Zaccagnini *et al.*
Health Research Policy and Systems (2026) 24:103
https://doi.org/10.1186/s12961-026-01528-8

Health Research Policy and Systems

REVIEW

Open Access

Evidence-informed person-centred practice: an integrative framework for evidence use in healthcare

Marco Zaccagnini[1,2*], Dawn P. Richards[3,4], Aliki Thomas[5,6,7], Andrew J. West[2] and Ian D. Graham[1,8,9]

Abstract

Background Integrating evidence into clinical care has become a defining feature of modern healthcare. Long-standing evidence-based approaches, including evidence-based medicine, evidence-based practice, and evidence-informed practice have strengthened expectations that healthcare professionals will locate, interpret, and apply research evidence in everyday decision-making. Yet persistent tensions remain. Limited and inconsistent patient involvement, challenges in sustaining the skills needed to enact evidence use, the hierarchical privileging of empirical research over other meaningful forms of knowledge, and the influence of contextual and systemic constraints continue to impede its practical uptake. Together, these conceptual and operational limitations highlight the value of an integrative framework that more fully reflects the complexities and realities of contemporary care.

Methods Guided by principles of a critical review, we examined foundational and contemporary literature on evidence-based approaches and related concepts (e.g. context, reflective practice, implementation). We reviewed influential texts and supplemented them with targeted searches to identify constructs underrepresented in the initial sources. The framework was then developed and refined through the combined expertise and positionality of the research team and a co-production process with leaders from a national professional association.

Results We propose the Evidence-Informed Person-Centred Practice (EIPP) framework, which integrates and extends existing approaches to evidence use by making explicit the dynamic, collaborative, and context-responsive nature of evidence use. EIPP comprises four enactment processes: research awareness, shared decision-making, reflective practice, and implementation, each supported by distinct forms of critical thinking. These processes are shaped by three outer domains: systemic contextual conditions, professional accountability, and collective readiness. Together, these components support the delivery of individualized, appropriate care: the right care, by the right provider, for the right patient, in the right setting, and at the right time. Beyond proximal outcomes, EIPP aims to contribute to broader goals of health and well-being, health equity, provider experience, and system efficiency, aligning with the Quintuple Aim.

Conclusions EIPP offers an integrative synthesis of existing approaches to evidence use by making explicit the interdependence of knowledge, context, partnerships, and action. The framework brings together multiple knowledge sources, collaborative decision-making, reflective practice, and implementation, while positioning the use of evidence as a shared responsibility shaped by professional and systemic conditions. Future research should examine

*Correspondence:
Marco Zaccagnini
mzaccagn@uottawa.ca
Full list of author information is available at the end of the article

© The Author(s) 2026. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by-nc-nd/4.0/.

the feasibility, usability, and impact of EIPP across diverse care settings and determine how it may need to be adapted across professional, organizational, cultural, and health system contexts.

Keywords Evidence-based practice, Evidence-based medicine, Decision making, shared, Patient-centered care, Professional practice, Evidence-informed practice

Background

The integration of evidence into clinical practice has become a cornerstone of modern healthcare, beginning with the development of evidence-based medicine (EBM). Originally conceptualized by Sackett and popularized by Guyatt in 1991, EBM emphasized the conscientious, explicit, and judicious use of the best available evidence to inform patient care [1–3]. During the 1990s and early 2000s, EBM evolved into the broader concept of evidence-based *practice* (EBP), extending its scope beyond medicine to other healthcare professions [4, 5]. EBP preserved the emphasis on integrating reliable empirical data into clinical decision-making while also underscoring healthcare professionals' ethical and professional responsibility to provide high-quality care. More recently, evidence-informed practice (EIP) has been advanced to position research evidence alongside other equally important inputs. With EIP, conditions that affect research utilization, clinical expertise, and patient preferences are better recognized as integral to decision-making rather than secondary considerations [6, 7]. Together, these developments have progressively broadened how evidence is understood and used in practice.

Proponents of these approaches argue that using the "*best*" available evidence will enhance the effectiveness and efficiency of care, promote accountability, improve outcomes, and foster transparency, cooperation, and knowledge sharing between healthcare professionals and patients [8–12]. Although EBM, EBP, and EIP have shaped education, policy, and professional norms, they also place significant expectations on healthcare professionals to locate, appraise, and apply evidence in everyday practice [7, 13]. Moreover, questions remain regarding their consistent impact on patient outcomes and their ability to accommodate the complexities of practice; persistent challenges in their conceptualization, implementation, and sustainability continue to be reported [14–20].

Tensions and challenges within evidence-based approaches

Despite the intended benefits of EBM, EBP, and EIP, healthcare professionals face persistent challenges in acquiring and maintaining the skills needed to search for, interpret, synthesize, and apply evidence [14–16]. Although many are trained to formulate research questions and develop search strategies during their education, these skills tend to decline without sustained practice, and the rapid growth of the literature compounds this difficulty [21, 22]. For example, the number of published systematic reviews increased 20-fold between 2009 and 2019, amounting to 80 new reviews per day, creating an increasingly complex evidence landscape [23]. While structured approaches, such as the 5 A's (Ask, Acquire, Appraise, Apply, Assess) [24, 25], offer stepwise guidance, they can oversimplify practice by portraying evidence use as a linear, procedural task. In reality, each step requires complex judgement, sensitivity to each patient's context and values, ongoing reflection, and a willingness to work with uncertainty [11, 24, 26]. Even when evidence is accessible, professionals consistently report difficulty in effectively enacting these steps within the constraints of real-world practice [15, 22, 27–29].

Critiques have also drawn attention to how evidence-based approaches conceptualize patient involvement and other ways of knowing. Although patient values and contexts are acknowledged in earlier conceptualizations [17, 18], this attention was often cursory. Patients are rarely engaged across the continuum of evidence use, exert little influence over the research that informs their care, are seldom meaningfully included in decision-making, and are often positioned primarily as the *recipients* of care [17, 18, 30]. Such limited integration can create tension with the principles of patient/person-centred practice. Additionally, evidence-based approaches are often perceived to privilege randomized controlled trials and population-level data over other valuable forms of knowledge, such as clinical expertise, physiological reasoning, patients' lived experiences (e.g. embodied, relational, cultural knowledge), and diverse epistemologies, such as Indigenous ways of knowing [31–35]. A more comprehensive engagement with these epistemologies is beyond the scope of this paper and warrants dedicated scholarly attention. This hierarchy may marginalize forms of knowledge considered "non-empirical", generating dissonance among healthcare professionals and, for others, reinforcing established norms that privilege clinical authority. In practice, healthcare professionals must reconcile population-level findings with the complexities of real-world

care. Together, these dynamics may help explain why many continue to struggle to fully embrace and enact evidence-based practices.

Finally, the broader context in which care is delivered shapes whether, how, and to what extent health professionals can enact evidence-based practices [36]. Healthcare practice occurs within complex systems influenced by political, economic, organizational, and social factors, including policies, leadership, culture, and resource availability [6, 37–40]. A meta-synthesis identified three levels of practice context (micro, meso, macro), six domains, 22 attributes, and more than 100 features that influence evidence uptake [41]. Such complexity highlights a need for approaches that more fully account for the realities of practice.

Rationale for an integrative approach to evidence use in healthcare

These conceptual, empirical, and practical challenges highlight the need to extend existing frameworks toward a more explicitly person-centred and context-responsive approach. Over the last three decades, EBM, EBP, and EIP have each contributed important advances, including establishing the centrality of research evidence and broadening the relevance of evidence-based approaches beyond medicine to encompass multiple professions, clients, and the contextual realities that shape practice. Yet tensions persist in how these principles translate into everyday care, where healthcare professionals must continually balance population-level evidence with individual circumstances, navigate organizational and system constraints, and engage patients as genuine partners in decision-making. As perspectives on evidence and practice evolve, the frameworks that support their application must keep pace. While we do not advocate diminishing or disregarding the valuable empirical and conceptual contributions of existing evidence-based approaches [10, 42], we argue for building on that foundation to better support today's healthcare professionals' practical use of evidence.

In response to these enduring tensions, drawing from the broader literature on how evidence is interpreted and enacted in practice, and from our own lived, clinical, and scholarly experiences, we propose the Evidence-Informed Person-Centred Practice (EIPP) framework, an integrative framework that connects established approaches to evidence use while highlighting the dynamic, iterative, collaborative, and context-dependent nature of practice. Although we use the term person-centred practice because of its widespread use in the literature, EIPP reflects growing emphasis on people-shaped and people-driven approaches to care, in which patients, families, communities, and other knowledge users actively shape the priorities, knowledge, decisions, and actions that inform care. Rather than replacing existing models, it builds on their foundations while making three elements more explicit: (i) recentering partnership with people across the continuum of care, (ii) reframing context as an active determinant of evidence use, with accountability distributed across individual healthcare professionals, teams, and professional structures, and (iii) repositioning knowledge sources so that research evidence, clinical expertise, and lived experience are treated as essential and mutually reinforcing in decision-making [6, 7, 20, 43–46].

In doing so, EIPP addresses a space that is often underdeveloped across existing evidence-based approaches. Some approaches emphasize how healthcare professionals identify, appraise, and apply evidence to decisions, but give less attention to how patient partnership, contextual realities, and implementation shape what ultimately happens in practice. Other frameworks, such as those in the field of knowledge translation or implementation science, focus on moving a defined practice, guideline, intervention, innovation, or behaviour into routine use while giving less attention to how the practice is determined. EIPP bridges these traditions by focusing on how an evidence-informed, person-centred action is generated in the first place, and how that action is then adapted, enacted, reflected on, and sustained in context. EIPP seeks to offer healthcare professionals, teams, patients, policy-makers, and/or organizations a framework that better reflects the realities of contemporary practice and health systems, supporting evidence use as a collective, person-centred, and sustainable endeavour. EIPP is intended as a conceptual framework to guide decision-making and reflection rather than a prescriptive process for a single clinical encounter. Table 1 situates EIPP in relation to earlier evidence-based approaches, highlighting both continuity and its distinct contributions.

EIPP is also aligned with the Quintuple Aim [47], ensuring that the integration of evidence supports person-centred care and system-level goals of population health, equity, provider well-being, and sustainability (Table 2). Given the interconnected nature of the Quintuple Aim, the mappings presented in Table 2 are not intended to be mutually exclusive; rather, they illustrate how elements of EIPP may contribute across multiple, interrelated domains. However, realizing these outcomes depends on system-level conditions that vary across professions and practice settings.

Approach and positionality of the team

Critical review and sources

This work was conducted as a critical, concept-building review to support the development of the EIPP

Table 1 Foundational definitions and contributions of evidence-based approaches

	Evidence-based medicine	Evidence-based practice	Evidence-informed practice	Evidence-informed person-centred practice
Definitions from foundational papers	*"The conscientious, explicit and judicious use of current best evidence in making decisions about the care of individuals"*	*"A problem-solving approach to clinical decision making that incorporates a search for the best and latest evidence, the available resources, clinical expertise and assessment, and patient preference and values within a context of caring"*	*"An approach to patient care where practitioners are encouraged to be knowledgeable about findings from all types of studies and to use them in an integrative manner, taking into consideration clinical experience and judgment, clients' preferences and values, and the context of interventions"*	*"A critical thinking-driven approach to care that integrates research awareness, shared decision-making, reflective practice, and implementation to support the use of evidence in a way that is more responsive to patients' needs and contexts"*
Defining characteristics	Emphasizes rigorous, population-based scientific evidence as the basis for *physician*-led decisions	Adds patient preferences and clinical expertise to the evidence base and applies across professions	Acknowledges multiple types of knowledge (e.g. experiential, experimental, and qualitative) and contextual factors in decision-making	Reframes evidence use as a collaborative, context-responsive process by explicitly integrating patient partnership, system-level influences, and multiple knowledge sources within decision-making
Components less explicit in prior approaches	Limited patient involvement; does not account for context or team-based care	Still often individual-focused; context, power dynamics, and structural barriers are underrepresented	Context is acknowledged but not defined. There is limited discussion about structural barriers, power dynamics, and organizational influences. There is not discussion about implementation	Synthesizes and builds on elements identified in prior approaches (e.g. context, implementation, and patient partnership), while addressing how these are integrated within a person-centred, practice-oriented framework Requires empirical evaluation and ongoing refinement in practice
Foundational papers	Guyatt, G. Cairns, J. Churchill, D. et al. (1992) Evidence-based medicine: a new approach to teaching the practice of medicine. *JAMA*	DiCenso, A. Cullum, N. Ciliska, MD. (1998). Implementing evidence-based nursing: some misconceptions. *Evidence-Based Nursing* Melnyk, BM. (2003). Finding and appraising systematic reviews of clinical interventions: Critical skills for evidence-based practice. *Pediatric Nursing* Dawes, M. Summerskill, W. Glasziou, P. Cartabellotta, A. Martin, J. Hopayian, K. Porzsolt, F. Burls, A. Osborne, J. (2005). Sicily statement on evidence-based practice. *BMC Med Educ*	Nevo, I. Slonim-Nevo, V. (2011). The myth of evidence-based practice: towards evidence-informed practice. *British Journal of Social Work*	N/A
	Sackett, DL. Rosenberg, MC. Gray, AM. Haynes, RB. Richardson, WS. (1996). Evidence based medicine: What it is and what it isn't. *British Medical Journal*	Sigma Theta Tau International 2005–2007 Research and Scholarship Advisory Committee. Sigma theta tau international position statement on evidence-based practice February 2007 summary. Worldviews Evid Based Nurs	Kumah, E. McSherry, R. Bettany-Saltikov, J. van Schaik, P. (2022). Evidence-informed practice: simplifying and applying the concept for nursing students and academics. *Br J Nurs*	

Table 2 Quintuple Aim

Quintuple aim	Definition	Alignment with the Evidence-informed Person-Centred Practice Framework
(1) Enhance the patient experience of care	Improve the quality of, accessibility of, and satisfaction with of healthcare from the patient's perspective, including communication, empathy, and responsiveness	• Professional accountability • Shared decision-making • Delivering individualized appropriate care
(2) Improve population health	Enhance the overall health outcomes of populations by addressing medical conditions, promoting wellness, and preventing disease	• Professional accountability • Research awareness • Delivering individualized appropriate care • Health, well-being, and system efficiency
(3) Reduce per capita cost of healthcare	Deliver high-quality care more efficiently, reducing unnecessary spending while maintaining or improving outcomes	• Collective readiness • Implementation • Delivering individualized appropriate care
(4) Improve the work life of healthcare providers	Support healthcare professionals and staff well-being to reduce burnout and improve satisfaction and retention in the healthcare workforce	• Systemic contextual conditions • Collective readiness • Reflective practice
(5) Advance Health Equity	Actively identify and reduce disparities in care across different populations by addressing social determinants of health and ensuring fair access to services	• Shared decision-making • Delivering individualized appropriate care • Health, well-being, and system efficiency

framework. Consistent with critical review methodology [48–51], the aim was an interpretive synthesis and integration of conceptually relevant sources to advance a coherent framework rather than an exhaustive coverage of the literature. We examined literature and models related to EBM, EBP, EIP, and associated concepts from the emergence of EBM in 1991 to 2025. The review followed the broad phases of critical review methodology: focusing on the conceptual problem, generating a body of relevant sources, appraising their conceptual contributions, purposively sampling the most informative literature, and analysing sources to develop an integrative framework [49, 51].

