McMaster University | HEALTH FORUM

Rapid Evidence Profile #47

Structures and processes to support spread and scale of health system innovations

9 May 2023

Appendix 1: Methodological details

We use a standard protocol for preparing rapid evidence profiles (REP) to ensure that our approach to identifying research evidence as well as experiences from select organizations that support the scale-up and spread of innovations are as systematic and transparent as possible in the time we were given to prepare the profile.

Identifying research evidence

For this REP, we searched Health Systems Evidence and PubMed for:
1) guidelines (defined as providing recommendations or other normative statements derived from an explicit process for evidence syntheses)
2) evidence syntheses
3) protocols for evidence syntheses that are underway
4) titles/questions for evidence syntheses that are being planned
5) single studies (when no guidelines or evidence syntheses are identified).

We searched Health Systems Evidence using the open search (innovation) and topic filters for overviews of evidence syntheses, evidence syntheses about effects, and evidence syntheses addressing other questions. We also searched PubMed using a mix of MeSH terms, open terms, and open terms adjacent within three words to capture articles within the last five years that contained a health policy or systems focus, focused on innovation (including selected terms derived from an ongoing horizon-scanning panel), and explicitly mentioned scaling up or spreading. Links provide access to the full search strategy.

We also drew on findings from two recent evidence briefs, one of which focused on the future of health human resources and the other on the future of work.

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.

Identifying experiences from organizations that support the scale-up and spread of health-system innovations

For this REP, we approach the jurisdictional scan differently, identifying organizations that support the scale-up and spread of health-system innovations. We search websites from each organizations as well as national and provincial governments, ministries and agencies (e.g., Public Health Agency of Canada).

While we do not exclude countries based on language, where information is not available in English, Chinese, French or Spanish, we attempt to use site-specific translation functions or Google.

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. 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 an evidence synthesis 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 to economic and social responses. 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 the evidence synthesis 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.

Preparing the profile

Each included document is hyperlinked to its original source to facilitate easy retrieval. For all included guidelines, evidence syntheses and single studies (when included), we prepare a small number of bullet points that provide a brief 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. For this profile, we only prepared bulleted summaries of key findings for documents deemed to be of high relevance. For those classified as medium or low relevance, we list the title with a link to the primary source for easy retrieval if needed. We then draft a brief summary that highlights the total number of different types of highly relevant documents identified (organized by document), as well as their key findings, date of last search (or date last updated or published), and methodological quality.

Appendix 2: Frameworks related to spread and scale-up of innovations

Framework	Components

Implementing best practices consortium	• Framework identifies five phases that innovations move through:
	  ○ Forming the change coordination team
	  ○ Defining the need for change
	  ○ Planning for demonstration and scale-up
	  ○ Supporting the demonstration
	  ○ Going to scale with successful change efforts
	• Framework notes eight principles for creating a supportive context for innovations to succeed:
	  ○ making change matter to those making the change
	  ○ ensuring a credible, committed change agent
	  ○ providing change agents with the resources they need to be successful
	  ○ having leadership support at each organizational level and introducing the innovation into an environment where change is an ongoing practice
	  ○ having clarity about the purpose, benefits and results of change
	  ○ motivating and supporting staff throughout the change process
	  ○ ensuring clearly assigned and accepted responsibilities for implementing change
	  ○ starting where you can, when you can

Diffusion of innovation	• Framework explains the process by which innovations are accepted or rejected by organizations or individuals and outlines five adopter groups based on their level of motivation to adopt new innovations:
	  ○ Innovators, have a tendency to take risks and adopt new ideas first
	  ○ Early adopters, typically opinion leaders that act as role models for others
	  ○ Early majority, part of the critical mass that ensures adoption and see the practice benefits
	  ○ Late majority, part of the critical mass that ensures adoption but are more skeptical and conservative
	  ○ Laggards, very conservative and traditional and are often the final group to adopt
	• The framework also identified five factors that successful spread and scale of innovations frequently include:
	  ○ the innovation holds a clear advantage compared to current ways
	  ○ compatibility with current systems and values
	  ○ simplicity of the innovation and its implementation
	  ○ ease of testing before making a full commitment
	  ○ observability of the change caused by implementation and its resulting impact

ExpandNet (WHO)	• The framework differentiates the elements needed for scaling up and the strategic choice areas where decisions will ultimately need to be made to support the scale-up
	• The elements of scaling up include:
	  ○ the innovation
	  ○ the resource team
	  ○ the user organization(s)

Framework	Components
	○ the environment in which it is being implemented (e.g., conditions and institutions) • The strategic choice areas include: ○ the type of scaling up being pursued (e.g., expansion or replication, institutionalization, diversification, or spontaneous diffusion) ○ dissemination and advocacy (e.g., communication) ○ organizational process (e.g., how to organize scaling up) ○ costs and resource mobilization ○ monitoring and evaluation
Consolidated framework for implementation research	• The framework provides a menu of constructs that have been associated with effective implementation of innovations, however prior to its use it requires deep inquiry into local conditions to account for and anticipate the needs of different contexts. • Presents five domains, each of which contain a number of constructs that should be adapted to reflect the specific context in which implementation is taking place: ○ innovation domain, which relates to the innovation being implemented ○ outer setting domain, which relates to the broader contexts where the innovation is being implemented (e.g., community, city, state) ○ inner setting domain, which relates to the immediate context where the innovation is being implemented (e.g., classroom, team, hospital) ○ individuals domain, which relates to the roles and characteristics of individuals involved in the implementation ○ implementation process domain, which relates to the activities and strategies used to implement the innovation
Consolidated framework for scaling-up health interventions	• The framework identifies four phases of scale-up, adoption mechanisms to support the implementation and system supports that need to be in place. • The four phases of scale-up include: ○ set up, which prepares the ground for introduction and testing of the intervention that will be taken to full scale ○ develop the scalable unit, which is an early test and demonstration phase from which the output is a set of context-sensitive strategies and interventions ○ test of scale-up, which spreads the intervention to a variety of settings that are likely to represent contexts that will be encountered at full scale ○ go to full scale, which focuses on rapidly enabling a larger number of sites to adopt and/or replicate the intervention • Adoption mechanisms include: ○ better ideas (e.g., key characteristics of the intervention itself including its evident superiority, simplicity, and its alignment with the culture of the new implementers) ○ leadership (e.g., role of guiding and supporting large-scale change) ○ communication (e.g., critical to involving early adopters during the initial phases and then the late majority during the test of scale-up phase) ○ policy (e.g., identification and/or development of regulatory or administrative policies are important environmental factors that can either inhibit or expedite adoption) ○ culture of urgency and persistence (e.g., acts as a barometer for the amount of will and energy needed to stay the course and bring the interventions to full scale)

