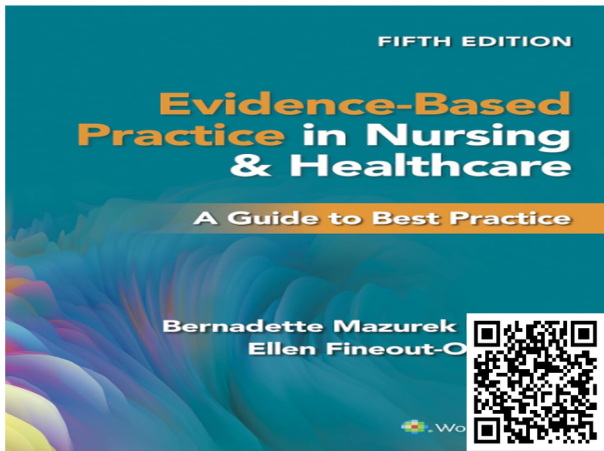


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FIFTH EDITION

Evidence-Based Practice in Nursing & Healthcare

A Guide to Best Practice

**Bernadette Mazurek Melnyk
Ellen Fineout-Overholt**

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Dedication

I dedicate this book to my loving family, who has provided tremendous support to me in pursuing my dreams and passions: my loving husband, John; and my three wonderful daughters, Kaylin, Angela, and Megan; as well as to my father, who always taught me that anything can be accomplished with a spirit of enthusiasm and determination, and my sister Chris, who taught me to “just get out there and do it!” It is also dedicated to all of the committed healthcare providers and clinicians who strive every day to deliver the highest quality of safe evidence-based care.

Bernadette Mazurek Melnyk

My family is my continual inspiration for this work—I dedicate this fifth edition to Wayne, my husband, Rachael and Ruth, my precious daughters, and my dear mom, Virginia. I pray daily that each of you will encounter the kind of evidence-based healthcare we all deserve. Also, I dedicate this fifth edition to the hard-working healthcare professionals who daily provide evidence-based care in any setting—primary care, community/public health, schools, acute and long-term care.

Ellen Fineout-Overholt

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Foreword

Like many of you, I have appreciated healthcare through a range of experiences and perspectives. As someone who has delivered healthcare as a combat medic, paramedic, nurse, and trauma surgeon, the value of evidence-based practice is clear to me. Knowing what questions to ask, how to carefully evaluate the responses, maximize the knowledge and use of empirical evidence, and provide the most effective clinical assessments and interventions are important assets for every healthcare professional. The quality of U.S. and global healthcare depends on clinicians being able to deliver on these and other best practices.

The National Academy of Medicine (formerly the Institute of Medicine) calls for all healthcare professionals to be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics. Although many practitioners support the use of evidence-based practice, and there are indications that our patients are better served when we apply evidence-based practice, there are challenges to successful implementation. One barrier is knowledge. Do we share a standard understanding of evidence-based practice and how such evidence can best be used? We need more textbooks, resources, and other references that clearly define and provide a standard approach to evidence-based practice.

Another significant challenge is the time between the publication of research findings and the translation of such information into practice. This challenge exists throughout public health. Determining the means of more rapidly moving from the brilliance that is our national medical research to applications that blend new science and compassionate care in our clinical systems is of interest to us all.

As healthcare professionals who currently use evidence-based practice, you recognize these challenges and others. Our patients benefit because we adopt, investigate, teach, and evaluate evidence-based practice. I encourage you to continue the excellent work to bring about greater understanding and a more generalizable approach to evidence-based practice.

Richard H. Carmona, MD, MPH, FACS
17th Surgeon General of the United States

Preface

Overview of This Book

Now, more than ever, we need to embrace that evidence-based practice (EBP) is key to improving healthcare practices. It improves the patient experience through providing high-quality and safe care, enhances patient outcomes, reduces costs, and empowers clinicians, leading to higher job satisfaction, and facilitating actualization of the quadruple aim in healthcare. Clinicians at point-of-care to the executive suite who address issues from an evidence-based lens will be successful in moving healthcare forward. The COVID-19 pandemic offered us unprecedented challenges, and healthcare professionals rose to meet those challenges head on. Yet, we have a bit to go before we are on our feet again. EBP, evidence-based quality improvement and research will serve us well as we gain our footing—better than before. Making EBP the problem-solving standard in healthcare means that we:

- Regularly collect QI data to inform us about the structures and processes influencing the success of clinical outcomes so we can intervene in a timely fashion.
- Actively understand how to incorporate published interventions/treatments that have resulted in positive outcomes for patients and healthcare systems into our daily practice.
- Thoughtfully value clinician expertise—clinical reasoning, clinical judgment, and clinical experience.
- Intentionally incorporate patient-valued preferences into care.
- Consistently evaluate outcomes and use those data to improve our practices.

We have reimagined this fifth edition of our book to address these issues and many others. To get the most out of this book, we recommend that learners read this book, *then read it again*, engage in the online resources, the appendices, the glossary...*then read it again*. It is chock-full of comprehensive yet practical evidence-based information that can help learners of all disciplines, roles, and educational levels discover how to be the best clinicians and clinician scholars. We hope you find that perfect EBP pearl that is just the right information you need to take the next step in your EBP journey toward delivering best care!

Purpose

The purpose of *Evidence-Based Practice in Nursing & Healthcare* has never changed. The purpose of this edition, as with the last four, is to incorporate what we have learned across the years to provide information and resources that can facilitate clinicians' speedy translation of research findings into practice, as well as their use of practice data to consistently improve care and document important outcomes, no matter the clinician's healthcare role. Each edition has provided additional features and resources for readers to use in their journey to become evidence-based clinicians. Since the first

book was published, there has been continual progress in the adoption of EBP as the standard of care; however, there is still much work to be done for EBP to *the* paradigm used in daily clinical decision making by point-of-care providers. Clinicians' commitment to excellence in healthcare through the intentional integration of research findings into practice while including patients in decisions remains a daunting endeavor that will take years to decades to achieve. Therefore, increased efforts across the healthcare industry are required to provide a culture that fosters empowered point-of-care clinicians with the knowledge, skills, attitudes, and resources they need to deliver care that demonstrates improved healthcare system, clinician, and patient outcomes.

We will always believe that anything is possible when you have a big dream and believe in your ability as a healthcare community to accomplish that dream. Our vision has always been that healthcare will be transformed by consistently implementing EBP in any setting through one client–clinician encounter at a time. We are committed to doing what we can to make this the daily experience of both patients and care providers. This commitment has underpinned our sheer persistence through many “character-building” experiences to write and edit this book across five editions, intentionally focusing on keeping every edition user-friendly and aimed at providing a guide for all transdisciplinary healthcare professionals as they strive to deliver the highest quality evidence-based care.

The fifth edition of this book has been reimagined and revised to further assist healthcare providers with implementing and sustaining EBP in their daily practices and to foster a deeper understanding of the principles of the EBP paradigm and process. In working with healthcare systems and clinicians throughout the nation and globe as well as conducting research on EBP, we continue to work toward successful strategies to advance and sustain evidence-based care. The new material throughout the book, including a new chapter on applying implementation science to clinical practice settings, reimagined chapters that include the best and latest evidence, and new tools to advance implementation and evaluation of the EBP process are included so that clinicians can use them to help with daily evidence-based decision making.

Worldview

A solid understanding of the EBP paradigm, or worldview, is the first mastery milestone for readers of this EBP book. The next milestone is using the paradigm as the foundation for making clinical decisions with patients. This worldview frames why rigorously following the steps of the EBP process is essential, clarifies misperceptions about implementing evidence-based care, and underpins practical action strategies that lead to sustainable evidence implementation at the point of care. It is our dream that the knowledge and understanding gained from thoughtfully and intentionally engaging the contents of this book will help clinicians across the country and globe accelerate adoption of the EBP paradigm and process until evidence-based care is the lived experience for clinicians, patients, and health professions students across various healthcare settings and educational institutions.

Features and Resources for This Edition

The book contains vital, usable, and relatable content for all levels of practitioners and learners, with key exemplars that bring to life the concepts within the chapters. Each unit begins with “Making Connections: An EBP Exemplar.” This unfolding case study serves as a model or example of EBP in real-life practice. Faculty can assign this unit exemplar before learners engage in that unit’s content. In this story, the characters in the healthcare team use the information within the unit’s chapters to carry out the steps of the EBP process, leading to an evidence-based change that improves the quality and safety of care. The characters in the case study may be fictional, but each unit exemplar is based on an important quality indicator that healthcare has yet to conquer (i.e., hospital falls). By walking through each step of the EBP process, readers can better understand how they can use the EBP process in their clinical practice or educational setting to improve outcomes. Readers may wish to refer back to the exemplar as they are reading through the chapters to see how the healthcare team used the information they are learning. Furthermore, it is recommended that readers follow the team as they make evidence-based decisions across the units within the book. To further facilitate learning, there are online resources that readers are encouraged to access as well as resources within the appendices of the book that are used in the exemplar. By accessing them and reading the exemplar, readers have the opportunity to see how the team uses these resources in evidence-based decision making.

Our unit-ending feature, “Making EBP Real: A Success Story,” has been updated and continues to provide real-life examples that help readers to see the principles of EBP applied. Readers can explore a variety of ways that the steps of the EBP process were used in real EBP implementations. Clinicians who desire to stimulate or lead change to a culture of EBP in their practice sites can discover in both of these unit-level features how functional models and practical strategies to introduce a change to EBP can occur, including overcoming barriers in implementing change, evaluating outcomes of change, and moving change to sustainability through making it standard of care.