We first identified foundational texts based on the research team's expertise. These were supplemented with targeted, iterative MEDLINE searches conducted in October 2025 to explore underrepresented or insufficiently integrated constructs within existing approaches (e.g. implementation, shared decision-making, reflective practice, and context). MEDLINE was selected for its broad coverage of health and health services literature. The searching process was generative iterative rather than predefined, evolving through ongoing engagement with the literature and team discussions to ensure adequate conceptual coverage. The initial MEDLINE search strategy is provided in Additional File 1 to illustrate the starting point for the iterative exploration of relevant concepts. It was not intended to define a fixed or reproducible corpus of literature. We purposively selected sources for their contributions to framework development, particularly when they defined or elaborated constructs relevant to EIPP, clarified relationships among them, or identified limitations or omissions in existing approaches. We therefore did not apply formal inclusion criteria.

Relevant sections and key points from conceptually important sources were recorded in a working Excel spreadsheet. This spreadsheet served as an informal analytic workspace rather than a standardized extraction form. We reviewed notes and compared across sources to identify recurring concepts, differences among approaches, limitations in existing frameworks, and potential relationships among constructs. Emerging interpretations were discussed by the team and used to refine the EIPP framework's content and structure.

Co-production with knowledge users

The catalyst for developing the EIPP framework emerged from work with the Canadian Society of Respiratory Therapists (CSRT), where elected professional leaders ($n = 11$) identified a need to redefine how the profession engages with evidence in practice. Their involvement provided practice-based grounding for the framework alongside the critical review, related projects, and the research team's expertise. Engagement occurred over approximately two years through related programmatic work on evidence-informed practice, including educational development and studies examining professional learning needs [52, 53], and through repeated discussions during Board of Directors meetings and related project meetings. During these meetings, members of the research team presented emerging interpretations from the review and successive drafts of the framework, including preliminary visual models, labels, domains, and descriptions.

Feedback was gathered through facilitated open discussions during meetings and through written feedback opportunities following meetings. Feedback was documented through meeting notes and annotated draft materials. After each engagement point, the research team reviewed this feedback alongside the synthesis and used it to refine the framework's structure, terminology, practical orientation, and applicability to professional practice. Revisions included clarifying component labels, adjusting relationships among constructs, broadening language beyond respiratory therapy-specific examples, and refining how the framework represented evidence use as a collaborative and context-responsive process. Revised versions were then returned to CSRT leaders in subsequent meetings, allowing further critique and refinement.

We addressed divergent views through discussion and iterative revision rather than through voting or a formal consensus procedure. When perspectives differed, the team considered whether the divergence reflected a conceptual issue, variation across professional roles or practice settings, or language that required broader framing. When feedback reflected context-specific assumptions, the team retained broader wording and identified the need for context-specific adaptation. This process supported the co-production and contextual grounding of the framework [54, 55].

Although the framework originated in this professional context, it is intended to be relevant and usable for healthcare professionals, trainees, patients, people with lived/living experience, teams, organizations, educators, professional associations, policy-makers, and regulators of health professions. Its application, however, may require context-specific adaptation to account for differences in professional roles, scopes of practice, organizational structures, patient populations, and practice settings.

Team positionality and epistemological orientation

The development of the EIPP framework was further shaped by the collective expertise and experiences of the team (MZ, DPR, AT, AJW, IDG), each of whom contributes unique insights that informed the conceptualization process. MZ is a practicing healthcare professional transitioning to a researcher, studying evidence use and how to translate knowledge into practice effectively and frequently encountered persistent challenges in applying evidence to clinical situations due to contextual and systemic barriers. DPR is an analytical chemist by training, has lived with rheumatoid arthritis for nearly 25 years, and has become deeply engaged in patient and public engagement in research. AT is a researcher whose work sits at the intersection of education, practice, and policy to strengthen evidence-based healthcare, focusing on how healthcare professionals use evidence in real-world contexts, how diverse forms of knowledge shape decision-making, and how systems can better support equitable, person-centred care. AJW is the chief executive officer of a national association for health professionals and an educational researcher with expertise in assessment, technology-enhanced learning, and social learning environments. IDG is a medical sociologist, health services researcher, and implementation scientist whose research focuses on supporting physicians, nurses, and a broad range of health professions to incorporate research evidence into their decision-making.

Through our applied research projects, we have extensively engaged with a range of professions, patient partners, and people with lived/living experience, which has given us considerable insight into the complexities and nuances of clinical practice across contexts. We also bring experience in developing implementation frameworks and models that support healthcare professionals in using evidence in practice settings. Drawing on their lived experience and expertise, DPR emphasizes that patients contribute more than experiences of illness; they also bring professional expertise, careers, and life skills that strengthen the quality and relevance of research [56]. This view is shared across the team and embedded in the framework, highlighting that patient engagement should reflect both lived experience and the broader capabilities they contribute, while amplifying the voices of communities traditionally excluded from research.

The development of the EIPP framework is shaped by the team's collective standpoints, which influence both the selection of concepts and their interpretation and integration. Our backgrounds in clinical practice, knowledge translation, implementation science, education, sociology, health professions education, and patient partnership oriented the analysis toward approaches that emphasize the integration of multiple knowledge sources, the importance of context, and enactment of decisions in practice. As a result, the framework foregrounds collaboration, adaptability, and system-level influences on decision-making while explicitly incorporating diverse forms of knowledge, including research evidence, clinical expertise, and lived experience.

Simultaneously, these orientations shaped the integration of different perspectives within a practice-oriented framework. The emphasis on integration and applicability may privilege approaches supporting action and decision-making in clinical contexts, potentially limiting the depth with which some theoretical or disciplinary perspectives are explored as standalone traditions. Additionally, the framework was developed in collaboration with leaders from a Canadian professional association,

which shaped assumptions about team-based care, professional roles, and system organization. These influences may affect how the framework is interpreted and applied across different professional, cultural, or health system contexts, suggesting that adaptation may be required in settings where these assumptions do not hold.

The development of the EIPP framework is informed by constructivist and pragmatist epistemological orientations. From a constructivist perspective, evidence and understanding are shaped through interaction, experience, and the contextual realities in which care is delivered [57–59]. At the same time, the application of evidence inevitably involves clinical judgement, experience, and the particular circumstances of patients and care settings. A pragmatist orientation complements this view by emphasizing that the value of evidence lies in how it guides appropriate actions for patients in their particular contexts [57, 60]. While a detailed examination of these philosophical traditions is beyond the scope of this article, referencing them clarifies how they inform the EIPP framework's approach to interpreting and applying evidence use in practice.

We define a framework as a visual representation of the core structure and components underlying a system or concept, in this case, EIPP [61, 62]. Such a framework can serve as a valuable tool across multiple domains. For example, educational institutions may use it to guide curriculum development, better equipping future professionals with essential skills in research interpretation, clinical judgement, and person-centred care [63]. For healthcare organizations and regulatory bodies, the EIPP framework could provide a structured lens for quality improvement, professional competence, and patient safety, ensuring that care aligns with current evidence and ethical principles [64]. Finally, patients and policymakers might also benefit, as EIPP supports a more transparent decision-making process that considers their diverse needs, ultimately enhancing care quality and trust in the healthcare system [64, 65].

Evidence-informed person-centred practice framework

We defined evidence-informed person-centred practice (EIPP) as *a critical thinking–driven approach to care that integrates research awareness, shared decision-making, reflective practice, and implementation to support the use of evidence in a way that is responsive to patients'*[1] *needs. Evidence use is influenced by multiple, interdependent factors, including contextual conditions and professional structures, as well as the collective readiness to engage with multiple ways of knowing and to enact them collectively. Together, these influences shape the extent to which healthcare professionals can deliver appropriate and person-centred care.*

EIPP builds on earlier evidence-based approaches by making explicit certain dimensions that were previously underdeveloped. By integrating shared decision-making, reflective practice, and implementation as core processes, EIPP highlights the relational and contextual nature of evidence use, where patient partnership, professional accountability, and system-level structures interact to influence care. This framing positions EIPP as a dynamic, collaborative, and context-sensitive process embedded in real-world systems.

Through this lens, EIPP is understood as a shared endeavor among patients, families, interprofessional teams, and health organizations. It extends earlier clinician-centred models, where evidence was applied *to* or *on* patients, toward one that is enacted *with* patients and communities. It acknowledges the importance of minimizing impediments to participation and enabling patients (or proxies) to be active participants in decisions about their care, to the extent that they wish. In turn, healthcare professionals are called to engage in continuous reflection to identify learning needs, adapt to evolving contexts, and improve the quality of care.

Furthermore, EIPP emphasizes that clinical decisions and practice should be *informed* by multiple sources of evidence rather than relying solely on research evidence. This emphasis acknowledges the importance of integrating research evidence with other forms of knowledge, such as experiential expertise and lived experience, while also recognizing that diverse epistemologies, such as Indigenous knowledge systems, shape what counts as evidence in practice. By positioning these knowledge forms as complementary, EIPP seeks to rebalance the hierarchies of evidence that have historically dominated health professions discourse and foster a more inclusive and contextually responsive understanding of what constitutes "evidence".

The EIPP framework (Fig. 1) visually represents these relationships. At its centre is the action of EIPP, which includes four interrelated enactment processes: research awareness, shared decision-making, reflective practice, and implementation, each underpinned by its own form of critical thinking that serves as a unifying element throughout the enactment process. Together, these processes enable healthcare professionals to provide the most appropriate care for an individual patient at a given point in time [66].

[1] In this manuscript, we use the term "patient" inclusively as an umbrella term to encompass people with lived and/or living experience, service users, consumers, clients and their family caregivers, and proxy decision-makers. The choice to use "patient" was made in collaboration with the team and knowledge users involved, for whom the term resonated most strongly.

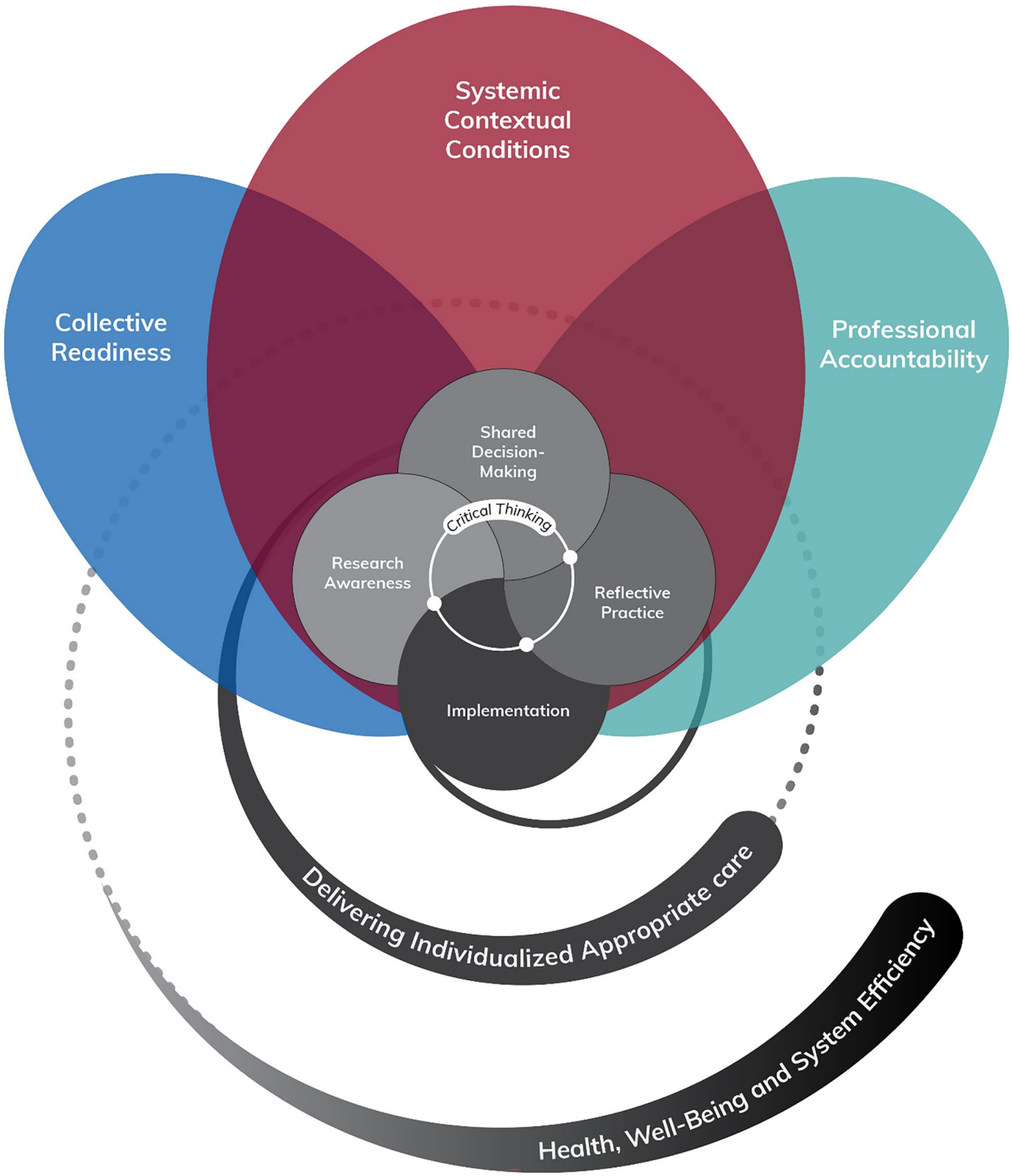

Fig. 1 The Evidence-Informed Person-Centred Practice Framework

The outer domains, systemic contextual conditions, professional accountability, and collective readiness are depicted as distinct yet intersecting domains surrounding the EIPP action. Together, these domains represent enabling or constraining influences that shape whether, how, and to what extent evidence can be enacted into care. Although depicted separately for conceptual clarity, we recognize these boundaries are fluid and

interdependent in practice. These interdependencies reflect the complex and dynamic nature of healthcare systems, rather than a limitation. The visual separation of components is therefore analytical, designed to support clearer thinking about different types of influence and potential points for intervention. The systemic contextual conditions domain is intentionally depicted as larger to emphasize that all components are situated within, and shaped by, broader system conditions.