Framework	Components

	• Additional elements of the support system that can aid in successful scale-up:
	  ○ human capability for scale-up
	  ○ infrastructure for scale-up (i.e., additional tools, communication systems, and key personnel)
	  ○ data collection and reporting systems
	  ○ learning systems (including embedded feedback mechanisms)
	  ○ design for sustainability (i.e., high reliability of the new processes, inspection systems to ensure desired results are being achieved, support for structural elements, leadership commitment to change)

Interactive systems framework for dissemination and implementation	• The framework identified three systems that are needed to bring evidence-based innovations into practice, these include:
	  ○ synthesis and translation system, which distills information about innovations and translates it into user-friendly formats
	  ○ the prevention support system, which provides both innovation-specific and general training, technical assistance and other supports to users in the field
	  ○ the prevention delivery system, which implements innovations in the world of practice or delivers new programs
	• The framework describes how these three systems work together for successful dissemination and implementation of innovations, however contextual factors surrounding the systems are also important to consider including funding, climate, macro policy and existing research and theory.

Framework for spread (IHI)	• The framework highlights the importance of leadership as being a critical input into the spread of innovations.
	• It further breaks implementation down into three components:
	  ○ better ideas (e.g., develop the case and describe the ideas)
	  ○ set up (e.g., identifying successful sites, key groups to make adoption decisions, and initial strategy)
	  ○ social system (e.g., key messengers, communities, transition issues, technical support)

Non-adoption, abandonment, scale-up, spread and sustainability framework	• The framework consists of 13 questions across seven domains and is intended to be used to guide conversations and to help generate ideas with respect to the non-adoption, abandonment, scale-up, spread and sustainability of technologic innovations.
	• The seven domains highlighted in the framework are:
	  ○ the condition or illness for which the technology will be used
	  ○ the technology being implemented including material features and knowledge needed
	  ○ the value proposition to both the developer and the patient
	  ○ the adopter system and changes that may be needed to existing ways of operating
	  ○ the organization that is adopting the innovation
	  ○ the wider context in which the innovation is being implemented
	  ○ embedding and adaptation over time

Appendix 3: Select organizations, approaches and processes used to spread and scale health-system innovations in Canada, U.K. and U.S.

Organization and description	Approaches	Processes
Canada		
CAN Health Network • National partnership of Canadian health organizations that support the spread and scale-up of health technologies by acting as dedicated early adopters of healthcare solutions	• Data analytics and data collection • Proof of concept and commercialization supports • Learning collaboratives • Funding supports	• Identifying market-ready needs and matching them with the best-suited companies • Pairing chosen companies with healthcare organizations who provide them with support to pilot their innovation and ensure it is ready for market • Issuing a national competitive procurement process that supports rapid scale-up to other interested organizations
Healthcare Excellence Canada • Works with partners to spread innovations, build capability and catalyze policy changes through calls for innovations	• Training and capacity building • Resource sharing and contextualizing tools • Learning collaboratives	• Identifying promising innovations by issuing calls for identified problems • Co-designing, testing and sharing tools to support the spread and scale of innovations • Working with leaders and teams to build capacity to implement change (e.g., leadership skills) • Connecting leaders across communities and health systems to share about previous experiences and identify policy levers for change
Centre for Collaboration, Motivation and Innovation • Supports individuals and organizations to create collaborative partnerships, teach practical skills, and implement strategies to facilitate system-wide change • This includes having worked with accountable care organizations in the U.S. as well as most recently working with Ontario Health Teams to support their use of a population-health management approach	• Implementation coaching (e.g., population-health management) • Training and capacity building (e.g., action planning, motivational interviewing; quality improvement) • Resource sharing and contextualization of tools • Communities of practice • Evaluation supports	• Supporting organizational change by providing training in a range of topics that may be important to support implementation of innovations, including motivational interviewing, quality improvement and 'train-the-trainer' approaches • Adapting existing quality improvement tools to be used for new contexts • Providing practice coaching supports to Ontario Health Teams as they implement a population-health management approach
Health Commons Solutions Lab • Works to co-design and implement innovative solutions that are founded	• Supporting community outreach and engagement	• Use lived experiences from citizens and patient partners to identify system challenges • Co-design solutions that are rooted in the community