To help recognize that knowledge and understanding of EBP terms and language is essential to adopting the EBP paradigm, a list of *EBP Terms to Learn* has been placed at the beginning of each unit and each chapter as a feature, and these terms are bolded within the chapter, a reinforcement of the importance of their meaning to understanding EBP. Readers can review terms in the glossary before and while reading the chapters so that they can readily assimilate content. Furthermore, learning objectives are provided at the unit and chapter level to continue to reinforce important concepts and offer the opportunity for readers to quickly identify key chapter content. EBP Fast Facts is an important feature at the end of each chapter that offers readers some of the most important pearls of wisdom from the chapter that readers will want to make sure they mastered as takeaways. These elements in our fifth edition will help learners master the terminology of EBP and identify important content for developing EBP competence.

Searching for evidence has remained a barrier to EBP for almost 20 years. Chapter 3 has been reimagined using a Searching Worksheet to structure the chapter content. Readers are encouraged to download the blank template that can be found online and

do the search along with the strategies in the chapter. This is designed to help learners gain mastery in this essential skill. Chapter 5 speaks to the context that clinician expertise and patient-valued preferences provide for evidence appraisal and translation. Chapters 6 and 7 have been reimagined in numbered sections for easier consumption and assignment in a formal educational setting. Information about critical appraisal of mixed methods is new to Chapter 7 as well as Walk the Walk and Talk the Talk Appendix that can be found on . Chapter 10 has new content to foster a critical understanding of the importance of QI principles and methods, particularly in describing a clinical issue and in evaluating evidence implementation. Chapter 15 is about implementation science and was added to this fifth edition since we are learning more all the time about what it takes to advance EBP. All chapters throughout the book have been updated and refined to incorporate the best and latest evidence on each topic. For faculty, Chapters 18 and 19 focus on teaching EBP in academic and clinical settings, respectively. Chapter 18 can help faculty parse teaching the EBP process across academic learning degrees (i.e., BSN–PhD), making the most of the informatics tools we have to make the learning real and relevant. Educators are encouraged to review the online resources that can facilitate teaching EBP in both academic and clinical settings.

Further resources for readers of the book include appendices that help learners master the process of evidence-based change, such as sampling of rapid critical appraisal checklists (be sure to check online at for the full complement of downloadable rapid critical appraisal checklists in Word). There are sample instruments to evaluate EBP in both educational and clinical settings, a template for asking PICOT questions, and more. Some appendices appear only online, including an ARCC model EBP mentor role description, examples of a health policy brief, a press release, and an approved consent form for a study. More details about the great resources available online can be found below.

Organization of the Book

As in prior editions, the Table of Contents is structured to follow the steps of EBP:

- Unit 1 contains Chapters 1 to 3 that focus on steps 0, 1, and 2 of the EBP process. Mastery of the essential knowledge and skills in this unit helps learners build a strong foundation for actualizing EBP. Check out the content updates in this new edition.
- Unit 2 contains Chapters 4 to 8 that delve deeply into critical appraisal, step 3 of the EBP process. Chapter 5 sets clinician expertise and patient-valued preferences as the context for engaging the four-phased critical appraisal of evidence that is applied to quantitative, qualitative, and mixed methods studies. The content of Chapter 6 is divided into sections to accommodate easier understanding of the complex work of critical appraisal of quantitative evidence. Chapter 7 focuses on gaining knowledge and skills in critical appraisal of qualitative and mixed methods studies. Chapter 8 focuses on critical appraisal and implementation of clinical practice guidelines.
- Unit 3 contains Chapters 9 to 12 that provide knowledge, skills, and tools to move readers from an evidence-based recommendation to strategic implementation of sustainable practice change, Step 4 and 5 of the EBP Process. Chapter 10 features knowledge and skills about the structures, processes, and outcomes of quality improvement. Chapter 11 describes the context, content, and outcomes of implementing EBP competencies in clinical and academic settings. Chapter 12 rounds out this Unit with leadership strategies for advancing EBP within organizations.
- Unit 4 takes readers to the next phase in Steps 4 and 5, which is creating and sustaining a culture of EBP. The integration of EBP models in organizations provides essential guidance for evidence-based decision making

(Chapter 14). Part of advancing a culture of EBP is building knowledge and skills about EBP. ARCC EBP mentors are key to sustaining an EBP culture as they make the EBP paradigm and process understandable for those they influence and work with, which is the focus of Chapter 16. New content and resources have been provided for educators in academic and clinical settings to teach EBP (Chapters 18 and 19, respectively).

- Unit 5 features information to facilitate Step 6 of the EBP process. Chapter 20 focuses on health and organizational policy. In today's political climate, nurses, and healthcare professionals with an understanding of how to ensure sustainable change can influence the formulation of policies governing healthcare that are fully supported by the latest and best evidence. Further information in Chapter 21 offers guidance on disseminating evidence.
- Unit 6 shifts from evidence translation to evidence generation. Chapter 22 focuses on methods for the conduct of qualitative and quantitative research in a way that enhances understanding of important concepts and makes the information more accessible to learners. Chapter 24 guides consideration of ethics issues for implementing EBP and conducting research.
- The appendices are essential to readers successfully engaging this book. There are several appendices online as well as at the back of the book. The glossary is one of the best resources within this book. Language matters and readers who use the glossary liberally to understand and master EBP language can enhance their fluency and influence to advance EBP.

Often, educators teach by following chapters in a textbook through their exact sequence; however, we recommend using chapters of this fifth edition that are appropriate for the level of the learner (e.g., associate degree, baccalaureate, master's, doctoral). For example, we would recommend that associate degree students benefit from Units 1, 3, and 4. Curriculum for baccalaureate learners can integrate all units; however, we recommend primarily using Units 1 to 4, with Unit 5 as a resource for understanding more about research terminology and methods as readers learn to critically appraise evidence. Master's and doctoral programs can incorporate all units into their curricula. Advanced practice clinicians and doctorally prepared clinical experts will be able to lead in implementing evidence in practice, thoughtfully evaluate outcomes of practice, and move to sustainable change, whereas those learning to become researchers will understand how to best build on existing evidence to fill gaps in knowledge with valid, reliable research that is clinically meaningful.

An important resource for educators to use as a supplement to this EBP book is the *American Journal of Nursing* EBP Step-by-Step series, which provides a real-world example of the EBP process from step 0 through 6. We recommend this series as a supplement because the series was written to expose readers to the EBP process in story form, but used alone it does not provide the level of learning to establish competence in evidence-based care. In the series, a team of healthcare providers encounters a challenging issue and uses the EBP process to find a sustainable solution that improves healthcare outcomes. If educators choose to use this series, we caution on using it as the sole source for learning about EBP. Rather, assigning the articles to be read before a course begins or in tandem with readings from this book that match the article being read provides a complete learning opportunity, including context and adequate content for competence—the goal of learning about EBP, regardless of the learner's level of education or clinical practice. For example, the first three chapters of the book could be assigned along with the first four articles, in an academic or clinical setting. The learners could use discussion boards or face-to-face group conference-type settings to discuss how the team used the content the learners studied within the chapter, allowing educators opportunity for evaluation of content mastery (see suggested curriculum strategy at this book's companion website on <http://thepoint.lww.com/Melnyk5e>).

Multiple approaches are offered for educators and learners to engage EBP content, and, in doing so, we believe that this book continues to facilitate changes in how research concepts and critical appraisal are being taught in clinical and academic professional programs throughout the country.

Features

This edition of *Evidence-Based Practice in Nursing & Healthcare* includes many features that readers have come to expect and appreciate. These features are designed to benefit both learners and educators:

- **Making Connections: An EBP Exemplar:** Opening each unit, this story walks readers through the EBP process in an unfolding case study that is applicable to a real-time important practice issue.
- **EBP Terms to Learn:** Each unit and chapter includes a list of the key terms discussed or defined in the chapter that are to help students build familiarity with the language and terminology of EBP.
- **Learning Objectives:** Each unit and chapter begins with learning objectives, to help learners focus on key concepts.
- **Clinical Scenarios** describe a clinical case or a supervisory decision clinicians could encounter in clinical practice, prompting readers to seek out best evidence and determine a reasonable course of action.
- **Quotes:** As proponents of cognitive-behavioral theory, which contends that how people think directly influences how they feel and behave, we firmly believe that how an individual thinks is the first step toward or away from success. Therefore, **inspirational quotes** are intertwined throughout our book to encourage readers to build their beliefs and abilities as they actively engage in increasing their knowledge and skills in EBP to accomplish their desired learning goals.
- **Link boxes:** With the rapid delivery of information available to us, link boxes direct readers to helpful internet resources and sites that can be used to further develop EBP knowledge and skills.
- **EBP Fast Facts** act as a chapter-closing feature, highlighting important points from each chapter. Reviewing these pearls can help readers know if they retained the important concepts presented within the chapter.
- **Making EBP Real:** A successful real-world case story emphasizing applied content from each unit.

Additional Resources on thePoint®

Evidence-Based Practice in Nursing & Healthcare, fifth edition, includes additional resources for both learners and educators that are available on the book's companion website at <http://thepoint.lww.com/Melnyk5e>.

