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A Scoping Review of Evidence-Based Practice Models and Frameworks

Journal:	BMJ Open
Manuscript ID	bmjopen-2022-071188
Article Type:	Original research
Date Submitted by the Author:	17-Dec-2022
Complete List of Authors:	Dusin, Jarrod; Children's Mercy Kansas City, Department of Evidence Based Practice Melanson, Andrea; Children's Mercy Kansas City, Department of Evidence Based Practice Mische-Lawson, Lisa; The University of Kansas Medical Center
Keywords:	HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Organisational development < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Protocols & guidelines < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT





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A Scoping Review of Evidence-Based Practice Models and Frameworks

Jarrod Dusin, MS, RD, LD, CPHQ Department of Evidence Based Practice Children's Mercy Kansas City 2401 Gillham Rd Kansas City, MO 64108 United States of America jddusin@cmh.edu

Andrea Melanson, Department of Evidence Based Practice Children's Mercy Kansas City 2401 Gillham Rd Kansas City, MO 64108 United States of America <u>almelanson@cmh.edu</u>

Lisa A. Mische-Lawson, PhD, CTRS, FDRT Occupational Therapy Education Kansas University Medical Center 3901 Rainbow Blvd MS2003 Kansas City, KS 66160 LMISCHE-LAWSON@kumc.edu

Word Count: 1938

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1	Objectives: The aim of this scoping review was to identify and review current Evidence-based practice (EBP) models and frameworks. Specifically, how EBP models and frameworks used in healthcare settings align with the original model of
2 3	(1) Asking the question, (2) Acquiring the best evidence, (3) Appraising the evidence, (4) Applying the findings to clinical
4	practice, and (5) Evaluating the outcomes of change; along with patient expectations and clinical skills
5	Design: A Scoping review
6	Data sources: Published articles were identified through searches within electronic databases (MEDLINE, EMBASE,
/ 8	Scopus, OVID) from 1990-Janurary 2022.
9	steps of FBP. Excluded were models and frameworks focused on one domain or strategy (e.g., frameworks focused on
10	applying findings).
11 12	Results: Of the 20,097 articles found by our search, Twenty-one models and frameworks met our inclusion criteria. The
12 13	results showed a diverse collection of models and frameworks. Many models and frameworks were well developed and
14	widely used, with supporting validation and updates. Some models and frameworks provided many tools and contextual 🖢
15	instruction, while others provided only general process instruction. The models and frameworks reviewed demonstrated g
16 17	the user must possess the knowledge and related skills for the step of assessing evidence. The models/frameworks
18	values and preferences into their processes
19	Conclusion: Many EBP models and frameworks currently exist that provide diverse instructions on the best way to use
20	EBP. However, the inclusion of patient values and preferences needs to be better integrated into EBP models and
21 22	frameworks. Also, the issues of EBP expertise to assess evidence must be considered when choosing a model or \vec{a}
23	framework.
24	
25 26	Strengths and Limitations
20 27	Well-developed models and frameworks may have been excluded for not including all five steps of original
28	model for FBP
29	 This review did not measure the quality of the models and frameworks based on validated studies
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BMJ Open: first published as 10.1136/bmjopen-2022-071188 on 22 May 2023. Downloaded from http://bmjopen.bmj.com/ on May 20, 2025 at Department GEZ-LTA Erasmushogeschool .

INTRODUCTION

Evidence-based practice grew from evidence-based medicine to provide a process to review, translate, and implement research with practice to improve patient care, treatment, and outcomes. Gordon Guyatt coined the term evidence-based medicine (EBM) in the early 1990s.(1) Over the last 25 years, the field of EBM has continued to evolve and is now a cornerstone of healthcare and a core competency for all medical professionals. (2, 3) At first, the term EBM and is now a cornerstone of healthcare and a core competency for all medical professionals.(2, 3) At first, the term EBM was used only in medicine. However, the term evidence-based practice (EBP) now applies to the principles of other health professions. This expansion of the concept of EBM increases its complexity.(4) The term EBP is used for this paper because it is universal across professions. Early in the development of EBP, David Sackett created an innovative five-step model.(5) This foundational medical model provided a concise overview of the process of EBP. The five steps are (1) asking the question, (2) acquiring the best evidence. (3) appraising the evidence. (4) applying the findings to clinical practice, and (5) evaluating.

medical model provided a concise overview of the process of EBP. The five steps are (1) asking the question, (2) acquiring the best evidence, (3) appraising the evidence, (4) applying the findings to clinical practice, and (5) evaluating the outcomes of change. Other critical components of Sackett's model are considering patient expectations, clinical skills, and the best available evidence. (5) The influence of this model has led to its integration and adaption into every field of healthcare. Historically, the foundation of EBP has focused on asking the question, acquiring the literature, and appraising the evidence but has had difficulty integrating evidence into practice. (6) Although the five steps appear simple, each area includes a vast number of ways to review the literature (e.g., PRISMA, Newcastle-Ottawa Scale) and entire fields of study, such as implementation science, a field dedicated to implementing EBP.(7, 8) One way to manage the complexity of EBP in healthcare is by developing EBP models and frameworks that establish strategies to determine resource needs, identify barriers and facilitators, and guide processes.(9) EBP models and frameworks provide insight into the complexity of transforming evidence into clinical practice.(10) They also allow organizations to determine readiness, willingness, and potential outcomes for a hospital system. (11) EBP can differ from implementation science, as EBP models include all five of Sackett's steps of EBP, while the non-process models of implementation science typically focus on the final two steps.(5, 9) Currently no comprehensive review exists of EBP

implementation science typically focus on the final two steps. (5, 9) Currently no comprehensive review exists of EBP models and frameworks. Due to the complexity of EBP, the purpose of the scoping review was to explore how EBP theories, models, and frameworks used in healthcare settings align with the original five-step model.

METHODS

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A scoping review synthesizes findings across various study types and provides a broad overview of the selected topic.(12) The Arksey and O'Malley method and Preferred Reporting Items for Systematic Reviews and Meta-Analyses Scoping Review (PRISMA) procedures guided this review.(12, 13) The primary author established the research question and inclusion and exclusion criteria before conducting the review. An *a priori* protocol was not pre-registered. One research question guided the review: Which EBP theories, models, and frameworks align with Sackett's original model? **eligibility criteria**

To be included in the review, English-language published EBP theories/models/frameworks needed to include the five main steps of EBP (Asking the question, Acquiring the best evidence, Appraising the evidence, Applying the findings to clinical practice, and Assessing the outcomes of change) based on Sackett's model.(5) If the theories, models or frameworks involved identifying problems or measured readiness for change, the criteria of "Asking the question" was met. Exclusions included theories, models, or frameworks focused on one domain or strategy (e.g., frameworks focused on applying findings). Also, non-peer-reviewed abstracts, letters, editorials, opinion articles, and dissertations were excluded. BMJ Open: first published as 10.1136/bmjopen-2022-071188 on 22 May 2023. Downloaded from http://bmjopen.bmj.com/ on May 20, 2025 at Department GEZ-LTA Erasmushogeschool .

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search and selection

To identify potential studies, a medical librarian searched the databases MEDLINE (1990 to January 2022), EMBASE (1990 to January 2022), Scopus (1990 to January 2022), and OVID (1990 to January 2022) in collaboration with the primary author. The search strategy employed the following keywords: "Evidence-Based Practice" OR "evidence based medicine" OR "evidence-based medicine" OR "evidence based nursing" OR "evidence-based nursing" OR "evidence based practice" OR "evidence-based practice" OR "evidence based medicine" OR "evidence-based medicine" OR "evidence based nursing" OR "evidence-based practice" OR "evidence based practice" OR "evidence-based practice" AND "Hospitals" OR "Hospital Medicine" OR "Nursing" OR "Advanced Practice Nursing" OR "Academic Medical Centers" OR "healthcare" OR "hospital" OR "healthcare" OR "hospital" AND "Models, Organizational" OR "Models, Nursing" OR "framework" OR "theory" OR "theories" OR "model" OR "framework" OR "theories" OR "model." Additionally, reference lists in publications included for full-text review were screened to identify eligible theories/models/frameworks.

selection of sources of evidence

Two authors (JD & AM) independently screened titles and abstracts and selected studies for potential inclusion in the study, applying the predefined inclusion and exclusion criteria. Both authors then read the full texts of these articles to assess eligibility for final inclusion. Disagreement between the authors regarding eligibility was resolved by consensus between the three authors (JD, AM, & LML). During the selection process, many theories/models/frameworks were found more than once. Once a theory/model/framework article was identified, the seminal article was reviewed
for inclusion. Once a theory/model/framework was identified and verified for inclusion, all other articles listing the
theory/model/framework were excluded. This scoping review intended to identify theories/models/frameworks aligned
with Sackett's model; therefore, analyzing every article that used the included theory/model/framework was
unnecessary.
data extraction and analysis
Data were collected on the following study characteristics: (1) Authors, (2) Publication year, (3)
Theory/Model/Framework, and (4) Area(s) of focus in reference to Sackett's five-step model. Data analysis focused on
identifying (1) the general themes of the theories/models/frameworks, and (2) any knowledge gaps. Data extraction and
analysis were done by the primary author (JD) and verified by one other author (AM).(12)
DECOMPTON were found more than once. Once a theory/model/framework article was identified, the seminal article was reviewed RESULTS The search identified 6,523 potentially relevant references (see Figure 1). Following a review of the titles and abstracts, the primary author completed a more detailed screening of 38 full papers. From these, 21 models and frameworks were included. No theories met the inclusion criteria. Table 1 summarizes the 21 models and frameworks. Of the 21 models and frameworks assessed and mapped, 17 (80%) had broad target audiences, including healthcare or public health organizations or health systems. Only four (19%) models and frameworks included individual clinicians (e.g., physicians and nurses). (14-17)

asking the question

All 21 of the models and frameworks included a process for asking questions. Most focused on identifying problems that needed to be addressed on an organizational or hospital level. Only three used the PICO (population, intervention, comparator, outcome) format to ask specific questions related to patient care.(16-18)

acquiring the evidence

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The models and frameworks gave basic instructions on acquiring literature, such as "conduct systematic search" or "acquire resource." (19, 20) Three recommended sources from previously generated evidence, such as guidelines and systematic reviews.(6, 21, 22) While most models and frameworks did not provide specifics, others suggested this work be done through EBP mentors/experts. (17, 23, 24) Four models included gualitative evidence in the use of evidence(6, 16, 23, 25, 26), while only one model considered the use of patient preference and values as evidence. (23) Two models recommended internal data be used in acquiring information.(14, 17)

assessing the evidence

The models and frameworks varied greatly in the level of instruction provided in assessing the best evidence. Al provided a general overview in assessing and grading the evidence. Four recommended this work be done by EBP mentors and experts.(17, 20, 23, 24) Six models developed specific tools to be used to assess the levels of evidence,(6, 14, 23, 24, 27, 28) while two referred users to tools created by other groups. (19, 29)

applying the evidence

The application of evidence also varied greatly for the different models and frameworks. Five models recommended pilot programs to implement change. (6, 18, 19, 24, 30) Five recommended the use of EBP mentors and experts to assist in the implementation of evidence and quality improvement as a strategy of the models and frameworks.(17, 19, 23, 24) Thirteen models and frameworks discussed patient values and preferences,(6, 14-16, 18, 19, 22-24, 28-31) but only six incorporated this topic into the model or framework.(18, 19, 22-24, 28) Eleven of the 21 models discussed using clinical expertise, but specifics were not provided.(6, 14-16, 18, 22-24, 28-30) **evaluating the outcomes of change** Evaluation varied among the models and frameworks, but most involved using implementation outcome measures to determine the project's success. Learning Health Systems provided the most detailed instruction on using internal institutional data to determine success of application.(22) This framework uses internal and external data along with evidence in decision making but as a benchmark for successful implementation. experts to assist in the implementation of evidence and quality improvement as a strategy of the models and

DISCUSSION

This scoping review identified 21 EBP models and frameworks that included the five main steps of EBP as described by Sackett.(5) The results showed that the themes of the models and frameworks are as diverse as the models and frameworks themselves. Some are well developed and widely used, with supporting validation and updates. (19, 23, For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

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28, 32) One such model, the lowa EBP model, has received over 3,900 requests for permission to use it.(19) Some models provided tools and contextual instruction, (14, 23, 28, 32) 4, 23, 27, 28 while others provided only general instruction.(16, 26, 33)

gaps in the evidence

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Provided to obs model, the lowe EBP model, has received over 3,900 requests for permission to use it (19) Some is a provided to obs and contextual instruction (14, 23, 28, 32) 4, 23, 27, 28 while others provided only general contextual instruction (14, 23, 28, 32) 4, 23, 27, 28 while others provided only general contextual instruction (14, 23, 28, 32) 4, 23, 27, 28 while others provided only general contextual instruction (14, 23, 28, 32) 4, 23, 27, 28 while others provided only general contextual instruction (14, 24, 28, 32) 4, 23, 27, 28 while others provided only general contextual instruction (14, 24, 28, 32) 4, 23, 27, 28 while others provided only general contextual instruction (14, 24, 28, 32) 4, 23, 27, 28 while others provided only general contextual instruction (14, 24, 28, 32) 4, 23, 27, 28 while others provided only general contextual instruction (14, 24, 28, 32) 4, 23, 27, 28 while others provided only general contextual instruction (14, 24, 28, 32) 4, 23, 27, 28 while others provided only general contextual instruction (14, 24, 28, 24) 4, 23, 27, 28 while others provided only general contextual instruction (14, 24, 38, 31) the models and frameworks varied great) in the level of the reduction of the second the second to the second in the provided a general overview in assessing and grading the evidence, while a feature administrative time and financial support. Some models offered vital to a provided to other resources for assessing evidence, but to sut of the tough dot address this persistent toucource are provided to other resources for assessing evidence, but the sup to the EBP mentor to accomplish this task (27) are provided to resource and values and frameworks provide the level of guidance for orating patient preferences and values into the models and frameworks provide the level of guidance for a resource are provided to the models and frameworks provide the resource of the review to measure the quality of the models and frameworks based on these other val the literature.(19, 34, 35) The models and frameworks reviewed demonstrated that the user must possess the knowledge and related skills for this step in the process. The models and frameworks varied greatly in the level of instruction to assess the evidence. Most provided a general overview in assessing and grading the evidence, while a few recommended that this work be done by EBP mentors and experts. (17, 23, 24) Some models and frameworks provided robust tools and resources that would require administrative time and financial support. Some models offered vital resources or pointed to other resources for assessing evidence, but most did not. While a few used mentors and experts to assist with the problem of accessing expertise to assess literature, a majority did not address this persistent issue.

preferences. One criticism of EBP is that it ignores patient values and preferences. (36) Over half of the models and frameworks reported the need to include patient values and preferences, but the tools, instruction, or resources for including them were limited. The Advancing Research and Clinical practice through close Collaboration (ARCC)model integrates patient preferences and values into the model, but it is up to the EBP mentor to accomplish this task.(37) There are many tools for assessing evidence, but few models and frameworks provide this level of guidance for incorporating patient preference and values.

limitations

including all five steps. (38) Also, some models and frameworks have been studied and validated over many years. It was beyond the scope of the review to measure the quality of the models and frameworks based on these other validated studies. Future research should consider appraising the quality and use of the different EBP models and frameworks to determine success.