Organization and description	Approaches	Processes
on communities' own knowledge and expertise and lead to lasting change • This includes community-led strategies for COVID-19 prevention, expanded data collection strategies for equity-deserving populations, and undertaking population health assessments for Ontario Health Teams	• Training and capacity building (e.g., in facilitating discussions; communicating strategies) • Technical advising • Data analytics and data collection • Resource sharing and contextualization of tools (e.g., screening)	• Remove the risk of implementing tests of change and understand what makes a difference and why • Champion local and system strategies to spread and scale-up
Provincial System Support Program (Centre for Addictions and Mental Health) • Works with communities, service providers and other partners to implement system changes to the mental health and addictions sector across Ontario, which has included working on 35 different innovations including two at the provincial level	• Database of best practices and evidence-informed interventions • Improvement collaboratives • Implementation coaching • Evaluation supports	• Understanding a mental health and addictions challenge and identify potential evidence-based innovations • Determining core components of the innovation that need to maintain fidelity and those that can be adapted to local contexts • Supporting implementation at a small scale and use quality improvement approaches ensure the innovation remains relevant • Developing implementation plan, including a readiness assessment of organizations implementing the reform • Providing ongoing developmental evaluation
Israel		
HealthHub (within the Ministry of Health) • Supports the development, promotion and implementation of innovative infrastructures within health organizations in Israel	• Stakeholder engagement • Technical advising • Training and capacity building • Peer-to-peer learning	• Creating connections between those developing innovations and interested health organizations • Providing customized advice and support to those designing or developing innovations for health organizations including identifying regulatory and other barriers and supporting their removal • Facilitating peer-to-peer learning by organizing conferences and workshops • Scanning to identify new areas and detect new trends for which innovations could be beneficial
ARC Center (Accelerate, Redesign and Collaborate) for Digital Innovation • Operates within Sheba Medical Centre to bring together stakeholders involved in digital medicine to connect those who are aware of the innovation needs in healthcare with creators who design machines or applications to meet those needs	• Technical advising • Data analytics and data collection • Stakeholder engagement	• Assisting in designing research to assess innovations and meeting regulatory standards • Developing information systems • Supporting planning and project management to advance the spread and scale-up of digital-health technologies including assistance with navigating organizational infrastructure and closing external contracts

Organization and description	Approaches	Processes
Clalit Innovation • Operates within Clalit Health Maintenance Organization to design and develop digital solutions for healthcare professionals and patients	• Technical advising • Training and capacity building • Stakeholder engagement	• Fostering collaboration between staff within the health maintenance organization, global pharmaceutical companies and technology leaders to co-develop innovative solutions • Supporting the development of a business case for innovations and addressing clinical and business challenges that emerge • Supporting patient and client engagement in the development of innovations • Providing training and mentorship from industry experts
United Kingdom		
Academic Health Sciences Network • Brings together industry, academic, third sector and local organisations in 15 networks across the U.K. (that also collaborate at a national level) to spread and scale innovations at pace and scale, including NICE-approved medicines and technology as well as broader system innovations such as remote monitoring pathways, community assessment and treatment units, and virtual clinics for managing transient ischaemic attacks and minor strokes, among others	• Training and capacity building (i.e., adoption of new technologies, practices and processes) • Technical advising • Funding supports	• Provide guidance and support developing value propositions/evidence base for early-stage innovations • Guidance on navigating the complexities of the healthcare sector, including required standards and evidence for NHS procurement and reimbursement • Funding for market access studies and research as well as later stage health economic reports • Identifying and issuing calls for specific health technology and health service innovations • Training in entrepreneurship and commercial leadership skills • Partnering with businesses and academic centres to evaluate innovations
Commissioning Support Units • Provides Integrated Care Boards (part of the implementation of integrated care systems) with external supports, specialist skills and knowledge to support them in their role as commissioners of local health services	• Training and capacity building • Technical advising • Data analytics and business intelligence • Clinical procurement supports • Administrative supports (e.g., human resources, payroll, procurement of goods and services) • Evaluation supports	• Supporting project management including developing project plans, identifying risks, and monitoring progress • Providing financial management support to help in understanding the costs associated with scaling innovations, including developing business cases, forecasting costs and identifying and applying for funding opportunities • Supporting risk stratification, population health management planning, and modelling of care using data analytics • Supporting procurement of products and services needed to scale innovations including identifying suppliers, negotiating contracts and managing procurement processes • Training and development including providing coaching and mentoring and facilitating knowledge-sharing events

Organization and description	Approaches	Processes
		• Conducting evaluations and providing feedback to stakeholders within local integrated care systems and NHS
NHS Transformation Directorate and Future NHS Platform • Responsible for implementing the 10-year vision for the future of the NHS, which includes working with providers and commissioners to develop and implement new models of care, redesign services, and develop solutions, the primary focus of which has been on the transformation towards the 42 Integrated Care Systems	• Implementation guidelines • Resource sharing and contextualization of tools • Funding supports • Online collaborative • Evaluation supports	• Developing guidance to support NHS organizations for implementing transformation changes including access to best practices, and fit-for-purpose tools and templates • Facilitating collaboration and knowledge-sharing between those working on transformations • Providing training programs in change management and transformational leadership • Working with the Academic Health Sciences Network to identify, develop and implement new technologies • Training and development opportunities to build digital skills and knowledge
NHS Leadership Academy (part of NHS Transformation Directorate) • Responsible for training and building NHS leadership capacity across the health system including for implementing and advancing system transformations such as for local integrated care systems	• Training and capacity building (e.g., leadership for integrated care systems, board training for integrated care boards) • Resource sharing and contextualization of tools	• Providing a wide range of leadership training programs from management training for more junior staff to mid-career and senior-leadership training to those aspiring to become chief executives within the NHS • Delivering a training program designed for leaders who are responsible for leading large-scale change and transformation, including learning frameworks and skills to facilitate change management and opportunities to develop strategic thinking
United States		
CMS Innovation • Supports the development and testing of innovative health payment and service delivery models including various iterations of accountable care organizations, episode-based payment initiatives (e.g., comprehensive care for joint replacement, enhanced oncology models), primary care transformation models (e.g., comprehensive primary care plus, advance practice demonstration sites), among others	• Technical advising • Funding supports • Data and analytics supports • Learning collaboratives • Rapid cycle innovation testing and iteration	• Adapting and supporting implementation of innovative models of care including developing project plans, aligning organizational processes with new models of care, and identifying and addressing regulatory or legal barriers • Training and education in project management, data analytics and quality improvement • Facilitating peer-to-peer learning through learning collaboratives and webinars for those implementing innovation models • Offering funding opportunities to support the development and implementation of innovative models of care as well as funding for healthcare innovators • Sharing data and analysis to support stakeholders in understanding the impact of innovative models of care including on costs, utilization, quality and patient outcomes