Finally, while the proximal intended outcome in the framework is the delivery of appropriate, individualized care, the more distal and broader outcome is to contribute to improved patient and population health, well-being, and system efficiency. These broader outcomes are also shaped by factors beyond the control of both healthcare professionals and patients themselves, such as social determinants of health, as represented by the dashed line.

To illustrate how these domains and processes interact to achieve these outcomes, Table 3 presents a brief example tracing a single patient's experience through the lens of the EIPP framework. This example is intended to make explicit how evidence, context, and person-centred collaboration may be integrated in practice, rather than to represent a standardized or comprehensive application. Next, we describe the aspects of the framework in more detail from top to bottom (outer domains, enactment processes, and outcomes), situating each within the relevant supporting literature.

Systemic contextual conditions

Systemic (or system-level) contextual conditions constitute an outer layer of the EIPP framework, continuously shaping how the process is enacted. Healthcare professionals operate within complex systems and organizational structures that impact both care delivery and professional behaviour, making context a constant and dynamic force. We define systemic contextual conditions as the entire system, whether it is a healthcare organization, its structure, or the broader policy environment, rather than isolated parts. These conditions are often embedded in social, economic, or political practices [67].

Social practice theory informs the framework by recognizing that healthcare professionals' actions and routines are shaped, adopted, and sustained by the environments (i.e. context) in which they occur [41, 68–70]. Context is therefore not a neutral backdrop but an active influence on how roles are enacted and evolve over time. A scoping review illustrates this complexity, identifying more than 60 variants of "context" in the health professions education literature [70]. Implementation science frameworks also conceptualize context in different ways. For example, the Consolidated Framework for Implementation Research (CFIR), distinguishes between "inner" and "outer" settings [71–73], whereas the Theoretical Domains Framework (TDF) [74] treats context as one determinant among others that influence behaviour [75]. Most recently, Squires and colleagues [41] developed a meta-framework of context describing three broad levels of context: macro, meso, micro [41, 76–79]. We briefly describe each level to illustrate the interdependent nature of context, consistent with our view that context is an active force in shaping practice.

At the macro-level, context encompasses broad political, social, and economic forces that shape healthcare and policy-making, including societal values, regulatory standards, and the interactions between markets and public health systems. This level influences healthcare through overarching policies, funding structures, and jurisdictional accreditation standards that establish the boundaries within which care is delivered [77, 80]. The meso-level represents organizational characteristics and dynamics, such as culture, climate, goals, and governance structures, policies, governance, technological infrastructure, power dynamics, and organizational structure (e.g. size, hierarchy, and type) [77, 80, 81]. Finally, the micro-level comprises the immediate, day-to-day interactions that directly affect healthcare professionals' practice, including tacit rules, interpersonal relationships, patients and their proxies, local leadership, and workload, all of which impact decision-making and care delivery in real time [77, 80, 81].

Together, these interconnected levels create a complex set of conditions and forces that influence how evidence is applied or constrained in practice. While some aspects of context remain relatively stable or resistant to change, others are dynamic and require healthcare professionals to be aware of their impact and navigate them carefully throughout the EIPP process. EIPP therefore positions context as an active determinant of care rather than a passive backdrop [36, 75, 78, 80].

Professional accountability

Professional accountability refers to the formal obligations that healthcare professionals assume through membership in a regulated profession, as outlined in scopes of practice, ethical standards, regulatory requirements, and competency frameworks [82]. In this way, professional accountability sets expectations for how healthcare professionals *should* act and make decisions, reinforcing the responsibility to uphold professional standards, engage with evidence, ensure they provide high-quality care, and remain answerable to patients and society for their decisions and outcomes [83, 84]. Importantly, the influence of professional accountability varies across healthcare professions, depending on regulatory structures and scopes of practice.

Table 3 Patient experience illustrating the Evidence-Informed Person-Centred Practice Framework

EIPP component	Illustration in practice (patient journey)	EIPP principle demonstrated
Systemic contextual conditions	Patient X is a 68-year-old man with chronic obstructive pulmonary disease (COPD), presents to the emergency department (ED) with acute respiratory failure, is intubated, and then admitted to a tertiary-care intensive care unit (ICU). The hospital promotes early weaning (i.e. the gradual transition off mechanical ventilation) and mobilization, but staffing shortages and inconsistent familiarity with protocols limit consistent application across shifts, highlighting opportunities for clearer guidance and shared routines	Care is shaped by organizational and system factors that enable or constrain the use of evidence. Context actively determines how EIPP can be enacted
Professional accountability	Under professional and regulatory standards, respiratory therapists (RTs) are expected to apply current evidence and document decision-making transparently. The ICU team reviews updated recommendations from the Choosing Wisely Canada list developed jointly by the Canadian Critical Care Society, Canadian Association of Critical Care Nurses, and the Canadian Society of Respiratory Therapists regarding daily spontaneous breathing trials (SBTs). Although this guidance has not yet been formally incorporated into a unit policy, the team reaches an informal consensus to apply it where clinically appropriate. This also prompts informal conversations about formalizing this process in the future	Accountability establishes ethical and professional expectations that motivate evidence use and ensure transparency to patients and the public
Collective readiness	Although the team is familiar with SBTs, high workload and staffing variability sometimes delay their implementation. For Patient X, the charge RT coordinates timing with nursing and physiotherapy to ensure adequate monitoring and support. The team's situational awareness and collaboration enable consistent delivery of evidence-informed care despite contextual pressures	Readiness reflects motivation, peer support, leadership engagement, and resource flexibility that make EIPP feasible and sustainable in daily practice
Research awareness	The RT leading Patient X's care reviews a recent clinical practice guideline demonstrating that early, protocolized SBTs reduce mechanical ventilation duration, which minimizes the sequelae related to extended time on the ventilator, such as delirium, ICU-acquired weakness, and post-ICU psychological distress. The team discusses these recommendations and adapts them to Patient X's comorbidities and overall clinical status	Professionals act as critical consumers of evidence, integrating synthesized, trustworthy knowledge with clinical judgement and patient context
Shared decision-making	Once stable, Patient X and his daughter (his designated proxy) are invited to discuss the weaning plan. The RT explains the rationale, benefits, and potential risks of the SBT and uses supported communication strategies (e.g. yes/no gestures, a communication board) to elicit Patient X's priorities. Through these methods, Patient X indicates that comfort and minimizing distress are most important to him and signals apprehension about how the trial will feel. These concerns are discussed openly with his daughter and the team. Together, they agree to proceed the next morning when Patient X appears rested and ready. The experience prompts informal discussion among staff about strengthening shared decision-making communication strategies across the unit	Evidence, expertise, and patient preferences converge through collaborative dialogue, aligning care with what matters most to the person

Table 3 (continued)

EIPP component	Illustration in practice (patient journey)	EIPP principle demonstrated
Reflective practice	After a successful SBT and subsequent extubation (i.e. the removal of the breathing tube), the team debriefs and notes that clear communication and scheduling flexibility improved Patient X's comfort and confidence. His daughter expresses appreciation for how well the team communicated with her and included her in the process, reinforcing trust and partnership. Through this reflective discussion, the team also recognizes that while coordination among several professions was strong, collaboration with physiotherapy was less effective, resulting in limited support for early mobilization. This observation is identified as an area for future workflow refinement for future situations	Reflection connects experience to evidence, fostering continuous learning and adaptation for future practice
Implementation	The ICU incorporates a daily SBT-readiness prompt into its electronic rounds checklist and begins monitoring outcomes such as whether an SBT attempt was completed, ventilation duration, re-intubation rates, and patient satisfaction. These data are reviewed monthly at staff meetings to sustain practice improvements and reinforce adherence	Implementation transforms individual successes into system-level processes that embed EIPP principles into routine care
Intended outcome: delivering individualized appropriate care	Patient X is successfully weaned, transitions to the ward after 2 days, and later reports satisfaction with his involvement in decisions and recovery	Demonstrates how EIPP leads to appropriate, person-centred, and efficient care aligned with patient values and organizational goals
Distal intended outcome: health, well-being, and system efficiency	Data from Patient X's care contribute to the unit's ongoing quality-improvement reviews, helping identify variation in practice, support benchmarking, and inform broader system-level efforts to enhance efficiency and equity	Demonstrates how EIPP contributes to population health and system efficiency through collective learning and continuous quality improvement

Note: chronic obstructive pulmonary diseases = COPD; emergency department = ED; intensive care unit = ICU; respiratory therapists= RTs; spontaneous breathing trials = SBTs; evidence-informed person-centred practice = EIPP

In the EIPP framework, professional accountability is situated alongside systemic contextual conditions and collective readiness, which together partly shape how evidence is taken up and enacted in practice. Although often implicit in earlier evidence-based approaches, accountability is rarely conceptualized as a distinct influence on evidence use. Emerging empirical work across healthcare professions suggests the importance of accountability. For example, in nursing, accountability as a personal characteristic has been linked to fewer missed care episodes and improved performance, while its absence is associated with lower-quality and less safe care [85, 86]. In occupational therapy, practicing in an evidence-informed way has been described as enhancing therapeutic relationships by lending credibility to decisions, enhancing transparency and demonstrating accountability to the public they serve [87]. In physiotherapy, a mixed-methods study found that the absence of a professional culture that promotes accountability for EBP standards may hinder the use of evidence [88]. While the empirical base is still emerging, it suggests that accountability may be a promising driver of the use of evidence.

Building on these insights, we view professional accountability as being multi-dimensional, comprising (i) responsibility (ownership for their actions), (ii) transparency (openness of decisions to evaluation by a meaningful audience), and (iii) answerability (consequences, such as rewards or sanctions, are imposed in response to this assessment) [86, 89]. While accountability may be internalized as a personal ethic, it is primarily structured and maintained by regulatory and professional bodies, sustained by codes of conduct, licensure, and continuing education [84, 90, 91]. This structure motivates healthcare professionals to use evidence not only because they *want* to but also because they are *expected* to.

Professional accountability is conceptually related to but distinct from professionalism. Professionalism encompasses a broad set of values and behaviours such as integrity, empathy, and respect that guide how healthcare professionals conduct themselves. In contrast, professional accountability refers to being responsible and answerable for one's actions and decisions in the provision of care. Accountability, therefore, operationalizes professionalism by translating intent into evidence-informed action. For example, while curiosity about emerging research reflects professionalism, accountability requires that this curiosity leads to critical appraisal of the evidence, assessment of its relevance to patients, and appropriate application through shared decision-making.

Collective readiness

Collective readiness refers to the capacity of healthcare professionals, the teams in which they work, and the broader context (e.g. unit, organization) to engage in EIPP. It encompasses the internal and external factors influencing whether healthcare professionals are prepared, supported, and willing to implement EIPP in their routine practice. Individual-level readiness encompasses personal characteristics such as interests [92], attitudes [93], self-efficacy [9, 94], perceptions (e.g. of evidence or professional identity) [9], and motivation (e.g. altruism or external incentives). These factors influence the adoption of EIPP, empowering professionals [95], enhancing job satisfaction [96], and supporting overall well-being. Collectively, these outcomes foster occupational sustainability and align with the Quintuple Aim's call to improve the work life of healthcare providers [12, 97, 98].

Team-level readiness is shaped by collective dynamics, leadership engagement, and peer support. Leadership is especially influential, serving as an intermediary between point-of-care staff and senior leadership [99]. Authors from multiple systematic reviews suggest that when leaders model EIPP principles, bridge professionals' knowledge gaps, and reinforce evidence use as a collective priority, they foster a culture in which evidence is encouraged and legitimized, strengthening professionals' sense of value and purpose within the organization, further enhancing job satisfaction [99–101]. Organizational champions further support this process by bridging the gap between evidence and practice. A systematic review by Santos et al. [102] found that local champions are associated with increased uptake and improved outcomes [102]. Champions encourage and motivate their colleagues, fostering an environment where EIPP is feasible and supported, thereby increasing workplace engagement and satisfaction.