CONCLUSION

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This scoping review of 21 models and frameworks shows considerable variation regarding how the EBP models and frameworks integrate the five steps of EBP. Most of the included models and frameworks provided a narrow description of the steps needed to assess and implement EBP, while a few provided robust instruction and tools. The reviewed models and frameworks provided diverse instructions on the best way to use EBP. However, the inclusion of patient values and preferences needs to be better integrated into EBP models. Also, the issues of EBP expertise to assess Protected by copyright, including for uses related to text and data mining, Al training, and similar technologies evidence must be considered when selecting a model or framework.

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Table 1 Models and	Table 1 Models and Frameworks Organized by Integration of Patient Preferences and Values Performance						
Name	Steps of Model/Framework	General themes	pen-, right	Knowledge gaps			
Patient Values Incorpor	ated into Model		, incl				
Iowa Model (19)	 Extensive question development Team searches, appraises, and synthesizes the literature If literature is lacking, conduct research If literature is available, develop, enact, and appraise a pilot solution If the pilot is successful, implement it across the organization If the pilot is unsuccessful, restart the process 	 Recommended for use at an organizational level Detailed flowchart guides decision-making prod Identified decision points and feedback loops throughout the model Emphasizes pilot project before initiating system wide project Designed for interprofessional collaboration 	uding for uses related to te	Acquiring and assessing literation is beyond the scope of the mode (other tools are provided to complete this step). User must possess a level of knowledge a related skills to assess evidence			
Learning Health Systems Framework (22)	 Stakeholder-driven engagement Engage the people Identify priorities Research Derived Evidence Evidence Based Information Evidence synthesis and Guidelines Data-Derived Evidence Data and information systems Benchmarking Implementation Evidence Implementation Healthcare improvement 	 A systems-level approach for sustainability an scalability that integrates research and data Implementation is data focused 	ownloaded from nttp://omjopen.r logeschool . ext and data mining, Al training, a	User must possess a level of knowledge and related skills for assessing literature (not specifie Patient preference/value mentioned but no specifics on integration			
ARCC (23)	 Assess the healthcare organization for readiness for change Identify potential and actual barriers and facilitators Identify EBP champions Implement evidence into practice Evaluate EBP outcomes 	 Well-developed training program with tools a scales to assess literature and implement Focuses on mentors to undergo training Identifies a network of supportive stakeholder Emphasis on healthcare organizational readin Encompasses research, patient values, and cli expertise as evidence Control theory and cognitive behavior theory guide model 	and similar technologies	Limited direction on how patien values/preferences are integrate into the model			
The Clinical Scholar Model (24)	 Observation Analysis Synthesis Application/Evaluation Dissemination 	 Predicated on the development of point-of-canurses who become clinical scholars committee patient care, knowledge development, researe translation, and evidence implementation Includes the use of research, EBP, and quality improvement Depends on EBP mentors and pilot programs 	ed to epartment GEZ	Skill development and tools dependent on utilizing worksho to develop EBP Mentors			
JBI (28)	 Global Health Evidence Generation Evidence synthesis 	 Utilizes different types of evidence (SR, Guidelines, Expert opinion). Expert opinion includes patients 	• - - -	User must possess a level of knowledge and related skills to assess evidence			

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1 2 3		 Evidence (knowledge) transfer Evidence Implementation 	Evidence dissemination important part of the model	bmjopen-2	
4 5 6 7 8 9 10 11	CETEP (18)	 Define the clinical practice question Assess the critical appraisal components Plan the implementation Implement the practice change Evaluate the practice change 	 Authors reviewed existing literature and models and identified additional components believed to be vital in developing, reviewing, and/or revising patient care practices Incorporates evidence factors, patient factors, and clinical setting Most robust questions involving patient preference Uses a pilot program for implementation 	022-071188 on 22 May 20 Erat	Resources available for assessing the literature discussed but determined to be health-system specific
13	Patient Values Discussed, No	Incorporated into Models/Frameworks	ö 5)23. [smus	
14 15 16 17 18 19 20	Stetler Model (14)	 Question development includes project context Identify the relevance of evidence sources and quality Summarize evidence Develop a plan Identify and collect data on outcomes to evaluate the effectiveness of the plan 	 Designed to encourage critical thinking Allows for categorization of evidence as external (e.g., research) or internal (e.g., organization outcome data) Emphasizes use by single practitioner but may include groups 	Downloaded from shogeschool	Primary focus is single practitioner Patient value/preference not clearly integrated into model User must possess a level of knowledge and related skills to assess evidence
21 22 23 24 25 26 27 28 20	KTA (15)	 Identify problems that need to be addressed and begin searching for evidence Adapt the knowledge use to a local context Identify barriers Select, adapt, and implement interventions Monitor implanted knowledge Evaluate outcomes related to knowledge use Sustain appropriate knowledge use 	 Adapts for use with individuals, teams, and healthcare organizations Is grounded in planned action theory Breaks knowledge-to-action process into manageable sections Discussion of providing evidence in a way that influences clinical practice, stakeholders, and end users 	http://bmjopen.bmj.com/	Patient values/preference not clearly integrated into model User must possess a level of knowledge and related skills for knowledge creation
29 30 31 32 33 34 35 26	EBMgt (16)	 Asking; acquiring; appraising; aggregating; applying; and assessing Predictors; barriers; training organizations; and research institutes 	 There are methodological differences between medical research and management research Evidence focuses more on qualitative evidence and tries to prove or disprove the effectiveness of different models of organization and management 	on W ay 20, 20 2 5 at [User must possess a level of knowledge and related skills for assessing literature; model discusses this lack of skill Lack of specifics on patient value/preference discussed
 36 37 38 39 40 41 42 43 44 	St Luke's (30)	 Area of interest Collect the most relevant and best evidence Critically appraise the evidence Integrate the evidence with one's clinical expertise, patient preferences, and values in making a practice decision or change Evaluate the practice decision or change 	 Hospital-level model adapted from Iowa Model Model success focuses on clear directions, aggressive timeline, and the short-term commitment required of team members 	Department GEZ-LTA	Patient preference not clearly integrated into model Provides a general overview of assessing literature without specifics direction or tools
44 45 46 47		For peer review only - http://bi	mjopen.bmj.com/site/about/guidelines.xhtml		

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1 2 3 4 5 6 7	The I3 Model for Advancing Quality Patient Centered Care (31)	 Inquiry Improvement Innovation Inquiry encompasses research Improvement includes quality improvement projects Innovation is discovery studies and best evidence projects 	 Model focuses on options for EBP, quality improvement, and research needs Each process includes a step to obtain pre-data of best evidence Incorporates the voice of the customer 	 Tools provided for quality improvement process but r assessing literature User must possess a level o knowledge and related skill assessing literature 	ot for f s for
8 9 10 11 12 13 14	Monash Centre for Health Research and Implementation Framework (29)	 Stakeholder engagement Evidence/Knowledge synthesis Co-developed efficacy research and new knowledge generation Implementation research to determine broader effectiveness Knowledge dissemination translation and scale-up Evaluation includes health and economic outcomes 	 Focuses on methodological rigor, stakeholder engagement, and partnership Focus on stakeholder involvement, including patients Participatory involvement underpins process KTA informed a framework developed by MCHRI GRADE was used as an example to assess evidence. 	 User must possess a level o knowledge and related skill assessing literature Oc 	f s for
15 16 17 18 19 20 21 22	Model for Change to Evidence Based Practice (6)	 Identify the need to change practice Approximate the problem with outcomes Summarize the best scientific evidence Develop a plan for changing the practice Implement and evaluate change (pilot study) Integrate and maintain change in practice Monitor implementation 	 The model is based on change theory The model supports evidence-based practice changes derived from a combination of quantitative and qualitative data, clinical expertise, and contextual evidence Recommends the creation of team of stockholders Piloted implementation 	Patient values/preference r clearly integrated into mod	lot el
23	Patient Values Not Discussed	I	train	jo	
24 25 26 27 28	Johns Hopkins (32)	 Practice Question: EBP question is identified Evidence: The team searches, appraises, rates the strength of evidence Translation: Feasibility is determined, an action plan is created, and change is implemented and evaluated 	 Well-developed tool kit that provides guide for question development, evidence-rating scale, and appraisal guide for various forms of evidence 	Patient values/preference r clearly integrated into mod	lot el
29 30 31 32 33 34 35	Evidence Based Public Health (39)	 Community assessment Quantify the issue Develop a concise statement of the issue Determine what is known through the literature Develop and prioritize program and policy options Develop an action plan Evaluate the program or policy 	 Incorporates a framework with less emphasis on evidence hierarchy and more emphasis on knowledge translation Evidence: Qualitative and quantitative Matches question to research type 	 Lack of consensus on evider analysis and hierarchy Public health models difference medical models so concept: public preference not discu focus is on health outcomesta 	nce ent from s of ssed but
36 37 38 39 40 41 42 43 44 45		For peer review only - http://br	njopen.bmj.com/site/about/guidelines.xhtml	rt Department GEZ-LTA	

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1 2 3 4 5 6 7 8 9	ACE Star Model (26)	 Discovery: Searching for new knowledge Evidence Summary: Synthesize the body of research knowledge Translation: Provide clinicians with a practice document (e.g., clinical practice guideline) Integration: Changed through formal and informal channels Evaluation: EBP outcomes are evaluated 	 Promotes discovery of evidence through systematic reviews Promotes transition of evidence through guidel creation Includes use of qualitative evidence Expertise and patient preference are considered another form of evidence 	mjopen ₅ 2022-07្1188 on 22 opyright, <u>ម</u> ្លាcluding for use	Patient values/preferences not clearly integrated into model (patient satisfaction measured) Simple overview of each step with limited resources discussed
10 11 12 13 14 15	An Evidence Implementation Model for Public Health Systems (33)	 Not a linear model 1. Circle 1 Evidence implementation target 2. Circle 2 Actors involved in implementation 3. Circle 3 Knowledge transfer 4. Circle 4 Barriers and facilitators 	 Includes setting measurable evidence implementation targets Includes all actors in all stages of knowledge transfer to increase shared aim and reduce barriers Model is broad with diverse implementation 	2 May 2023. Downlo Erasmushoges ss related to text ar	Provides a general overview without specifics Public health models different from medical models so concepts of public preference not discussed No specifics of how to assess literature
17 18 19 20 21 22 23 24 25 26 27	San Diego 8A's EBP Model (17)	 Assessing a clinical or practice problem Asking a clinical question in a PICOT (population/patient, implementation, comparison, outcome, and time) format Acquiring existing sources of evidence Appraising the levels of evidence Applying the evidence to a practice change Analyzing the results of the change Advancing the practice change through internal and external dissemination Adopting the practice of sustainability over time 	 Model was created to make it easier for nurses complete EBP projects Derived primarily from previously published models Change Theory part of the model Utilizes mentors to implement 	baded from http://bmjopen.bmj.cc school . nd data migjing, Al training, and si	No specifics on patient preference/value incorporation User must possess a level of knowledge and related skills for assessing literature (not specified)
28 29 30 31 32 33 34 35 36	Tyler Collaborative Model for EBP (20)	 Phase One: Unfreezing 1. Building relationships 2. Diagnosing the Problem 3. Acquiring Resources Phase Two: Moving 1. Choosing the Solution 2. Gaining Acceptance Phase Three: Refreezing 1. Stabilization 	 Model focuses on barriers of nurses to impleme EBP: Difficulty of practicing nurses to synthesize scientific evidence, and Lack of adequate administrative commitme to make evidence-based nursing a priority Model utilizes EBP experts 	milar technologies.	No mention of patient preference/value
37 38 39 40 41 42 43 44	The Practice Guidelines Development Cycle (40)	 Select/Frame clinical problem Generate evidence-based recommendations Ratify evidence-based recommendations Formulate practice guideline Independent review Negotiate practice policies Adopt guideline policies Scheduled review 	 Original EBP Model developed to create clinical guidelines Framework recommends facilitator to assign tag and manage advancement Appropriate structure needs to be in place for framework to succeed Cycle tolerates discordance between EBP and clinical guidelines and guidelines and institution policies but requires documentation 	bepartment GEZ-LTA	No mention of patient preference/value User must possess a level of knowledge and related skills for assessing literature (not specified)
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1 2	Acknowledgements We thank Keri Swaggart from the Medical Writing Center at Children's Mercy Kansas City for completing the data base searches and editing this manuscript.
3 4 5 6 7 8	Contributors JD and LML conceived the idea of the study and were responsible for its design. JD & AM performed data acquisition and analysis. JD drafted the paper, AM revised it critically. LML contributed substantially to the draft of the article, provided input to the data analysis and the interpretation of the results, and revised the manuscript critically. All authors gave approval for the final version.
9 10 11	Funding This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.
12 13	Competing interests None.
14 15	Patient consent for publication Not required.
16 17 18	Provenance and peer review Not commissioned; externally peer reviewed.
19 20	Data sharing statement There are no additional data available.
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 50 51 52 53 54	ORCID IDS Jarrod Dusin http://orcid.org/0000-0003-4394-9235 Lisa Mische Lawson http://orcid.org/0000-0002-1601-9465 Mesh terms: Evidence-Based Medicine Evidence-Based Practice Implementation Science Knowledge Translation
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Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured 2 summary		Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	3
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	4
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	Not done
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	4
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	5
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	5
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	5
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	6
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	6
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	6
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.6	6



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SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	6
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	6-7
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	6-7
Results of individual sources f of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	6-7
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	6-7
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	8
Limitations	20	Discuss the limitations of the scoping review process.	9
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	10
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	15

extension for Scoping Reviews.

