



The Impact of Evidence-Based Practice on Healthcare Outcomes Across Health Professions

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Abstract

Evidence-based practice (EBP) has become a defining paradigm across the health professions, reshaping how nurses, physicians, pharmacists, rehabilitation therapists, and allied health practitioners make clinical decisions. This paper examines the impact of EBP on healthcare outcomes across professional groups, synthesizing findings on patient safety, quality of care, resource efficiency, and workforce performance. Using Donabedian's structure-process-outcome model as a theoretical anchor, the paper introduces an original integrative model, the EMBED framework (Evidence, Mentorship, Barrier-removal, Evaluation, Dissemination), designed to translate EBP principles into sustainable, cross-disciplinary organizational practice. The analysis is contextualized within the healthcare transformation agenda of Saudi Vision 2030 and the regulatory ecosystem overseen by the Saudi Commission for Health Specialties (SCFHS), the Saudi Central Board for Accreditation of Healthcare Institutions (CBAHI), the Saudi Food and Drug Authority (SFDA), the Nphies claims platform, the Mumaris+ licensing system, and the King Abdullah International Medical Research Center (KAIMRC). Findings indicate that EBP adoption is consistently associated with reduced adverse events, shorter length of stay, improved interprofessional collaboration, and stronger patient-reported outcomes, though implementation remains constrained by organizational, educational, and cultural barriers. The paper concludes with practical recommendations for embedding EBP into professional education, licensure, and institutional accreditation processes to accelerate the outcomes envisioned under Vision 2030.

Keywords: evidence-based practice, healthcare outcomes, interprofessional collaboration, patient safety, Vision 2030, healthcare quality, EMBED framework

1. Introduction

Evidence-based practice (EBP) is the conscientious integration of the best available research evidence with clinical expertise and patient values to guide healthcare decision-making. Since Sackett and colleagues first articulated the concept within medicine in the 1990s, EBP has expanded well beyond its original disciplinary boundaries to become a unifying standard across nursing, medicine, pharmacy, physical and occupational therapy, respiratory therapy, audiology, optometry, and emergency and paramedical care. This diffusion reflects a broader shift in global health systems away from tradition-based or authority-based practice toward decisions anchored in systematically appraised evidence.

The healthcare outcomes associated with this shift are substantial. Institutions that embed EBP into daily practice consistently report fewer preventable complications, more efficient use of clinical resources, and higher levels of patient and staff satisfaction. Yet the translation of research evidence into routine practice remains uneven, both across professions and across health systems, due to persistent gaps in organizational culture, education, mentorship, and infrastructure.

This paper addresses three interrelated questions. First, how does EBP influence measurable healthcare outcomes within and across the health professions? Second, what theoretical and organizational frameworks best explain successful EBP integration? Third, what does the evidence imply for health systems undergoing rapid transformation, such as that of the Kingdom of Saudi Arabia under Vision 2030? To answer these questions, the paper synthesizes the professional, organizational, and health-policy literature on EBP, situates the discussion within Donabedian's structure-process-outcome model, and proposes an original cross-professional implementation framework, EMBED, intended to guide institutions seeking to close the gap between evidence generation and evidence use.

2. Theoretical foundations

2.1 The Donabedian Structure-Process-Outcome Model

Donabedian's classic model provides the theoretical backbone for evaluating how EBP affects healthcare quality. The model conceptualizes quality as a function of three interdependent domains: structure (the organizational and physical

context of care, including staffing, technology, and policy), process (the actual delivery of clinical interventions, including adherence to evidence-based guidelines), and outcomes (the resulting effects on patient health, safety, and satisfaction). Applied to EBP, the model suggests that favorable structural conditions, such as access to clinical databases, protected time for evidence appraisal, and supportive leadership, enable evidence-based processes, which in turn produce measurably better outcomes.