Organizational-level readiness might be shaped by structural supports, such as accreditation processes, training programmes, and strategic organizational policies. For example, accreditation processes are associated with quality assurance, credibility, and trustworthiness, and its associated activities, such as data monitoring, staff training, and adherence to standards, signal an organizational commitment to evidence use [103–105]. Similarly, institutional policies, strategic resource allocation, professional development, and organizational commitment foster stable environments where evidence use is prioritized. For example, Duff et al. [106] identified determinants of an EBP environment, including processes for enacting evidence in practice, availability of supports (e.g. human, material, and financial), and sustained investment in training and professional development [106]. Such initiatives embed EIPP principles as a core organizational value and foster a sense of purpose and satisfaction among professionals who feel supported in their practice [79, 106–108]. Organizational strategies,

such as those described by Fischer et al. [108], include strategic planning, mentorship, champions, competency-based education, monitoring systems, and communication strategies to support translation into practice [108]. Such initiatives foster a positive work environment and promote cost-efficiency by reducing redundancy and minimizing waste, objectives aligned with the Quintuple Aim of reducing the per capita cost of healthcare [8, 109, 110]. Given that readiness is context-specific [111, 112], it should be assessed and supported in ways that fit local circumstances. Tools such as the Organizational Readiness to Change Assessment (ORCA) [113, 114] or surveys of EIPP-related competencies [115] can help identify capacity gaps and inform tailored strategies.

Collective readiness represents the immediate preparedness to act and functions as a mobilizing force of EIPP. Without sufficient readiness, efforts to promote EIPP may stall, regardless of how strong external pressures or professional obligations are.

Critical thinking

At this stage in the EIPP framework, we shift from the domains that influence EIPP to the processes of its enactment. Critical thinking serves as the throughline across all four enactment processes, functioning as a dynamic, context-specific set of capabilities rather than a single, discrete skill. It supports healthcare professionals in evaluating information, reasoning through complexity, adapting to context, and making person-centred decisions. Within the EIPP framework, critical thinking takes different forms depending on the enactment process. For example, in research awareness, it may involve analytical reasoning/critical appraisal of evidence. During shared decision-making, healthcare professionals draw on ethical and dialogical reasoning when navigating patient preferences and values. In reflective practice, metacognitive and reflexive reasoning enable examination of one's own decisions and outcomes, while in implementation, practical/adaptive reasoning supports the translation of evidence into action within complex systems.

Critical thinking is broadly described as a deliberate process of questioning, analysing, interpreting, and evaluating information to reach well-reasoned judgements [116, 117]. Previously developed process models of evidence-based approaches (e.g. IOWA, Johns Hopkins, 5As) have made important contributions by emphasizing "critical appraisal" of research evidence, particularly the assessment of study quality [1, 3, 10, 118, 119]. While these models implicitly acknowledged broader reasoning skills, they often narrow critical thinking to the formal evaluation of empirical studies. In EIPP, we adopt a broader conceptualization, positioning critical thinking as a cross-cutting capability that extends beyond appraisal to include navigating patient values, contextual realities, and implementation decisions.

Critical thinking is highly valued in health professions education and is embedded in many competency frameworks [120–125]. Within EIPP, we emphasize that this capability should be developed and continually reinforced, refined, and prioritized. Although direct evidence linking critical thinking to patient outcomes is limited, its close alignment with EBP [126] and observed associations with better job performance [127–129] underscore its importance.

The evidence-informed person-centred practice enactment process

Having outlined the influencing domains and cross-cutting elements, the "operational" enactment processes of the EIPP framework together encompass what we term "doing EIPP". While these enactment processes are presented here in a specific order, the EIPP framework is fundamentally non-linear. Any enactment process can prompt the overall EIPP cycle, as represented by the bidirectional arrows connecting each in the framework. For example, a patient's decision about their care may initiate the shared decision-making process, prompting the need for greater awareness of the research. Alternatively, a healthcare professional might engage in reflective practice following a significant experience, prompting the exploration of new evidence and adjustments to the therapeutic approach. While these processes can occur in any order, implementation is the only fixed process as it is the stage that ultimately creates the potential to achieve optimized care. We expand on each below.

Enactment process: research awareness

The ability to access, understand, and synthesize evidence is essential for healthcare professionals. This process stage refers to one's knowledge, appreciation, and understanding of research, as well as the ability to find and interpret evidence for clinical practice, either independently or with support from organizational structures that identify and synthesize evidence on one's behalf [130–132]. Research is intended to play a positive, motivating role in professional practice and serves as the foundation for informed decision-making and continuous learning [133, 134].

Research awareness extends beyond knowing that evidence exists; it reflects an appreciation for its breadth and an understanding of how to locate and interpret it. This broader, more holistic perspective acknowledges that evidence stems from diverse sources beyond traditional empirical research, including clinical expertise, patient experiences, and contextual knowledge. Within the EIPP framework, research awareness aligns with the

established steps of other evidence-based approaches [11], namely formulating a clinical question, seeking relevant evidence, and critically appraising its quality. A central assumption in the EIPP framework is that healthcare professionals are not expected to function as researchers who systematically review primary literature or conduct in-depth appraisals. Rather, it positions them as critical and discerning consumers of evidence. This includes the capacity to identify, interpret, and evaluate synthesized sources (e.g. clinical practice guidelines or evidence summaries), which should reside with healthcare professionals but can also be supported by designated individuals, departments, or institutions that provide curated, context-relevant resources. For example, research awareness supports healthcare professionals in using resources such as the Cochrane Library and podcasts, JBI Evidence Summaries, Health Evidence, Choosing Wisely, the Guidelines International Network inventory of guidelines, health technology agencies' reports (e.g. Canada's Drug Agency), professional associations' practice guidelines, and other curated evidence-based tools. These resources provide synthesized, accessible knowledge applicable to clinical scenarios, ensuring that evidence-informed decisions are effective, relevant and practical. This approach supports integrating evidence into care while acknowledging the time, training, and resource limitations in routine clinical environments. Research awareness contributes to improved population health and patient outcomes by supporting care grounded in trustworthy, high-quality evidence, thereby aligning with the Quintuple Aim [47].

Enactment process: shared decision-making

In the EIPP framework, shared decision-making is an essential process for the use of evidence. Shared decision-making is acknowledged as the cornerstone of person-centred care and is defined as a collaborative approach by which, in partnership with their healthcare professional, patients are encouraged to consider the available care options, weigh the benefits and harms, clarify and communicate their preferences, and select the best course of action aligned with their values and goals [135, 136]. It involves, but is not limited to, patients, caregivers, families, surrogate decision-makers, and interprofessional care teams as equal partners in decision-making, considering the best available evidence, alongside patients' values, goals, preferences and context [137]. While patient preferences have been included in evidence-based approaches since their inception, they have historically been deprioritized in favour of population-level empirical research [17, 138–141]. By positioning shared decision-making at the forefront, the EIPP framework aligns with the Quintuple Aim's to enhance the patient experience (e.g. fostering connections among healthcare professionals and improving the patient experience) and to support health equity through more meaningful incorporation of patients' values and contexts into decisions. This approach reinforces the principles of person-centred and equitable care [47].

In this framework, we advocate shared decision-making across all clinical contexts, including situations where patients may have limited capacity to participate, such as critical illness [142] or high-risk surgical interventions [143]. While some scenarios require immediate, life-saving action, there are often opportunities to involve caregivers, family members, or surrogate decision-makers in the process. Findings show that shared decision-making can lead to modest positive impacts on health outcomes, including improved mental health, enhanced self-perceived quality of life, increased sense of control over illness, symptom relief, and reductions in fatigue, depression, and concerns [144]. Similarly, authors of an overview of systematic reviews found that engaging in shared decision-making generally has little to no effect on healthcare costs and does not increase consultation time with patients [144, 145].

We also recognize that some patients may not wish to engage directly in decision-making, and respecting this choice is a key aspect of person-centred care. Even when robust evidence supports a given care plan, patients may choose another care plan based on their values, goals, preferences, and contexts. These choices can reflect personal circumstances, cultural beliefs, or differing risk and benefit values. Additionally, local policies or the clinical decisions of other healthcare professionals may influence or modify the implementation of shared decision-making (and ultimately EIPP) as discussed in earlier sections (e.g. contextual conditions). In the EIPP framework, informed and shared decision-making is essential for ensuring that care is person-centred and equitable [47]. By involving patients who are supported in understanding their options and prepared to participate in decision-making, the EIPP framework helps ensure that care reflects each person's needs, values, and circumstances.

Enactment Process: Reflective practice

Reflective practice involves critically examining clinical decisions and actions to determine whether they achieved their intended outcomes [58, 59, 146]. It fosters continuous learning by identifying areas for improvement, integrating insights into future practice, and adapting to changing circumstances. Reflection occurs both during care (reflection-in-action), as professionals adjust decisions in real time, and after care (reflection-on-action), through retrospective analysis of outcomes [146]. Whether formal (e.g. case reviews, patient rounds)

or informal (e.g. team discussions), these reflective moments help align practice with EIPP principles while supporting the Quintuple Aim's goal of enhancing healthcare professionals' work life [47]. There is growing evidence that reflective practice promotes emotional well-being, professional fulfillment, resilience, and career longevity [147–149].

Earlier debates in the literature sometimes portrayed reflective practice and the application of best evidence as being in tension, often due to interpretations of evidence-based approaches as purely objective, generalized, and predictive knowledge. In contrast, reflective practice has been associated with subjective, experiential, pragmatic, and context-specific ways of knowing. However, scholars have argued that these two perspectives are not opposed but rather mutually supportive [150]. In our framework, we posit that these processes are not only compatible but also highly complementary [45, 150–153]. Reflective practice bridges the gap between decontextualized research findings and the practical realities of clinical care. By engaging in reflection, professionals connect explicit, research-based evidence/knowledge with tacit, experience-based knowledge and the evolving circumstances of care [26, 46]. Reflective practice, in this sense, functions as the interpretive process that makes evidence meaningful in practice rather than abstract or detached [26, 46, 150, 153].

Moreover, reflective practice fosters an iterative cycle of learning and improvement. By reassessing their actions and outcomes, healthcare professionals continuously refine their approaches, adapt to emerging evidence, and respond to evolving patient needs and contextual conditions [153]. While traditional evidence-based frameworks often include an "assessment" phase as their final step, reflective practice in EIPP extends beyond this implied task. It acts as both a cognitive and a social mechanism that ensures evidence is not only applied but also continuously assessed in practice and adapted to meet the demands of practice. In this way, reflective practice ensures that EIPP remains dynamic, responsive, and rooted in the complexities of real-world healthcare [45, 152, 154].

Enactment process: implementation

Implementing evidence into practice is complex and time-consuming [155, 156]. In many evidence-based frameworks, this step is described as the application of evidence (e.g. the "Apply" stage in the 5 As), yet it has received comparatively less attention, resulting in limited operational guidance [24, 157, 158]. More broadly, it is sometimes described as an implicit, individual task [25] rather than a collective, coordinated activity shaped by multiple influences.

Implementation rarely occurs in isolation; a range of social, behavioural, and other contextual factors influences it. These might include institutional priorities (e.g. performance targets) [159], the availability (or lack) of resources, team dynamics (e.g. hierarchy) [72, 160], and individual characteristics such as personal experience, self-efficacy, and higher levels of educational training [22, 161, 162]. Despite this complexity, implementation has often been treated primarily as a knowledge problem, with education promoted as the default solution under the assumption that if healthcare professionals know more, they will change their behaviour. Yet, evidence consistently shows that education alone cannot overcome the organizational, cultural, and logistical conditions that shape everyday practice and evidence use [163, 164]. This view is evolving as advances in knowledge translation and implementation science unfold. For example, researchers across the health disciplines show that guideline uptake falters when protected time is lacking, documentation systems are misaligned, or leadership fails to reinforce change [22, 40, 99, 165].

The EIPP framework acknowledges these challenges by shifting the focus of implementing evidence from an individual responsibility to a system-supported process. It positions sustainable implementation as dependent on collective efforts across teams, professions, and organizational structures [38, 41, 74, 99, 166, 167]. In doing so, EIPP reflects the interdependencies among team members, departments, and organizations that ultimately determine whether evidence becomes routine practice.

This perspective aligns with the fields of knowledge translation [168] and implementation science [169], which emphasize that successful implementation requires multimodal, theory-informed, and context-sensitive strategies [115, 170]. Effective strategies may include dedicated resources and support (e.g. protected time) [171], monitoring performance (e.g. audit and feedback, adherence metrics), and aligning policies and procedures with new practices (e.g. revised job descriptions) [172]. While this section cannot comprehensively address the breadth of knowledge translation or implementation science, it draws from these fields to consider how knowledge users (i.e. individuals, teams, or organizations) might approach implementation within the EIPP framework.

In this framework, implementation is defined as the active, intentional process of mobilizing evidence-informed decisions into real-world clinical action [169]. Implementation requires coordination across teams and organizational structures and is influenced by institutional priorities, including what changes are supported, resourced, sustained or discontinued. This includes implementing new practices and, when appropriate,

de-implementing low-value care. Unlike the other enactment processes in the framework (e.g. shared decision-making, reflective practice), which focus on identifying the best course of action, implementation addresses *how* these decisions are carried out in practice. It is a dynamic, iterative process that requires adaptation, coordination, and alignment across multiple levels of the system. For example, implementing a new protocol may require not only professional buy-in, but also workflow redesign, staff training, interdepartmental coordination, and ongoing feedback mechanisms [173].

Implementation should not be viewed as an afterthought or something that happens only when time permits. To achieve the intended improvements in patient outcomes, healthcare organizations should treat implementation as a core component of clinical care, supported by dedicated time, resources, and formal roles such as clinical educators, knowledge brokers, champions, and implementation leads [172, 174–176]. Creating a culture in which the use of evidence is expected and enabled shifts responsibility from individual healthcare professionals to the surrounding system. Such commitments foster environments where healthcare professionals are more likely to succeed because they are supported, rather than burdened, by the system in which they operate. These investments may also reduce unnecessary costs by decreasing low-value care and increasing efficiency, supporting the Quintuple Aim's objective of lowering the per capita cost of healthcare [177].