* Where sources of evidence (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

⁺ A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

[‡] The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.



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Evidence-Based Practice Models and Frameworks in the Healthcare Setting: a Scoping Review

Journal:	BMJ Open
Manuscript ID	bmjopen-2022-071188.R1
Article Type:	Original research
Date Submitted by the Author:	27-Mar-2023
Complete List of Authors:	Dusin, Jarrod; Children's Mercy Hospitals and Clinics, Department of Evidence Based Practice Melanson, Andrea; Children's Mercy Hospitals and Clinics, Department of Evidence Based Practice Mische-Lawson, Lisa; The University of Kansas Medical Center, Therapeutic Science
Primary Subject Heading :	Evidence based practice
Secondary Subject Heading:	Patient-centred medicine
Keywords:	HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Organisational development < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Protocols & guidelines < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Patient-Centered Care





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Evidence-Based Practice Models and Frameworks in the Healthcare Setting: a Scoping Review

Corresponding Author Jarrod Dusin, MS, RD, LD, CPHQ Department of Evidence Based Practice Children's Mercy Kansas City 2401 Gillham Rd Kansas City, MO 64108 United States of America iddusin@cmh.edu

Andrea Melanson, Department of Evidence Based Practice Children's Mercy Kansas City 2401 Gillham Rd Kansas City, MO 64108 United States of America almelanson@cmh.edu

Lisa A. Mische Lawson, PhD, CTRS, FDRT Occupational Therapy Education Kansas University Medical Center 3901 Rainbow Blvd MS2003 Kansas City, KS 66160 LMISCHE-LAWSON@kumc.edu

Word Count: 2695

Objectives The aim of this scoping review was to identify and review current Evidence-based practice (EBP) models and frameworks. Specifically, how EBP models and frameworks used in healthcare settings align with the original model of (1) asking the question, (2) acquiring the best evidence, (3) appraising the evidence, (4) applying the findings to clinical practice, and (5) evaluating the outcomes of change. Along with patient values and preferences and clinical skills

Included sources and articles Published articles were identified through searches within electronic databases (MEDLINE, EMBASE, Scopus) from January 1990- April 2022. The English language EBP models and frameworks included in the review all included the five main steps of EBP. Excluded were models and frameworks focused on one domain or strategy (e.g., frameworks focused on applying findings).
 Results Of the 20 097 articles found by our search, nineteen models and frameworks met our inclusion criteria. The results showed a diverse collection of models and frameworks. Many models and frameworks were well developed and widely used, with supporting validation and updates. Some models and frameworks provided many tools and contextual instruction, while others provided only general process instruction. The models and frameworks reviewed demonstrated that the user must possess EBP expertise and knowledge for the step of assessing evidence. The models and frameworks varied greatly in the level of instruction to assess the evidence. Only seven models and frameworks integrated patient values and preferences into their processes.

Conclusion Many EBP models and frameworks currently exist that provide diverse instructions on the best way to use EBP. However, the inclusion of patient values and preferences needs to be better integrated into EBP models and frameworks. Also, the issues of EBP expertise and knowledge to assess evidence must be considered when choosing a model or framework.

- Currently no comprehensive review exists of EBP models and frameworks
- Well-developed models and frameworks may have been excluded for not including all five steps of original model for EBP
- This review did not measure the quality of the models and frameworks based on validated studies

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INTRODUCTION

Evidence-based practice grew from evidence-based medicine to provide a process to review, translate, and implement research with practice to improve patient care, treatment, and outcomes. Gordon Guyatt coined the term evidence-based medicine (EBM) in the early 1990s.(1) Over the last 25 years, the field of EBM has continued to evolve and is now a cornerstone of healthcare and a core competency for all medical professionals.(2, 3) At first, the term EBM was used only in medicine. However, the term evidence-based practice (EBP) now applies to the principles of other health professions. This expansion of the concept of EBM increases its complexity.(4) The term EBP is used for this paper because it is universal across professions.

Early in the development of EBP, David Sackett created an innovative five-step model.(5) This foundational medical model provided a concise overview of the process of EBP. The five steps are (1) asking the question, (2) acquiring the best evidence, (3) appraising the evidence, (4) applying the findings to clinical practice, and (5) evaluating the outcomes of change. Other critical components of Sackett's model are considering patient value and preferences and clinical skills with the best available evidence.(5) The influence of this model has led to its integration and adaption into every field of healthcare. Historically, the foundation of EBP has focused on asking the question, acquiring the literature, and appraising the evidence but has had difficulty integrating evidence into practice.(6) Although the five steps appear simple, each area includes a vast number of ways to review the literature (e.g., Preferred Reporting Items for Systematic Reviews and Meta-Analyses PRISMA, Newcastle-Ottawa Scale) and entire fields of study, such as implementation science, a field dedicated to implementing EBP. (7, 8) Implementation science can be traced to the 1960s with Everett Rogers' Diffusion of Innovation Theory and has grown alongside EBP over the last 25 years.(7, 9)

One way to manage the complexity of EBP in healthcare is by developing EBP models and frameworks that establish strategies to determine resource needs, identify barriers and facilitators, and

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guide processes.(10) EBP models and frameworks provide insight into the complexity of transforming evidence into clinical practice.(11) They also allow organizations to determine readiness, willingness, and potential outcomes for a hospital system. (12) EBP can differ from implementation science, as EBP models include all five of Sackett's steps of EBP, while the non-process models of implementation science typically focus on the final two steps.(5, 10) There are published scoping reviews of implementation science (13), however, no comprehensive review of EBP models and frameworks currently exists. Though there is overlap of EBP, implementation science, and knowledge translation models and frameworks (10, 14) the purpose of the scoping review was to explore how EBP models and frameworks used in healthcare settings align with the original EBP five-step model.

METHODS

A scoping review synthesizes findings across various study types and provides a broad overview of the selected topic.(15) The Arksey and O'Malley method and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA-ScR) procedures guided this review (see online supplemental for PRISMA-ScR checklist).(15, 16) The primary author established the research question and inclusion and exclusion criteria before conducting the review. An *a priori* protocol was not preregistered. One research question guided the review: Which EBP models and frameworks align with Sackett's original model? BMJ Open: first published as 10.1136/bmjopen-2022-071188 on 22 May 2023. Downloaded from http://bmjopen.bmj.com/ on May 20, 2025 at Department GEZ-LTA Erasmushogeschool.

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eligibility criteria

To be included in the review, English-language published EBP models and frameworks needed to include the five main steps of EBP (asking the question, acquiring the best evidence, appraising the evidence, applying the findings to clinical practice, and assessing the outcomes of change) based on Sackett's model.(5) If the models or frameworks involved identifying problems or measured readiness for change, the criteria of "asking the question" was met. Exclusions included models or frameworks focused on one domain or strategy (e.g., frameworks focused on applying findings). Also, non-peerreviewed abstracts, letters, editorials, opinion articles, and dissertations were excluded.

search and selection

 To identify potential studies, a medical librarian searched the databases from January 1990 to April 2022 for in MEDLINE,, EMBASE, and Scopus in collaboration with the primary author. The search was limited to 1990 because the term EBP was coined in the early 90s. The search strategy employed the following keywords: "Evidence-Based Practice" OR "evidence based medicine" OR "evidence-based medicine" OR "evidence based nursing" OR "evidence-based nursing" OR "evidence based practice" OR "evidence-based practice" OR "evidence based medicine" OR "evidence based practice" OR "evidence-based practice" OR "evidence based medicine" OR "evidence-based practice" AND "Hospitals" OR "Hospital Medicine" OR "Nursing" OR "Advanced Practice Nursing" OR "Academic Medical Centers" OR "healthcare" OR "hospital" OR "healthcare" OR "hospital" AND "Models, Organizational" OR "theories" OR "model." Additionally, reference lists in publications included for full-text review were screened to identify eligible models and frameworks (See online supplemental appendix A for searches).

selection of sources of evidence

Two authors (JD & AM) independently screened titles and abstracts and selected studies for potential inclusion in the study, applying the predefined inclusion and exclusion criteria. Both authors then read the full texts of these articles to assess eligibility for final inclusion. Disagreement between the authors regarding eligibility was resolved by consensus between the three authors (JD, AM, & LML). During the selection process, many models and frameworks were found more than once. Once a model or framework article was identified, the seminal article was reviewed for inclusion. If models or frameworks had been changed or updated since the publication of their seminal article, the most

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current iteration published was reviewed for inclusion. Once a model or framework was identified and verified for inclusion, all other articles listing the model or framework were excluded. This scoping review intended to identify model or framework aligned with Sackett's model; therefore, analyzing every article that used the included model or framework was unnecessary (see online supplemental appendix B for tracking form).

data extraction and analysis

Data were collected on the following study characteristics: (1) Authors, (2) Publication year, (3) Model or Framework, and (4) Area(s) of focus in reference to Sackett's five-step model. After initial selection, models and frameworks were analyzed for key features and alignment to the five step EBP process. A data analysis form was developed to map detailed information (see online supplemental appendix C for full data capture form). Data analysis focused on identifying (1) the general themes of the model or frameworks, and (2) any knowledge gaps. Data extraction and analysis were done by the primary author (JD) and verified by one other author (AM).(15)

Patient and public involvement

Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

RESULTS

The search identified 6,523 potentially relevant references (see Figure 1). Following a review of the titles and abstracts, the primary author completed a more detailed screening of 37 full papers. From these, 19 models and frameworks were included. Table 1 summarizes the 19 models and frameworks. Of the 19 models and frameworks assessed and mapped, 15 had broad target audiences, including healthcare or public health organizations or health systems. Only five models and frameworks included a target audience of individual clinicians (e.g., physicians and nurses). (17-22)

asking the question

All 19 of the models and frameworks included a process for asking questions. Most focused on identifying problems that needed to be addressed on an organizational or hospital level. Five used the PICO (population, intervention, comparator, outcome) format to ask specific questions related to patient care.(19-25)

acquiring the evidence

The models and frameworks gave basic instructions on acquiring literature, such as "conduct systematic search" or "acquire resource."(20) Four recommended sources from previously generated evidence, such as guidelines and systematic reviews.(6, 21, 22, 26) Although most models and frameworks did not provide specifics, others suggested this work be done through EBP mentors/experts.(20, 21, 25, 27) Seven models included qualitative evidence in the use of evidence(6, 19, 21, 24, 27-29), while only four models considered the use of patient preference and values as evidence.(21, 22, 24, 27) Six models recommended internal data be used in acquiring information.(17, 20-22, 24, 27)

assessing the evidence

The models and frameworks varied greatly in the level of instruction provided in assessing the best evidence. All provided a general overview in assessing and grading the evidence. Four recommended this work be done by EBP mentors and experts.(20, 25, 27, 30) Seven models developed specific tools to be used to assess the levels of evidence. (6, 17, 21, 22, 24, 25, 27)

applying the evidence

The application of evidence also varied greatly for the different models and frameworks. Seven models recommended pilot programs to implement change.(6, 21-25, 31) Five recommended the use of EBP mentors and experts to assist in the implementation of evidence and quality improvement as a strategy of the models and frameworks.(20, 24, 25, 27) Thirteen models and frameworks discussed patient values and preferences,(6, 17-19, 21-27, 31, 32) but only seven incorporated this topic into the

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evaluating the outcomes of change

Evaluation varied among the models and frameworks, but most involved using implementation outcome measures to determine the project's success. Five models and framework provide tools and indepth instruction for evaluation. (21, 22, 24-26) Monash Partners Learning Health Systems provided detailed instruction on using internal institutional data to determine success of application.(26) This framework uses internal and external data along with evidence in decision making as a benchmark for successful implementation.

DISCUSSION

EBP models and frameworks provide a process for transforming evidence into clinical practice and allow organizations to determine readiness and willingness for change in a complex hospital system. (12) The large number of models and frameworks complicates the process by confusing what the best tool is for healthcare organizations. This review examined many models and frameworks and assessed the characteristics and gaps that can better assist healthcare organizations to determine the right tool for themselves. This review identified 19 EBP models and frameworks that included the five main steps of EBP as described by Sackett.(5) The results showed that the themes of the models and frameworks are as diverse as the models and frameworks themselves. Some are well developed and widely used, with supporting validation and updates.(21, 22, 24, 27) One such model, the Iowa EBP model, has received over 3,900 requests for permission to use it and has been updated from its initial development and publication.(24) Other models provided tools and contextual instruction such as the Johns Hopkin's model which includes a large number of supporting tool for developing PICOs, instructions for grading literature, and project implementation. (17, 21, 22, 24, 27) By contrast, the ACE Star model and the An

Evidence Implementation Model for Public Health Systems only provide high level overview and general instructions compared to some models and frameworks.(19, 29, 33)

gaps in the evidence

A consistent finding in research of clinician experience with EBP is the lack of expertise that is needed to assess the literature.(24, 34, 35) The models and frameworks reviewed demonstrated that the user must possess the knowledge and related skills for this step in the process. The models and frameworks varied greatly in the level of instruction to assess the evidence. Most provided a general overview in assessing and grading the evidence, though a few recommended that this work be done by EBP mentors and experts.(20, 25, 27) ARCC, The Clinical Scholars Model, JBI, and Johns Hopkins provided robust tools and resources that would require administrative time and financial support (21, 22, 25, 27). Some models and frameworks offered vital resources or pointed to other resources for assessing evidence (24), but most did not. While a few used mentors and experts to assist with the problem of accessing expertise to assess literature, a majority did not address this persistent issue.