Learner Resources Available on thePoint®

Learners who purchase *Evidence-Based Practice in Nursing & Healthcare*, fifth edition, have access to the following additional online resources:

- **Appendices online** include:
 - I—Rapid Critical Appraisal Checklists
 - J—Walk the Walk and Talk the Talk Guide to Critical Appraisal of Studies
 - K—Sample Policy Brief
 - L—Sample Press Release
 - M—Sample Approved Informed Consent
 - N—ARCC Model EBP mentor role description
 - O—Long Versions of Instruments to Evaluate EBP in Clinical Settings
- **Learning Objectives** for each chapter
- **A searching worksheet** to help develop mastery of systematic searching.
- **Rapid critical appraisal checklists** in MS Word format include checklists for rapid critical appraisal, conducting an evidence review, or holding a journal club; sample templates for PICOT questions and for evaluation and synthesis tables; an ARCC model EBP mentor role description; and more.

- **Journal articles** corresponding to book chapters to offer access to current research available in Wolters Kluwer journals.
- The *American Journal of Nursing EBP Step-by-Step Series*, which provides a real-world example of the EBP process as a supplement to learning within the EBP book.
- An example of a poster (to accompany Chapter 21).

See the inside front cover of this book for more details, including the passcode you will need to gain access to the website.

Educator Resources Available on thePoint®

Approved adopting instructors will be given access to the following additional resources:

- An **eBook** allows access to the book's full text and images online.
- **Test generator** with updated NCLEX-style questions. Test questions link to chapter learning objectives.
- Additional **application case studies and examples** for select chapters.
- **PowerPoint presentations**, including multiple choice questions for use with interactive clicker technology.
- An **image bank**, containing figures and tables from the text in formats suitable for printing, projecting, and incorporating into websites.
- Access to all learner resources.

Comprehensive, Integrated Digital Learning Solutions

We are delighted to introduce digital solutions to support educators and learners using *Evidence-Based Practice in Nursing & Healthcare*, Fifth Edition. Now for the first time, our textbook is embedded into an integrated digital learning solution that builds on the features of the text with proven instructional design strategies. To learn more about this solution, visit <http://nursingeducation.lww.com/>, or contact your local Wolters Kluwer representative.

Lippincott CoursePoint

Lippincott® CoursePoint is an integrated, digital curriculum solution for nursing education that provides a completely interactive experience geared to help students understand, retain, and apply their course knowledge and be prepared for practice. The time-tested, easy-to-use, and trusted solution includes engaging learning tools, case studies, and in-depth reporting to meet students where they are in their learning, combined with the most trusted nursing education content on the market to help prepare students for practice. This easy-to-use digital learning solution of *Lippincott® CoursePoint*, combined with unmatched support, gives instructors and students everything they need for course and curriculum success!

Lippincott® CoursePoint includes:

- Engaging course content provides a variety of learning tools to engage students of all learning styles.
- Personalized learning helps students learn the critical thinking and clinical judgment skills needed to help them become practice-ready nurses.
- Unparalleled reporting provides in-depth dashboards with several data points to track student progress and help identify strengths and weaknesses.

- Unmatched support includes training coaches, product trainers, and nursing education consultants to help educators and students implement CoursePoint with ease.

A Final Word From the Authors

As we have the privilege of meeting and working with clinicians, educators, and researchers across the globe to advance and sustain EBP, we realize how important our unified effort is to world health. We want to thank each reader for your investment of time and energy to learn and use the information contained within this book to foster your best practice. Furthermore, we so appreciate the information that you have shared with us regarding the benefits and challenges you have had in learning about and applying knowledge of EBP. That feedback has been instrumental to improving the fifth edition of our book. We value constructive feedback and welcome any ideas that you have about content, tools, and resources that would help us to improve a future edition. The spirit of inquiry and life-long learning are foundational principles of the EBP paradigm and underpin the EBP process so that this problem-solving approach to practice can cultivate an excitement for implementing the highest quality of care. As you engage in your EBP journey, remember that it takes time and that it becomes easier when the principles of this book are placed into action with enthusiasm on a consistent daily basis.

As you make a positive impact at the point of care, whether you are first learning about the EBP paradigm, the steps of the EBP process, leading a successful, sustainable evidence-based change effort, or generating evidence to fill a knowledge gap or implement translational/implementation science methods, we want to encourage you to keep your dreams alive and, in the words of Les Brown, “Shoot for the moon. Even if you miss, you land among the stars.” We hope you will continue to ask yourself this important question along your career journey: “In the next 5 to 10 years, what will you do if you know you cannot fail?” as we need to dream it before we can do it. Keep dreaming, discovering, and delivering a brighter future for healthcare and population health outcomes through EBP!

We hope you are inspired by and enjoy the following EBP rap.

*Evidence-based practice is a wonderful thing,
Done with consistency, it makes you sing.
PICOT questions and learning search skills;
Appraising evidence can give you thrills.
MEDLINE, CINAHL, PsycInfo are fine,
But for Level I evidence, Cochrane is divine!
Though you may want to practice the same old way
“Oh no, that’s not how I will do it,” you say.
When you launch EBP in your practice site,
Remember to eat the dark chocolate elephant, bite by bite.
So dream big and persist in order to achieve and
Know that EBP can be done when you believe!*

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Bernadette Mazurek Melnyk

We have experienced the worst of times over the past few years with the pandemic, and we have had more opportunity to transform care than at any other time in the history of healthcare. Telehealth accelerated quickly; remote work became possible—even routine, healthcare professionals were recognized as the heroes you are. I salute all the fabulous healthcare professionals who made such a difference for so many. A challenge that remains for all of us is whether we will choose the EBP paradigm as the foundation for our daily clinical decisions. Thank you to the students, clinicians, healthcare leadership, clinical educators, faculty, and researchers who daily demonstrate ownership of practice as the key to placing EBP at the center of healthcare transformation. Together, we will achieve the goal of transforming healthcare into what we know it can be!

Every time someone shares with me how this book has made a difference in their practice, educational endeavors, or teaching, I am humbled and grateful. The value of this work is measured by the impact it has on advancing best practice in healthcare and how it helps point-of-care providers and educators make a difference in patients’ and students’ lives and health experiences. Thank you to all who give this work value!

Bern this has been an amazing journey, from our runs together in doctoral study to writing the fifth edition of a book we started with the vision that it would make a

difference in nursing in healthcare. Thanks for the privilege of working side-by-side. Thank you, my Ascension family—what a difference you have made in my work. Mary C. Sitterding, you are transformational—I am so blessed by you! A huge thank you to all readers, the Wolters Kluwer team, and the amazing contributors to this work—past, present, and future.

Thank you to my family and friends for all the support you have provided, no matter what. I feel so blessed by the wonderful people in my life who have been committed to the often-arduous journey that my life has been. My precious family has encouraged me across five editions now. Our amazing daughters have grown up with mom staying up till the wee hours of the morning to write, envision, and write some more. Rachael and Ruth, you are amazing, beautiful women, and I am so grateful for your presence in my life. Wayne thank you for faithfully journeying with me—the perspective and balance you provide are so important to me. My remarkable, now 90-year-old mom, Virginia (Grandginny), has been present for all five editions, informing how I understand the lived experience in healthcare, particularly as an older old adult. Her encounters remain a reminder that advocating for integration of patient-valued preferences into practice is an imperative. My brother John, his wife Angela, and their daughters' healthcare stories also have shaped this work...also so grateful for their music—truly a blessing! Thank you to those who have prayed for me—I am humbled and blessed by you! Every edition reminds me of my Savior and Friend's continual care for me. He is ever faithful, and I am grateful. All these influences offer insight into how healthcare should serve all of us well. That is what this work is all about—making sure that every encounter is an experience in excellent care.

Ellen Fineout-Overholt

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Glossary

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UNIT 1

Steps 0, 1, and 2: Getting Started

To improve is to change; to be perfect is to change often.

—Winston Churchill

EBP Terms to Learn

Ancestry method
Background question
Bibliographic database
Body of evidence
Boolean connectors
Citations
Clinical inquiry
Clinical topic summaries
Critical appraisal
Discussion board
Evidence
Evidence-based practice (EBP)
Evidence-based practice competencies
Evidence-based quality improvement (EBQI)
Evidence-based quality improvement projects
Evidence-based theories
Explode feature
External evidence
Filters
Foreground question
Full text
Grey literature
Handsearch
Hits
Implementation science
Integrative review
Internal evidence
Issue of interest
Keeper studies
Keyword
Limit
Listserv
MeSH
Meta-analyses
Narrative review
Outcome management
PICOT format
Point-of-care resources
Preappraised literature
Proximity searching
Quadruple aim in healthcare
Quality improvement (QI)
Randomly assigned
Rapid critical appraisal
Reference managers

Research
Research utilization
Scoping review
Search history
Search strategy
Secondary source
“So-what” outcomes
Spirit of inquiry
Subject headings
Synthesis
Systematic reviews
Translational research
Truncation
Yield

UNIT OBJECTIVES

Upon completion of this unit, learners will be able to:

1. Identify the seven steps of the EBP process.
2. Describe the differences among evidence-based practice, quality improvement, and research.
3. Explain the components of a PICOT question— *Population, Intervention or Issue of interest, Comparison of interest, Outcome, and Time for intervention to achieve the outcome or issue to be addressed.*
4. Discuss basic and advanced strategies for conducting a systematic search based on the PICOT question, including keywords, synonyms, and subject headings.
5. Describe the best evidence that makes up a body of evidence to answer specific types of clinical questions.

