# FOUNDATIONAL CONCEPTS OF ADULT HEALTH NURSING TRANSLATING EVIDENCE INTO PRACTICE

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# **LEARNING OUTCOMES**

At the end of thesession, the students will be able to:

- Explain the Importance of EBP in Nursing
- Differentiate Between Research and Evidence-Based Practice
- Apply the PICO Framework for Clinical Decision-Making
- Critically Appraise Research for EBP Implementation
- Select and Apply Research Findings to Nursing Practice
- Utilize EBP Models for Translating Evidence into Practice
- Demonstrate EBP in Common Nursing Practices



# What is Evidence-Based Practice?



Integration of best research evidence, clinical expertise, and patient preferences.





# How is EBP different from Research?



### **EBP VS RESEARCH**





- Research generates new knowledge.
  EBP applies existing research to improve
- EBP applies existing patient outcomes.
- Both are essential for advancing nursing practice, ensuring care is based on the best available evidence.

### RESEARCH

- The systematic investigation of a topic to generate new knowledge.
- Purpose: To generate new knowledge or validate existing knowledge.
- Focus: Discovery and innovation.
- Process: Uses the scientific method, including hypothesis testing, data collection, and analysis.
- Outcome: Produces new theories, concepts, or interventions.

- improve patient care.
- practice.

### EBP

• The integration of the best available evidence, clinical expertise, and patient preferences to

• Purpose: To apply the best available research to improve clinical practice.

• Focus: Application of existing research into

• Process: Uses a structured approach: asking a clinical question, finding and appraising research, and applying it to practice. • Outcome: Outcome: Produces new theories, concepts, or interventions.

# EXAMPLE RESEARCH

• A research study tests whether using chlorhexidine-impregnated dressings reduces central line-associated bloodstream infections (CLABSIs).

• A study examines whether a foam mattress reduces pressure injuries compared to a standard hospital mattress.

### EBP

• Based on findings from randomized controlled trials (RCTs), hospitals change their protocols to include chlorhexidine dressings as standard practice.

• Based on multiple studies and a Cochrane review, hospitals replace standard mattresses with high-density foam mattresses to reduce pressure injuries.



# What is the importance of EBP?





It is essential in nursing as it enhances patient outcomes, improves healthcare quality, and ensures the most effective interventions are used.



Key Reasons it is important

- Ensures Safety and Quality of Care
- Supports Standardized Best Practices
- Facilitates Policy and Practice Improvement
- Improves Patient Outcome
- Enhances Patient Satisfaction
- Enhances Clinical Decision-Making
- Promotes Cost-Effective Care
- Encourages Continuous Learning and Professional Development



and





# How to Choose and Apply Evidence-Based Practice (EBP) in Nursing



# **EVIDENCE-BASED PRACTICE (EBP) 5 STEPS**





### Ask

Formulate a clinical question using PICO

# Acquire

Search for the best available evidence Appraise

Critically evaluate the In quality and relevance of evidence.



#### **Apply** Implement evidence into practice

Evaluate the effectiveness and impact of the intervention.



• Observe a recurring issue in practice (e.g., high fall rates, medication errors, pressure ulcers).

• Consult with colleagues or review patient data to identify areas needing improvement.

### Ask

Formulate a clinical question using PICO



Ask

Formulate a clinical question using PICO

PICO is a framework that helps structure research questions: • P (Population) – Who is the patient or population? • I (Intervention) – What treatment, procedure, or action is

- considered?
- C (Comparison) Is there an alternative intervention to compare?
- O (Outcome) What result is expected?

Example:

"In elderly patients (P), does hourly rounding (I) compared to usual care (C) reduce fall rates (O)?"



### Acquire

Search for the best available evidence

#### Search for the Best Available Evidence

Use reliable sources to find research:

Databases: PubMed, CINAHL, Cochrane Library, Google Scholar
 Clinical Guidelines: WHO, CDC, American Nurses Association (ANA)
 Professional Organizations: American Association of Critical-Care
 Nurses (AACN), National Institute for Health and Care Excellence (NICE)

## Acquire

Search for the best available evidence

#### **Prioritize the Best Study Designs (Hierarchy of Evidence)**

Use high-quality research based on the level of evidence: Level 1: Systematic Reviews & Meta-Analyses (best quality) Level 2: Randomized Controlled Trials (RCTs)

- Level 3: Cohort Studies
- Level 4: Case-Control Studies
- Level 5: Cross-Sectional Studies
- Level 6: Case Reports & Expert Opinions (least reliable)

Example:

If systematic reviews show that chlorhexidine dressings reduce CLABSIs, this evidence is stronger than an expert's opinion or a single case report.