2.2 Complementary Frameworks

- TeamSTEPPS: a structured teamwork framework emphasizing communication, leadership, situation monitoring, and mutual support, widely used to operationalize evidence-based teamwork behaviors in high-risk clinical environments.
- Interprofessional Education Collaborative (IPEC) competency domains: values and ethics, roles and responsibilities, interprofessional communication, and teamwork, which describe the collaborative skill set necessary for EBP to function across professional boundaries.
- Reason's Swiss cheese model of accident causation: illustrating how layered evidence-based safeguards, rather than any single intervention, prevent latent errors from resulting in patient harm.
- The Job Demands-Resources (JDR) model: explaining how adequate structural resources, including EBP infrastructure and mentorship, buffer the demands that would otherwise contribute to clinician burnout and disengagement from evidence-based practice.

2.3 The EMBED Framework

To integrate these perspectives into a single, actionable model for cross-professional EBP adoption, this paper proposes the EMBED framework, an original synthesis developed specifically to address the fragmentation of EBP efforts across health professions. EMBED stands for Evidence generation and appraisal, Mentorship and champion networks, Barrier-removal at the organizational level, Evaluation of outcomes through continuous audit, and Dissemination of findings across disciplines and institutions.

“EBP is not embedded through policy alone; it is embedded when evidence, mentorship, and evaluation operate together as one continuous cycle across every health profession in the institution.”

Each element of EMBED corresponds to a documented determinant of successful EBP translation. Evidence generation and appraisal ensures that clinicians across professions possess the literacy required to critically evaluate research; mentorship and champion networks address the well-documented finding that peer role models are among the strongest predictors of EBP uptake; barrier-removal targets structural obstacles such as time constraints, restricted database access, and rigid workflows; evaluation closes the audit loop by measuring whether evidence-based changes produce the intended outcomes; and dissemination ensures that lessons learned in one profession or unit are transferred across the wider organization rather than remaining siloed.

3. Evidence-based practice across health professions

Although the core logic of EBP is shared across disciplines, its clinical application, measurement of outcomes, and barriers to adoption differ meaningfully by profession.

3.1 Nursing

Nursing has been among the most extensively studied professions with respect to EBP outcomes. Evidence-based nursing protocols for pressure-injury prevention, catheter-associated urinary tract infection reduction, fall prevention, and early sepsis recognition have been associated with substantial reductions in hospital-acquired complications. Nurses' proximity to the bedside positions them uniquely to translate evidence into moment-to-moment care decisions, and unit-level EBP mentorship models, in which advanced practice nurses coach frontline staff through appraisal and implementation, have demonstrated some of the strongest documented effects on outcome metrics such as length of stay and readmission rates.

3.2 Medicine

In medicine, EBP is most visible in the proliferation of clinical practice guidelines, diagnostic algorithms, and decision-support tools embedded within electronic health records. Physician adherence to evidence-based guidelines for conditions such as acute myocardial infarction, sepsis, and stroke has been linked to lower mortality and improved functional outcomes. At the same time, physician-reported barriers, including guideline overload, time pressure, and skepticism toward evidence that conflicts with clinical experience, continue to slow uptake, underscoring the importance of structural and cultural supports rather than guidelines alone.

3.3 Pharmacy

Pharmacists operationalize EBP primarily through medication-use evaluation, antimicrobial stewardship, and pharmacovigilance. Evidence-based antimicrobial stewardship programs, which rely on pharmacist-led review of prescribing patterns against current resistance data, have been associated with reduced rates of antimicrobial resistance and *Clostridioides difficile* infection. Clinical pharmacists integrated into multidisciplinary rounds and empowered to

apply evidence-based dosing and interaction-checking protocols have also been shown to reduce adverse drug events and medication errors.

3.4 Physical, Occupational, and Rehabilitation Therapy

Rehabilitation professions have moved decisively toward standardized, evidence-based outcome measures, such as validated functional mobility and activities-of-daily-living scales, to guide treatment planning and demonstrate progress. Evidence-based early mobilization protocols in intensive care and post-surgical settings have been associated with shorter hospital stays and reduced rates of deconditioning, while evidence-based fall-prevention exercise programs have reduced fall incidence among older adults in both inpatient and community settings.