Sackett's five-step model included another important consideration when implementing EBP: patient values and preferences. One criticism of EBP is that it ignores patient values and preferences.(36) Over half of the models and frameworks reported the need to include patient values and preferences, but the tools, instruction, or resources for including them were limited. The ARCC model integrates patient preferences and values into the model, but it is up to the EBP mentor to accomplish this task.(37) There are many tools for assessing evidence, but few models and frameworks provide this level of guidance for incorporating patient preference and values. The inclusion of patient and family values and preferences can be misunderstood, insincere, and even tokenistic but without it there is reduced chance of success of implementation of EBP. (38, 39)

strengths and limitations

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Similar to other well designed scoping reviews, the strengths of this review include a rigorous search conducted by a skilled librarian, literature evaluation by more than one person, and the utilization of an established methodological framework (PRISMA-ScR).(14, 15) Additionally, utilizing the EBP five-step models as a point of alignment allows for a more comprehensive breakdown and established reference points for the reviewed models and frameworks. While scoping reviews have been completed on implementation science and knowledge translation models and framework, to our knowledge, this is the first scoping review of EBP models and frameworks.(13, 14) Limitations of the study include that well-developed models and frameworks may have been excluded for not including all five steps.(40) For example, the Promoting Action on Research Implementation in Health Services (PARIHS) framework is a well-developed and validated implementation framework but did not include all five steps of an EBP model. (40) Also, some models and frameworks have been studied and validated over many years. It was beyond the scope of the review to measure the quality of the models and frameworks based on these other validated studies.

implications and future research

Healthcare organizations can support evidence-based practice by choosing a model or framework that best suits their environment and providing clear guidance for implementing the best evidence. Some organizations may find the best fit with the ARCC and the Clinical Scholars Model because of the emphasis on mentors or the Johns Hopkins model for its tools for grading the level of evidence.(21, 25, 27) In contrast, other organizations may find the Iowa model useful with its feedback loops throughout its process.(24) BMJ Open: first published as 10.1136/bmjopen-2022-071188 on 22 May 2023. Downloaded from http://bmjopen.bmj.com/ on May 20, 2025 at Department GEZ-LTA Erasmushogeschool.

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Another implication of this study is the opportunity to better define and develop robust tools for patient and family values and preferences within EBP models and frameworks. Patient experiences are complex and require thorough exploration, so it is not overlooked, which is often the case. (39, 41) The utilization of EBP model and frameworks provide an opportunity to explore this area and provide

the resources and understanding that are often lacking. (38) Though varying, models such as the Iowa Model, JBI, and Johns Hopkins developed tools to incorporate patient and family values and preferences, but a majority of the models and frameworks did not. (21, 22, 24) An opportunity exists to create broad tools that can incorporate patient and family values and preferences into evidence based practice to a similar extent as many of the models and frameworks used for developing tools for literature assessment and implementation. (21-25)

Future research should consider appraising the quality and use of the different EBP models and frameworks to determine success. Additionally, greater clarification on what is considered patient and family values preferences and how they can be integrated into the different models and frameworks is needed.

CONCLUSION

This scoping review of 19 models and frameworks shows considerable variation regarding how the EBP models and frameworks integrate the five steps of EBP. Most of the included models and frameworks provided a narrow description of the steps needed to assess and implement EBP, while a few provided robust instruction and tools. The reviewed models and frameworks provided diverse instructions on the best way to use EBP. However, the inclusion of patient values and preferences needs to be better integrated into EBP models. Also, the issues of EBP expertise to assess evidence must be considered when selecting a model or framework.

	Store of Model or			Knowledge gene
Name Bationt Values Incorner	Steps of Model of	r Framework		Knowledge gaps
1 2 3 Iowa Model (24) 5	 Question development Searches, appraises, and synthesizes the literature If literature is lacking, conduct research 	 Develop, enact, and appraise a pilot solution If successful, implement across organization If unsuccessful, restart process 	 Recommended for use at an organizational level Detailed flowchart guides decision-making process Identified decision points and feedback loops throughout the nodel Emphasizes pilot project before initiating system-wide project Designed for interprofessional collaboration 	 User must possess a level of knowledge and related skills to assess evidence
7 7 8 Monash Partners 8 Learning Health 9 Systems Framework 10(26) 11	 Stakeholder-driven Engage the people Identify priorities Research Evidence Evidence Based Information Evidence synthesis 	 Data-Derived Evidence Data/information systems Benchmarking Implementation Evidence Implementation Healthcare improvement 	 A systems-level approach for sustainability and scalability that on integrates research and data Implementation is data focused 	 User must possess a level of knowledge and related skills for assessing literature (not specified)
12 13 14 15ARCC (27) 16 17	 Assess the healthcare organization for readiness for change Identify potential and actual barriers and facilitators Identify EBP champions 	 Implement evidence into practice Evaluate EBP outcomes 	 Training program with tools to assess literature & implement Focuses on mentors undergo training Identifies a network of supportive stakeholders Emphasis on organization readiness 	: ill • Limited direction on how patient values/preferences are integrated into the model
19 20 _{The Clinical Scholar} 21Model (25) 22	 Observation Analysis Synthesis 	 Application/Evaluation Dissemination 	 Development of point-of-care nurses who become clinical chores is committed to patient care, knowledge development, translation and implementation Includes the use of research, EBP, and quality improvement Depends on EBP mentors and pilot programs 	 Skill development and tools dependent on utilizing workshops to develop EBP Mentors
24 25 ^{JBI} (22) 26	 Global Health Evidence Generation Evidence synthesis 	 Evidence (knowledge) transfer Evidence Implementation 	 Utilizes different types of evidence (SR, Guidelines, Expert Spinio). Expert opinion includes patients Evidence dissemination important part of the model 	 User must possess a level of knowledge and related skills to assess evidence
27 28 29 30 31 32	 Define the clinical practice question Assess the critical appraisal components Plan the implementation 	 Implement the practice change Evaluate the practice change 	 Authors reviewed literature, models and additional composents believed vital in developing, reviewing, and revising patient care practices Incorporates evidence factors, patient factors, and clinical setting Most robust questions involving patient preference Uses a pilot program for implementation 	 Resources available for assessing the literature discussed but determined to be health-system specific
33 34 ^{Johns Hopkins (21)}	 Practice Question: EBP question is ide Evidence: The team searches, apprais Translation: Feasibility, action plan, and 	entified es, rates the strength of evidence nd change implemented & evaluated	Well-developed tool kit that provides guide for question development evidence-rating scale, and appraisal guide for various formed of evidence.	• User must possess a level of knowledge and related skills to assess evidence
Patient Values Discussed	d, Not Incorporated into Models/Frameworks			
37 38 39 40	 Question development includes projetion Identify the relevance of evidence soution Summarize evidence Develop a plan Identify/collect data outcomes to evaluate 	ct context irces and quality luate effectiveness of plan	 Designed to encourage critical thinking Allows for categorization of evidence as external (e.g., research) internal (e.g., organization outcome data) Emphasizes use by single practitioner but may include groups 	 Focus single practitioner Patient value/preference not clearly integrated User must possess a level of knowledge and related skills to assess evidence
41 42 43 44 ^{KTA (18)} 45	 Identify problems and begin searching for evidence Adapt knowledge to local context Identify barriers Select, adapt, and implement 	 Monitor implanted knowledge Evaluate outcomes related to knowledge use Sustain appropriate corpective work only - http://br knowledge use 	 Adapts for use with individuals, teams, and healthcare organizations Is grounded in planned action theory Breaks knowledge-to-action process into manageable sections Provides evidence in a way that influences clinical practice, stakeholde mjopandenaj.csens/site/about/guidelines.xhtml 	 Patient values/preference not clearly integrated User must possess a level of knowledge and related skills for knowledge creation

Table 1 Continued			BMJ Open	.11 ed	Page 14 of 38
Name	Steps of Model	or Framework	General themes	36/ by	Knowledge gaps
1 EBMgt (19) 2	 Asking; acquiring; appraising; aggreg Predictors; barriers; training organiz 	gating; applying; and assessing ations; and research institutes	 Methodological differences between medical and Evidence focuses more on qualitative evidence to different models of organization and management 	manager@ent Asearch prove or gispreve regispreve person of the search	 User must possess a level of knowledge and related skills for assessing literature Lack of specifics on patient value/preference discussed
3 4 St Luke's (31) 5	 Area of interest Collect the best evidence Critically appraise the evidence 	 Integrate the evidence, clinical skill, and patient preferences/values Evaluate the practice change 	 Hospital-level model adapted from Iowa Model Model success focuses on clear directions, aggress short-term commitment required of team member 	rs Ludir	 Provides a general overview of assessing literature without specifics direction or tools
7 7 7 8 Advancing Quality 9 Patient Centered Care 10 ⁽³²⁾	 Inquiry Improvement Innovation 	 Inquiry encompasses research Improvement includes quality improvement projects Innovation is discovery studies and best evidence projects 	 Model focuses on options for EBP, quality improve needs Each process includes a step to obtain pre-data or Incorporates the voice of the customer 	ment, and research best evior on best evior con con con con con con con con con con	 Tools provided for quality improvement but not assessing literature User must possess a level of knowledge and related skills for assessing literature
12 _{Model} for Change to 13Evidence Based Practice 14(6) 15	 Identify need to change practice Approximate problem with outcomes Summarize best scientific evidence Develop plan for changing practice 	 Implement and evaluate change (pilot study) Integrate and maintain change in practice Monitor implementation 	 The model is based on change theory Supports EBP changes derived from a combination qualitative data, clinical skill, and contextual evide Recommends the creation of team of stockholders Piloted implementation 	ategration of quand ategration of quand to text a simulation of the second seco	Patient values/preference not clearly integrated into model
16 ^{Patient} Values Not Discus	sea	E Develop and sets the	the second s		- Look of announce of the sec
17 Evidence Based Public 18 _{Health} (28) 19	 Community assessment Quantify the issue Develop Statement of the issue Determine what is known evidence 	 Develop and prioritize program and policy options Develop an action plan Evaluate the program or policy 	 Incorporates a framework with less emphasis on and more emphasis on knowledge translation Evidence: Qualitative and quantitative Matches question to research type 	evidence here of from	 Lack of consensus on evidence analysis and hierarchy Public health models different from medical focus is on health outcomes
20 21 22 ^{ACE Star Model} (29) 23	 Discovery: Searching for new knowl Evidence Summary: Synthesize the l Translation: Provide clinicians with a Integration: Changed through formation Evaluation: EBP outcomes are evalution 	edge body of research knowledge a practice document al and informal channels ated	 Promotes discovery of evidence through systema Promotes transition of evidence through guidelin Includes use of qualitative evidence Expertise and patient preference are considered evidence 	itic reviens e creati Al Creati another from Jo	 Patient values/preferences not clearly integrated into model (patient satisfaction measured) Simple overview of each step with limited resources discussed
24 25An Evidence 26Implementation Model 27for Public Health Systems (33) 28	 Not a linear model Circle 1 Evidence implementation target Circle 2 Actors involved in implementation 	 Circle 3 Knowledge transfer Circle 4 Barriers and facilitators 	 Includes setting measurable evidence implement Includes all actors in all stages of knowledge tran aim and reduce barriers Model is broad with diverse implementation 	ation talgets sfer to ingrease shared c. sign c. sign	 Provides a general overview without specifics Public health models different from medical models No specifics of how to assess literature
29 30 31 32 ^{San Diego 8A's EBP 33 34 35}	 Assessing a clinical or practice problem Asking a clinical question in a PICO format Acquiring existing sources of evidence Appraising the levels of evidence 	 Applying the evidence to a practice change Analyzing the results of the change Advancing the practice change through dissemination Adopting the practice of sustainability over time 	 Model was created to make it easier for nurses to projects Derived primarily from previously published mod Change Theory part of the model Utilizes mentors to implement 	o complet hnologies.	 No specifics on patient preference/value incorporation User must possess a level of knowledge and related skills for assessing literature (not specified)
36 37 38Tyler Collaborative 39 ^{Model} for EBP (30) 40	 Phase One: Unfreezing 1. Building relationships 2. Diagnosing the Problem 3. Acquiring Resources Phase Two: Moving 1. Choosing the Solution 2. Gaining Acceptance 	Phase Three: Refreezing 1. Stabilization	 Model focuses on barriers of nurses to implemen Difficulty of practicing nurses to synthesize scient of adequate administrative commitment to make nursing a priority Model utilizes EBP experts 	t EBP: Dep ific evidence, and Lack e evidence-based GE	No mention of patient preference/value
41 42 43The Practice Guidelines 44Development Cycle (42) 45 46	 Select/Frame clinical problem Generate recommendations Ratify recommendations Formulate practice guideline 	 Independent review Negotiate practice policies Adopt guideline policies Foi8pSchedbledreviewly - http://br 	 Original EBP Model developed to create clinical g Framework recommends facilitator to assign task advancement Appropriate structure needs to be in place for fra njope Cycle breates discordance between the save the guidelines and institutional policies but requires or 	uidelines is and manage mework to succeed lcal guidelines and documentation	 No mention of patient preference/value User must possess a level of knowledge and related skills for assessing literature (not specified)

Acknowledgments We thank Keri Swaggart for completing the database searches and the Medical Writing Center at Children's Mercy Kansas City for editing this manuscript.

Contributions All Authors have read and approved the final manuscript. JD conceptualized the study design, screened the articles for eligibility, extracted data from included studies, and contributed to the writing and revision of the manuscript. LML conceptualized the study design, provided critical feedback on the manuscript, and revised the manuscript. AM screened the articles for eligibility, extracted data from the studies, provided critical feedback on the manuscript, and revised the data from the studies, provided critical feedback on the manuscript.

Funding This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None.

Patient consent for publication Not required.

Research Ethics Approval This study does not involve human participants and did not require approval.