Ultimately, the EIPP framework positions implementation not as an endpoint but as a core process that connects evidence and action. It must be planned for, supported, and valued as part of everyday care.

Proximal intended outcome: delivering individualized appropriate care

Using the EIPP framework can support the convergence of evidence, clinical expertise, and patients' preferences to guide the delivery of individualized care at the most suitable moment. This convergence may also improve patient experience and health outcomes, including better alignment with patients' values and needs, greater involvement in decision-making, higher quality of care, and more efficient use of resources. In the EIPP framework, individualized, appropriate care is realized through the implementation enactment process, whereby the decisions are put into practice and can begin to shape optimal outcomes. Here, appropriate care can be understood as delivering the right care, by the right provider (with the requisite scope and expertise), to the right patient (matched to individual characteristics and preferences), in the right venue (the most suitable and safe setting), and at the right time (aligned with agreed benchmarks) [66, 178].

Underuse, overuse, and misuse of health services pose significant barriers to quality care. A Canadian study estimated that 30% of care is deemed inappropriate, with similar findings internationally [179–181]. Such practices exacerbate disparities, worsen outcomes, and undermine equitable care [66, 181, 182]. By contrast, individualized appropriate care reflects the culmination of EIPP: care that integrates best available evidence, clinical expertise, patient preferences, shared decision-making, resource stewardship, and equity. Together, they support high-quality, personalized care delivered at the right time, promoting both efficiency and ethical use of healthcare resources [178, 179, 183]. Framing care through the lens of appropriateness aligns with four components of the Quintuple Aim: enhancing the patient experience, improving population health, reducing per capita healthcare costs, and advancing equity [47].

Distal intended outcome: health, well-being, and system efficiency

The ultimate goal of appropriate care within the EIPP framework is to support patients' overall health, including physical, mental, and emotional well-being, while contributing to efficient and sustainable health systems. However, many health determinants extend beyond the direct influence of healthcare professionals. Social and structural factors, such as race, ethnicity, access to affordable housing, lifestyle, environmental conditions, and community resources, play a significant role in shaping health outcomes [184]. These determinants are closely linked to equity and population health, which are central priorities of the Quintuple Aim [47].

Including health well-being and system efficiency in the EIPP framework underscores that these often-overlooked elements influence health outcomes and shape the capacity to provide care. Their inclusion encourages healthcare professionals, organizations, educational institutions, and other potential users of the framework to consider health equity more deliberately and intentionally [185]. Moreover, this broader perspective illustrates the connection between person-centred care and organizational outcomes, such as greater patient and professional satisfaction, fewer complaints and legal disputes, enhanced service quality, improved care efficiency, and improved system-level performance (e.g. better coordination and integration of care) [167, 186, 187]. Thoughtful and equitable use of evidence, coupled with authentic shared decision-making and clinical experience, may foster better health outcomes for patients and more efficient care delivery, reduced waste, and improved staff engagement [8, 20, 185, 188].

Conclusion

The proposed EIPP framework aspires to offer a more integrative, person-centred, and context-sensitive approach for understanding how evidence is used in practice, with the potential to support high-quality care and optimize health and health system outcomes. It suggests a holistic lens for understanding how evidence is used in practice by integrating key influences and processes reflecting the realities of clinical decision-making. The framework incorporates three outer domains (systemic contextual conditions, professional accountability, and collective readiness) that shape whether evidence can be used in practice. At its core are four interrelated enactment processes: research awareness, shared decision-making, reflective practice, and implementation, each supported by its own form of critical thinking as a cross-cutting capability that supports more effective integration of evidence, clinical expertise, and patient preferences.

The EIPP framework may offer a more realistic and actionable approach to evidence-informed healthcare. It can serve as a guide for a range of knowledge users, including healthcare professionals seeking clarity on what EIPP entails and how to enact it; health system managers who are responsible for enforcing it; policymakers aiming to design supportive health organizations and systems; professional organizations developing competency standards and guidelines; and patients who wish to better understand, participate in, and influence decisions about their care. Importantly, enacting EIPP aligns with the Quintuple Aim by supporting improvements in population health, patient care experiences, provider well-being, health equity, and health system cost efficiency.

While evidence use is often viewed as the responsibility of healthcare professionals, it cannot rest solely with individuals. From a sociocultural-informed perspective, EIPP should be enabled, supported, and enacted across teams, professions, and organizations. When responsibility is shared, the impact of EIPP is amplified, improving both patient care and system-wide quality and consistency. To facilitate reflection on how these principles can be operationalized across different contexts, we provide guiding questions for users of the framework to consider when applying EIPP in practice, as shown in Table 4.

Simultaneously, while the EIPP framework is designed to operate across healthcare systems, it is important to acknowledge that its enactment may be shaped by existing structural conditions, including professional hierarchies, uneven resource distribution, and differences in how professions are positioned within health systems. In many contexts, decision-making authority, resource allocation, and implementation priorities are not evenly distributed across professions, with medicine often occupying more central roles. These dynamics may influence whose knowledge is prioritized, how evidence is interpreted, and which practices are implemented. Healthcare delivery also occurs across a wide range of settings beyond traditional team-based environments, including community, private, educational, and industry contexts, where team structures, roles, and expectations differ substantially.

EIPP is therefore best understood not as a fixed model of practice but as an adaptable framework that

Table 4 Applying EIPP in practice: a non-specific quick reflection checklist

Table 4: Applying EIPP in Practice: A Non-Specific Quick Reflection Checklist	
1. Systemic contextual conditions	(a) What factors, such as policies, workflow, resources, or constraints, are shaping this situation?
2. Professional accountability	(a) What professional, ethical, or regulatory expectations guide my actions in this situation? (b) What are the boundaries of my role and is anything required here outside my scope of practice?
3. Collective readiness	(a) What factors influence how prepared and supported I, my team, and/or this setting are to apply evidence? (b) If not prepared, what adjustments, supports, or communication will improve readiness?
4. Research awareness	(a) What evidence (e.g. guidelines, summaries, local data) is most relevant and trustworthy for this situation? (b) What resources exist/are at my disposal to retrieve such evidence? (c) How can this evidence be interpreted and applied to this patient and context?
5. Shared decision-making	(a) How has the patient (or proxies) been invited, prepared, and supported to participate in the shared decision-making? (b) How have the care options, benefits, risks, and likelihoods been discussed to the level of their understanding? (c) How have their preferences, values, goals, and contextual realities elicited and integrated into the decision?
6. Reflective practice	(a) What worked well, and what did not? (b) What would I do differently in a similar situation in the future? (c) What can the team learn from this case? (d) What small changes might improve similar situations in the future?
7. Implementation	(a) How can this evidence-informed change be integrated into routine practice? (b) What adaptations or follow-up processes will help sustain and monitor this change?

must be responsive to local contexts and conditions. Its value will depend on how it is taken up, applied, and adapted across contexts. Future work could explore how the EIPP framework may complement existing implementation and determinant frameworks when applied across diverse practice settings, particularly in contexts where traditional team-based structures or system-level supports are less established. We therefore encourage healthcare professionals, teams, educators, organizations, and other users to actively engage with the framework in practice and share their experiences to inform its ongoing refinement and contextual relevance.

While the EIPP framework offers an integrative synthesis of contemporary evidence-based and evidence-informed approaches, its assumptions, practical relevance, and impact require empirical validation. Empirical evaluation is needed to assess the framework's feasibility and usability in real-world settings and explore how it can be operationalized, assessed, and adopted into practice. This may include developing curriculum or training resources to integrate EIPP into health professions education and continuing professional development; creating practice-level self-assessment instruments; designing resources to help teams plan how EIPP could be used; or identifying indicators of how the framework is enacted across different professional roles and care settings. Evaluation work could examine whether and how the EIPP framework influences care delivery, professional practice, patient experience, health outcomes, and health system performance. These investigations are essential to determine whether the framework not only meets theoretical expectations but also contributes to meaningful and measurable improvements in healthcare.

Abbreviations

EBM	Evidence-based medicine
EBP	Evidence-based practice
EIP	Evidence-informed practice
EIPP	Evidence-informed person-centred practice
CFIR	Consolidated Framework for Implementation Research
PARIHS	Promoting Action on Research Implementation in Health Services
TDF	Theoretical Domains Framework

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12961-026-01528-8.

Additional file 1.

Acknowledgements
We acknowledge the 2024–2025 CSRT Board of Directors for providing their perspectives as knowledge users in this project. We acknowledge members of the knowledge synthesis and knowledge translation team at the George & Fay Yee Centre for Healthcare Innovation at the University of Manitoba for creating the figure.

Author contributions
MZ: Conceptualization, investigation; data curation, writing– original draft; writing – review and editing; project administration. DPR: writing – review and editing. AT: writing – review and editing. AJW: Conceptualization, writing – review and editing, senior scholarly guidance. IDG: Conceptualization, writing – review and editing; supervision. All authors read and approved the final manuscript.

Funding
MZ is supported by a Banting Postdoctoral Fellowship (#509780) from the Canadian Institutes of Health Research (CIHR). IDG is a recipient of a CIHR Foundation Grant (FDN#143237).

Availability of data and materials
The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
Given that this work relied on publicly available documents, no research ethics board (REB) approval was necessary.

Consent for publication
Not applicable.

Competing interests
The authors declare that they have no competing interests.

Author details
[1]School of Epidemiology and Public Health, University of Ottawa, 600 Peter Morand Crescent, Ottawa, Ontario K1G-5Z3, Canada. [2]The Canadian Society of Respiratory Therapists, Ottawa, Ontario, Canada. [3]Five02 Labs Inc., Toronto, Ontario, Canada. [4]Patient Author, Toronto, Ontario, Canada. [5]School of Physical and Occupational Therapy, McGill University, Montréal, Québec, Canada. [6]Centre for Interdisciplinary Research in Rehabilitation of Greater Montréal, Montréal, Québec, Canada. [7]Institute of Health Sciences Education, McGill University, Montréal, Québec, Canada. [8]Centre for Practice Changing Research, The Ottawa Hospital Research Institute, Ottawa, Ontario, Canada. [9]School of Nursing, University of Ottawa, Ottawa, Ontario, Canada.

Received: 16 December 2025 Accepted: 12 August 2026
Published online: 25 August 2026

References

1. Sackett D, Rosenberg W, Gray J, Haynes R, Richardson W. Evidence based medicine: what it is and what it isn't. BMJ BMJ. 1996;312(7023):71–2. https://doi.org/10.1136/bmj.312.7023.71.
2. Thoma A, Eaves FF 3rd. A brief history of evidence-based medicine (EBM) and the contributions of Dr David Sackett. Aesthet Surg J. 2015;35(8):NP261–3. https://doi.org/10.1093/asj/sjv130.
3. Guyatt G. Evidence-based medicine. ACP J Club. 1991;114:A-16.
4. Puljak L. The difference between evidence-based medicine, evidence-based (clinical) practice, and evidence-based health care. J Clin Epidemiol. 2022;142:311–2. https://doi.org/10.1016/j.jclinepi.2021.11.015.
5. Mackey A, Bassendowski S. The History of Evidence-Based Practice in Nursing Education and Practice. J Prof Nurs. 2017;33(1):51–5. https://doi.org/10.1016/j.profnurs.2016.05.009.
6. Kumah E, McSherry R, Bettany-Saltikov J, van Schaik P. Evidence-informed practice: simplifying and applying the concept for nursing students and academics. Br J Nurs. 2022;31(6):322–30. https://doi.org/10.12968/bjon.2022.31.6.322.
7. Nevo I, Slonim-Nevo V. The myth of evidence-based practice: towards evidence-informed practice. Br J Soc Work. 2011;41(6):1176–97. https://doi.org/10.1093/bjsw/bcq149.
8. Connor L, Dean J, McNett M, Tydings DM, Shrout A, Gorsuch PF, et al. Evidence-based practice improves patient outcomes and healthcare