Organization and description	Approaches	Processes
Health Care Transformation Task Force • Non-profit, private consortium made up of patient organizations, providers, payers and purchases dedicated to advancing transformation towards equitable, affordable patient-centred care by supporting health system efforts to transition towards value-based payment models being led by the U.S. Department of Health and Human Services	• Resource sharing and contextualization of tools • Training and capacity building • Learning collaboratives	• Developing guidance and tools to support the implementation of innovative models of care, including on scaling-up the use of new technologies • Training and capacity building on innovations in care delivery and consumer engagement • Facilitating peer learning collaboratives for healthcare organizations implementing innovative models of care
Mathematica • Provides implementation supports to both public and private sector clients to address pressing social challenges, including supporting the development of accountable care organizations and the integrated care resource centre designed to help dually eligible Medicare and Medicaid beneficiaries	• Technical advising • Training and capacity building (e.g., data analytics and customized training) • Implementation planning • Data and analytics supports (e.g., building dashboards) • Evaluation supports	• Assisting in the design and planning of innovative models including identifying program goals and objectives, developing logic models, and creating program implementation plans • Training and capacity building in data analytics and program evaluation • Conducting needs assessments for organizations implementing new innovations including conducting literature reviews, analyzing data and conducting stakeholder engagement • Supporting pilot testing new programs to identify areas for improvements • Evaluating innovations including impact evaluations, implementation evaluations, and process evaluations

Appendix 4: Findings from each evidence document, organized by document type, and sorted by relevance to the question of scale-up and spread of health-system innovations

Type of document	Relevance to question	Relevance to the question	Key findings	Recency or status

Evidence syntheses	• Health-system innovation
	  ○ Object of innovation
	  ▪ Structural innovation
	  ▪ Process innovation
	  ○ Type of scale-up and spread
	  ▪ Scale-up
	  ▪ Spread
	  ▪ Sustainability
	  ○ Structures to support scale-up
	  ▪ Governance structures
	  ▪ Delivery (and implementation) structures
		High	• The review provides definitions for spread (process through which new working methods developed in one setting are adopted in other contexts), sustainability (process through which methods, performance enhancements and continuous improvements are maintained for a period of time that is appropriate to a given context) and scale (process of expanding coverage of health interventions, but may also refer to increasing financial, human and capital resources)
			• The review highlights four key mechanisms involved in spread, scale-up and sustainability of system innovations, namely:
			  ○ Substance of the innovation – needs to be widely viewed as being favourable, and needs to balance fidelity and adaptability
			  ○ Processes – fundamental role of frequent monitoring and feedback, learning collectively and institutionalizing
			  ○ Stakeholders – crossing boundaries and building distributed capacities
			  ○ Context – adapting constantly and acknowledging unpredictability
			• The review identified the perceived value and feasibility of the innovations being the most important enablers of spread and scale
			• It identifies five pillars of actionable guidance for spread and scale, these include:
			  ○ Focus on the why – energies should focus on ensuring that everyone involved in or affected by spread or scale processes can answer why they commit to the innovation
			  ○ Focus on perceived value and feasibility – implementation of new innovations require significant changes which can be destabilizing therefore efforts that can focus on supporting and guiding collective action towards common
				Literature last searched April 2017

			goals can help to reinforce each others competencies to achieve value ○ Focus on what people do, rather than what they should be doing – this can be fostered through adopting management tools that continuously monitor and provide feedback on the ongoing work ○ Focus on creating a dialogue between delivery and policy – stakeholder will need to negotiate a way to move the innovation forward and will need forums and seminars to enable dialogue and problem solving ○ Focus on inclusivity and capacity building – distributed governance capacities to ensure that many voices are involved in the design of the innovation, however these may need to be complemented with explicit efforts to enhance capacity to challenge the status quo Source	
• Type of diffusion ○ Scale-up • Tools to support spread and/or scale-up	High	• The review identified 21 tools related to scalability of health innovations • Tools were either criteria, scales or checklists and all tools targeted multiple components, with the most frequent being implementation fidelity and adaptation, delivery setting and workforce, and implementation infrastructure • The review identified two pitfall predictions including misalignment with the context and cost-effectiveness Source	Literature last search March 2019
• Health -system innovations ○ Object of innovation ▪ Structural innovation ▪ Relation to existing standard solution • Competing with an existing solution ○ Extent of change ▪ Incremental innovation • Type of diffusion ○ Spread • Structures to support spread and/or scale-up ○ Governance structures	High	• The review examines the spread of telemonitoring and found enablers and barriers could be classified into six different categories: ○ Norms and attitudes – shifting or changing attitudes by making the benefits of change well known ○ Organisational structure and process – particularly change management practices that can support changes that need to take place clinically, financially and managerially ○ Resources – ensuring that there are sufficient resources available to dedicate to the transformation and to support the additional changes that will need to take place such as interoperability changes ○ Policies and incentives – may be a need for a shift in legal and regulatory frameworks to support a new approach	Literature last searched March 2021