Provenance and peer review Not commissioned; externally peer-reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as online supplemental information. All relevant study data are included in the article or in online supplemental documents.

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ORCID iDs

Jarrod Dusin <u>http://orcid.org/0000-0003-4394-9235</u> Lisa Mische Lawson <u>http://orcid.org/0000-0002-1601-9465</u>

Mesh terms:

Evidence-Based Medicine Evidence-Based Practice Implementation Science Knowledge Translation

Figure 1. Retrieval and selection process

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Appendix A: Literature search strategy

Database: Embase

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#4

#1 AND #2 AND #3

#3

'health service'/exp OR 'university hospital'/exp OR 'hospital'/exp OR 'hospital medicine'/exp OR 'health care':ti,ab,kw OR healthcare:ti,ab,kw OR hospital:ti,ab,kw

#2

'framework'/exp OR 'model'/exp OR 'theory'/exp OR 'models'/exp OR 'theoretical model'/exp OR model*:ti,ab,kw OR framework*:ti,ab,kw OR theory:ti,ab,kw OR theories:ti,ab,kw

#1

'evidence based practice'/de OR 'evidence based medicine'/de OR 'evidence based dentistry'/exp OR 'evidence based practice center'/exp OR 'evidence-based pharmacy'/exp OR 'evidence based practice':ti,ab,kw OR 'evidence based medicine':ti,ab,kw OR 'evidencebased practice':ti,ab,kw OR 'evidence-based medicine':ti,ab,kw

Database: Ovid MEDLINE(R)

In-Process, In-Data-Review & Other Non-Indexed Citations and Daily <1946 to April 01, 2022>

1 evidence-based practice/ or evidence-based dentistry/ or exp evidence-based medicine/ or evidence-based pharmacy practice/ or "evidence based medicine".ti,ab,kw,kf. or "evidence-based medicine".ti,ab,kw,kf. or "evidence based practice".ti,ab,kw,kf. or "evidence-based practice".ti,ab,kw,kf.
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(TITLE-ABS-KEY (framework* OR model* OR theory OR {theoretical model*} OR theories OR {organizational model*}) AND (TITLE-ABS-KEY ({health service*} OR {university hospital*} OR hospital* OR {hospital medicine*} OR {health care} OR {academic Medical Center*}) AND (TITLE-ABS-KEY ({evidence based practice} OR {evidence based medicine} OR {evidence-based practice} OR {evidence based medicine} OR {evidence-based practice} OR {evidence based medicine} OR {evidence-based practice} OR {evidence-based medicine} OR [university hospital*] OR UNIT-TO (PUBYEAR, 2021) OR UNIT-TO (PUBYEAR, 2020) OR UNIT-TO (PUBYEAR, 2019) OR UNIT-TO (PUBYEAR, 2013) OR UNIT-TO (PUBYEAR, 2016) OR UNIT-TO (PUBYEAR, 2017) OR UNIT-TO (PUBYEAR, 2016) OR UNIT-TO (PUBYEAR, 2013) OR UNIT-TO (PUBYEAR, 2014) OR UNIT-TO (PUBYEAR, 2013) OR UNIT-TO (PUBYEAR, 2012) OR UNIT-TO (PUBYEAR, 2013) OR UNIT-TO (PUBYEAR, 2012) OR UNIT-TO (PUBYEAR, 2011) OR UNIT-TO (PUBYEAR, 2010) OR UNIT-TO (PUBYEAR, 2009) OR UNIT-TO (PUBYEAR, 2009) OR UNIT-TO (PUBYEAR, 2009) OR UNIT-TO (PUBYEAR, 2009) OR UNIT-TO (PUBYEAR, 2000) OR UNIT-TO (PUBYEAR, 2003) OR UNIT-TO (PUBYEAR, 2002) OR UNIT-TO (PUBYEAR, 2003) OR UNIT-TO (PUBYEAR, 2002) OR UNIT-TO (PUBYEAR, 2003) OR UNIT-TO (PUBYEAR, 2002) OR UNIT-TO (PUBYEAR, 2003) OR UNIT-TO (PUBYEAR, 2000) OR UNIT-TO (PUBYEAR, 1999) OR UNIT-TO (PUBYEAR, 1998) OR UNIT-TO (PUBYEAR, 1999) OR UNIT-TO (PUBYEAR, 1993) OR UNIT-TO (PUBYEAR, 1997) OR UNIT-TO (PUBYEAR, 1993) OR UNIT-TO (PUBYEAR, 1995) OR UNIT-TO (PUBYEAR, 1993)) AND (UNIT-TO (LANGUAGE, "English")) AND (UNIT-TO (DOCTYPE, "ar") OR UNIT-TO (DOCTYPE, "sh"))

3

¹₂Appendix B: Initial Tracking Form

45 46 47

Appendix B: Initial Tracking Form Model Model Model Model Reference in Rayan Semial or distribution both yes Janna Briggs Model Fig Loth Loth Semial or distribution Semial or distribution J yes yes Model Fig Loth Loth Semial or distribution Semial or distribution J yes yes Model Fig Loth Loth Semial or distribution Semial or distribution J yes yes Model for evidence based Loth Loth Control Semial or distribution Nonel of evidence based J yes yes yes Model for evidence based Loth Loth Loth Nonel Loth							BMJ Open	10.1136/bmjc cted by copy
both// Nound Ves/No/ search Wes/No/ Map Name work Model Parane work EBP/T/Impl Reference in Rayyan Johns Brigs (2013). Reference in Rayyan J yes yes Model EBP/T/Impl Reference in Rayyan Johns Brigs (2013). Reference in Rayyan J yes Model for indefence esportscherung Model (2013). Reference in Rayyan Johns Brigs (2013). Reference in Rayyan J yes yes Separation Johns Brigs (2013). Reference in Rayyan Johns Brigs (2013). Reference in Rayyan Johns Brigs (2013). Reference in Rayyan J yes Yes Model (2014). Conting an application of the Advance and proceeding and proceedin	Append	dix B: In	itial Trac	king Form				rright.
Jordan Jorda Jorda Jorda <th>both/J found/ A found</th> <th>In search</th> <th>Yes/No/ Maybe</th> <th>Name</th> <th>Model/ Frame work</th> <th>EBP/KT/Impl</th> <th>Reference in Rayyan</th> <th>Seminal or Apdated article reference</th>	both/J found/ A found	In search	Yes/No/ Maybe	Name	Model/ Frame work	EBP/KT/Impl	Reference in Rayyan	Seminal or Apdated article reference
yes yes <td>both</td> <td>yes</td> <td>yes</td> <td>Joanna Briggs Institute (JBI)</td> <td>Model</td> <td>EBP</td> <td>Jordan, Z., Lockwood, C., Munn, Z., & Aromataris, E. (2018). Redeveloping the JBI model of evidence based healthcare. JBI Evidence Implementation, 16(4), 227-241.</td> <td>Jordan , Z., Lockwood C., Kunn, Z., & Aromataris, E. (2019). The updated Joanna Brigg Insoute model of evidence-based healthcare. JBI Evidence Incolementation, 17(1), 58-71.</td>	both	yes	yes	Joanna Briggs Institute (JBI)	Model	EBP	Jordan, Z., Lockwood, C., Munn, Z., & Aromataris, E. (2018). Redeveloping the JBI model of evidence based healthcare. JBI Evidence Implementation, 16(4), 227-241.	Jordan , Z., Lockwood C., Kunn, Z., & Aromataris, E. (2019). The updated Joanna Brigg Insoute model of evidence-based healthcare. JBI Evidence Incolementation, 17(1), 58-71.
Processing Processing <td>0</td> <td>yes</td> <td>yes</td> <td>Model for evidence base practice change</td> <td>Model</td> <td>EBP</td> <td>Long, L. E., Burkett, K., & McGee, S. (2009). Promotion of safe outcomes: incorporating evidence into policies and procedures. Nursing Clinics of North America, 44(1), 57-70.</td> <td>NOT IN SEARCH: Rose wurner, M. A., & Larrabee, J. H. (1999). A model for change to evidence-based practice. Image: The Journal of Nursing Scholarship, 314), 317-322.</td>	0	yes	yes	Model for evidence base practice change	Model	EBP	Long, L. E., Burkett, K., & McGee, S. (2009). Promotion of safe outcomes: incorporating evidence into policies and procedures. Nursing Clinics of North America, 44(1), 57-70.	NOT IN SEARCH: Rose wurner, M. A., & Larrabee, J. H. (1999). A model for change to evidence-based practice. Image: The Journal of Nursing Scholarship, 314), 317-322.
both yes Steller C. B. (2001) Buffy and the Steller model of research. both yes Steller, C. B. (2001) Buffy and the Steller model of research. utilization to facilitate evidence-based practice. utilization. both yes yes lowa Model Model EBP number of the lowa Model Collaborative. (2017). lowa model of evidence-based practice. Number of the lowa Model Collaborative. (2017). low model of evidence-based practice. both yes yes yes St Luke's EBP Model Model EBP nursing Quility program drive by evidence-based practice. Nursing Quility program driv	2 3 4 c both	yes	yes	The Advancing Research & Clinical Practice through Close Collaboration (ARCC)	Model	Impl	Melnyk , B. M. (2012). Achieving a high-reliability organization through implementation of the ARCC model for systemwide sustainability of evidence-based practice. Nursing Administration Quarterly, 36(2), 127-135.	Melnyk, B. M., Fine to work of the second se
Invasion Invasion Noval Model Collaborative, Buckwalter, K. C., Cullen, L., Harrahan, K., Kleiber, C., McGarthy, A. M., & Authored on behalf of the lowa Model Collaborative, Buckwalter, K. C., Cullen, L., Harrahan, K., Kleiber, C., McGarthy, A. M., & Authored on behalf of the lowa Model Collaborative, Buckwalter, K. C., Cullen, L., Harrahan, K., Kleiber, C., McGarthy, A. M., & Authored on behalf of the lowa Model Collaborative, Buckwalter, K. C., Cullen, L., Harrahan, K., Kleiber, C., McGarthy, A. M., & Authored on behalf of the lowa Model Collaborative, Buckwalter, K. C., Cullen, L., Harrahan, K., Kleiber, C., McGarthy, A. M., & Authored on behalf of the lowa Model Collaborative, Buckwalter, K. C., Cullen, L., Harrahan, K., Kleiber, C., McGarthy, A. M., & Authored on behalf of the lowa Model Collaborative, Buckwalter, K. C., Cullen, L., Harrahan, K., Kleiber, C., McGarthy, A. M., & Authored on behalf of the lowa Model Collaborative, Buckwalter, K. C., Cullen, L., Harrahan, K., Kleiber, C., McGarthy, A. M., & Authored on behalf of the lowa Model Collaborative, Buckwalter, K. C., Cullen, L., Harrahan, K., Kleiber, C., McGarthy, A. M., & Authored on behalf of the lowa Model Collaborative, Buckwalter, S. C., Northerice, P. Barthor, B. M., & Bernette, R. M., 2010, D. Barthor, B. M., Shar, M. S. & Figure Werhold, E. (2022). Evidence-based practice, <i>Nursing Cline in nursing & Bealtracare:</i> Aguide to best practice Uppincent Williams Williams North Sharthored on anodel for research, evidence-based practice, <i>Quality</i> , 32(1), 102-107. 1 Yes Yes Yes Model EBP Brownson, R. C., Fleiding, J. E., & Maylahn, C. M. (2009). Hargle, M., Dwyer, D. Gaettract, L., Lusk, D., Peterson, K., & Tennies S. (2020). Development and implementation of a model for research, evidence-based prac	6 7 _{both}	yes	yes	Stetler Model	Model	EBP	Stetler , C. B. (2001). Updating the Stetler model of research utilization to facilitate evidence-based practice. Nursing Outlook, 49(6), 272-279.	Stetler, C. B. (2001). By Barger g the Stetler model of research utilization to facilitate diagonce-based practice. Nursing Outlook, 49(6), 272-279.
Anderson, J. J., Mokracek, M., & Lindy, C. N. (2009). A nursing quality program driven by evidence-based practice in nursing quality constrained to the set practice. In ursing quality constrained to constrained to the set practice. In ursing quality constrained to the set practice. In ursing quality constrained to constrained to the set practice. In ursing quality constrained to constep to public health practice. Annual review of public	8 9 1 2 both	yes	yes	lowa Model	Model	EBP	Iowa Model Collaborative, Buckwalter, K. C., Cullen, L., Hanrahan, K., Kleiber, C., McCarthy, A. M., & Authored on behalf of the Iowa Model Collaborative. (2017). Iowa model of evidence-based practice: Revisions and validation. Worldviews on Evidence-Based Nursing, 14(3), 175-182.)	lowa Model Collaborative Buckwalter, K. C., Cullen, L., Hanrahan, K., Kleiber, C., McCaray, A. M., & Authored on behalf of the lowa Model Collaborative 2017). Iowa model of evidence-based practice: Revisions and valuation. Worldviews on Evidence-Based Nursing, 14(3), 175-122.)
Advancing Quality Patient-Centered Model for Advancing Quality, 35(2), 102-107. P J yes Yes </td <td>.<u>В</u> 4 5 Ј</td> <td>yes</td> <td>yes</td> <td>St Luke's EBP Model</td> <td>Model</td> <td>EBP</td> <td>Anderson , J. J., Mokracek, M., & Lindy, C. N. (2009). A nursing quality program driven by evidence-based practice. Nursing Clinics of North America, 44(1), 83-91.</td> <td>Melnyk , B. M., & Fire out overhold, E. (2022). Evidence-based practice in nursing and the care: A guide to best practice. Lippincott Williams Will s. Not in search</td>	. <u>В</u> 4 5 Ј	yes	yes	St Luke's EBP Model	Model	EBP	Anderson , J. J., Mokracek, M., & Lindy, C. N. (2009). A nursing quality program driven by evidence-based practice. Nursing Clinics of North America, 44(1), 83-91.	Melnyk , B. M., & Fire out overhold, E. (2022). Evidence-based practice in nursing and the care: A guide to best practice. Lippincott Williams Will s. Not in search
Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Brownson, R. C., Fielding, J. TS-201. Brownson, R. C., Fielding, J. TS-20	6 7 8 9 J	yes	yes	13 Model for Advancing Quality Patient-Centered Care	Model	EBP	Hagle , M., Dwyer, D., Gettrust, L., Lusk, D., Peterson, K., & Tennies, S. (2020). Development and implementation of a model for research, evidence-based practice, quality improvement, and innovation. <i>Journal of Nursing Care</i> <i>Quality</i> , 35(2), 102-107.	Hagle, M., Dwyer, D. Getteust, L., Lusk, D., Peterson, K., & Tennies, S. (2020). Developm and tark implementation of a model for research, evidence-tested aractice, quality improvement, and innovation. Journal a Nurging Care Quality, 35(2), 102-107.
34 A	0 1 2 1	yes	yes	Evidence Based Public Health	Model	ЕВРН	Brownson , R. C., Fielding, J. E., & Maylahn, C. M. (2009). Evidence-based public health: a fundamental concept for public health practice. <i>Annual review of public</i> <i>health</i> , <i>30</i> (1), 175-201.	Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Evidence- based public health: functionental concept for public health practice. Annual review of public health, 30(1), 175-201.
 Moodie, S. T., Kothari, A., Bagatto, M. P., Seewald, R., Miller, L. T., & Scollie, S. D. (2011). Knowledge translation in audiology: promoting the clinical application of best evidence. <i>Trends in amplification</i>, <i>15</i>(1), 5-22. Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & White, K. M. (2007). Organizational change strategies for evidence-based practice. <i>JONA: The Journal of Nursing</i> Yes yes yes John Hopkins Model EBP Administration, <i>37</i>(12), 552-557. 	2 4 5 6 []]	yes	yes	EB Management theoretical framework	Frame work	EBP	Janati , A., Hasanpoor, E., Hajebrahimi, S., & Sadeghi- Bazargani, H. (2018). Evidence-based management– healthcare manager viewpoints. <i>International journal of</i> <i>health care quality assurance</i> .	Axelsson , R. (1998), Yow to an evidence based health care management', The International Journal of Health planning and Management, Vol. 13 No. 4 pp. 307-317.
1 Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & 1 Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & 1 Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & White, K. M. (2007). Organizational change strategies for evidence-based practice. JONA: The Journal of Nursing Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & White, K. M. 1 Yes Yes John Hopkins Model EBP Administration, 37(12), 552-557. Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & White, K. M.	7 8 9 0 both	yes	yes	Knowledge to action (KTA)	Frame work	КТ	Moodie , S. T., Kothari, A., Bagatto, M. P., Seewald, R., Miller, L. T., & Scollie, S. D. (2011). Knowledge translation in audiology: promoting the clinical application of best evidence. <i>Trends in amplification</i> , <i>15</i> (1), 5-22.	no in search Graham , I. Du Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., & Hobinson, N. (2006). Lost in knowledge translation: time for a mage. Journal of continuing education in the health professions, 26(1), 28-24.
	. . <u>2</u> . B j	yes	yes	John Hopkins	Model	EBP	Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & White, K. M. (2007). Organizational change strategies for evidence-based practice. JONA: The Journal of Nursing Administration, 37(12), 552-557.	Newhouse, R. P., Dearholt, P., Poe, S., Pugh, L. C., & White, K. M. (2007). Organizational charge strategies for evidence-based practice. JONA: The Journal of Nursing Administration, 37(12), 552- 557.