MAKING CONNECTIONS: AN EBP EXEMPLAR

On the orthopedic unit of a tertiary hospital in the eastern United States, a nurse manager, Danielle, and the unit evidence-based practice (EBP) council representative, Betsy, were discussing recent quality improvement (QI) reports in the staff lounge. Danielle noted that the unit’s patient satisfaction rates had dropped as their fall rates had increased.

To help provide context, Betsy, who has a passion for fall prevention (Step 0: Spirit of Inquiry), shared the story of Sam, an older adult patient who sustained a fall-related injury though he was not at a high risk for falls. As Sam’s primary nurse, Betsy had initiated universal fall prevention precautions as recommended by the Agency for Healthcare Research and Quality (AHRQ) in their Falls Prevention Toolkit (<https://www.ahrq.gov/sites/default/files/publications/files/fallpxtoolkit.pdf>, 2013). Betsy hoped that Sam’s story would help illuminate some of the issues surrounding falls that can be challenging to predict.

Sam had awakened from a deep sleep and needed to void. He was oriented when he went to bed, but upon waking, he became confused and couldn’t locate his call light because, though it was placed close to him, it had been covered by his pillow. In an

interview after he fell, Sam told Betsy that he had to go so badly that he just didn't think about looking under the pillow. He also forgot that there was a urinal on the bedside table. He was focused on getting to the bathroom, and when he tried to get out of bed with the rails up, he pinched his wrist, causing a hematoma and soft tissue injury.

Danielle had more information that shed light on the rising fall rates from the reports provided by the quality department. In reviewing the QI data for the past quarter, she found that all of the falls occurred during the night shift. In reviewing her unit-level data, over a period of several weeks, a number of the usual night nurses had been ill, leading to per-diem and float staff covering those positions. Staff had documented intermittent and inconsistent rounding, and Betsy and Danielle wondered whether introducing regularly scheduled rounding could prevent future falls like Sam's.

Danielle and Betsy discussed some tools to help structure regular rounding; both agreed that staff would need more than just their recommendation for implementation of any tool to be successful. They gathered a group of interested staff who had reviewed the fall data to ask about their current regular rounding habits. The nurses indicated that they rounded on a regular basis, but sometimes up to 3 hours might pass between check-ins with more "stable" patients like Sam, particularly if there were other urgent needs on the unit. One of the newer nurses, Boqin, mentioned that in nursing school he had written a paper on hourly rounding and perhaps that may be a solution.

All of the unit nurses agreed that the outcome of a rising fall rate required evaluation and that hourly rounding may help, so Betsy guided the group in crafting a properly formatted PICOT question (*P*, population; *I*, intervention or issue of interest; *C*, comparison intervention or condition; *O*, outcome to see changed; *T*, time for the intervention to achieve the outcome or issue to be addressed). After reviewing the QI data as a group, discussing the context of the clinical issue, and looking at case studies for clues about why the outcome was occurring, the question the group posed to guide their systematic search was: In older adult patients with low risk for falls with universal precautions in place (*P*), how does hourly rounding at night (*I*) compared to no hourly rounding (*C*) affect preventable fall rates (*O*) within 3 months of initiation (*T*)? (*Step 1: Ask a Clinical Question in PICOT Format.*)

The nurses became excited about answering the question and asked Betsy about the next steps in the EBP process. Betsy already had a great relationship with the hospital librarian, Scott, who was well-versed in the EBP process and had demonstrated his expertise at systematic searching when helping with previous EBP council projects. Betsy e-mailed the group's PICOT question to Scott and ask him to conduct a systematic search (*Step 2: Systematic Searching*). Scott knew that his initial search terms had to come from the PICOT question, so he carefully considered what the nurses had asked. He knew a great start would be finding a systematic review that contained multiple studies about the impact of hourly rounding on fall rates among older adult patients who were at a low risk for falls, so he began his search with the *O*, preventable fall rates. He considered the keywords, the synonyms of the keywords, and the subheadings that matched the keywords. Scott knew that all the studies he would consider including in the body of evidence would need to have the outcome of preventable fall rates;

otherwise, the studies could not answer to the clinical question.

A systematic search using the advanced search interface of the Cochrane Library to find systematic reviews that included the keywords *hourly rounding*, and *falls* yielded three hits, two unrelated systematic reviews, and one clinical trial focused on the impact of hourly rounding on patient satisfaction, call light use, and safety. Scott decided to keep that clinical trial, since Betsy had mentioned that their patient satisfaction had varied at the same time as their fall rates and that call light use may be of interest to the group. Using the same approach, Scott continued the systematic search in the CINAHL (Comprehensive Index of Nursing & Allied Health Literature) database, beginning with the unique CINAHL subject headings for the same keywords, *hourly rounding* and *falls*, the keywords in general, and searching the keywords in “all text.” Scott used the focus feature in CINAHL for each term to make sure the topic was the major point of the article. This search yielded 21 articles. A systematic search of PubMed with the same approach yielded no studies for *falls*, *hourly rounding*, and *older adults*; however, the yield was 40 hits for *falls* and *hourly rounding*. Figures 1 and 2 have details of these searches.

Search ID	Search Terms	Search Options	Actions
S14	S9 AND S13	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (21) View Details Edit
S13	S10 OR S11 OR S12	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (27,665) View Details Edit
S12	"older adult"	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (9,574) View Details Edit
S11	TX "older adult"	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (19,581) View Details Edit
S10	(MM "Aged+")	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (8,357) View Details Edit
S9	S7 AND S8	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (334) View Details Edit
S8	S4 OR S5 OR S6	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (1,666) View Details Edit
S7	S1 OR S2 OR S3	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (417,826) View Details Edit
S6	TX "hourly rounding"	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (360) View Details Edit
S5	"hourly rounding"	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (95) View Details Edit
S4	(MM "Patient Roomer")	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (1,393) View Details Edit
S3	TX falls	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (261,557) View Details Edit
S2	falls	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (57,318) View Details Edit
S1	(MM "Accidental Falls") OR "preventable falls" OR (MM "Fall Prevention (lowa NIC)") OR (MM "Safety Behavior: Fall Prevention (lowa NDC)") OR (MM "Fall Risk (Saba CCC)") OR (MM "Preventive Health Care+")	Expanders - Apply equivalent subjects Search modes - Find all my search terms	View Results (177,121) View Details Edit

Figure 1 A systematic search of the Comprehensive Index of Nursing and Allied Health Literature (CINAHL) database.

History and Search Details						Download	Delete
Search	Actions	Details	Query	Results	Time		
#11	...	>	Search: #5 AND #6	40	12:04:32		
#10	...	>	Search: #5 AND #6 AND #9	0	12:03:48		
#9	...	>	Search: #7 OR #8	36,939	12:03:19		
#8	...	>	Search: "older adult"	10,369	12:02:17		
#7	...	>	Search: Aged[MeSH Major Topic]	26,873	12:01:59		
#6	...	>	Search: #3 OR #4	1,212	12:01:37		
#5	...	>	Search: #1 OR #2	102,290	12:01:24		
#4	...	>	Search: hourly rounding	147	12:01:02		
#3	...	>	Search: teaching rounds[MeSH Major Topic]	1,076	12:00:51		
#2	...	>	Search: falls	102,290	12:00:25		
#1	...	>	Search: accidental falls[MeSH Major Topic]	16,422	11:59:40		

Figure 2 A systematic search of the PubMed database.

Now that all three databases had been searched, the total yield of 61 articles was available for Scott’s review to see if they were keeper studies to answer the PICOT question. Scott then removed the redundant hits among databases, applied inclusion criteria of fall preventions as the outcome, and discovered what articles were readily available. There were some articles that were proprietary and could not be accessed through interlibrary loan or via the internet. Other articles were not owned by the library and were requested through interlibrary loan. Finally, the articles in the body of evidence were found by handsearching. The final cohort of studies was ready to be entered into the critical appraisal process. To get the process started, Scott reviewed the study designs in the body of evidence and created a level of evidence table (Table 1). The body of evidence included one systematic review; no single randomized controlled trials; four quasiexperimental studies; eight evidence-based or QI projects; and one expert opinion article. He knew he had three more articles to add to the body of evidence when they came in from interlibrary loan (Daniel, 2016; Jackson, 2016; Morgan et al., 2017); however, Scott thought it was important to discuss the current body of evidence with Betsy and Danielle. They decided to take the current articles to the EBP council.

TABLE 1
Synthesis: Levels of Evidence

Level of Evidence for Intervention Questions	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I. Systematic reviews/meta-analyses of randomized controlled trials									x					
II. Single randomized controlled trials														
III. Quasiexperimental studies/ nonrandomized controlled trials	x					x				x		x		
IV. Cohort or case-control studies														
V. Systematic reviews/meta-syntheses of qualitative studies														
VI. Single qualitative or descriptive studies/evidence implementation and quality improvement projects		x	x	x			x	x			x		x	x
VII. Expert opinion					x									

1, Brown; 2, Callahan; 3, Dyck; 4, Goldsack; 5, Hicks; 6, Krepper; 7, Leone; 8, Lowe; 9, Mitchell; 10, Olrich; 11,

Stefancyk; 12, Tucker; 13, Waszynski; 14, Weisgram.