### Acquire

Search for the best available evidence





# Appraise

Critically evaluate the quality and relevance of evidence.

#### **Critically Appraise the Evidence**

- Assess the quality, reliability, and applicability of research using appraisal tools like:
- CASP (Critical Appraisal Skills Programme)
- GRADE (Grading of Recommendations, Assessment, Development, and Evaluation)
- Johns Hopkins Nursing EBP Model

#### Consider:

- Study Design (RCTs, Cohort, Case-Control)
- Sample Size & Population
- Relevance to Patient Care
- Strength of Findings (statistical significance)



# raise

Critically evaluate the quality and relevance of evidence.

#### Use critical appraisal tools to assess study quality:

Relevance: Does the study answer the PICO question? Validity: Is the study well-designed? Are results reliable? Gias: Are there any conflicts of interest? Sample Size: Was the study large enough to be generalizable? Consistency: Do multiple studies support the same findings?



# Appraise

Critically evaluate the quality and relevance of evidence.

#### **Consider Clinical Applicability**

 $\checkmark$  Is the research relevant to your setting (e.g., hospital, community)?

Does it align with patient preferences and values?
 Are there barriers to implementation (cost, training, equipment)?

#### Example:

If a study supports early mobilization in ICU patients, but staffing is a limitation, adjustments may be needed before full implementation.



#### Integrate Evidence with Clinical Expertise and Patient Preferences

- Discuss the evidence with the healthcare team.
- Consider patient values, cultural beliefs, and individual circumstances.
- Adapt the intervention to fit clinical workflows and institutional policies.

#### Apply Implement evidence into practice

#### Example:

If research supports early mobilization in ICU patients but a patient refuses, alternative approaches (e.g., passive exercises) should be considered.



#### Implement the Evidence-Based Intervention

- Develop protocols, guidelines, or care bundles to apply the findings.
- Train nursing staff through workshops, simulations, or pilot programs.
- Use interdisciplinary collaboration to integrate changes smoothly.

### Example:

Implement evidence into practice

Apply

Implementing a sepsis bundle based on Surviving Sepsis Guidelines to standardize early detection and treatment.



Evaluate the effectiveness and impact of the intervention.

#### **Evaluate Outcomes and Sustain Practice Change**

- Monitor patient outcomes (e.g., fall reduction, infection rates). • Use quality improvement tools.
- Adjust practices based on feedback and new research.



# How to do critical appraisal



PICO Question: Use of Chlorhexidine for Reducing CLABSI Among Clients with Central Lines

P (Population): Patients with central venous catheters (CVCs) in a hospital setting I (Intervention): Use of chlorhexidine for skin antisepsis and dressing changes C (Comparison): Use of povidone-iodine or standard care O (Outcome): Reduction in central line-associated bloodstream infections (CLABSI)

#### **Full PICO Question:**

"In hospitalized patients with central venous catheters (P), does the use of chlorhexidine for skin antisepsis and dressing changes (I) compared to povidone-iodine or standard care (C) reduce the incidence of CLABSI (O)?"

Critical Appraisal of a Study on Chlorhexidine for Reducing CLABSI

Study Title: Effectiveness of Chlorhexidine vs. Povidone-Iodine in Preventing Central Line-Associated Bloodstream Infections: A Randomized Controlled Trial

😣 Authors: Johnson, R., et al. (2023)

E Published In: Journal of Critical Care Nursing

Study Type: Randomized Controlled Trial (RCT)



Critical Appraisal Using the CASP Checklist

Is the Study Relevant to Practice?

#### **PICO** Alignment:

- P (Population): Hospitalized patients with central lines
- I (Intervention): Chlorhexidine for skin antisepsis and dressing changes
- C (Comparison): Povidone-iodine
- O (Outcome): Incidence of CLABSI

Decision: The study directly addresses the clinical question, making it highly relevant to evidence-based practice (EBP).



- 2 Is the Study Valid? (Methodology & Bias Assessment)
- ✓ Was the trial randomized?
- Ves, patients were randomly assigned to chlorhexidine or povidone-iodine groups.
- ✓ Was allocation concealed? Yes, the allocation process was blinded to patients and healthcare providers.
- ✓ Was blinding used? Double-blind design (neither patients nor evaluators knew which antiseptic was used).
- ✓ Were all patients accounted for? Yes, 98% of patients completed the study, with intention-to-treat analysis applied.



Is the Study Valid? (Methodology & Bias Assessment)

- ✓ Was there a control group?
- Ves, the povidone-iodine group served as the control.

Decision: The study has strong methodological validity, reducing the risk of bias.