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Page 23	of 38					BMJ Open	10.1136/br cted by co
1 2 3 4 5 both	yes	yes	The clinical scholar model	Model	EBP	Strout T, Lancaster K, Schultz AA. Development and implementation of an inductive Model for Evidencebased Practice: A grassroots approach for building evidence- based practice capacity in staff nurses. Nurs Clin North Am. 2009; 44(1):93-102	Not in search Schultz A. Origins and aspirations: conceiving the clinical scholar mode Excellence in Nursing Knowledge 2005;1–4 [online publication].
6 7 8 9 J	yes	yes	An Evidence Implementation Model for Public Health Systems	Model	Impl	Vincenten , J., MacKay, J. M., Schröder-Bäck, P., Schloemer, T., & Brand, H. (2019). Factors influencing implementation of evidence-based interventions in public health systems–a model. <i>Central European journal of</i> <i>public health</i> , <i>27</i> (3), 198-203.	Vincenten, J., MacK J. N. Schröder-Bäck, P., Schloemer, T., & Brand, H. (2019). Factors influencing implementation of evidence- based interventions public chealth systems–a model. <i>Central</i> <i>European journal of public bealth, 27</i> (3), 198-203.
10 11 12 J 18	yes	yes	San Diego 8A's Model	Model	EBP	Ecoff , L., Stichler, J. F., & Davidson, J. E. (2020). Design, implementation and evaluation of a regional evidence- based practice institute. <i>Applied nursing research:</i> <i>ANR</i> , <i>55</i> , 151300.	Not in search Brown C E & Ecoff, L. (2011). A systematic approach to the inclean of evidence in healthcare design. HERD: Health Environment & of the besign Journal, 4(2), 7-16.
14 15 16 ^J	no	yes	Through Evidence Based Practice (CETEP)	Model	EBP	N., & Vaughn, B. (2007). Clinical excellence through evidence-based practicea model to guide practice changes. <i>Topics in Advanced Practice Nursing</i> , 7(4).	Vaughn, B. (2007). Comparing Science through evidence-based practicea model to a comparatice changes. Topics in Advanced Practice Nursing, 7(4)
17 18 19 20 ^J	no	yes	Monash Learning Health system framework.	Frame work	Impl	Enticott , J. C., Melder, A., Johnson, A., Jones, A., Shaw, T., Keech, W., & Teede, H. (2021). A Learning Health System Framework to Operationalize Health Data to Improve Quality Care: An Australian Perspective. <i>Frontiers</i> <i>in Medicine</i> , 1824.	Enticott, J. C., Melder G. Bhnson, A., Jones, A., Shaw, T., Keech, W., & Teede, H. (2021). A Learning Health System Framework to Operationalize Health Date to Improve Quality Care: An Australian Perspective. Frontiez in Medicine, 1824.
2 22 23 24 J	Ves	ves	The Tyler Collaborative Model.	Model	EBP	Olade , R. A. (2004). Strategic collaborative model for evidence-based nursing practice. <i>Worldviews on Evidence-Based Nursing</i> , 1(1), 60-68.	Olade, R. A. (2004). States collaborative model for evidence- based nursing practice. Warldviews on Evidence-Based Nursing, 1(1), 60-68
25 26 27 2	yes	yes	ACE star model	Model	EBP	Kring , D. L. (2008). Clinical nurse specialist practice domains and evidence-based practice competencies: a matrix of influence. <i>Clinical Nurse Specialist</i> , 22(4), 179- 183	Not in search Stever K.R. 2004) ACE Star Model of EBP: Knowledge Transfor ation Academic Center for Evidence-Based Practice. The Univer to compare the search of the searc
29 30 31 32 3	yes	yes	The Practice Guidelines Development Cycle	Frame work	EBP	Browman , G. P., Levine, M. N., Mohide, E. A., Hayward, R. S., Pritchard, K. I., Gafni, A., & Laupacis, A. (1995). The practice guidelines development cycle: a conceptual tool for practice guidelines development and implementation. <i>Journal of Clinical Oncology</i> , <i>13</i> (2), 502-512.	Browman, G. P., Levie, M. N., Mohide, E. A., Hayward, R. S., Pritchard, K. I., Gafnin A., & aupacis, A. (1995). The practice guidelines development colle: a conceptual tool for practice guidelines development and implementation. <i>Journal of Clinical</i> <i>Oncology</i> , 13(2), 502
3. 35 36 37	no	no	no name	Model	EBP	Balakas, K., Potter, P., Pratt, E., Rea, G., & Williams, J. (2009). Evidence equals excellence: the application of an evidence-based practice model in an academic medical center. <i>Nursing Clinics of North America</i> , 44(1), 1-10.	5 at Depa
38 39 40	yes	no	Baptist Health Lexington EBP Model	Model	EBP	Brockopp , D. Y., Moe, K., Corley, D., & Schreiber, J. (2013). The Baptist Health Lexington Evidence-Based Practice Model. <i>The Journal of Nursing Administration</i> , 43(4), 187- 193.	rtment G
4 42 43 44	yes	no	Read Effectiveness Adoption Implementation	Model	Impl	Glasgow , R. E., Harden, S. M., Gaglio, B., Rabin, B., Smith, M. L., Porter, G. C., & Estabrooks, P. A. (2019). RE-AIM planning and evaluation framework: adapting	EZ-LTA

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1			Maintenance/Sustain ability (RE-AIM)				njopen-
5 4 5 6	yes	no	Framework for Research Dissemination and Utilization (RD&U) -	Frame work	Impl	Dobbins M, Ciliska D, Cockerill R, Barnsley J, DiCenso A. A framework for the dissemination and utilization of research for health-care policy and practice. The Online Journal of Knowledge Synthesis for Nursing 2002; 9(7)	2022-0711 including
7 8 9	yes	no	Model in an academic medical center	Model	EBP	Balakas K, Potter P, Pratt E, Rea G, Williams J. Evidence equals excellence: the application of an evidencebased practice model in an academic medical center. Nurs Clin North Am. 2009; 44(1):1-10.	98 on 22 l
11 12 1 <u>8</u>	yes	no	Evidence-Informed Public Health Framework (EIPH)	Frame work	ЕВРН	Martin , W., Wharf Higgins, J., Pauly, B. B., & MacDonald, M. (2017). "Layers of translation"-evidence literacy in public health practice: a qualitative secondary analysis. <i>BMC Public Health</i> , <i>17</i> (1), 1-13.	nay 2023. Erasmu related to
14 15 16 17	yes	no	Promoting Action on Research Implementation in Health Services (PARIHS)	Frame work	Impl	Stetler CB, Damschroder LJ, Helfrich CD, Hagedorn HJ. A Guide for applying a revised version of the PARIHS framework for implementation. Implementation Science 2011; 6(99).	Kitson , A. L., Rycroft and a series of the
18 19 20 21	yes	no	Colorado EBP model:	Model	EBP	Goode , C. J., Fink, R. M., Krugman, M., Oman, K. S., & Traditi, L. K. (2011). The Colorado patient-centered interprofessional evidence-based practice model: A framework for transformation. <i>Worldvi on Evidence-Based</i> <i>Nursing</i> , <i>8</i> (2), 96-105.	d from http: ol . ta mining, #
22 23 24 25	yes	no	IMPACT Model Arora	Model	Impl	Arora M, Mathur MR, Singh N. A framework to prevent and control tobacco among adolescents and children: introducing the IMPACT model. The Indian Journal of Pediatrics. 2013 Mar;80:55-62.	/bmjoper /l training
26 27 28	yes	no	The Research and Clinical Practice Integration model	Model	Impl	Manns , P. J., & Darrah, J. (2006). Linking research and clinical practice in physical therapy: strategies for integration. <i>Physiotherapy</i> , <i>92</i> (2), 88-94.	.bmj.com and simi
29 30 3	no	no	The Coordinated Implementation Mod el	Model	Impl	Lomas J. Retailing research: increasing the role of evidence in clinical services for childbirth. The Milbank Quarterly. 1993 Jan 1:439-75.	'on Ma
32 33 34	no	no	Multisystem model of Knowledge Integration and Translation (MKIT)	Model	Impl	Palmer D, Kramlich D. An introduction to the multisystem model of knowledge integration and translation. Adv Nurs Sci. 2011; 34(1):29-38.	r 20, 202; nologies.
35 36 37 38	yes	no	Interactive systems framework	Frame work	Impl	Noonan, R. K., Wilson, K. M., & Mercer, S. L. (2012). Navigating the road ahead: public health challenges and the interactive systems framework for dissemination and implementation. <i>American journal of community</i> <i>psychology</i> , <i>50</i> (3), 572-580.	at Departm
3₽ 40 41 42 4	yes	no	ASPN EBP	Model	EBP	Mamaril , M. E., Ross, J. M., Krenzischek, D., O'Brien, D., Wilson, L., Clark, M., & Hooper, V. (2006). The ASPN's EBP Conceptual Model: Framework for perianesthesia practice and research. <i>Journal of PeriAnesthesia</i> <i>Nursing</i> , <i>21</i> (3), 157-167	Mamaril, M. E., Ross, J. M. Krenzischek, D., O'Brien, D., Wilson, L., Clark, M., & Hooper, V. H 006). The ASPN's EBP Conceptual Model: Framework for pertanesthesia practice and research. <i>Journal of PeriAn</i> esthesia Nursing, 21(3), 157-168

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1						Galiano , A., Simonetti, M., Quiroga, N., & Larrain, A.	Galiano, A., Simonet 🖌 M. Quiroga, N., & Larrain, A. (2020).
2						(2020). Development, implementation and evaluation of	Development, imple ent ion and evaluation of an evidence-
3						an evidence-based practice model in a new hospital in	based practice model in a kew hospital in Chile. Journal of Nursing
4	yes	no	EBP Model	model	EBP	Chile. Journal of Nursing Management, 28(7), 1748-1757.	Management, 28(7), 748, 757.
5						Logan , J., Harrison, M. B., Granam, I. D., Dunn, K., & Bissonnotto, L. (1999). Evidence, based pressure ulcor	NOT IN SEARCH: Grader TO & Logan L (2004) Translating
6						practice: the Ottawa model of research use Canadian	research-innovation in kindwledge transfer and continuity of care
7	ves	no	Ottawa	Model	EBP	Journal of Nursing Research Archive.	Canadian Journal of Kursing Research Archive, 89-104.
8						Not in search: Smylie , J., Martin, C. M., Kaplan-Myrth, N.,	
9			Canadian Institutes			Steele, L., Tait, C., & Hogg, W. (2004). Knowledge	
10			of Health Research	Frame		translation and indigenous knowledge. International	ů s
1	no	no	(CIHR) framework	work	KT	Journal of Circumpolar Health, 63(sup2), 139-143.	
10						Robinson , T., Skouteris, H., Melder, A., Bailey, C., Morris,	Robinson, T., Skoute 🛱 🖓 Ədelder, A., Bailey, C., Morris, H., Garad,
						H., Garad, R., & Teede, H. J. (2018, January). Application of	R., & Teede, H. J. (2018 and ary). Application of Monash Centre
1			Monash Centre for			Framework to the development of polycycstic overy	for Health Research and melementation Framework to the
1			Health Research and			syndrome guideline: A case study on implementation. In	development of poly of the ovary syndrome guideline: A case
			Implementation	Frame		Seminars in Reproductive Medicine (Vol. 36, No. 01, pp.	study on implementation. Seminars in Reproductive Medicine
	yes	no	Framework	work	Impl	013-018). Thieme Medical Publishers.	(Vol. 36, No. 01, pp. El 2008). Thieme Medical Publishers.
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38							I from http://bmjopen.bmj.com/ on May 20, 2025 at Departmul. I . ta mining, Al training, and similar technologies.
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¹ Appendix C: Full Data Capture Form