system return on investment: findings from a scoping review. Worldviews Evid Based Nurs. 2023;20(1):6–15. https://doi.org/10.1111/wvn.12621.
9. Amit-Aharon A, Melnikov S, Warshawski S. The effect of evidence-based practice perception, information literacy self-efficacy, and academic motivation on nursing students' future implementation of evidence-based practice. J Prof Nurs. 2020;36(6):497–502. https://doi.org/10.1016/j.profnurs.2020.04.001.
10. Dusin J, Melanson A, Mische-Lawson L. Evidence-based practice models and frameworks in the healthcare setting: a scoping review. BMJ Open. 2023;13(5):e071188. https://doi.org/10.1136/bmjopen-2022-071188.
11. Melnyk B, Fineout-Overholt E, Stillwell S, Williamson K. Evidence-based practice: step by step: the seven steps of evidence-based practice. Am J Nurs. 2010;110(1):51–3. https://doi.org/10.1097/01.NAJ.0000366056.06605.d2.
12. World Health Organization (WHO). Facilitating evidence-based practice in nursing and midwifery in the WHO European Region. 2017.
13. Critical Appraisal Skills Programme. What Is Critical Appraisal? [Webpage]. 2024 [cited 2024 Oct. 15].
14. Dalheim A, Harthug S, Nilsen RM, Nortvedt MW. Factors influencing the development of evidence-based practice among nurses: a self-report survey. BMC Health Serv Res. 2012. https://doi.org/10.1186/1472-6963-12-367.
15. Scurlock-Evans L, Upton P, Upton D. Evidence-based practice in physiotherapy: a systematic review of barriers, enablers and interventions. Physiotherapy. 2014;100(3):208–19. https://doi.org/10.1016/j.physio.2014.03.001.
16. Upton D, Stephens D, Williams B, Scurlock-Evans L. Occupational therapists' attitudes, knowledge, and implementation of evidence-based practice: a systematic review of published research. Br J Occup Ther. 2014;77(1):24–38. https://doi.org/10.4276/030802214x13887685335544.
17. Greenhalgh T, Snow R, Ryan S, Rees S, Salisbury H. Six "biases" against patients and carers in evidence-based medicine. BMC Med. 2015;13:200. https://doi.org/10.1186/s12916-015-0437-x.
18. Gregorio M, Teixeira A, Henriques T, Pascoa R, Baptista S, Carvalho R, et al. What role do patients prefer in medical decision-making?: a population-based nationwide cross-sectional study. BMJ Open. 2021;11(10):e048488. https://doi.org/10.1136/bmjopen-2020-048488.
19. Tugwell P, Knottnerus JA. Is the "Evidence-Pyramid" now dead? J Clin Epidemiol. 2015;68(11):1247–50. https://doi.org/10.1016/j.jclinepi.2015.10.001.
20. Greenhalgh T, Howick J, Maskrey N. Evidence Based Medicine Renaissance Group. Evidence based medicine: a movement in crisis? BMJ. 2014;348(3725). https://doi.org/10.1136/bmj.g3725
21. Klaic M, McDermott F, Haines T. How soon do allied health professionals lose confidence to perform EBP activities? A cross-sectional study. J Eval Clin Pract. 2019;25(4):603–12. https://doi.org/10.1111/jep.13001.
22. Iqbal MZ, Rochette A, Mayo NE, Valois MF, Bussieres AE, Ahmed S, et al. Exploring if and how evidence-based practice of occupational and physical therapists evolves over time: a longitudinal mixed methods national study. PLoS ONE. 2023;18(3):e0283860. https://doi.org/10.1371/journal.pone.0283860.
23. Hoffmann F, Allers K, Rombey T, Helbach J, Hoffmann A, Mathes T, et al. Nearly 80 systematic reviews were published each day: observational study on trends in epidemiology and reporting over the years 2000-2019. J Clin Epidemiol. 2000;138:1–11. https://doi.org/10.1016/j.jclinepi.2021.05.022.
24. Thomas A, Chin-Yee B, Mercuri M. Thirty years of teaching evidence-based medicine: have we been getting it all wrong? Adv Health Sci Educ Theory Pract. 2022;27(1):263–76. https://doi.org/10.1007/s10459-021-10077-4.
25. de Groot M, van der Wouden JM, van Hell EA, Nieweg MB. Evidence-based practice for individuals or groups: let's make a difference. Perspect Med Educ. 2013;2(4):216–21. https://doi.org/10.1007/s40037-013-0071-2.
26. Boudreau D, Wykretowicz H, Kinsella EA, Fuks A, Saraga M. Discovering clinical phronesis. Med Health Care Philos. 2024;27(2):165–79. https://doi.org/10.1007/s11019-024-10198-8.
27. Abu-Baker NN, AbuAlrub S, Obeidat RF, Assmairan K. Evidence-based practice beliefs and implementations: a cross-sectional study among undergraduate nursing students. BMC Nurs. 2021;20(1):13. https://doi.org/10.1186/s12912-020-00522-x.
28. Lam CK, Schubert C. Evidence-based practice competence in nursing students: an exploratory study with important implications for educators. Worldviews Evid Based Nurs. 2019;16(2):161–8. https://doi.org/10.1111/wvn.12357.
29. Alqahtani N, Oh K, Kitsantas P, Rodan M. Nurses' evidence-based practice knowledge, attitudes and implementation: a cross-sectional study. J Clin Nurs. 2020;29(1–2):274–83. https://doi.org/10.1111/jocn.15097.
30. Dusin J, Peltzer J. Patient Engagement in Evidence-Based Practice Frameworks. J Patient Exp. 2024;11:23743735241302940. https://doi.org/10.1177/23743735241302941.
31. Goldman J, Shih T. The Limitations of Evidence-Based Medicine: Applying Population-Based Recommendations to Individual Patients. Virtual Mentor. 2011;13(1):26–30. https://doi.org/10.1001/virtualmentor.2011.13.1.jdsc1-1101.
32. Buetow S, T. K. Evidence-based medicine: the need for a new definition. J Eval Clin Pract. 2000;6(2):85–92. https://doi.org/10.1046/j.1365-2753.2000.00237.x
33. Miller C, Miller D Jr. The real world failure of evidence-based medicine. Int J Pers Cent Med. 2011;1(2):295–300.
34. Greenhalgh T, Fisman D, Cane D, Oliver M, Macintyre C. Adapt or die: how the pandemic made the shift from EBM to EBM+ more urgent. BMJ Evid Based Med. 2022;27:253–60. https://doi.org/10.1136/bmjebm-2022-111952.
35. Dumez V, L'Espérance A. Beyond experiential knowledge: a classification of patient knowledge. Soc Theory Health. 2024;22(3):173–86. https://doi.org/10.1057/s41285-024-00208-3.
36. Liverani M, Hawkins B, Parkhurst JO. Political and institutional influences on the use of evidence in public health policy. A systematic review. PLoS ONE. 2013;8(10):e77404. https://doi.org/10.1371/journal.pone.0077404.
37. Melnyk BM, Fineout-Overholt E, Gallagher-Ford L, Kaplan L. The state of evidence-based practice in US nurses: critical implications for nurse leaders and educators. J Nurs Adm. 2012;42(9):410–7. https://doi.org/10.1097/NNA.0b013e3182664e0a.
38. Geerligs L, Rankin NM, Shepherd HL, Butow P. Hospital-based interventions: a systematic review of staff-reported barriers and facilitators to implementation processes. Implement Sci. 2018;13(1):36. https://doi.org/10.1186/s13012-018-0726-9.
39. Cassidy C, Flynn R, Shuman C. Preparing nursing contexts for evidence-based practice implementation: where should we go from here? Worldviews Evid Based Nurs. 2021;18(2):102–10. https://doi.org/10.1111/wvn.12487.
40. Furtado L, Coelho F, Mendonça N, Soares H, Gomes L, Sousa JP, et al. Exploring professional practice environments and organisational context factors affecting nurses' adoption of evidence-based practice: a scoping review. Healthcare (Basel). 2024. https://doi.org/10.3390/healthcare12020245.
41. Squires JE, Graham ID, Santos WJ, Hutchinson AM, Team I. The implementation in context (ICON) framework: a meta-framework of context domains, attributes and features in healthcare. Health Res Policy Syst. 2023;21(1):81. https://doi.org/10.1186/s12961-023-01028-z.
42. Satterfield J, Spring B, Brownson R, Mullen E, Newhouse R, Walker B, et al. Toward a transdisciplinary model of evidence-based practice. Milbank Q. 2009;87(2):368–90. https://doi.org/10.1111/j.1468-0009.2009.00561.x.
43. Fernandez A, Sturmberg J, Lukersmith S, Madden R, Torkfar G, Colagiuri R, et al. Evidence-based medicine: is it a bridge too far? Health Res Policy Syst. 2015;13:66. https://doi.org/10.1186/s12961-015-0057-0.
44. Tomlin G, Dougherty D. Decision-Making and Sources of Evidence in Occupational Therapy and Other Health Professions. Evidence-Informed Practice. International Journal of Health Professions. 2014;1(1):13–9. https://doi.org/10.2478/ijhp-2014-0001
45. Salter KL, Kothari A. Knowledge "translation" as social learning: negotiating the uptake of research-based knowledge in practice. BMC Med Educ. 2016;16:76. https://doi.org/10.1186/s12909-016-0585-5.
46. Dahl-Michelsen T, Kinsella E, Groven K. Toward an inclusive evidence-based practice model: Embracing a broader conception of

professional knowledge in health care and health care higher education. Critical Studies in Teaching and LearninG. 2021;9(1). https://doi.org/10.14426/cristal.v9i1.384
47. Nundy S, Cooper L, Mate K. The quintuple aim for health care improvement: a new imperative to advance health equity. JAMA. 2022;327(6):521–2. https://doi.org/10.1001/jama.2021.25181.
48. Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. Health Info Libr J. 2009;26(2):91–108. https://doi.org/10.1111/j.1471-1842.2009.00848.x.
49. Kahlke R, Lee M, Eva KW. Building blocks for critical reviews in health professions education. J Grad Med Educ. 2023;15(2):186–9. https://doi.org/10.4300/JGME-D-23-00155.1.
50. Sutton A, Clowes M, Preston L, Booth A. Meeting the review family: exploring review types and associated information retrieval requirements. Health Info Libr J. 2019;36(3):202–22. https://doi.org/10.1111/hir.12276.
51. Kahlke R, Lee M, Eva KW. Critical reviews in health professions education research. J Grad Med Educ. 2023;15(2):180–5.
52. Zaccagnini M, West AJ, D'Souza B, Farrell P, Tessier S, Graham ID. The Use of Micro-Credentials in Health Professions Education: A Scoping Review. Perspect Med Educ. 2025;14(1):974–90. https://doi.org/10.5334/pme.2038.
53. Zaccagnini M, West AJ, Graham ID. Knowledge, attitudes and behaviours of evidence-informed practice in respiratory therapy: A cross-sectional survey. Can J Respir Ther. 2025;61:244–61. https://doi.org/10.29390/001c.146171.
54. Graham I, Rycroft-Malone J, Kothari A, McCutcheon C. Research coproduction in healthcare. Wiley-Blackwell; 2022.
55. Rycroft-Malone J, I DG, Kothari A, McCutcheon C. Research Coproduction: An Underused Pathway to Impact. Int J Health Policy Manag. 2024;13. https://doi.org/10.34172/ijhpm.2024.8461
56. Richards D. thebmjopinion [Internet]. Richards D, editor2018. [cited 2025]. Available from: https://blogs.bmj.com/bmj/2018/02/14/dawn-p-richards-the-patient-as-a-person/.
57. Kaushik V, Walsh CA. Pragmatism as a research paradigm and its implications for social work research. Soc Sci. 2019. https://doi.org/10.3390/socsci8090255.
58. Schön D. Educating the reflective practitioner: toward a new design for teaching and learning in the professions. New York: Basic Books; 1987.
59. Kinsella EA. Technical rationality in Schon's reflective practice: dichotomous or non-dualistic epistemological position. Nurs Philos. 2007;8(2):102–13. https://doi.org/10.1111/j.1466-769X.2007.00304.x.
60. Greenhalgh T, Papoutsi C. Studying complexity in health services research: desperately seeking an overdue paradigm shift. BMC Med. 2018;16(1):95. https://doi.org/10.1186/s12916-018-1089-4.
61. Nilsen P. Making sense of implementation theories, models and frameworks. Implement Sci. 2015;10:53. https://doi.org/10.1186/s13012-015-0242-0.
62. Lynch EA, Mudge A, Knowles S, Kitson AL, Hunter SC, Harvey G. "There is nothing so practical as a good theory": a pragmatic guide for selecting theoretical approaches for implementation projects. BMC Health Serv Res. 2018;18(1):857. https://doi.org/10.1186/s12913-018-3671-z.
63. Khanna P, Roberts C, Lane AS. Designing health professional education curricula using systems thinking perspectives. BMC Med Educ. 2021;21(1):20. https://doi.org/10.1186/s12909-020-02442-5.
64. Brady SS, Brubaker L, Fok CS, Gahagan S, Lewis CE, Lewis J, et al. Development of conceptual models to guide public health research, practice, and policy: synthesizing traditional and contemporary paradigms. Health Promot Pract. 2020;21(4):510–24. https://doi.org/10.1177/1524839919890869.
65. Chudyk AM, Horrill T, Waldman C, Demczuk L, Shimmin C, Stoddard R, et al. Scoping review of models and frameworks of patient engagement in health services research. BMJ Open. 2022;12(8):e063507. https://doi.org/10.1136/bmjopen-2022-063507.
66. Canadian Medical Association. Appropriateness in Health Care. 2015.
67. Thelen J, Sant Fruchtman C, Bilal M, Gabaake K, Iqbal S, Keakabetse T, et al. Development of the Systems Thinking for Health Actions framework: a literature review and a case study. BMJ Glob Health. 2023;8(3). https://doi.org/10.1136/bmjgh-2022-010191
68. Reckwitz A. Toward a theory of social practices: a development in culturalist theorizing. Eur J Soc Theory. 2002;5(2):243–63. https://doi.org/10.1177/13684310222225432.
69. Bates J, Ellaway R. Mapping the dark matter of context: a conceptual scoping review. Med Educ. 2016;50(8):807–16. https://doi.org/10.1111/medu.13034.
70. Thomas A, Rochette A, George C, Iqbal MZ, Ataman R, St-Onge C, et al. The definitions and conceptualizations of the practice context in the health professions: a scoping review. J Contin Educ Health Prof. 2023;43(4S):S18–29. https://doi.org/10.1097/CEH.0000000000000490.
71. Safaeinili N, Brown-Johnson C, Shaw JG, Mahoney M, Winget M. CFIR simplified: pragmatic application of and adaptations to the Consolidated Framework for Implementation Research (CFIR) for evaluation of a patient-centered care transformation within a learning health system. Learn Health Syst. 2020;4(1):e10201. https://doi.org/10.1002/lrh2.10201.
72. Damschroder LJ, Reardon CM, Widerquist MAO, Lowery J. The updated Consolidated Framework for Implementation Research based on user feedback. Implement Sci. 2022;17(1):75. https://doi.org/10.1186/s13012-022-01245-0.
73. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implement Sci. 2009;4:50. https://doi.org/10.1186/1748-5908-4-50.
74. Atkins L, Francis J, Islam R, O'Connor D, Patey A, Ivers N, et al. A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems. Implement Sci. 2017;12(1):77. https://doi.org/10.1186/s13012-017-0605-9.
75. Nilsen P, Bernhardsson S. Context matters in implementation science: a scoping review of determinant frameworks that describe contextual determinants for implementation outcomes. BMC Health Serv Res. 2019;19(1):189. https://doi.org/10.1186/s12913-019-4015-3.
76. Fulop N, Robert G. The Health Foundation. London: Context for successful quality improvement; 2015.
77. Li SA, Jeffs L, Barwick M, Stevens B. Organizational contextual features that influence the implementation of evidence-based practices across healthcare settings: a systematic integrative review. Syst Rev. 2018;7(1):72. https://doi.org/10.1186/s13643-018-0734-5.
78. Coles E, Anderson J, Maxwell M, Harris FM, Gray NM, Milner G, et al. The influence of contextual factors on healthcare quality improvement initiatives: a realist review. Syst Rev. 2020;9(1):94. https://doi.org/10.1186/s13643-020-01344-3.
79. Ubbink DT, Guyatt GH, Vermeulen H. Framework of policy recommendations for implementation of evidence-based practice: a systematic scoping review. BMJ Open. 2013. https://doi.org/10.1136/bmjopen-2012-001881.
80. Clavijo-Chamorro MZ, Sanz-Martos S, Gomez-Luque A, Romero-Zarallo G, Lopez-Medina IM. Context as a facilitator of the implementation of evidence-based nursing: a meta-synthesis. West J Nurs Res. 2020;43(1):60–72. https://doi.org/10.1177/0193945920914397.
81. Rogers L, De Brun A, McAuliffe E. Defining and assessing context in healthcare implementation studies: a systematic review. BMC Health Serv Res. 2020;20(1):591. https://doi.org/10.1186/s12913-020-05212-7.
82. Fairness Commissioner. Legislated Obligations and Fair Registration Best Practices Guide for Health Regulatory Colleges. Government of Ontario 2022.
83. Emanuel E, Emanuel L. What is accountability in health care? Ann Intern Med. 1996;124(2):229–39. https://doi.org/10.7326/0003-4819-124-2-199601150-00007.
84. Krautscheid LC. Defining professional nursing accountability: a literature review. J Prof Nurs. 2014;30(1):43–7. https://doi.org/10.1016/j.profnurs.2013.06.008.
85. Drach-Zahavy A, Srulovici E. The personality profile of the accountable nurse and missed nursing care. J Adv Nurs. 2019;75(5):368–79. https://doi.org/10.1111/jan.13849.
86. Srulovici E, Drach-Zahavy A. Nurses' personal and ward accountability and missed nursing care: a cross-sectional study. Int J Nurs Stud. 2017;75:163–71. https://doi.org/10.1016/j.ijnurstu.2017.08.003.
87. Thomas A, Amari F, Mylopoulos M, Vachon B, Menon A, Rochette A. Being and becoming an evidence-based practitioner: occupational

