanities and Social Science Communication* 2023;10(1): 19.
12. Clyne B, Hynes L, Kirwan C, et al. Perspectives on the production, and use, of rapid evidence in decision making during the COVID-19 pandemic: A qualitative study. *BMJ Evidence Based Medicine* 2023;28(1): 48-57.
13. Simckes M, Shah A, Guthrie BL, et al. Navigating the storm of COVID-19 literature through academic-practice partnership in Washington State: The COVID-19 literature situation report. *Journal of Public Health Management and Practice* 2022;28(1): E9-e15.
14. Park YS, Kim OJ. Government initiatives for research ethics during COVID-19 pandemic in Korea *Journal of Korean Medical Science* 2024;39(12): e116.
15. Rao S, Kwan BM, Curtis DJ, et al. Implementation of a rapid evidence assessment infrastrcuture during the Coronavirus Disease 2019 (COVID-19) pandemic to develop policies, clinical pathways, stimulate academic research and create education opportunities. *Journal of Pediatrics* 2021;230: 4-8.e2.
16. National Academies of Sciences E, Medicine. Applying Lessons Learned from COVID-19 Research and Development to Future Epidemics: Proceedings of a Workshop. Biffl C, Nicholson A, Hagg T, Liao J, editors. Washington, DC: The National Academies Press; 2023. 172 p.
17. Corrin T, Cairney P, Kennedy EB. The production and utility of evidence synthesis during the COVID-19 pandemic in Canada: perspectives of evidence synthesis producers. *Evidence & Policy* 2024: 1-21.