¹ Appendix	c C: Full Da	ta Capture	Form				BMJ Open			10.1136/bmjopen cted by copyrigh				Page	26 of 3
3 4 5 Author 6	Name	Framework/ Mode	EBP/ Imple / KT/ EBPH/ EBMgt	Key features (areas of focus)	Summarize general themes	Identify knowledge gaps	Ask	Acquire	Assess	-2022-0711 t, including Apply	Evaluate	Pt Discussed	Pt Incorp	Pt Tools	Clinical Skill
7 8 9 10 11 12 13 14 15 16 17 Iowa model 18 (2017) 19 20 21 22 21 22 23 24 25 26 27 28	lowa Model	Model	EBP	 l) Identify either a "problem-focused trigger" or "knowledge- focused trigger." 2) Determine whether the "trigger" is a healthcare organization's priority. 3) Reflect a team's topic of interest and include interested stakeholders. The team will search, appraise, and synthesize literature related to the topic. 4) Evaluate the availability and merit (e.g., level of evidence, quality of evidence) of evidence. If evidence availability and merit are lacking, conduct research. 5) If credible and reliable evidence is availabile, pilot the practice change. Appraise pilot for level of success. If pilot is successful, disseminate findings within the organization and implement recommended change into practice. 	 Recommended for use at organizational systems level Detailed flowchart guides decision-making process Identified decision points and feedback loops throughout the model Emphasizes pilot project before initiating system-wide project Designed for interprofessional collaboration 	User must possess a level of knowledge and related skills to assess evidence	study states need for asking if the problems is a priority	Assemble, Appraise and Synthesize Body of Evidence Conduct systematic search	Assemble, Appraise and Synthesize Body of Evidence Weigh quality, quantity, consistency, and risk	8 on 22 May 2023. Doey Erasmushegeschoold. Identify and tang data by Identify and tang data by Hardwire child atta by Monitor keya by through quantimerses, AI training, and sim Reinfuse as a constraint of the second sec	Identify and engage key personnel Hardwire change into system Monitor key indicators through quality improvement Reinfuse as needed	yes	yes	yes	yes
29 30 31 32 33 34 Enticott 35 ⁽²⁰²¹⁾ 36 37 38 39 40 41	Monash Partners Learning Health System	Framework	EBP	Stakeholder driven engagement 1) Engage the people 2) Identifying priorities Research Derived Evidence 3) Evidence Based Information 4) Evidence synthesis and Guidelines Data Derived Evidence 5) Data and information systems 6) Benchmarking Implementation Evidence 7) Implementation 8) Healthcare improvement	1) A systems- level approach for sustainability and scalability that integrates research and data. 2) Implementation is data focused	User must possess a level of knowledge and related skills for assessing literature (not specified)	Stakeholder driven engagement 1) Engage the people 2) Identifying priorities	Research Derived Evidence 3) Evidence Based Information 4) Evidence synthesis and Guidelines	Research Derived Evidence 3) Evidence Based Information 4) Evidence synthesis and Guidelines	V on May 2 Data Deriver 20025 at Department GE 5) Data and Command 5) Data and Command 5) Data and Command 5) Data and Command 9) Benchmark 1) Mplementation 8) Healthcare 1) Implementation 8) Healthcare 1) Mplementation 8) Healthcare	Data Derived Evidence 5) Data and information systems 6) Benchmarking Implementation Evidence 7) Implementation 8) Healthcare improvement	yes	yes	no	yes
42 43 44 45 46				For	peer review (only - http://b	mjopen.bmj.cc	om/site/about	/guidelines.xh	Z-LTA					7

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1 2 3 4 5 6 7 8 9 10 11 (2012) 12 13 14 15 16 17 18 19 20 21	ARCC	Model	Impl	 Assess the healthcare organization for readiness for change and implementation of EBP project. Identify potential and actual barriers to and facilitators of EBP project. Identify EBP champions to work with specific clinical units. Implement evidence into practice. Evaluate EBP outcomes. 	1) Well- developed training program with tools and scales to assess literature and implement EBP 1) Focuses on EBP mentors to undergo training 2) Identifies a network of stakeholders who are supportive of the EBP project 3) Emphasis on healthcare organizational readiness and identification of facilities and barriers (Scale provided) 4) Encompasses research, patient values, and clinical expertise as evidence 5) Control theory and cognitive behavior theory guides model	Limited direction on how patient values/preferences are integrated into the model	1) Assess the healthcare organization for readiness for change and implantation of EBP project. 2) Identify potential and actual barriers to and facilitators of EBP project	3) Identify EBP mentors to work with specific clinical units.	3) Identify EBP mentors to work with specific clinical units. 5) Encompasses research, patient values, and clinical expertise as evidence (not discussed how).	bmjopen-2022-071188 on 22 May 2023. Downloaded from htt. Erasmushogeschool . copyright, including for uses related to text and data mining into practical to text and data mining	5) Evaluate EBP outcomes	yes	yes	no	yes
24 22 23 24 25 26 27 28 ^{Strout} (2009) 29 30 31 32 33 34 35	The clinical scholar model	Model	EBP	Nursing model focused on clinical nurse scholars 1) Observation 2) Analysis 3) Synthesis 4) Application/Evaluation 5) Dissemination.	 Predicated on the development of a cadre of point-of-care nurses who become clinical scholars, committed to patient care, knowledge development, research translation, and evidence implementation. Includes the use of research, EBP, and quality improvement. Depends on creation of EBP mentors and pilot programs. 	Skill development and tools dependent on utilizing workshops to develop EBP Mentors	1) Observation	2) Analysis	3) Synthesis	p://bmjopen.bmj.comg on May 20, 2025 a , Al training, and simaluation (4) Application	5) Dissemination.	yes	yes	yes	yes
36 37 38 39 40 41 42 43 44 45 46				For	peer review (only - http://bi	mjopen.bmj.co	m/site/about	:/guidelines.xh	tt Department GEZ-LTA					8

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IBI	Model	EBP	 Global Health Evidence Generation Evidence Synthesis; Evidence (knowledge) transfer; and Evidence (knowledge) Each of these components is modeled to incorporate their essential elements; and the achievement of improved global health is conceptualized as both the goal and end- point of any or all of the model components and driver of evidence- based healthcare 	1) Utilizes different types of evidence (SR, Guidelines, Expert opinion). Expert opinion also includes patients. 2) Evidence dissemination important part of the model.	User must possess a level of knowledge and related skills to assess evidence	1) Global health (includes knowledge needs)	2) Evidence Generation	3) Evidence Synthesis	njopen-2022-071188 on 22 May 2023 Erasm opyright, includingensfe&r uses related t Implementation uses related t	5) Implementation	yes	yes	yes	yes
CETEP	Model	EBP	1) Define the clinical practice question; 2) Assess the critical appraisal components; 3) Plan the implementation; 4) Implement the practice change; and 5) Evaluate the practice change	Authors reviewed existing literature and models and identified additional components believed to be vital in developing, reviewing, and/or revising patient care practices. 1) Study incorporates Evidence factors, patient factors, and clinical setting factors for the assessment phase. 2) Most robust questions involving patient preference 3) Uses a pilot program for implementation phase of program	Resources available for assessing the literature discussed but determined to be health-system specific	1) Define the clinical practice question;	2) Assess the critical appraisal components;	3) Plan the implementation;	b) Downloaded from http://bmaiopen.bmj.com/ on May 20 ushogeschool . to text and data mining, Al the practice chaining, and similar technol. (4) Implementation in the practice chaining is a second structure of	5) Evaluate the practice change	γes	yes	yes	yes
Johns Hopkins	Model	EBP	 Practice Question: Using a team approach, the EBP question is identified. Evidence: The team searches, appraises, rates the strength of evidence, describes quality of evidence, and makes a practice recommendation on the strength of evidence. Translation: In this stage, feasibility is determined, an action plan is created, and change is implemented 	1) Well- developed tool kit that provides guide for question development, evidence-rating scale, and appraisal guide for various forms of evidence	User must possess a level of knowledge and related skills to assess evidence	1) Practice Question: Using a team approach, the EBP question is identified.	2) Evidence: The team searches, appraises, rates the strength of evidence, describes quality of evidence, and makes a practice recommendation on the strength of evidence.	2) Evidence: The team searches, appraises, rates the strength of evidence, describes quality of evidence, and makes a practice recommendation on the strength of evidence.	3) Translation: In this stage, feasibility is e determined, an action plan is created, and change is implemented and evaluated. Findegs are presented to the healthcare organization	3) Translation: In this stage, feasibility is determined, an action plan is created, and change is implemented and evaluated. Findings are presented to the healthcare organization	yes	yes	yes	yes
	JBI CETEP Johns Hopkins	JBI Model CETEP Model Johns Hopkins Model	JBI Model EBP	JBI Model EBP 1) Global Health JEVidence Synthesis; 3) Evidence (nowledge) transfer; and 4) Evidence JBI Model EBP EBP Components is modeled Lincorporate their essential elements; and the achievement of the achievement of Lincorporate their essential elements; and the achievement of the achievement of Lincorporate their essential elements; and the achievement of the achievement of Lincorporate their essential elements; and the achievement of the achievement of Lincorporate their essential elements; and the achievement of the achievement of Lincorporate their essential elements; and the achievement of the achievement of Lincorporate their essential elements; and the achievement of the achievement of Lincorporate their signal the achievement of the achievement of Lincorporate their signal the achievement of the achievement of Lincorporate their signal the achievement of the achievement of Lincorporate their signal the achievement o	JBI Model EBP 1) Global Health 2) Evidence Servettesis; 3) Evidence Synthesis; 3) Evidence Synthesis; ado includes best optimion. Expert opinion. Expert opinion.	JBI Model EBP 1) Global Health 2) Evidence (swinkleg) transfer, and bividence (swinkleg) transfer, a	JBI Model EBP 1) Obtain Health 1) Endence Generation 3) Buttonce (fromoteling) 1) Utilizes (from order) Each of these Conformation Each of electric Each of the Each HealthConfer Each of the Each HealthConfer Each of the Each HealthConfer Each of electric Each of the Each HealthConfer Each of electric Each of	JBI Model BBP 1 Ordina Heath 1 Stelene strateging is selene strateging is selen	Image: Model Lip Constrained in Processing and interprocessing and interproc	Image: Model I	Instant Instant Instant ins	Image: BMJ Open BMJ Open <t< td=""><td>Image: Book of the second s</td><td>BMJ Open BMJ Open</td></t<>	Image: Book of the second s	BMJ Open BMJ Open