Join the group at the beginning of Unit 2 as they continue their EBP journey.

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Making the Case for Evidence-Based Practice and Cultivating a Spirit of Inquiry

Bernadette Mazurek Melnyk, Ellen Fineout-Overholt

The important thing is not to stop questioning.

—Albert Einstein

EBP Terms to Learn

Critical appraisal
Evidence
Evidence-based practice (EBP)
Evidence-based practice competencies
Evidence-based quality improvement (EBQI)
Evidence-based quality improvement projects
Evidence-based theories
External evidence
Implementation science
Integrative review
Internal evidence
Keeper studies
Meta-analyses
Narrative review
Outcomes management
Quadruple aim in healthcare
Quality improvement (QI)
Randomly assigned
Rapid critical appraisal
Research
Research utilization
“So-what” outcomes
Scoping review
Spirit of inquiry
Synthesis
Systematic reviews
Translational research

Learning Objectives

After studying this chapter, learners will be able to:

1. Discuss how evidence-based practice (EBP) assists hospitals and healthcare systems achieve healthcare’s quadruple aim.
2. Describe the differences among EBP, research, quality improvement, and evidence-based quality improvement.

3. Identify the seven steps of EBP.
4. Discuss barriers to EBP and key facilitators, including elements of cultures that support the implementation and sustainability of EBP.

INTRODUCTION

Evidence-based practice (EBP) is a lifelong problem-solving approach to the delivery of healthcare that integrates the best evidence from a body of research with a clinician’s expertise and a patient’s preferences and values to make the best decisions about patient care (Melnyk & Fineout-Overholt, 2019). The evidence is irrefutable. EBP enhances the patient experience, which includes better healthcare quality and safety, improves patient outcomes, reduces costs, and empowers clinicians as well as improves their work lives; this is known as the **quadruple aim in healthcare** (Bodenheimer & Sinsky, 2014; Melnyk & Fineout-Overholt, 2019) (Fig. 1.1). Hospitals and healthcare systems across the United States are continually striving to achieve the quadruple aim; however, problems with quality and safety persist. For example, preventable medical errors are the third leading cause of death in the United States resulting in approximately 250,000 deaths per year (Anderson & Abrahamson, 2017) and clinician burnout is a public health crisis that has been exacerbated by the COVID-19 pandemic (Dzau et al., 2018; Johnson et al., 2017; Melnyk, Hsieh et al., 2021; Melnyk, Tan, Hsieh, Gawlik et al., 2021). The consequences of clinician burnout include depression, suicide, unintended medical errors, occupational injury, low morale, absenteeism, presenteeism, and turnover (Melnyk, 2020; West et al., 2018). In order to combat this epidemic, the National Academy of Medicine launched the Action Collaborative on Clinician Well-Being and Resilience, an initiative designed to generate evidence-based solutions (see <https://nam.edu/initiatives/clinician-resilience-and-well-being/>). Although EBP has been a key strategy for reaching the quadruple aim, it is not yet the standard of care in many healthcare systems because practices steeped in tradition and organizations that foster a culture of “this is the way we do it here” continue to thrive across the United States and world.

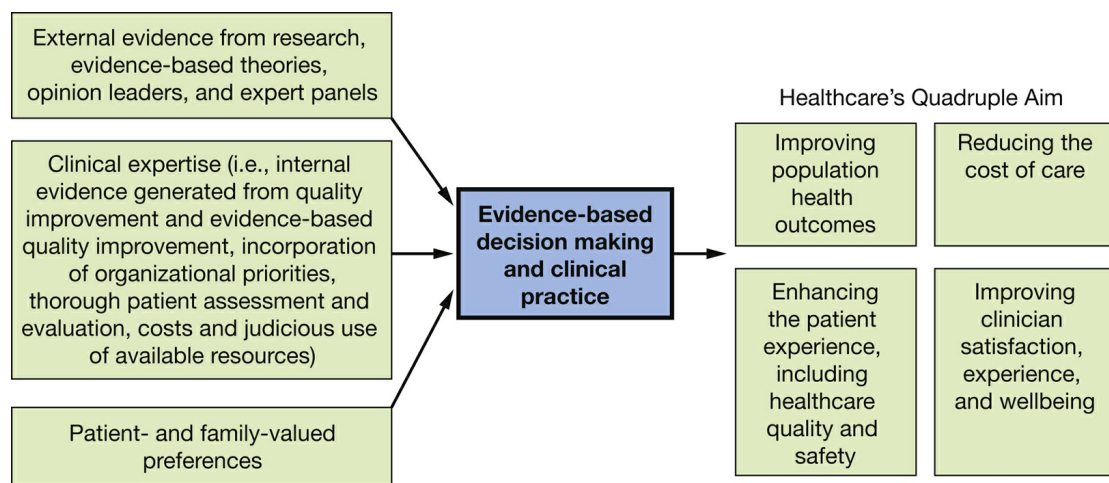


Figure 1.1 Evidence-based decision making and practice facilitates healthcare's quadruple aim.(© Melnyk & Fineout-Overholt, 2022.)

In recent years, there has been an explosion of scientific evidence available to guide health professionals in their clinical decision making. Even though this evidence is readily available, the implementation of evidence-based care is still not the norm in many healthcare systems across the United States and world because clinicians lack competency in the EBP process, and cultures remain steeped in tradition and within their “comfort zones” (Melnyk et al., 2017). The translation of **research** evidence into clinical practice remains painfully slow, often spanning from years to decades. Since a landmark publication by Balas and Boren in 2000, this gap has been referred to as the 17-year research–practice time gap. However, in a recent study, Khan, Chambers, and Neta (2021) found that it took 15 years from the time of publication for five cancer control evidence-based practices (e.g., mammography, colon cancer screening) to be implemented in clinical settings with a range of 13 to 21 years. This study’s finding indicates that we have narrowed the research–practice time gap by 2 years in the past two decades. At this rate, it will take 150 more years to rapidly translate research findings into clinical care unless urgent action is taken.

“To know but not do is lethal!

ANONYMOUS

When clinicians are asked whether they would personally like to receive evidence-based care themselves, the answer is a resounding “yes!” Consider, for example:

- If you were hospitalized with COVID-19, would you want your attending physician to be up to date on the best evolving treatment to avoid having to place you on a ventilator, which has been shown to be associated with poorer outcomes?
- If your loved one was in a motor vehicle accident and sustained a severe head injury, would you want their neurologist to know and use the most effective research-supported treatment options to decrease their intracranial pressure and prevent them from dying?
- If your parent was diagnosed with Alzheimer disease, would you want the healthcare provider to give you information about how other family caregivers of patients with this disease have coped with the illness, based on evidence from well-designed studies?

If your answer to the above three questions is “yes,” how can we as healthcare professionals deliver anything less than EBP?

DEFINITION AND EVOLUTION OF EVIDENCE-BASED PRACTICE

In 2000, Sackett et al. defined EBP as the conscientious use of current best evidence in making decisions about patient care. Since then, the definition of EBP has broadened in scope and is currently described as a lifelong problem-solving approach to clinical practice that integrates:

- A systematic search for and critical appraisal of the most relevant and best research, which is considered external evidence, to answer a burning clinical question.
- One’s own clinical expertise, including use of internal evidence generated from practice, outcomes management, or **evidence-based quality improvement projects**; a thorough patient assessment; and evaluation and use of available resources necessary to achieve desired patient outcomes.
- Patient-/family-valued preferences (Fig. 1.1).

Understanding this approach and its components will assist clinicians in distinguishing EBP from any other processes that contribute to healthcare outcomes.

DIFFERENCES AMONG EBP, RESEARCH, QUALITY IMPROVEMENT, AND EVIDENCE-BASED QUALITY IMPROVEMENT

Unlike research that uses a rigorous scientific process to generate new knowledge (i.e., **external evidence**) and **research utilization**, which has been frequently operationalized as the use of knowledge typically based on a single study, EBP uses a seven-step process (Table 1.1) that involves a combination of rigorous critical appraisal and synthesis of a body of evidence (BOE), a clinician’s expertise, and a patient’s/family’s preferences and values to make the best decisions about patient care (Melnyk & Fineout-Overholt, 2019). **Quality improvement (QI)** is a systematic approach to understanding processes that leads to desired patient outcomes (i.e., the result of care). Frequently, this approach uses the *Plan Do Study Act* (PDSA) model to test implementing new processes to evaluate how they influence outcomes in healthcare systems. The QI focus is to improve processes and outcomes for a specific population once a problem is identified. However, many QI initiatives are not evidence-based as they lack a thorough review and synthesis of a BOE. QI is often confused with the EBP process. An example of a QI initiative would be triggered by a sudden increase in ventilator-associated pneumonia in critically ill patients. When a QI team evaluates practice-generated data (i.e., **internal evidence**), it indicates that clinicians were not implementing the unit’s evidence-based oral care protocol on a regular basis. An educational booster for the staff about the oral care protocol was implemented using the PDSA cycle. Further monitoring of the implementation process and outcomes after the educational booster revealed a reduction in the high rate of ventilator-associated pneumonia for the patients in the unit that had the booster.

TABLE 1.1
Turning Quality Improvement (QI) Into Evidence-Based Quality Improvement (EBQI)

The Seven Steps of EBP	Incorporating the EBP Steps to Create EBQI
0. Develop a spirit of inquiry within an EBP culture and environment.	Plan (All QI should incorporate the first four steps of EBP, including systematically searching for and critically appraising the evidence)
1. Ask the clinical question in PICOT format.	