	○ Financial structures ○ Delivery (and implementation) structures		○ Networks and linkages – collaborations with nonprofit and with public and private entities can support implementation ○ Media and change agents – supporting communication with the public and enabling local champions • Enablers and barriers for implementation were not linked to an implementation stage or specific stage of diffusion Source	
	• Health-system innovations (e.g., type of innovation) ○ Object of innovation ▪ Structural innovation ○ Relation to existing standard solution ▪ Brand new ○ Extent of change ▪ Incremental innovation • Processes to support scale-up ○ Synthesis and translation of existing research related to the innovation • Tools to support spread and/or scale-up	High	• The main objective of this scoping review was to describe scale-up processes and explore the '*The Nose to Tail*' tool • A total of 69 articles were included within the review, of which 35 were from low- and middle-income countries ○ 16 stages of the innovation process were mapped among the included studies, including 12 deliberation and four action stages • The findings from this review revealed that innovations progress via 'stages of maturity', and their uptake is dependent upon the following factors: ○ alignment of the innovation with the interests of innovators, end users, and decision makers; and ○ influences from social, physical, political, regulatory, and economic environments, and the health system • Nose to Tail is a stage-based tool that provides guidance to innovators by enabling stakeholders to: 1) determine the maturity stage of their innovation; 2) facilitate discussions on key considerations and barriers; and 3) allow for early modification and re-design, if necessary Source	Published March 2016
	• Processes to support spread and/or scale-up ○ Synthesis and translation of existing research related to the innovation ○ Support processes ▪ Providing training and technical assistance	High	• The main focus of this systematic review was to identify the implementation factors that are associated with improved quality/safety of patient care • A total of eight 'success factors' for implementation emerged from the included 57 articles: ○ preparing for change (e.g., defining roles, proposing realistic timelines, and developing strategies); ○ capacity for implementation (both people and setting) ▪ people: leadership and collaboration among staff ▪ setting: resiliency to adopt change	Published May 2014

			○ types of implementation (meets needs and aligns with values of stakeholders) ○ resources (e.g., infrastructure, time, staffing, technology, and organizational structure); ○ leverage (e.g., opinion leaders, champions, and change agents); ○ sustainability (e.g., monitoring and evaluation); and ○ enabling features (planning, project management, communication, collaboration, implementation strategy, monitoring, evaluation and feedback, incentives, flexibility, autonomy, standardization, and localized tailoring of needs • Barriers to implementation include a lack of preparation, and insufficient capacity with respect to both settings resisting change and inadequate staffing to incorporate innovation Source	
	• Processes to support spread and/or scale-up ○ Synthesis and translation of existing research related to the innovation ○ Support processes ▪ Providing training and technical assistance	High	• The primary aim of this scoping review was to examine the challenges associated with health system innovations • A total of 1391 challenges from across 254 articles were noted within the review; the most commonly reported challenges relate to service delivery, human resources, leadership and governance, finances, infrastructure and supplies, knowledge and information, principle and values, and population and context ○ Challenges associated with service delivery include access, delivery, quality and safety, information, cultural and linguistic barriers, continuity of care and prevention, referral systems and vertical integration, an overuse and wastage of resources, and long wait times ○ Challenges associated with human resources include staffing distribution/capacity, retention, motivation and incentives, competency and monitoring, education and training, patient-provider communication, and workload and safety ○ Challenges with leadership and governance include strategic policies, oversight and accountability, a lack of horizontal coordination with organizations outside the health sector, patient and community engagement, and regulations	Literature last searched March 2016

			• Overall, the authors noted five cross-cutting themes: 1) a lack of access (e.g., affordability, acceptability, or geographical location); 2) examining whether innovations affect the scope/responsibilities of human resources; 3) investigating how economic incentives affect governance; 4) focusing on infrastructural capacities and distribution; and 5) supporting evidence-based management and practice, and information technology solutions Source 3/9 (AMSTAR rating from McMaster Health Forum)	

	• Health-system innovations (e.g., type of innovation)
	  ○ Object of innovation
	  ▪ Process innovation
	• Processes to support spread and/or scale-up
	  ○ Synthesis and translation of existing research related to the innovation
	  ○ Support processes
	  ▪ Providing training and technical assistance
		Medium	• The primary aim of this scoping review was to describe absorptive capacity in healthcare innovations
			• A total of 16 articles were included within this review, among which there was a set of two companion papers
			• The key themes within the included studies were:
			  ○ pre-existing capacity affecting healthcare setting improvement and capacity;
			  ▪ this viewed absorptive capacity as an effective organizational resource to successfully implement new innovations
			  ○ spread and sustainability of organizations;
			  ▪ this viewed absorptive capacity from the lens of strengthening institutional capacity to allow for uptake and long-term implementation
			  ○ measures and knowledge application processes;
			  ▪ this viewed absorptive capacity as a measurement tool and framework for planning and assessing change
			  ○ 'construct clarity'
			  ▪ this viewed absorptive capacity from the perspective that measuring different dimensions can provide a clear construct of what is needed for institutional innovation
			Source
				Literature last searched 1 February 2022

	• Structures to support spread and/or scale-up
	  ○ Governance structures
	  ○ Financial structures
	  ○ Delivery (and implementation) structures
	• Processes to support scale-up
		High	• The primary focus of this paper was to examine how European health systems can learn from each other to identify determinants of success and failure in the transfer of service and policy innovations, and scale-up
			• It was found that innovation transfer/diffusion may be more effective/successful under the following situations:
			  ○ when the innovation has a definitive advantage in cost effectiveness;
				Published 2021