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1 2 3 4 5 6 7 8 9 10				and evaluated. Findings are presented to the healthcare organization						njopen-2022-071188 on 22 May ppyright, including for uses rel					
1 12 13 14 15 16 17 18 19 20 21 22 23 24 5 (2001) 26 27 28 29 30 31 32 33 34 35 36 37 38	Stetler Model	Model	EBP	 Preparation: Identify a priority need. Identify the purpose of the EBP project, context in which the project will occur, and relevant sources of evidence. Validation: Assess sources of evidence for level and overall quality. Determine whether source has merit and goodness of fit and whether to accept or reject the evidence in relation to project purpose. Comparative Evaluation/Decision Making: Evidence findings are logically summarized and similarities and differences among sources of evidence are evaluated. Determine whether it is acceptable and feasible to apply summarized findings to practice. Translation/Application: Develop the "how to's" for implementation of summarized findings. Identify practice implications that justify application of findings for change. Evaluation: Identify expected outcomes of the project and determine whether the goals of EBP were successfully achieved. 	1) Designed to encourage critical thinking about the integration of research findings 2) Promotes use of best evidence as an ongoing practice that is also fluid 3) Allows for categorization of evidence as external (e.g., organization outcome data) 4) Emphasizes use by single practitioner but may include groups of practitioners or other stakeholders	Primary focus is single practitioner Patient value/preference not clearly integrated into model User must possess a level of knowledge and related skills	Specific about the need for clarity of purpose and potential significance of internal or external factors.	Validation: Assess sources of evidence for level and overall quality. Determine whether source has merit and goodness of fit and whether to accept or reject the evidence in relation to project purpose.	Validation: Assess sources of evidence for level and overall quality. Determine whether source has merit and goodness of fit and whether to accept or reject the evidence in relation to project purpose. comparative Evaluation/Decision Making: Evidence findings are logically summarized and similarities and differences among sources of evidence are evaluated. Determine whether it is acceptable and feasible to apply summation of findings to practice.	Y 2023. Downloaded from http:///in: Erasmushogeschool . lated to text and data mining, Al Balanta and the mining and the management of the	Evaluation: Identify expected outcomes of the project and determine whether the goals of EBP were successfully achieved.	по	no	no	yes
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1 2 3 4 5 6 7 8 9 ^{Moodie} (2011) 1 0 1 1 1 2 1 3 1 4 1 5 1 4	KTA	Framework	KT	 Identify problems that need to be addressed and begin searching for evidence and research about the identified problem. Adapt the knowledge use to a local context. Identify barriers to use of knowledge. Select, adapt, and implement interventions. Monitor the use of implanted knowledge. Evaluate outcomes related to knowledge use. Sustain appropriate knowledge use. 	1) Adapts well for use with individuals, teams, and healthcare organizations 2) Is grounded in planned action theory 3) Breaks knowledge-to- action process into manageable sections. 4) Discussion of providing evidence in a way that influences clinical practice, stakeholders, and end-users in a way to promote uptake of knowledge	Patient values/preferences not clearly integrated into model User must possess a level of knowledge and related skills for knowledge creation	1) Identify problems that need to be addressed and begin searching for evidence and research about the identified problem.	1) Identify problems that need to be addressed and begin searching for evidence and research about the identified problem.	1) Identify problems that need to be addressed and begin searching for evidence and research about the identified problem. 2) Adapt the knowledge use to a local context.	njopen-2022-07118& on 22 May 2023. Downlo pyright, including being to text an 3) Identify believes related to text an implement intervention	5) Monitor the use of implanted knowledge. 6) Evaluate outcomes related to knowledge use. 7) Sustain appropriate knowledge use.	yes	no	no	yes
17 18 19 20 21 22 23 24 25 26 27 28 Janati (2018) 29 30 31 32 33 34 35 36 37 38 39 40	EBMgt	Model	EBMgt	Approach to improve the practice of health care management, at the same time as it may stimulate research on the organization and management of health care. Evidence Based Management means that healthcare managers should learn to search for and critically appraise evidence from management research as a basis for their practice Phase 1: 1) asking; 2) acquiring; 3) appraising; 4) aggregating; 5) applying 6) assessing. Phase 2: predictors, barriers, training organizations and research institutes	 There are methodological differences between medical research and management research. Evidence focuses more on qualitative evidence. The evidence based approach means to try to prove or disprove the effectiveness and efficiency of different models of organization and management. Sources of evidence: a) Scientific and research b) Facts & information of hospital c) Political-social development plans d) Manager's professional expertise e) Ethical-Moral Evidence f) Value and expectations of all stakeholders 	User must possess a level of knowledge and related skills for assessing literature, Model discusses this lack of skill Lack of time and skill is the major limiting factor Lack of specifics on patient value/preference discussed	1) Asking	2) Acquire	3) Appraising	daded from http://bmjopen.bmj.com/ on May 20, 2025 at Department school . hd data mining, Al training, and signilar technologies. (4) Aggregati (4) applying	6) Assessing	yes	no	no	yes
41 42 43 44				For	peer review	only - http://b	miopen bmi co	m/site/about	t/auidelines vh	GEZ-LTA					11

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1 2 3 4 5 6 4 (2009) 7 8 9 10 10	Adopted from Iowa model 1. Area of interest 2. Collect the most relevant and best evidence. 3. Critically appraise the evidence. 4. Integrate the evidence with one's clinical expertise, patient preferences, and values in making a practice decision or change. 5. Evaluate the practice	Patient preference not clearly integrated into model. Provides a general overview of assessing literature without specifics direction or tools	1) area of interest	2) Collect the most relevant and best evidence	3) Critically appraise the evidence.	Jopen-2022-071188 pyright, ite evidence widone's on 22 May and values gractices patient prefences on patient prefences on patient prefences on (Pilot changes relations)	5. Evaluate the practice decision or change. (Adopt based on Pilot)	yes	no	no	yes
12 1 13 The I3 14 Model for Advancing 15 Hagle (2019) 16 Centered 17 Care 18	1) Inquiry, 1) Model focuses 2 Improvement 3) Innovation. Inquiry encompasses research needs. research, Improvement includes a step to obtain projects, and innovation obtain pre-data and best or best evidence evidence projects. 3) The I3 Model	Tools provided for QI process but not for assessing literature. User must possess a level of knowledge and related skills for assessing literature (not specified)	1) Inquiry	1) inquiry	1) inquiry	2023. Downloaded fr rasmushogeschool ated to texe and data 2) improvement	2) improvement	yes	no	no	no
1 20 20 21 21 22 23 24 25 26 27 28 29 Model for Change to Evidence Based Practice 31 32 33 34 35 36 37 38 39 40	1) The model is based on theoretical and research literature related to evidence- based practice; 2) Approximate the problem with outcome in- dictators; 3) Summarize the best scientific evidence (systematic review) considering feasibility, benefits and risks for its including the practice, including the necessary resources; 5) Implement and evaluate change (inform if a pilot study is conducted); 6) Integrate and maintain change in practice (communicate results).1) The model is based practice, research utilization, stababalantic review) change theory. 2) The model inguementation; 4) Develop a plan for changing the practice, including the necessary resources; conducted); 6) Integrate and maintain change in practice (communicate results).2) The model supports evidence-based evidence-based derived from a combination of supports evidence. (Assessment worksheet provided and risk and benefit discussed) 3) Recommends the creation of EBP Team of stakeholders and implementation should be piloted	Patient values/preferences not clearly integrated into model	1) Identify the need to change practice; 2) Approximate the problem with outcome in- dictators;	Summarize the best scientific evidence (systematic review) considering feasibility, benefits and risks for its implementation;	Summarize the best scientific evidence (systematic review) considering feasibility, benefits and risks for its implementation; (Evidence worksheet provided)	4) Develop a clan for changing the ractices including the ractices including the ractices including the accessive resources; Si Implementation (inform if a for study is conducted) (inform if a for study is conducted) (inform if a for study results to strategic leaders); leaders);	7) Monitor implementation (evaluate process and results).	yes	no	no	yes
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1 2 3 4 5 6 7 Hess (2014) 8 9 1 0 1 1 1 2 1 2 1 1 1 1 1	Evidence Based Public Health	Model	ЕВРН	Steps: 1. community assessment 2) Quantifying the issue 3) Developing a concise statemen of the issue 4) Determine what is known through the literature 5) Developing and prioritizing program and policy options 6) Developing an action plan and implementing interventions 7) Evaluating the program or policy	1) EBPH incorporates a framework with less emphasis on evidence hierarchy and more emphasis on knowledge translation 2) Evidence: Qualitative and quantitative, Evidence analysis has the least consensus. 3) Focuses on matching question to research type.	Lack of consensus on evidence analysis and hierarchy Public health models different from medical models so concepts of public preference not discussed but is focused on health outcomes.	 community assessment Quantifying the issue Developing a concise statement of the issue 	4) Determine what is known through the literature	4) Determine what is known through the literature	njopen-2022-071 s) Developing and policy of the second sec	 5) Developing and prioritizing program and policy options 6) Developing an action plan and implementing interventions 7) Evaluating the program or policy 	no	no	no	no
1 B 1 4 1 5 1 6 1 7 1 8 1 9 2 0 2 1 2 2 2 3 2 4 Kring (2008) 2 5 2 6 2 7 2 8 2 9 3 0 3 1 3 2 3 3 3 4 3 5	ACE Star Model	Model	EBP	 Discovery: This stage involves searching for new knowledge found in traditional qualitative and qualitative and qualitative and qualitative and qualitative and qualitative and qualitative and qualitative and qualitative and qualitative methodologies. Evidence Summary: The primary task is to synthesize the body of research knowledge into a meaningful statement of evidence for a given topic. This is a knowledge-generating stage, which occurs simultaneously with new findings that may arise from the synthesis. Translation: The aim of translation is to provide clinicians with a practice document (e.g., clinical practice guideline) derived from the synthesis and summation of research findings. Integration: Practitioner and healthcare organization practices are changed through formal and informal channels. Evaluation: An array of EBP outcomes are evaluated on impact, quality, and satisfaction. 	1) Promotes discovery of evidence through systematic reviews 2) Promotes transition of evidence through guideline creation 2) Includes use of qualitative evidence 3) Primary goal of model is knowledge transformation 4) Expertise and patient preference is considered another form of evidence 5) Identifies factors that impact adoption of innovation	Patient values/preference not clearly integrated into model (pt. satisfaction measured) Simple overview of each step with limited resources discussed	1) Discovery: This stage involves searching for new knowledge found in traditional quantitative and qualitative methodologies.	1) Discovery: This stage involves searching for new knowledge found in traditional quantitative and qualitative methodologies.	3) Translation: The aim of translation is to provide clinicians with a practice document (e.g., clinical practice guideline) derived from the synthesis and summation of research findings.	 23. Downloaded from http://bmjon.com/ on May 20, 2025 at mushogeschool . to text and data mining, Al traid anization practices are and data mining, Al traid nealthcare and similar technologies. 4) Integration for an and similar technologies. 	5) Evaluation: An array of EBP outcomes are evaluated on impact, quality, and satisfaction.	no	no	no	no
36 37 38 39 40 41 42 43 44 45 46				For	peer review o	only - http://b	mjopen.bmj.cc	m/site/about	/guidelines.xh	Department GEZ-LTA					13

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1 2 3 4 5 6 7 8 9 10 vincenten 11 (2019) 12 13 14 15 16 17 18 19	An Evidence Implementation Model for Public Health Systems	Model	Impl	Not a linear model 1) Circle 1 Evidence implementation target 2) Circle 2 Actors involved in implementation 3) Circle 3 Knowledge transfer 4) Circle 4 Barriers and facilitators to evidence implementation	1) Broad framework to developed to help decision makers, researchers, knowledge brokers and implementers identify opportunities to strengthen needed action 2) Includes setting measurable evidence implementation targets 3) Includes all actors in all stages of knowledge transfer to increase shared aim and reduce barriers 4) Model is broad with diverse implementation	Provides a general overview without specifics Public health models different from medical models so concepts of public preference not discussed No specifics of how to assess literature	1) Circle 1 Evidence implementation target	3) Circle 3 Knowledge transfer	3) Circle 3 Knowledge transfer	bmjopen-2022-071188 on 22 Maryce2023. Downloaded from copyright, including for uses involved in the second second second involved in the second secon	2) Circle 2 Actors involved in implementation 4) Circle 4 Barriers and facilitators to evidence implementation	no	no	no	no
20 21 22 23 24 25 26 27 28 29 ^{Ecoff (2020)} 30 31 32 33 34 35 36 37	San Diego 8A's EBP Model	Model	EBP	The 8 A's refer to: 1) Assessing a clinical or practice problem; 2) Asking a clinical question in a PICOT (population/patient, implementation, comparison, outcome, and time) format; 3) Acquiring existing sources of evidence; 4) Appraising the levels of evidence; 5) Applying the evidence to a practice change (implementation 6) Analyzing the results of the change as compared to the practice change through implementation state 7) Advancing the practice change through internal and external dissemination 8) Adopting the practice for sustainability over time.	 Model was created to make it easier for nurses to complete EBP projects. The San Diego 8A's EBPI model was derived primarily from previously published models Change Theory part of the model Utilizes mentors to implement 	No specifics on Patient preference/value incorporation User must possess a level of knowledge and related skills for assessing literature (not specified)	1) Assessing a clinical or practice problem; 2) Asking a clinical question in a PICOT (population/patient, implementation, comparison, outcome, and time) format;	3) Acquiring existing sources of evidence;	Appraising the levels of evidence;	i http://bmjopen.bmj.cong/ on May 20, 2025 at Depa ling, Al training, and signaturechnologies.	6) Analyzing the results of the change as compared to the previous implementation state 7) Advancing the practice change through internal and external dissemination 8) Adopting the practice for sustainability over time.	no	no	no	no
38 39 40 41 42 43 44 45 46	·	·		For	peer review o	only - http://bi	mjopen.bmj.co	m/site/about	:/guidelines.xh	tml					14

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1 2 3 4 5 6 7 8 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	D 1 2 ^{Olade (2004)} 3 4 5 5 7 8 9 0 1	Tyler Collaborative Model for EBP	Model	EBP	Phase One: Unfreezing 1) Building relationships 2) Diagnosing the Problem 3) Acquiring Resources Phase Two: Moving 4) Choosing the Solution 5) Gaining Acceptance Phase Three: Refreezing 6) Stabilization	Model focuses on barriers of nurses to implement EBP: 1) Difficulty of practicing nurses to synthesize scientific evidence, and 2. Lack of adequate administrative commitment to make evidence- based nursing a priority. EBP Consultants should be funded to work with the EBP round table (EBP group) Model discusses the need to put the same emphasis currently given to conducting research on the provision of consultation services for the translation of research into practice.	No mention of patient preference/value	2) Diagnosing the Problem	3) Acquiring Resources	4) Choosing the Solution	njopen-2022-071188 on 22 May 2023. Downloaded from http://br Erasmushogeschool . pyright, including for uses related to text and data mining, Al tr ^{S) Gaining}	6) Stabilization	no	no	no	no
	3 4 5 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	The Practice Guidelines development Cycle	Framework	EBP	 Select/Frame clinical problem Generate evidence- based recommendations Ratify EBR Formulate practice guideline Independent review Negotiate practice policies Adopt guideline policies Scheduled review 	 Original EBP Model developed to create clinical guidelines. Framework recommends facilitator to assign tasks and manage advancement Appropriate structure needs to be in place for framework to succeed Cycle tolerates discordance between EBR and clinical guidelines and bw guidelines and institutional polices but requires documentation 	No mention of patient preference/value User must possess a level of knowledge and related skills for assessing literature (not specified)	1) Select/Frame clinical problem	2) Generate evidence-based recommendations	2) Generate evidence-based recommendations	aining, and similar tee review 20, 2025 at Department 3) Ratify EBE action 4) Formulait received action 5) Independent action policies 7) Adopt guid gies.	8) Scheduled review	no 12/19	no 7/19	no 4/19	no
4	b								tools		nt o		(63%)	(37%)	(21%)	
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Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for

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SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTE
TITLE			ON PAGE
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	2
INTRODUCTION			
·		Describe the rationale for the review in the context of	
Rationale	3	what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	3
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	4
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	Not done
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	4
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	5
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	5
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	5
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	6
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	6
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	6

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.6	6
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	6
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	6-7
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	6-7
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	6-8
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	6-8
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	8
Limitations	20	Discuss the limitations of the scoping review process.	10
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	11
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	18

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where sources of evidence (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with information sources (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.