2. Systematically search for and collect the most relevant best evidence.	
3. Critically appraise the evidence.	
4. Integrate the best evidence with clinician expertise and patient-/family-valued preferences to make the best clinical decision.	Do
5. Evaluate the outcome(s) of a practice decision or change based on evidence.	Study
6. Disseminate the outcome(s).	Act

Adapted from Melnyk B. M., Buck J., & Gallagher-Ford L. (2015). Transforming quality improvement into evidence-based quality improvement: A key solution to improve healthcare outcomes. *Worldviews on Evidence-based Nursing*, 12(5), 251–252. <https://doi.org/10.1111/wvn.12112>

It is important to note that there is a difference between QI and **evidence-based quality improvement (EBQI)**. QI relies primarily on internal evidence, or practice-based evidence, to drive the processes and often does not involve a systematic search for and critical appraisal of evidence that guides what and how what is done. EBQI begins with internal evidence and includes external evidence in decision making about identifying the process changes that will impact the practice change to improve a clinical outcome (Melnyk et al., 2015). The goal is for all QI to become evidence-based. QI can be EBQI by incorporating the first four steps of the EBP process into the “Plan” stage (see Table 1.1).

Outcomes management is another term that some use to describe QI or EBQI. Practice data generated through QI is integral to identifying the problem in Step 0 of the EBP process.

Outcomes management typically uses a four-step process to:

1. Define a clinical outcome that needs to be improved (e.g., falls, hospital readmissions) using current measurement within an organization.
2. Identify practices or processes supported by evidence to implement that will improve the outcome.
3. Compare the evidence-based practices with the traditional in-place practices and identify how to change practices based on this evaluation.
4. Analyze the impact of implementing the new practices by remeasuring the targeted outcome and comparing the outcome before implementation with the outcome after implementation (Alexandrov et al., 2019).

During the past two decades, researchers, clinicians, and policy makers have prioritized attention and allocated funding to translational research and implementation science studies that overcome challenges in the adoption and uptake of evidence in routine practices by clinicians to address the research to practice gap (Tucker et al., 2021). **Translational research** is a type of rigorous research in which the research process is used to study how evidence-based interventions are translated to real-world clinical settings. **Implementation science** is the scientific study of methods and strategies that facilitate the uptake of evidence-based practices and research into regular use by practitioners and policy makers. The field of implementation science seeks to systematically close the research–practice gap by identifying and addressing barriers that slow the uptake of research-based interventions and evidence-based practices into healthcare settings (Bauer & Kirchner, 2020). This connects

implementation science with the EBP process, but it is not the same. Chapter 15 provides further information about implementation science.

WHAT IS EVIDENCE?

Evidence is a collection of facts that are believed to be true. External evidence is generated through rigorous research (e.g., randomized controlled trials [RCTs] or predictive studies) and is intended to be generalized and used in other settings. An important question when implementing external evidence is whether clinicians can achieve the same results with their patients that were obtained in the studies they reviewed (i.e., can the findings from research be translated to other real-world clinical settings with the same outcomes?). This question of transferability is why measurement of key outcomes in the same way as was measured in research is necessary when implementing practice changes based on evidence. In contrast, internal evidence is generated through practice initiatives, such as QI and EBQI or outcomes management projects. Researchers generate new knowledge through rigorous research (i.e., external evidence), and EBP provides clinicians the process and tools to translate the external evidence into clinical practice and integrate it with internal evidence collected on patients within a hospital or health system to improve healthcare, patient, and cost outcomes.

Unfortunately, there are many interventions (i.e., treatments) with substantial evidence to support their use in clinical practice to improve patient outcomes that are not routinely used. In contrast, many practices are being implemented in healthcare that have no or little evidence to support their use (e.g., double-checking pediatric medications, routine assessment of vital signs every 2 or 4 hours in hospitalized patients, use of a plastic tongue patch for weight loss, placing pregnant patients in the supine position during labor). Furthermore, some practices in which evidence has shown adverse outcomes have prevailed (e.g., 12-hour shifts for nurses; [Melnyk et al., 2018](#)). Unless we first know what interventions are most effective for a variety of populations through the generation of evidence from research, EBP cannot be effective in improving outcomes. We must also know how to rapidly and sustainably translate this evidence into clinical practice through translational research and implementation science. This enables clinicians to reliably engage in the seven-step EBP process as a means for substantial sustainable improvement in the quality and safety of care received by people across the United States and the rest of the world ([Melnyk & Fineout-Overholt, 2019](#)). Deimplementation of practices that are not evidence-based or that have been found to have adverse outcomes is as critical as implementing best practices in improving patient outcomes.

COMPONENTS OF EVIDENCE-BASED PRACTICE

Systematic reviews are rigorous studies that use a systematic search of the literature and summarize a body of primary research in a nonbiased way with specified criteria to answer a research question. Although evidence from systematic reviews of RCTs has been regarded as the strongest level of evidence (i.e., level I evidence) on which to base

practice decisions about treatments to achieve a desired outcome, evidence from descriptive and qualitative studies as well as from opinion leaders should be factored into clinical decisions as part of the BOE. These lower-level studies should be compared in their findings with higher-level studies. When RCTs are not available, these lower-level studies may be the best knowledge available for clinical decision making (Melnyk & Fineout-Overholt, 2019). **Evidence-based theories** (theories that are empirically supported through well-designed studies) also should be included in the BOE. In addition, patient and family preferences, values, and concerns should be incorporated into the evidence-based approach to decision making along with a clinician's expertise, which includes (1) clinical judgment (i.e., the ability to think about, understand, and use research evidence and the ability to assess a patient's condition through subjective history taking, thorough physical examination findings, and laboratory reports); (2) internal evidence generated from EBQI or outcomes management projects; (3) clinical reasoning (i.e., the ability to apply the above information to a clinical issue); (4) ability to engage the interprofessional team to deliver evidence-based care and evaluate outcomes; and (5) evaluation and use of available healthcare resources needed to implement the chosen treatment(s) and measure the expected outcome (Fig. 1.2).

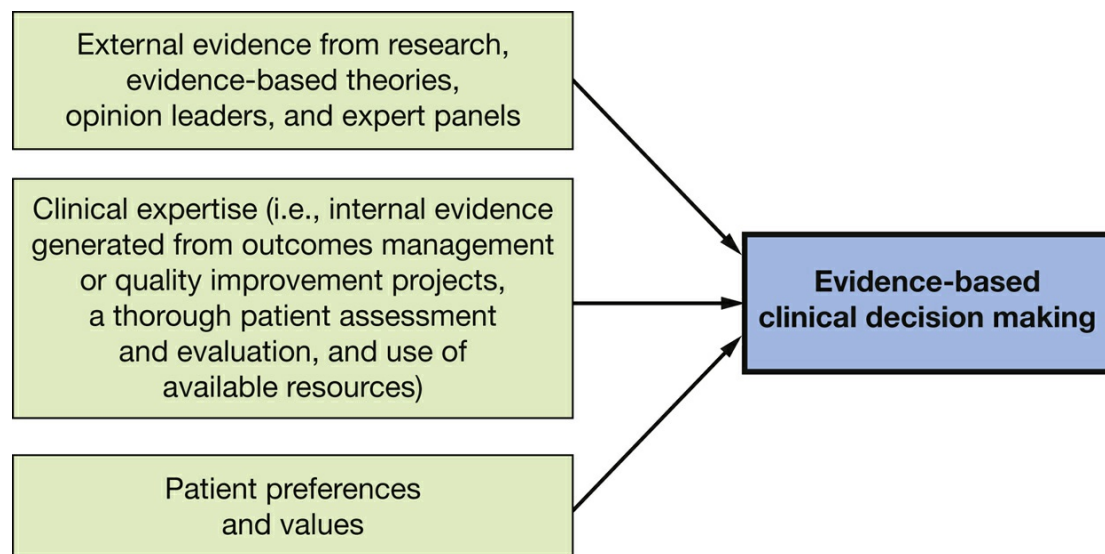


Figure 1.2 The components of evidence-based practice.

Clinicians often ask how much and what type of evidence is needed to change practice. A good rule of thumb to answer this question is that there needs to be strong enough evidence to support a practice change. Levels of evidence are unique for each kind of question. They are constructed from the types of research study designs available. To determine the strength of the evidence, it is important to consider the level of evidence and the quality of evidence (i.e., markers of well-delivered research methodology) as these provide clinicians the confidence needed to initiate the change in clinical practice (Box 1.1).

BOX 1.1

Rule of Thumb to Determine Whether a Practice Change Should Be Made

The level of the evidence + quality of the body of evidence = strength of the evidence → *Confidence to act upon the evidence and change practice!*

ORIGINS OF THE EVIDENCE-BASED PRACTICE MOVEMENT

The EBP movement was founded by Dr. Archie Cochrane, a British epidemiologist who struggled with the effectiveness of healthcare and challenged the public to pay only for care that had been empirically supported as effective (Enkin, 1992). In 1972, Cochrane published a landmark book criticizing the medical profession for not providing rigorous reviews of evidence so that policy makers and organizations could make the best decisions about healthcare. Cochrane was a strong proponent of using evidence from RCTs because he believed that this was the strongest evidence on which to base clinical practice treatment decisions. He asserted that reviews of research evidence across all specialty areas need to be prepared systematically through a rigorous process, and that they should be maintained to consider the generation of new evidence (The Cochrane Collaboration, 2001).