	○ Synthesis and translation of existing research related to the innovation ○ Support processes ▪ Providing training and technical assistance • Tools to support spread and/or scale-up		○ when the innovation addresses a service or policy challenge, while understanding the underlying sociocultural context; ○ when the innovation is tailored to the local needs/conditions of the community; and ○ when the innovation leverages the use of experts, decision-makers, individuals, organizations, and networks • Future efforts in collaborative research within European health systems could better address innovation transfer by aiming to better understand: ○ health system characteristics and context elements that enable the adoption, implementation, and sustainability of service/policy innovations; ○ the impact of innovation managements systems on service/policy transfer across jurisdictions; ○ the impact of service/policy innovations on health system performance; ○ the nature of the evidence required to inform the transfer of innovations; and ○ research methods that advance learning across countries Source	
Protocols for reviews that are already underway	None identified			
Titles and questions for reviews being planned	None identified			
Single studies	• Health -system innovations ○ Object of innovation ▪ Structural innovation ○ Relation to existing standard solution ▪ Competing with an existing solution ○ Extent of change ▪ Incremental innovation ○ Type of diffusion	High	• Documents the spread and scale-up of BASE eConsult service across Canada • The study identified four themes related to spread and scale • The first is identifying population care needs and access problems, which focused on the importance of keeping the needs of the target population central to any efforts to spread and scale-up eConsult and ensuring that communication emphasizes how the innovation solves an existing problem • The second is engaging stakeholders who were willing to roll up their sleeves and take action, which includes collaborating	Published June 2020

	▪ Spread ▪ Scale-up • Structures to support scale-up ○ Governance structures ○ Financial structures ○ Delivery (and implementation) structures		with stakeholders from a variety of disciplines and organizations who could actively promote the innovation within their circles, this also includes creating clear governance arrangements to decide what team members or groups would be responsible for making different decisions • The third is building on current strategies and policies, which includes aligning with existing government priorities • The forth is measuring and communicating outcomes as evaluation provides vital feedback to individuals implementing the service and lets them clearly identify how they can do a better job of monitoring and evaluating what's working Source	
	• Type of diffusion ○ Scale-up • Tools to support spread and/or scale-up	High	• Study examined PHAC's innovation strategy, which was designed to be an incubator for innovative population health promotion interventions • PHAC conceptualized scale-up as a process that would improve the benefits, coverage and equitable access to proven intervention and defined scale-up as the intention effort to increase the reach and impact of tested population health promotion interventions • The scale-up readiness assessment tool was developed to identify successful interventions with capacity for scale-up at the national level • Domains and criteria included in the tool are: ○ Intervention evidence and evaluation (quality of intervention evidence; internal validity for outcome measures; emphasis on internal validity and process evaluation for replication; quality control and performance monitoring; measurement of impact on policy and practice) ○ Reach and scale (e.g., engagement of target population; reach and scale of the intervention; adoption/adaptation by settings and organizations; fidelity/fit required to retain effectiveness across scale) ○ Organizational capacity (e.g., skill/competencies/workforce/technical skills/expertise/information; infrastructure for wider delivery)	Published August 2021

			○ Partnership development (e.g., identification of relevant partners across sectors; compatibility with partner mandates and objectives; engaging vested partnerships; sustainable partnership network; breadth and diversity of partners) ○ System readiness (e.g., financial and human resource capacity of existing systems; effectiveness of existing programs and policies; access, availability and knowledge of effective interventions; system, community setting, context and capacity; compatibility with similar community infrastructure needs) ○ Community context (e.g., interaction of the intervention with individual, community, cultural, political and organizational social infrastructure contexts; identification of challenges and opportunities for change; readiness of sites to implement, sustain and evaluate the intervention) ○ Cost factors (e.g., cost of the tested intervention vs alternatives; return on investment; economies of scale; unexpected costs/unintended consequences) ○ Knowledge development and exchange (e.g., evaluation plan to impact decision-making and policy; readiness of KDE strategy prior to implementation and ability to account learning and knowledge needs at various levels across diverse audiences; ability and skills of project staff to delivery knowledge development and transfer to impact decision-making and policy development) • The tool was successful in determining which projects could be successfully scaled-up • Of projects that scaled-up successfully emerging themes included scoring high on system readiness, organizational capacity and policy influence combines with context specific partnership approach, community engagement and sustainability Source	
	• Health-system innovations (e.g., type of innovation) ○ Object of innovation ▪ Structural innovation	Medium	• The study examines the scale-up of digital therapeutics and the specific success factors that have been approached in five selected European countries and regions • The study identified success factors that permitted the scale-up, including:	Published April 2022

	○ Relation to existing standard solution ▪ Brand new ○ Extent of change ▪ Radical innovation • Type of diffusion ○ Spread • Structures to support scale-up ○ Governance structures ○ Financial structures ○ Delivery (and implementation) structures • Tools to support spread and/or scale-up		○ Inclusive national strategies for digital therapeutics ○ Regulation for innovation that provide publicly available standardized catalogue of the required evidence, indicator types and defined set of accepted methods ○ Clinical evidence needs to highlight the necessary changes to care processes and new interactions between care stakeholders ○ Socioeconomic evidence, which include the way of clinical practice and workflow ○ Additional assessment criteria that include interoperability, privacy and security by design ○ Clear-cut assessment and certification pathways for digital therapeutics solutions linking approval and reimbursement ○ Foster innovation through the digital therapeutics industry ○ Strategies for change management and capacity building for involved stakeholders ○ Secondary use of digital therapeutics data, which provides real world evidence and can generate evidence for impact assessment without having to recruit patients Source	
	• Health-system innovations ○ Object of innovation ▪ Structural ○ Relation to existing standard solution ▪ Brand new ○ Extent of change ▪ Radical innovation ○ Type of diffusion ▪ Scale-up • Processes to support spread and/or scale-up ○ Support processes ▪ Providing training and technical assistance	High	• The study examines the use of community of practice in the development of Alberta Health Services and an enabler of large-scale public service change and how they can be applied to a learning organization • Communities of practice used within Alberta Health Services represented a broad cross-section of the areas including quality improvement, employees engagement, project management, patient safety, patient relations and concerns, patient and family centre-care frontline management, and organization wide-supports • Membership boundaries were shaped and defined by considerations such as staff roles, practice domain and patient confidentiality • The sphere of influence reflected both the geographic and functional spheres of influence, including some that were province-wide while others were organization or multi-zone wide	Published August 2020