therapists' journey toward expertise. Am J Occup Ther. 2023. https://doi.org/10.5014/ajot.2023.050193.
88. Gleadhill C, Bolsewicz K, Davidson SRE, Kamper SJ, Tutty A, Robson E, et al. Physiotherapists' opinions, barriers, and enablers to providing evidence-based care: a mixed-methods study. BMC Health Serv Res. 2022;22(1):1382. https://doi.org/10.1186/s12913-022-08741-5.
89. Bergman R. Accountability–definition and dimensions. Int Nurs Rev. 1981;28(2):53–9.
90. Plant N, Pitt R, Troke B. A partnership approach to learning about accountability. Br J Nurs. 2010;19(11):718–9. https://doi.org/10.12968/bjon.2010.19.11.48408.
91. Peteet JR, Witvliet CVO, Glas G, Frush BW. Accountability as a virtue in medicine: from theory to practice. Philos Ethics Humanit Med. 2023;18(1):1. https://doi.org/10.1186/s13010-023-00129-5.
92. Kennedy M, Carbone EG, Siegfried AL, Backman D, Henson JD, Sheridan J, et al. Factors affecting implementation of evidence-based practices in public health preparedness and response. J Public Health Manag Pract. 2020;26(5):434–42. https://doi.org/10.1097/PHH.0000000000001178.
93. Kitson AL, Rycroft-Malone J, Harvey G, McCormack B, Seers K, Titchen A. Evaluating the successful implementation of evidence into practice using the PARiHS framework: theoretical and practical challenges. Implement Sci. 2008;3:1. https://doi.org/10.1186/1748-5908-3-1.
94. Boström A, Rudman A, Ehrenberg A, Gustavsson J, Wallin L. Factors associated with evidence-based practice among registered nurses in Sweden: a national cross-sectional study. BMC Health Serv Res. 2013. https://doi.org/10.1186/1472-6963-13-165.
95. Melnyk B, Fineout-Overholt E, Giggleman M, Cruz R. Correlates among cognitive beliefs, EBP implementation, organizational culture, cohesion and job satisfaction in evidence-based practice mentors from a community hospital system. Nurs Outlook. 2010;58(6):301–8. https://doi.org/10.1016/j.outlook.2010.06.002.
96. Kim S, Stichler J, Ecoff L, Brown C, Gallo A, Davidson J. Predictors of Evidence-Based Practice Implementation, Job Satisfaction, and Group Cohesion Among Regional Fellowship Program Participants. Worldviews Evid Based Nurs. 2016;13(340–348). https://doi.org/10.1111/wvn.12171.
97. Bar-Nizan T, Rand D, Lahav Y. Implementation of evidence-based practice and burnout among occupational therapists: the role of self-efficacy. Am J Occup Ther. 2024. https://doi.org/10.5014/ajot.2024.050426.
98. Rodriguez-Nogueira O, Leiros-Rodriguez R, Pinto-Carral A, Alvarez-Alvarez MJ, Morera-Balaguer J, Moreno-Poyato AR. Examining the association between evidence-based practice and burnout among Spanish physical therapists: a cross-sectional study. J Pers Med. 2021. https://doi.org/10.3390/jpm11080805.
99. Birken S, Clary A, Tabriz AA, Turner K, Meza R, Zizzi A, et al. Middle managers' role in implementing evidence-based practices in healthcare: a systematic review. Implement Sci. 2018;13(1):149. https://doi.org/10.1186/s13012-018-0843-5.
100. Sandstrom B, Borglin G, Nilsson R, Willman A. Promoting the implementation of evidence-based practice: a literature review focusing on the role of nursing leadership. Worldviews Evid Based Nurs. 2011;8(4):212–23. https://doi.org/10.1111/j.1741-6787.2011.00216.x.
101. Williams NJ, Wolk CB, Becker-Haimes EM, Beidas RS. Testing a theory of strategic implementation leadership, implementation climate, and clinicians' use of evidence-based practice: a 5-year panel analysis. Implement Sci. 2020;15(1):10. https://doi.org/10.1186/s13012-020-0970-7.
102. Santos WJ, Graham ID, Lalonde M, Demery Varin M, Squires JE. The effectiveness of champions in implementing innovations in health care: a systematic review. Implement Sci Commun. 2022;3(1):80. https://doi.org/10.1186/s43058-022-00315-0.
103. Hall RL, Willging CE, Aarons GA, Reeder K. Site-level evidence-based practice accreditation: a qualitative exploration using institutional theory. Hum Serv Organ Manag Leadersh Gov. 2023;47(3):157–75. https://doi.org/10.1080/23303131.2023.2194940.
104. Frank JR, Taber S, van Zanten M, Scheele F, Blouin D, International Health Professions Accreditation Outcomes Consortium. The role of accreditation in 21st century health professions education: report of an International Consensus Group. BMC Med Educ. 2020;20(Suppl 1):305. https://doi.org/10.1186/s12909-020-02121-5.
105. Mitchell JI, Graham ID, Nicklin W. The unrecognized power of health services accreditation: more than external evaluation. Int J Qual Health Care. 2020;32(7):445–55. https://doi.org/10.1093/intqhc/mzaa063.
106. Duff J, Cullen L, Hanrahan K, Steelman V. Determinants of an evidence-based practice environment: an interpretive description. Implement Sci Commun. 2020;1:85. https://doi.org/10.1186/s43058-020-00070-0.
107. Harris C, Allen K, Waller C, Dyer T, Brooke V, Garrubba M, et al. Sustainability in health care by allocating resources effectively (SHARE) 7: supporting staff in evidence-based decision-making, implementation and evaluation in a local healthcare setting. BMC Health Serv Res. 2017;17(1):430. https://doi.org/10.1186/s12913-017-2388-8.
108. Fisher C, Cusack G, Cox K, Feigenbaum K, Wallen GR. Developing competency to sustain evidence-based practice. J Nurs Adm. 2016. https://doi.org/10.1097/NNA.0000000000000408.
109. Dykes PC, Curtin-Bowen M, Lipsitz S, Franz C, Adelman J, Adkison L, et al. Cost of inpatient falls and cost-benefit analysis of implementation of an evidence-based fall prevention program. JAMA Health Forum. 2023;4(1):e225125. https://doi.org/10.1001/jamahealthforum.2022.5125.
110. Walewska-Zielecka B, Religioni U, Soszynski P, Wojtkowski K. Evidence-Based Care Reduces Unnecessary Medical Procedures and Healthcare Costs in the Outpatient Setting. Value Health Reg Issues. 2021;25:23–8. https://doi.org/10.1016/j.vhri.2020.07.577.
111. Yoo JY, Kim JH, Kim JS, Kim HL, Ki JS. Clinical nurses' beliefs, knowledge, organizational readiness and level of implementation of evidence-based practice: the first step to creating an evidence-based practice culture. PLoS ONE. 2019;14(12):e0226742. https://doi.org/10.1371/journal.pone.0226742.
112. Saunders H, Vehviläinen-Julkunen K. The state of readiness for evidence-based practice among nurses: an integrative review. Int J Nurs Stud. 2016;56:128–40. https://doi.org/10.1016/j.ijnurstu.2015.10.018.
113. Helfrich CD, Li YF, Sharp ND, Sales AE. Organizational readiness to change assessment (ORCA): development of an instrument based on the Promoting Action on Research in Health Services (PARIHS) framework. Implement Sci. 2009;4:38. https://doi.org/10.1186/1748-5908-4-38.
114. Miake-Lye IM, Delevan DM, Ganz DA, Mittman BS, Finley EP. Unpacking organizational readiness for change: an updated systematic review and content analysis of assessments. BMC Health Serv Res. 2020;20(1):106. https://doi.org/10.1186/s12913-020-4926-z.
115. Harrison MB, Graham ID. Knowledge Translation in Nursing and Healthcare: A Roadmap to Evidence-informed Practice. Harrison MB, Graham ID, editors. Hoboken, NJ: John Wiley & Sons, Inc.; 2021. 340 p.
116. Brunt B. Critical thinking in nursing: an integrated review. J Contin Educ Nurs. 2005;36(2):60–7. https://doi.org/10.3928/0022-0124-20050301-05.
117. Paul R, Elder L. The miniature guide to critical thinking: concepts and tools. Foundation for Critical Thinking Press; 2008.
118. Guyatt G, Haynes R, Jaeschke R, Cook D, Green L, Naylor C, et al. Users' Guides to the Medical Literature: XXV. Evidence-based medicine: principles for applying the Users' Guides to patient care. Evidence-Based Medicine Working Group. JAMA. 2000;284(10):1290–6. https://doi.org/10.1001/jama.284.10.1290.
119. Sharples JM, Oxman AD, Mahtani KR, Chalmers I, Oliver S, Collins K, et al. Critical thinking in healthcare and education. BMJ. 2017;357:j2234. https://doi.org/10.1136/bmj.j2234.
120. The National Alliance of Respiratory Therapy Regulatory Bodies. National Competency Framework for the Profession of Respiratory Therapy. Ottawa, ON.2016.
121. The Canadian Society of Clinical Perfusion. National Entry-Level Competency Profile for Clinical Perfusionists. 2022.
122. College of Nurses of Ontario. Entry-to-practice competencies for registered nurses. Toronto, ON: College of Nurses of Ontario; 2019.
123. National Association of Pharmacy Regulatory Authorities. Professional competencies for Canadian Pharmacists at entry to practice. Ottawa: ON; 2014.
124. Canadian Association of Occupational Therapists. Association of Canadian Occupational Therapy Regulatory Organizations. Competencies for Occupational Therapists In Canada: Association of Canadian Occupational Therapy University Programs; 2021.