In an exemplar case, Cochrane noted that thousands of premature infants with low birth weight died needlessly. He emphasized that the results of several RCTs supporting the effectiveness of corticosteroid therapy during premature labor in high-risk pregnant patients had never been analyzed and compiled in the form of a systematic review. The data from that systematic review showed that corticosteroid therapy reduced the odds of premature infant death from 50% to 30% (The Cochrane Collaboration, 2001).

Cochrane died in 1988. However, owing to his influence and call for updates of systematic reviews of RCTs, the Cochrane Center was launched in Oxford, England, in 1992, and the Cochrane Collaboration was founded a year later. The major purpose of the collaboration, an international network of more than 37,000 dedicated people from over 130 countries, is to assist healthcare practitioners, policy makers, patients, and their advocates to make evidence-informed decisions about healthcare by developing, maintaining, and updating systematic reviews of healthcare interventions (i.e., Cochrane Reviews) and ensuring that these reviews are accessible to the public. Examples of systematic reviews housed on the Cochrane website include reviews about vaccines to prevent influenza in healthy adults, steroids for the treatment of influenza, psychosocial interventions for supporting smoking cessation during pregnancy, and gabapentin for chronic neuropathic pain and fibromyalgia in adults among many others.



Further information about the Cochrane Collaboration, including a complete listing of systematic reviews, can be accessed at <https://www.cochrane.org/>

WHY EVIDENCE-BASED PRACTICE?

The most important reason for consistently implementing EBP is that it leads to the

highest quality and safety of care and the best patient outcomes while reducing costs (Melnyk, 2017), fostering practice that meets healthcare's quadruple aim. Findings from studies indicate that clinicians report feeling more empowered and have higher job satisfaction when they engage in EBP (Fridman & Frederickson, 2014; Kim et al., 2016, 2017). With recent reports of pervasive burnout, distress, and depression among healthcare professionals, and the pressure that many influential healthcare organizations exert on clinicians to deliver high-quality, safe care under increasingly heavy patient loads, the use and teaching of EBP may be key not only to providing outstanding care to patients and saving healthcare dollars, but also to reducing the escalating turnover rate in certain healthcare professions (Melnyk et al., 2018; Melnyk, Hsieh et al., 2021; Melnyk, Tan, Hsieh, Gawlik et al., 2021; West et al., 2018).

Despite the multitude of positive outcomes associated with EBP and the strong desire of healthcare providers to be the recipients of evidence-based care, an alarming number of healthcare systems, chief nurses, supervisors and managers, and clinicians do not consistently implement evidence-based decision making, EBP, or evidence-based clinical practice guidelines (Dotson et al., 2014; Melnyk et al., 2017). As an example, 700 people die in the United States during childbirth every year, many because well-meaning caring clinicians do not follow evidence-based guidelines for complications, such as hypertension and hemorrhage (Petersen et al., 2019).

A national survey of 276 chief nurse executives was conducted to learn about the state of EBP in their organizations as well as to describe their own implementation of EBP and the portion of their budgets they invested in equipping their clinicians with the skills needed to deliver evidence-based care. Results of this survey indicated that although the chief nurses believed in the value of EBP, their own implementation was low, with over 50% reporting that they were uncertain about how to measure the outcomes of care being delivered in their hospitals (Melnyk et al., 2016). Most chief nurses also reported that they did not have a critical mass of nurses in their hospitals who were skilled in EBP and that they only invested 0% to 10% of their budgets in equipping their staff with EBP knowledge, skills, and resources. Although the chief nurses reported that their top two priorities were quality and safety of care delivered in their hospitals, EBP was listed as their lowest priority, indicating their lack of understanding that EBP is a direct pathway to achieving quality and safety. Therefore, it was not surprising that one third of hospitals from this survey were not meeting the National Database of Nursing Quality Indicators metrics, and almost one third of the hospitals were above national core performance measure benchmarks, including falls and pressure injuries (Melnyk et al., 2016). The first U.S. study on EBP competencies also revealed that practicing nurses reported not being competent in any of the 24 EBP competencies (Melnyk et al., 2017). Knowledge, beliefs about the value of EBP, mentorship in EBP, and a culture that supports EBP were all associated with reports of EBP competency. Furthermore, EBP culture and mentorship directly influenced EBP competency, implementation, job satisfaction, and intent to stay in the organization (Melnyk et al., 2021).

On a daily basis, nurse practitioners, physicians, pharmacists, nurses, occupational and physical therapists, and other healthcare professionals seek answers to numerous

clinical questions. Examples are “In postoperative surgical patients, how does relaxation breathing compared to cognitive behavioral skills building affect anxiety during recovery?” “In adults with dementia, how does a warm bath during the 30 minutes prior to bedtime improve sleep compared to music therapy?” and “In adolescents with depression, how does cognitive behavioral therapy combined with Prozac compared to Prozac alone reduce depressive symptoms within the first year of diagnosis?” An evidence-based approach to care allows healthcare providers to access the best evidence to answer these pressing clinical questions in a timely fashion and to translate that evidence into clinical practice with anticipated improvement of patient care and outcomes.

Without current best evidence, practice becomes rapidly outdated, often to the detriment of patients. As a classic example, for years, pediatric primary care providers advised parents to place their infants in a prone position while sleeping, with the underlying reasoning that this was the best position to prevent aspiration in the event of vomiting. With evidence indicating that prone positioning increases the risk of sudden infant death syndrome (SIDS), the American Academy of Pediatrics released a clinical practice guideline recommending a supine position for infant sleep that resulted in a decline in infant mortality caused by SIDS in the years following this recommendation ([Task Force on Sudden Infant Death Syndrome, 2016](#)). Therefore, the critical question that all healthcare providers need to ask themselves is whether they can ethically continue to implement practices that are not based on sound evidence, and if so, at what cost (physical, emotional, and financial) to patients and their family members?

Even if healthcare professionals answer this question negatively and remain resistant to implementing EBP, third-party payers are increasingly providing reimbursement only for healthcare practices with effectiveness that is supported by scientific evidence (i.e., pay for performance). Furthermore, hospitals are now being denied payment for patient complications that develop when evidence-based guidelines are not followed. In addition to pressure from third-party payers, a growing number of patients and family members are seeking the latest evidence posted on websites about the most effective treatments for their health conditions. This is likely to exert even greater pressure on healthcare providers to provide the most up-to-date practices and health-related information. Therefore, the EBP movement continues to forge ahead full steam, always offering opportunities for clinicians to engage in learning EBP. Another important reason for clinicians to include the latest evidence in their daily decision making is that evidence evolves on a continual basis. When the COVID-19 pandemic emerged, little was known about the most effective way to treat individuals infected with the novel virus. Evidence emerged that placing patients in a prone position substantially improved their odds of recovery ([Chua et al., 2021](#); [Coppo et al., 2020](#)). As a result, positioning practices with patients infected with COVID-19 changed in hospitals globally. This rapid translation of research findings into practice must become the norm rather than the exception to ensure best practices.

KEY INFLUENCERS FOR ADVANCING EVIDENCE-BASED

PRACTICE

The gap between publishing research evidence and its translation into practice to improve patient care often takes numerous years to decades ([Khan et al., 2021](#); [Melnyk & Fineout-Overholt, 2019](#)) and continues to be a major concern for healthcare organizations as well as federal agencies. The latest study indicates a research–practice gap of 15 years with a range of 13 to 21 years ([Khan et al., 2021](#)). To address this research–practice time gap, major initiatives such as the federal funding of EBP centers and the creation of formal task forces that critically appraise evidence to develop screening and manage clinical practice guidelines have been established.

The Institute of Medicine’s Roundtable on Evidence-Based Medicine

The Institute of Medicine’s Roundtable on Evidence-Based Medicine helped transform the manner in which evidence on clinical effectiveness is generated and used to improve healthcare and the health of Americans. The landmark goal set by this Roundtable was that by 2020, 90% of clinical decisions would be supported by accurate, timely, and up-to-date information based on the best available evidence ([McClellan et al., 2007](#)). By early 2022, this goal had yet to be achieved. The Roundtable convened senior leadership from multiple sectors (patients, healthcare professionals, third-party payers, policy makers, and researchers) to determine how evidence can be better generated and applied to improve the effectiveness and efficiency of healthcare in the United States ([Institute of Medicine of the National Academies, n.d.](#)). It stressed the need for better and timelier evidence concerning which interventions work best, for whom, and under what types of circumstances so that sound clinical decisions can be made. The Roundtable placed its emphasis on three areas:

1. Accelerating the progress toward a learning healthcare system, in which evidence is applied and developed as a product of patient care
2. Generating evidence to support which healthcare strategies are most effective and produce the greatest value
3. Improving public awareness and understanding about the nature of evidence and its importance for their healthcare ([Institute of Medicine of the National Academies, n.d.](#); now the National Academy of Medicine)

The U.S. Preventive Services Task Force, Community Services Task Force, and Patient-Centered Outcomes Research Institute

The U.S. Preventive Services Task Force (USPSTF) is an independent panel of 16 experts in primary care and prevention who systematically review the evidence of effectiveness and develop evidence-based recommendations for clinical preventive services, including screening, counseling, and preventive medications. Emphasis is

placed on the preventive services that should be incorporated by healthcare providers in primary care for specific populations. The USPSTF is sponsored by the Agency for Healthcare Research and Quality (AHRQ), and its recommendations are considered the gold standard for clinical preventive services. Evidence-based centers funded by AHRQ conduct systematic reviews for the USPSTF and are the basis on which it makes its recommendations. The USPSTF reviews the evidence presented by EBP centers and estimates the magnitude of benefits and harms for each preventive service. Consensus about the net benefit for each preventive service is garnered, and the USPSTF then issues a graded recommendation for clinical practice. If the preventive service receives an “A” or “B” grade, which indicates the net benefit is substantial or moderate, clinicians should provide this service. A “C” recommendation indicates the net benefit is small, and clinicians should provide the service to select people based on individual circumstances. A “D” recommendation indicates the service has no benefit or harm outweighs the benefit, and therefore clinicians are discouraged from implementing it. When the USPSTF issues an “I” statement, it means that the evidence is insufficient to assess the balance of benefits and harms. If there is insufficient evidence on a particular topic, the USPSTF recommends a research agenda for primary care for the generation of evidence needed to guide practice.