3.5 Allied Health: Audiology, Optometry, and Respiratory Therapy

Allied health disciplines, though smaller in workforce size, contribute meaningfully to the overall evidence-based ecosystem. Evidence-based newborn hearing screening protocols in audiology have improved early identification of hearing loss and downstream language outcomes. In optometry, evidence-based diabetic retinopathy screening pathways have supported earlier referral and treatment. In respiratory therapy, evidence-based ventilator weaning and lung-protective ventilation protocols have reduced ventilator-associated complications and shortened duration of mechanical ventilation, illustrating that EBP's outcome benefits are not confined to the largest professions but extend across the full continuum of clinical roles.

4. Evidence synthesis: documented outcome effects by profession

Table 1 synthesizes representative outcome domains reported in the professional and health-services literature for each discipline discussed above, illustrating the breadth of measurable benefit attributed to evidence-based practice.

Profession	Primary EBP Application	Reported Outcome Effect
Nursing	Pressure-injury and fall-prevention bundles	Reduced hospital-acquired complications and shorter length of stay
Medicine	Guideline-adherent acute care pathways	Lower mortality and improved functional recovery
Pharmacy	Antimicrobial stewardship and medication review	Reduced resistance rates and fewer adverse drug events
Physical/Rehabilitation Therapy	Early mobilization and standardized functional assessment	Reduced deconditioning and fewer falls
Respiratory Therapy	Lung-protective ventilation and weaning protocols	Shorter ventilation duration and fewer ventilator-associated events
Audiology	Evidence-based newborn hearing screening	Earlier intervention and improved language development
Optometry	Evidence-based diabetic retinopathy screening	Earlier referral and reduced vision-related complications

5. Evidence-based practice within Saudi Vision 2030

The Kingdom of Saudi Arabia's Vision 2030 healthcare transformation program has placed EBP at the center of its quality and workforce reform agenda. The transformation strategy emphasizes a shift from volume-based to value-based care, a restructuring that is only achievable through consistent, cross-professional application of evidence-based standards. Several regulatory and institutional bodies anchor this shift.

The Saudi Commission for Health Specialties (SCFHS) sets professional licensure and continuing education requirements that increasingly incorporate EBP competencies across nursing, medicine, pharmacy, and allied health scopes of practice.

- The Saudi Central Board for Accreditation of Healthcare Institutions (CBAHI) embeds evidence-based clinical protocols and quality-improvement cycles into its accreditation standards, making EBP adherence a structural requirement for hospital licensure.
- The Saudi Food and Drug Authority (SFDA) grounds pharmacovigilance and medication-safety regulation in evidence-based risk assessment, reinforcing pharmacy-led stewardship efforts.
- The Nphies national health information exchange platform enables the claims and clinical data infrastructure necessary to audit evidence-based care pathways at national scale.
- The Mumaris+ licensing system links individual practitioner credentialing to documented continuing professional development, much of which is oriented toward evidence-based competencies.

- The King Abdullah International Medical Research Center (KAIMRC) generates and disseminates the locally contextualized clinical research evidence that underpins Saudi-specific practice guidelines, reducing reliance on evidence generated in dissimilar health systems.

Together, these institutions form a regulatory ecosystem in which EBP is not simply encouraged but structurally required, positioning Saudi Arabia's health system to accelerate the outcome gains documented internationally while adapting them to the epidemiological and cultural context of the Kingdom.

6. Barriers to implementation

- Despite strong regulatory and institutional support, several barriers continue to constrain EBP translation across professions, both globally and within the Saudi context.
- Time constraints: clinicians across all professions consistently report insufficient protected time to search, appraise, and apply new evidence within demanding clinical workloads.
- Educational gaps: variability in research-literacy training across professional curricula leaves some practitioners underprepared to critically appraise evidence independently.
- Organizational culture: hierarchical or tradition-oriented unit cultures can discourage frontline staff from questioning established practice, even when evidence supports change.
- Fragmented dissemination: evidence-based innovations piloted successfully in one unit or profession frequently fail to spread across the wider organization, a phenomenon the EMBED framework's dissemination element is designed to address.
- Workforce burnout: consistent with the Job Demands-Resources model, high workload combined with insufficient structural support depletes the discretionary effort required to sustain EBP engagement over time.