3 What Are the Study Results?

#### Findings:

- CLABSI incidence in the chlorhexidine group: 2.1 infections per 1,000 catheter-days • CLABSI incidence in the povidone-iodine group: 6.4 infections per 1,000 catheter-days • Relative Risk Reduction: 67% lower infection rate with chlorhexidine

- P-Value: 0.001 (statistically significant)
- Confidence Interval (CI 95%): 1.8 4.9 (suggesting strong reliability of results)

Decision: The significant reduction in CLABSI supports chlorhexidine as a superior antiseptic.

- Is the Study Applicable to Clinical Practice?
- $\checkmark$  Does it apply to our setting?
- Yes, the study was conducted in ICUs and general wards, similar to our hospital.
- ✓ Are the benefits worth the cost? Yes, chlorhexidine is cost-effective compared to treating CLABSI.
- Are there barriers to implementation? imes Potential concern: Some hospitals may not have chlorhexidine readily available.
- ✓ Does it align with guidelines?
- Yes, aligns with CDC and WHO recommendations for CLABSI prevention.
- Decision: The study findings are clinically applicable, but hospitals must ensure access to chlorhexidine.



#### **Final Appraisal Decision**

Strong Evidence for EBP Implementation:

- The study provides high-quality, level 1 evidence (RCT) that chlorhexidine significantly reduces CLABSI compared to povidone-iodine. • Implementation could improve patient safety and reduce healthcare costs.

📌 Next Step: Develop a hospital policy for using chlorhexidine in central line care bundles and monitor CLABSI rates.





What to do when the study is weak or has a lot of bias in critical appraisal?



#### Identify the Type of Bias or Weakness

Common Issues in Low-Quality Research:

- Selection Bias: Non-randomized participants or small sample sizes.
- Performance Bias: Lack of blinding, influencing outcomes.
- Measurement Bias: Poorly defined outcomes or unreliable tools.
- Confounding Factors: Other variables influencing results.
- Publication Bias: Only positive results published, ignoring negative findings.

#### 2 Check for Alternative High-Quality Evidence

Look for systematic reviews, meta-analyses, or RCTs with stronger methodology.
 Search reputable databases (Cochrane, PubMed, CINAHL).
 Check clinical practice guidelines (CDC, WHO, AHA).

#### 3 If No Stronger Evidence Exists, Consider These Questions:

Can the study still provide useful insights?

- If limitations are minor, findings may still be considered cautiously.
- If major biases exist, do not use it to change clinical practice.

**Decision Rule:** 

- Major bias or flawed methodology?  $\mathbf{X}$  Do not apply to practice.
- Some bias but still informative ① Use cautiously and in combination with other evidence.



#### 4 If Implementing, Use with Caution & Monitor Outcomes

Pilot test in a small unit before full implementation. Monitor patient outcomes (infection rates, adverse effects). Collect real-world data to supplement weak evidence.  $\checkmark$  Reassess when stronger studies become available.



# What are strategies for **O** successful EBP implementation?



- Strategies for successful implementation:
  - Identifying barriers and facilitators to change.
  - Using frameworks such as the Iowa Model and the Knowledge-to-Action (KTA) framework.
  - Role of stakeholders: Nurses, patients, policymakers, and interdisciplinary teams.
  - Implementing practice change through pilot studies and quality improvement initiatives.

Steps of the Iowa Model:

Identify a Trigger (Clinical problem or new research) **2** Determine Priority for Organization (Is it relevant? Feasible?) **3** Form a Team (Nurses, physicians, administrators) Gather & Critically Appraise Evidence (Systematic reviews, RCTs, guidelines) 4 5 Pilot the Change (Small-scale implementation) **6** Evaluate Outcomes (Measure impact) 7 Adopt or Modify Practice Change (Expand if effective) 8 Disseminate Results (Share findings to promote EBP)

Knowledge-to-Action Framework

Knowledge Creation Phase

- Knowledge Inquiry: Research studies, guidelines
- Synthesis: Systematic reviews, meta-analyses
- Tools & Products: Protocols, decision aids

2 Action Cycle (Implementing Knowledge into Practice) 1. Identify a problem

- 2. Adapt evidence to local context
- 3. Assess barriers to change
- 4. Select implementation strategies
- 5. Monitor & Evaluate outcomes
- 6. Sustain knowledge use





# Provide real-world examples of EBP in adult health nursing



# SUMMARY

Choose high-quality evidence relevant to your setting. Ensure findings align with clinical expertise and patient values. Use structured frameworks (PICO, appraisal tools) for decision-making. Implement changes through interdisciplinary collaboration and staff training.

Continuously monitor and refine practices for sustained improvement.



# THANK YOU!!!



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