All of the USPSTF evidence-based recommendations are freely available and updated routinely at <https://www.uspreventiveservicestaskforce.org/>.

Examples of the USPSTF recommendations include those for breast cancer screening, visual screening, colorectal screening, and depression screening as well as preventive medication topics. Clinical considerations for each topic also are discussed with each recommendation. The USPSTF recommendations provide general practitioners, internists, pediatricians, nurse practitioners, nurses, and family practitioners with an authoritative source for evidence to make decisions about the delivery of preventive services in primary care. In 2010, the Patient Protection and Affordable Care Act created a link between the USPSTF recommendations and various coverage requirements (Siu et al., 2015). The Affordable Care Act mandates that commercial and individual plans must at a minimum provide coverage and not impose cost sharing on any preventive services that receive an A or B grade from the USPSTF. Medicare and Medicaid are excluded from this provision.



An app, the Prevention Task Force is also available for free to help healthcare providers implement the USPSTF recommendations at <https://www.uspreventiveservicestaskforce.org/apps/>.

Similar to the USPSTF, a panel of national experts who comprise the Community Services Task Force uses a rigorous systematic review process to determine the best evidence-based programs and policies to promote health and prevent disease in communities. Systematic reviews by this panel answer the following questions: (1) Which program and policy interventions have been shown to be effective? (2) Are there effective interventions that are right for my community? (3) What might effective interventions cost and what is the likely return on investment?



These evidence-based recommendations for communities are available in a free evidence-based resource entitled *The Guide to Community Preventive Services* at <https://www.thecommunityguide.org>.

Another federally funded initiative is the Patient-Centered Outcomes Research Institute (PCORI), which is authorized by Congress to conduct research to provide information about the best available evidence to help patients and their healthcare providers make more informed decisions. PCORI's studies are intended to provide patients with a better understanding of the prevention, treatment, and care options available as well as the science that supports those options.



Find the PCORI online at <https://www.pcori.org/>.

Magnet Recognition Program

The Magnet Recognition Program by the American Nurses Credentialing Center has facilitated the advancement of EBP in hospitals throughout the United States. The program was started to recognize healthcare institutions for quality patient care, nursing excellence, and innovations in professional nursing practice. Magnet-designated hospitals reflect a high quality of care. The program evaluates quality indicators and standards of nursing practice as defined in the [American Nurses Association's \(2016\) *Nursing Administration: Scope and Standards \(2nd edition\)*](#). Conducting research and using EBP are critical for attaining Magnet status. Hospitals are appraised on evidence-based quality indicators, which are referred to as Forces of Magnetism. The Magnet program is based on a model with five key components:

1. Transformational leadership, which includes forecasting for future organizational goals and needs to meet ever-changing demands
2. Structural empowerment, which focuses on structure and processes that foster strong professional practice
3. Exemplary professional practice, including interprofessional teamwork
4. New knowledge, innovation, and improvements, which emphasize new models of care delivery, application of existing evidence through EBP, and visible contributions to the science of nursing through generating new evidence
5. Empirical quality results, which focus on measuring outcomes that demonstrate the benefits of high-quality care ([American Nurses Credentialing Center \[ANCC\], n.d.](#))

[ANCC \(n.d.\)](#) requires that Magnet organizations produce data that their nurses incorporate as new evidence into practice. Although research findings indicate that nurses employed by Magnet facilities report fewer barriers to EBP than those in non-Magnet facilities ([Wilson et al., 2015](#)), findings from a study by [Melnyk et al. \(2020\)](#) did not find differences in the EBP competencies in nurses in Magnet versus non-Magnet designated hospitals except for one competency, asking clinical questions.

The Helene Fuld Health Trust National Institute for

Evidence-based Practice in Nursing and Healthcare

With a \$6.5 million gift, the Helene Fuld Health Trust National Institute for Evidence-based Practice in Nursing and Healthcare was founded by Bernadette Melnyk and launched at The Ohio State University College of Nursing in 2016. The Fuld Institute has four cores, including (1) the clinical core, (2) the academic core, (3) the implementation science core, and (4) the community core, which is focused on helping the public to make evidence-based decisions regarding healthcare and their health and wellbeing. The Fuld Institute for EBP:

- Prepares interprofessional EBP experts and mentors through intensive 5-day immersions and a postdoctoral fellowship program
- Works with nursing and transdisciplinary faculty across the nation and world to integrate EBP throughout their curricula to produce the highest caliber of evidence-based graduates
- Educates nursing and transdisciplinary students at all levels on how to access the latest gold standards of care and implement as well as sustain EBP
- Provides consultations and assists leaders and transdisciplinary clinicians in hospitals and healthcare systems to advance and sustain evidence-based care to reach the quadruple aim in healthcare
- Conducts national webinars on the best and latest evidence to guide high-quality practice
- Serves as a clearinghouse for best evidence on a variety of healthcare practices and health conditions for the public
- Conducts research to advance the body of knowledge regarding EBP and how to accelerate the translation of research findings into practice at a more rapid rate to improve outcomes
- Provides an implementation toolkit based on the Advancing Research and Clinical Practice through Close Collaboration (ARCC) model ([Melnyk & Fineout-Overholt, 2019](#))

A National EBP Expert Forum took place on October 18, 2017, that brought over 40 leaders from national professional organizations and federal agencies together to determine best strategies for advancing EBP. The top action tactics from this expert panel included enhanced reimbursement for EBP; more interprofessional education and skills building in EBP; and leaders prioritizing EBP and fueling it with resources ([Melnyk et al., 2017](#)).

The Fuld Institute has launched the first and only globally recognized certification in the specialty area of EBP, approved by the Accreditation Board for Specialty Nursing Certification (ABSNC). This certification recognizes expertise in EBP and is available to qualified interprofessional health professionals who work in practice or education. The Fuld Institute also recently launched the Excellence in Evidence-Based Practice and Outcomes in Healthcare Designation, which formally recognizes hospitals and healthcare systems that meet established criteria for excellence in transdisciplinary EBP that results in demonstrated improvements in outcomes that lead to the quadruple aim

in healthcare.



Learn more about the Fuld Institution at <https://fuld.nursing.osu.edu/>.

THE SEVEN STEPS OF EVIDENCE-BASED PRACTICE

Before EBP can be implemented by a clinician or organization, there must be a clear understanding of the EBP process. The seven steps of this process are summarized in Box 1.2 and are described in more detail in this section. These steps must be implemented in sequence and be rigorously engaged to accomplish the end goal of improved patient, provider, and system outcomes.

BOX 1.2

The Steps of the Evidence-Based Practice Process

1. Cultivate a spirit of inquiry within an EBP culture and environment.
2. Ask the clinical question in PICOT format.
3. Systematically search for and collect the most relevant best evidence.
4. Critically appraise the evidence (i.e., rapid critical appraisal, evaluation, synthesis and recommendation).
5. Integrate the best evidence with one's clinical expertise and patient-/family-valued preferences in making a practice decision or change.
6. Evaluate outcomes of a practice decision or change based on evidence.
7. Disseminate the outcomes of the EBP decision or change.

Step 0: Cultivate a Spirit of Inquiry Within an EBP Culture and Environment

To ensure EBP has a solid foundation, it is critical to cultivate a **spirit of inquiry** (i.e., a consistently questioning attitude toward practice) so that clinicians are comfortable with and excited about asking questions regarding their patients' care as well as challenging current institutional or unit-based practices. Without a culture and environment that is supportive of a spirit of inquiry and EBP, including continuous monitoring of outcomes, individual and organizational EBP change efforts are not likely to succeed and be sustained (Melnyk, 2016a). A culture that fosters EBP promotes this spirit of inquiry and makes it visible to clinicians by embedding it in its philosophy and mission of the institution. During this step, QI data are used to establish and describe the outcome that needs to be changed (i.e., the outcomes that prompted initiation of the EBP process). Without this definitive outcome, financial resources and human capital could be unwisely expended on an issue that has not been clearly defined. Furthermore, to complete the EBP process requires comparing the outcome data prior to making the evidence-based change and after its successful implementation.

Key elements of an EBP culture and environment include:

- A spirit of inquiry with which all health professionals are encouraged to question

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