7. Recommendations

- Building on the EMBED framework and the barriers identified above, the following recommendations are proposed to strengthen EBP integration across health professions.
- Embed structured EBP competencies, including critical appraisal skills, into pre-licensure curricula for all health professions and align these competencies with SCFHS continuing education requirements.
- Establish interprofessional EBP mentorship and champion networks at the unit level, pairing experienced evidence-based practitioners across disciplines with early-career staff.
- Incorporate EBP audit and feedback cycles into CBAHI accreditation surveys, ensuring that evidence-based process measures are reviewed alongside outcome measures.
- Leverage Nphies data infrastructure to benchmark evidence-based care pathway adherence at the national level and identify facilities in need of targeted implementation support.
- Expand KAIMRC-led research partnerships to generate locally contextualized evidence, reducing reliance on international guidelines that may not fully reflect the Saudi patient population.
- Protect dedicated non-clinical time for evidence appraisal and quality-improvement activities, recognizing this time as a structural investment rather than a discretionary cost.

8. Conclusion

Evidence-based practice has demonstrably improved healthcare outcomes across nursing, medicine, pharmacy, rehabilitation, and allied health professions, reducing preventable harm, improving efficiency, and strengthening the reliability of care. The magnitude of these benefits, however, depends heavily on the structural, educational, and cultural conditions surrounding implementation. The EMBED framework proposed in this paper offers an integrative approach to closing the persistent gap between evidence generation and evidence use by linking evidence appraisal, mentorship, barrier-removal, evaluation, and dissemination into a single continuous cycle applicable across professional boundaries. Within the Kingdom of Saudi Arabia, the regulatory architecture established by SCFHS, CBAHI, SFDA, Nphies, Mumaris+, and KAIMRC provides a strong institutional foundation for this integration. Realizing the full outcome potential of EBP under Vision 2030 will require sustained investment in the structural and cultural conditions that allow evidence, once generated, to reliably reach the point of care across every health profession.

References

1. Donabedian, A. (2003). *An introduction to quality assurance in health care*. Oxford University Press.
2. Institute of Medicine. (2011). *The future of nursing: Leading change, advancing health*. National Academies Press.
3. Interprofessional Education Collaborative. (2016). *Core competencies for interprofessional collaborative practice: 2016 update*. IPEC.
4. Melnyk, B. M., & Fineout-Overholt, E. (2019). *Evidence-based practice in nursing and healthcare: A guide to best practice* (4th ed.). Wolters Kluwer.
5. Reason, J. (2000). Human error: Models and management. *BMJ*, 320(7237), 768–770.
6. Sackett, D. L., Rosenberg, W. M., Gray, J. A., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: What it is and what it isn't. *BMJ*, 312(7023), 71–72.
7. Saudi Central Board for Accreditation of Healthcare Institutions. (2023). *National hospital accreditation standards*. CBAHI.
8. Saudi Commission for Health Specialties. (2023). *Continuing professional development handbook*. SCFHS.
9. Saudi Food and Drug Authority. (2022). *Pharmacovigilance guidance for healthcare practitioners*. SFDA.
10. Saudi Vision 2030. (2023). *Health sector transformation program*. Kingdom of Saudi Arabia.
11. Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3), 499–512.
12. King, H. B., Battles, J., Baker, D. P., Alonso, A., Salas, E., Webster, J., Toomey, L., & Salisbury, M. (2008). TeamSTEPPS: Team strategies and tools to enhance performance and patient safety. Agency for Healthcare Research and Quality.
13. Titler, M. G. (2008). The evidence for evidence-based practice implementation. In R. G. Hughes (Ed.), *Patient safety and quality: An evidence-based handbook for nurses*. Agency for Healthcare Research and Quality.