125. Canadian Nurses Association. Canadian Nurse Practitioner: Core competency framework. Ottawa: ON; 2010.
126. Burns HK, Foley SM. Building a foundation for an evidence-based approach to practice: teaching basic concepts to undergraduate freshman students. J Prof Nurs. 2005;21(6):351–7. https://doi.org/10.1016/j.profnurs.2005.10.001.
127. Tong LK, Au ML, Li YY, Ng WI, Wang SC. The mediating effect of critical thinking between interest in learning and caring among nursing students: a cross-sectional study. BMC Nurs. 2023;22(1):30. https://doi.org/10.1186/s12912-023-01181-4.
128. Fesler-Birch D. Critical thinking and patient outcomes: a review. Nurs Outlook. 2005;53(2):59–65. https://doi.org/10.1016/j.outlook.2004.11.005.
129. Ates N, Erdal N, Harmanci Seren AK. The relationship between critical thinking and job performance among nurses: A descriptive survey study. Int J Nurs Pract. 2023;29(5):e13173. https://doi.org/10.1111/ijn.13173.
130. Tikkinen K, Guyatt G. Understanding of research results, evidence summaries and their applicability-not critical appraisal-are core skills of medical curriculum. BMJ Evid Based Med. 2021;26(5):231–3. https://doi.org/10.1136/bmjebm-2020-111542.
131. Petkovic J, Welch V, Jacob MH, Yoganathan M, Ayala AP, Cunningham H, et al. The effectiveness of evidence summaries on health policymakers and health system managers use of evidence from systematic reviews: a systematic review. Implement Sci. 2016;11(1):162. https://doi.org/10.1186/s13012-016-0530-3.
132. Khalid AF, Grimshaw JM, Parakh ND, Charide R, Rab F, Sohani S. Decision-makers' experiences with rapid evidence summaries to support real-time evidence informed decision-making in crises: a mixed methods study. BMC Health Serv Res. 2023;23(1):282. https://doi.org/10.1186/s12913-023-09302-0.
133. Fernandez-Dominguez JC, de Pedro-Gomez JE, Morales-Asencio JM, Bennasar-Veny M, Sastre-Fullana P, Sese-Abad A. Health Sciences-Evidence Based Practice questionnaire (HS-EBP) for measuring transprofessional evidence-based practice: creation, development and psychometric validation. PLoS ONE. 2017;12(5):e0177172. https://doi.org/10.1371/journal.pone.0177172.
134. Kumah E, Bettany-Saltikov J, van Schaik P, McSherry R, Boadu P. Development and validation of a questionnaire to assess evidence-based practice and evidence-informed practice knowledge, attitudes, understanding and behavior. Teaching and Learning in Nursing. 2023;18(1). https://doi.org/10.1016/j.teln.2023.07.006
135. Makoul G, Clayman ML. An integrative model of shared decision making in medical encounters. Patient Educ Couns. 2006;60(3):301–12. https://doi.org/10.1016/j.pec.2005.06.010.
136. Weston W. Informed and shared decision-making: the crux of patient-centered care. CMAJ. 2001;165(4):438–9.
137. Legare F, Stacey D, Pouliot S, Gauvin FP, Desroches S, Kryworuchko J, et al. Interprofessionalism and shared decision-making in primary care: a stepwise approach towards a new model. J Interprof Care. 2011;25(1):18–25. https://doi.org/10.3109/13561820.2010.490502.
138. Engle RL, Mohr DC, Holmes SK, Seibert MN, Afable M, Leyson J, et al. Evidence-based practice and patient-centered care: doing both well. Health Care Manage Rev. 2021;46(3):174–84. https://doi.org/10.1097/HMR.0000000000000254.
139. Rogers W. Evidence-based medicine in practice: limiting or facilitating patient choice? Health Expect. 2002;5(2):95–103. https://doi.org/10.1046/j.1369-6513.2002.00168.x.
140. Tonelli M. The philosophical limits of evidence-based medicine. Acad Med. 1998;73(12):1234–40. https://doi.org/10.1097/00001888-199812000-00011.
141. Torres C, Mendes F, Duarte AM, Vilaça S, Barbieri-Figueiredo MdC. Implementation of evidence-based practice in paediatric nursing care: facilitators and barriers. Collegian. 2024;31(5):342–7. https://doi.org/10.1016/j.colegn.2024.07.001.
142. Kon AA, Davidson JE, Morrison W, Danis M, White DB, American College of Critical Care M. Shared decision making in ICUs: an American College of Critical Care Medicine and American Thoracic Society policy statement. Crit Care Med. 2016;44(1):188–201. https://doi.org/10.1097/CCM.0000000000001396.
143. Barnett G, Swart M. Shared decision making for high-risk surgery. BJA Educ. 2021;21(8):300–6. https://doi.org/10.1016/j.bjae.2021.03.006.
144. Bruch JD, Khazen M, Mahmic-Kaknjo M, Legare F, Ellen ME. The effects of shared decision making on health outcomes, health care quality, cost, and consultation time: an umbrella review. Patient Educ Couns. 2024;129:108408. https://doi.org/10.1016/j.pec.2024.108408.
145. Hughes T, Merath K, Chen Q, Sun S, Palmer E, Idrees J, et al. Association of shared decision-making on patient-reported health outcomes and healthcare utilization. Am J Surg. 2018;216(1):7–12. https://doi.org/10.1016/j.amjsurg.2018.01.011.
146. Mann K, Gordon J, MacLeod A. Reflection and reflective practice in health professions education: a systematic review. Adv Health Sci Educ Theory Pract. 2009;14(4):595–621. https://doi.org/10.1007/s10459-007-9090-2.
147. Lindenbach D, Dimitripoulos G, Wood V, Bainbridge C, Anderson A, Hervey V, et al. The Impact of Reflective Practice on the Wellbeing and Competency of Supervisors and Frontline Staff in a nonprofit Community Youth Mental Health Provide. Child & Youth Services. 2024:1–23. https://doi.org/10.1080/0145935X.2024.2429656
148. Curry A, Epley P. It makes you a healthier professional": the impact of reflective practice on emerging clinicians' self-care. J Soc Work Educ. 2020;58(2):291–307. https://doi.org/10.1080/10437797.2020.1817825.
149. Patel KM, Metersky K. Reflective practice in nursing: a concept analysis. Int J Nurs Knowl. 2022;33(3):180–7. https://doi.org/10.1111/2047-3095.12350.
150. Bannigan K, Moores A. A model of professional thinking: integrating reflective practice and evidence based practice. Can J Occup Ther. 2009;76(5):342–50. https://doi.org/10.1177/000841740907600505.
151. Mantzoukas S, Watkinson S. Redescribing reflective practice and evidence-based practice discourses. Int J Nurs Pract. 2008;14(2):129–34. https://doi.org/10.1111/j.1440-172X.2008.00676.x.
152. Thomas A, Law M. Research utilization and evidence-based practice in occupational therapy: a scoping study. Am J Occup Ther. 2013;67(4):e55-65. https://doi.org/10.5014/ajot.2013.006395.
153. Ng SL, Kinsella EA, Friesen F, Hodges B. Reclaiming a theoretical orientation to reflection in medical education research: a critical narrative review. Med Educ. 2015;49(5):461–75. https://doi.org/10.1111/medu.12680.
154. De Vera Berrado R. Reflection and evidence based practice in action: A case based applicaiton. The Internet Journal of Allied Health Sciences and Practice. 2005;3(3).
155. Harrison MB, Graham ID. Implementation Strategies: What Do We Know Works? In: Harrison MB, Graham ID, editors. Knowledge Translation in Nursing and Healthcare: A Roadmap to Evidence-informed Practice. Hoboken, NJ.: John Wiley & Sons, Inc.; 2021.
156. Westerlund A, Sundberg L, Nilsen P. Implementation of Implementation Science Knowledge: The Research-Practice Gap Paradox. Worldviews Evid Based Nurs. 2019;16(5):332–4. https://doi.org/10.1111/wvn.1240.
157. Hitch D, Nicola-Richmond K. Instructional practices for evidence-based practice with pre-registration allied health students: a review of recent research and developments. Adv Health Sci Educ Theory Pract. 2017;22(4):1031–45. https://doi.org/10.1007/s10459-016-9702-9.
158. Squires JE, Hutchinson AM, Boström A, O'Rourke H, Cobban SJ, Estabrooks CA. To what extent do nurses use research in clinical practice? A systematic review. Implement Sci. 2011;6:21. https://doi.org/10.1186/1748-5908-6-21.
159. Best S, Thursky K, Buzza M, Klaic M, Peters S, Guccione L, et al. Aligning organisational priorities and implementation science for cancer research. BMC Health Serv Res. 2024;24(1):338. https://doi.org/10.1186/s12913-024-10801-x.
160. McGuier EA, Kolko DJ, Aarons GA, Schachter A, Klem ML, Diabes MA, et al. Teamwork and implementation of innovations in healthcare and human service settings: a systematic review. Implement Sci. 2024;19(1):49. https://doi.org/10.1186/s13012-024-01381-9.
161. Weng Y, Kuo K, Yang C, Lo H, Chen C, Chiu Y. Implementation of evidence-based practice across medical, nursing, pharmacological and allied healthcare professionals: a questionnaire survey in nationwide hospital settings. Implement Sci. 2013;8(112). https://doi.org/10.1186/1748-5908-8-112
162. Reinecke S, Mijic M, Gerhard J, Jung A, Ernst K, Dreher C, et al. Evidence-based practice - implementation level and attitude among physical,

occupational, and speech and language therapists in Germany: status quo. JBI Evid Implement. 2024;22(2):205–17. https://doi.org/10.1097/XEB.0000000000000420.
163. Grimshaw JM, Eccles M, Lavis J, Hill S, Squires JE. Knowledge translation of research findings. Implement Sci. 2012;7(50). https://doi.org/10.1186/1748-5908-7-50
164. Cassidy CE, Harrison MB, Godfrey C, Nincic V, Khan PA, Oakley P, et al. Use and effects of implementation strategies for practice guidelines in nursing: a systematic review. Implement Sci. 2021;16(1):102. https://doi.org/10.1186/s13012-021-01165-5.
165. Cheraghi R, Ebrahimi H, Kheibar N, Sahebihagh MH. Reasons for resistance to change in nursing: an integrative review. BMC Nurs. 2023;22(1):310. https://doi.org/10.1186/s12912-023-01460-0.
166. Lau R, Stevenson F, Ong BN, Dziedzic K, Treweek S, Eldridge S, et al. Achieving change in primary care--causes of the evidence to practice gap: systematic reviews of reviews. Implement Sci. 2016;11:40. https://doi.org/10.1186/s13012-016-0396-4.
167. Bokhour BG, Fix GM, Mueller NM, Barker AM, Lavela SL, Hill JN, et al. How can healthcare organizations implement patient-centered care? Examining a large-scale cultural transformation. BMC Health Serv Res. 2018;18(1):168. https://doi.org/10.1186/s12913-018-2949-5.
168. Straus S, Tetroe J, Graham ID. Knowledge translation in health care. 2nd ed. John Wiley & Sons; 2013.
169. Eccles MP, Mittman BS. Welcome to Implementation Science. Implementation Science. 2006;1(1). https://doi.org/10.1186/1748-5908-1-1
170. Baker R, Camosso-Stefinovic J, Gillies C, Shaw EJ, Cheater F, Flottorp S, et al. Tailored interventions to address determinants of practice. Cochrane Database Syst Rev. 2015;2015(4). https://doi.org/10.1002/14651858.CD005470.pub3
171. Moore J, Carpenter J, Doyle A, Doyle L, Hansen P, Hahn B, et al. Development, implementation, and use of a process to promote knowledge translation in rehabilitation. Arch Phys Med Rehabil. 2018;99(1):82–90. https://doi.org/10.1016/j.apmr.2017.08.476.
172. Moore JL, Graham ID. Accelerating the implementation of evidence-based practice in physical medicine and rehabilitation. Arch Phys Med Rehabil. 2022;103(7S):S252–5. https://doi.org/10.1016/j.apmr.2021.03.045.
173. Kirchner JE, Smith JL, Powell BJ, Waltz TJ, Proctor EK. Getting a clinical innovation into practice: an introduction to implementation strategies. Psychiatry Res. 2020;283:112467. https://doi.org/10.1016/j.psychres.2019.06.042.
174. Gaid D, Ahmed S, Thomas A, Bussières A. Profiling knowledge brokers in the rehabilitation sector across Canada: a descriptive study. J Eval Clin Pract. 2022;28(2):303–14. https://doi.org/10.1111/jep.13621.
175. Glegg S, Hoens A. Role domains of knowledge brokering: a model for the health care setting. J Neurol Phys Ther. 2016;40(2):115–23. https://doi.org/10.1097/NPT.0000000000000122.
176. Jull JE, Davidson L, Dungan R, Nguyen T, Woodward KP, Graham ID. A review and synthesis of frameworks for engagement in health research to identify concepts of knowledge user engagement. BMC Med Res Methodol. 2019;19(1):211. https://doi.org/10.1186/s12874-019-0838-1.
177. Roberts SLE, Healey A, Sevdalis N. Use of health economic evaluation in the implementation and improvement science fields-a systematic literature review. Implement Sci. 2019;14(1):72. https://doi.org/10.1186/s13012-019-0901-7.
178. Robertson-Preidler J, Biller-Andorno N, Johnson TJ. What is appropriate care? An integrative review of emerging themes in the literature. BMC Health Serv Res. 2017;17(1):452. https://doi.org/10.1186/s12913-017-2357-2.
179. Runciman WB, Hunt TD, Hannaford NA, Hibbert PD, Westbrook JI, Coiera EW, et al. CareTrack: assessing the appropriateness of health care delivery in Australia. Med J Aust. 2012;197(2):100–5. https://doi.org/10.5694/mja12.10510.
180. Seddon M, Marshall M, Campbell S, Roland M. Systematic review of studies of quality of clinical care in general practice in the UK, Australia and New Zealand. Qual Health Care. 2001;10(3):152–8. https://doi.org/10.1136/qhc.010015.
181. Squires JE, Cho-Young D, Aloisio LD, Bell R, Bornstein S, Brien SE, et al. Inappropriate use of clinical practices in Canada: a systematic review. CMAJ. 2022;194(8):E279–96. https://doi.org/10.1503/cmaj.211416.
182. Chassin M, Galvin R. The urgent need to improve health care quality. Institute of Medicine National Roundtable on Health Care Quality. JAMA. 1998;280(11):1000–5. https://doi.org/10.1001/jama.280.11.1000
183. Anstey MH, Adams JL, McGlynn EA. Perceptions of the appropriateness of care in California adult intensive care units. Crit Care. 2015;19(1):51. https://doi.org/10.1186/s13054-015-0777-0.
184. Andermann A, CLEAR Collaboration. Taking action on the social determinants of health in clinical practice: a framework for health professionals. CMAJ. 2016;188(17–18):E474–83. https://doi.org/10.1503/cmaj.160177.
185. Farrell TW, Greer AG, Bennie S, Hageman H, Pfeifle A. Academic health centers and the quintuple aim of health care. Acad Med. 2023;98(5):563–8. https://doi.org/10.1097/ACM.0000000000005031.
186. Kuipers SJ, Cramm JM, Nieboer AP. The importance of patient-centered care and co-creation of care for satisfaction with care and physical and social well-being of patients with multi-morbidity in the primary care setting. BMC Health Serv Res. 2019;19(1):13. https://doi.org/10.1186/s12913-018-3818-y.
187. Schoenfeld EM, Mader S, Houghton C, Wenger R, Probst MA, Schoenfeld DA, et al. The effect of shared decisionmaking on patients' likelihood of filing a complaint or lawsuit: a simulation study. Ann Emerg Med. 2019;74(1):126–36. https://doi.org/10.1016/j.annemergmed.2018.11.017.
188. OECD. Does Healthcare Deliver?: Results from the Patient-Reported Indicator Surveys (PaRIS). Paris; 2025.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.