			• Communities of practice were found to influence practice by providing meaningful interactions, building information pathways (across organisational boundaries and supporting knowledge sharing), and building capacity to address patient needs • Organisational benefits included promoting innovation, supporting employee retention, advancing process and practice standardisation, nurturing psychological health, expanding research participation and dissemination, contributing to talent management and professional development and improving workload measurement • However, the value and role of Communities of Practice in influencing organisational change is not yet widely understood • Communities of practice provide individuals and teams with the opportunities and platforms to share knowledge, innovate and pursue mastery over the challenges they encounter Source	

	• Health-system innovations
	  ○ Object of innovation
	  ▪ Process innovation
	  ○ Relation to existing standard solution
	  ▪ Competing with an existing solution
	  ○ Extent of change
	  ▪ Incremental innovation
	  ○ Type of diffusion
	  ▪ Spread
	• Processes to support scale-up
	  ○ Synthesis and translation of existing research related to the innovation
	  ○ Support processes
	  ▪ Providing training and technical assistance
		High	• The study examines the strategies for spread used in the case of a national medicine optimisation program across England
			• Spread strategies were applied by the Academic Health Science Network, which are local regional intermediary organisation with the official mandate to facilitate the spread of innovations across the NHS
			• Defines spread as an active and planned process to replicate and achieve the adoption of an innovation in several sites or organisations for the benefit of a larger population
			• AHSN facilitated spread by supporting commercial and non-commercial innovators and health system adopter through the adoption process by taking a unique intermediary position and moderating between stakeholders
			• Employing a spread facilitator with previous experience was critical as they understood the innovation, and potential barriers, to adoption
			• There was a need for flexibility to adapt to meet the needs and characteristics of each local context
			• Scientific evidence on the effectiveness of the innovation was critical but it had to be married with local evidence to engage
				Published October 2022

			local adopters, however this had to be balanced against the risk of running too many pilots • The study also noted the importance of timing with respect to order or sequence, taking into consideration path dependency, alignment with external influences and implementation work taking time Source	

	• Processes to support scale-up
	  ○ Synthesis and translation of existing research related to the innovation
	  ○ Support processes
		High	• The study identified 73 discrete strategies to support the implementation of innovations, though these strategies have largely been used at the program or practice level, many are relevant to the implementation of system wide initiatives
			• These can loosely be grouped into the following clusters:
			  ○ Use evaluative and iterative strategies
			  ○ Provide interactive assistance
			  ○ Train and education stakeholders
			  ○ Support clinicians
			  ○ Engage consumers
			  ○ Utilize financial strategies
			  ○ Change infrastructure
			Source
				Published February 2015

	• Health-system innovations
	  ○ Object of innovation
	  ▪ Process innovation
	  ○ Relation to existing standard solution
	  ▪ Competing with an existing solution
	  ○ Extent of change
	  ▪ Incremental innovation
	  ○ Type of diffusion
	  ▪ Spread
	• Processes to support scale-up
	  ○ Synthesis and translation of existing research related to the innovation
	  ○ Support processes
	  ▪ Providing training and technical assistance
		High	• Study examines the spread of the Optimizing Function and Independent in Older Veterans program across Veteran's Affairs facilities
			• Defines implementation strategies as the tools and activities used to promote successful integration of evidence-based practices into routine practice
			• Foundation supports included a mixture of asynchronous, self-guided materials combined with regular opportunities for sites to obtain interactive technical assistance
			• Enhanced implementation provides tailored, site specific guidance via one-on-one and/or group-based coaching
			• Enhanced implementation was provided to sites on a similar call schedule and structure, which mimicked an abbreviated needs assessment with a particular focus on implementation progress to date
			• The use of foundational and enhanced implementation supports provides a scalable yet effective model that can be deployed across large, diverse settings
			Source
				Published April 2022

	• Health-system innovations
	  ○ Object of innovation
	  ▪ Structural innovation
	  ▪ Process innovation
	  ○ Relation to existing standard solution
	  ▪ Brand new
	  ○ Extent of change
	  ▪ Incremental innovation
	• Type of scale-up and spread
	  ○ Spread
	• Structures to support scale-up
	  ○ Governance structures
	  ○ Financial structures
	  ○ Delivery (and implementation) structures
	• Processes to support spread and/or scale-up
	  ○ Synthesis and translation of existing research related to the innovation
	  ○ Support processes
	  ▪ Providing training and technical assistance
	• Tools to support spread and/or scale-up
		Medium	• This study aimed to identify and consolidate published perspectives on clinical artificial intelligence (AI) implementation and identify key evidence gaps on the topic
			  ○ Clinical AI includes both rule-based and non-rule-based tools, and perspectives were gathered from five distinct stakeholder groups: patients, carers and other members of the public, healthcare professionals (HCPs), developers, health managers and leaders, and regulators or policy makers
			• For developers, the poor interoperability of different systems inhibited clinical AI scale-up (2d.2), but it seemingly benefited electronic healthcare record providers
			  ○ Developers were also affected by the defensive attitudes of healthcare organizations and patients, many of whom distrust representatives of the industry on whom clinical AI's training depends
			• Healthcare professionals commonly valued clinical AI that facilitated training, reduced simple or repetitive tasks, improved patient outcomes, or widened HCPs' scope of practice
			  ○ However, HCP adoption was often hampered by inadequate time to embed clinical AI into practice, skepticism about its ability to inform clinical decisions, and uncertainty around its mechanics
			• For healthcare leaders, a careful selection of clinical AI tools that can likely relieve workforce pressure may help managers to protect investment and buy-in for clinical AI despite excessive clinical burdens
			• Patient-facing clinical AI, such as self-management tools for chronic diseases, was well received by patients if they operated under close HCP oversight
			  ○ Available perspectives from carers suggested that clinical AI could make healthcare decisions more transparent and help carers to advocate for patients
			• For regulators, there was a perceived need for ongoing regulation of clinical AI and the contexts in which they are applied in terms of how tools are deployed and how they may evolve through everyday practice
				Published April 2021

			○ Anxiety over who would be held legally responsible if clinical AI became dominant was common Source	
	• Health-system innovations ○ Relation to existing standard solution ▪ Competing with an existing solution ○ Extent of change ▪ Incremental innovation • Type of diffusion ○ Spread • Processes to support spread and/or scale-up ○ Synthesis and translation of existing research related to the innovation	High	• In this study, the authors describe methods for assessing whether adaptation is likely to reduce the effectiveness of an improvement intervention, which adaptations may be required, and what methods can be used to collect data that measures the effectiveness of adaptations. • Observations made at Salzburg Global Seminar were that adaptations are often made because the local implementing site has a different 'context' when compared to the setting where the improvement change was tested. • Implementation science research indicates that three factors explain how completely the 'better way' is implemented: complexity of the new approach, structure and strategy actions of the program, and context of the care practice that is being changed. • In terms of approaches to scale-up, organizations can implement the improvement in different settings or with another patient group, improve guidance for researchers and quality improvers to describe an improvement change precisely, and adapt educational material if the language of the clients or staff were different from the language of clients or staff involved in the original test. • Improvers, researchers and funders at the seminar all agreed that improvements, especially in scale-up programs, could be more effective if we had better answers to when, why and how to adapt improvements to context. Source	Published April 2018
	• Health-system innovations ○ Object of innovation ▪ Structural innovation ▪ Process innovation ○ Relation to existing standard solution ▪ Brand new ○ Extent of change ▪ Incremental innovation • Type of diffusion	High	• This study uses artificial intelligence (AI) as a case example of interventions in healthcare systems, specifically how an implementation framework as well as an equity lens can inform the scale-up of AI in healthcare • The study identified barriers to AI implementation at the individual, organizational, and broader contextual levels ○ Individual – transparency, clinical accountability, evaluation ○ Organizational – availability of resources, modification of workflows, workforce training	Published October 2021

	○ Scale-up • Structures to support scale-up ○ Governance structures ○ Financial structures ○ Delivery (and implementation) structures • Processes to support spread and/or scale-up ○ Synthesis and translation of existing research related to the innovation		○ Contextual – regulations and standards, financial support, culture of trust • The study recommends incorporating implementation of AI into the early stages of translational research in order to develop technologies that are responsive, adaptable, and sensitive. • It also discusses the importance of designing AI interventions to be equitable in order to better serve vulnerable populations and reduce inequities in care. Source	
	• Health-system innovations ○ Object of innovation ▪ Structural innovation ▪ Process innovation ○ Relation to existing standard solution ▪ Competing with an existing solution ○ Extent of change ▪ Incremental innovation • Type of diffusion ○ Scale-up • Structures to support scale-up ○ Governance structures ○ Financial structures	High	• The e-Mental Health Innovation and Transnational Implementation Platform North-West Europe (eMEN) project was initiated to develop recommendations for the implementation and dissemination of eMH services in Europe-based on the analyses of six European countries. • This study highlighted eight recommendations to address the barriers for implementation and dissemination of eMH services in Europe: ○ Promote and advocate for strong political commitment, governance, and leadership ○ Ensure legal clarity and ethical correctness and avoid insecurities in safeguarding human rights, privacy, and data security in the digital age ○ Develop adequate financing strategies and also guarantee the long-term financial viability of eMH ○ Stimulate, promote, and fund eMH research and specifically focus on effectiveness, evaluation methods, and implementation ○ Promote and facilitate eMH development and research processes ○ Ensure the implementation of only high-quality eMH products and services in the (mental) healthcare sector ○ Increase awareness and acceptance of eMH products and services, enhance digital health literacy, and foster trust in digital tools in mental healthcare and prevention ○ Integrate eMH into established (mental) healthcare models Source	Published May 2020

Appendix 5: Documents excluded at the final stages of reviewing

Type of document	Hyperlinked title
Guidelines	
Evidence syntheses	Factors influencing implementation of eHealth technologies to support informal dementia care: Umbrella review
Protocols for reviews that are already underway	
Titles and questions for reviews being planned	
Single studies	Shifting paradigms in Canadian healthcare to support the scale and spread of innovation (unable to access)
	Equitable implementation of artificial intelligence in medical imaging: What can be learned from implementation science
Other types of documents	

Waddell K, DeMaio P, Bain T, Alam S, Wilson MG. Rapid evidence profile #47: Structures and processes to support spread and scale of health system innovations, 9 May 2023.

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