EBP Table of Contents

1. PICO Question..................................................................................1

2. PICO Question by Therapy.................................................................3

3. Rapid Clinical Appraisal Questions.................................................5
   a. Cohort Studies............................................................................5
   b. Randomized Control Studies....................................................6
   c. Systematic Reviews..................................................................7
   d. Qualitative Studies....................................................................8

4. Evaluation and synthesis.................................................................11
   a. Evaluation Table.......................................................................11
   b. Synthesis Table.........................................................................12
   c. Sample Evaluation Table..........................................................13
   d. Sample Synthesis Table..............................................................19
   e. Evidence Based Practice Project Challenge............................20
### Question Templates for Asking PICOT Questions

#### INTERVENTION

In ___________________(P), how does ______________________ (I) compared to ______________________(C) affect ____________________ _(O) within ___________(T)?

#### ETIOLOGY

Are____________________ (P), who have _______________ _______ (I) compared with those without ____________________(C) at ______________ risk for/of ____________________(O) over ________________(T)?

#### DIAGNOSIS OR DIAGNOSTIC TEST

In ___________________(P) are/is __________________ __(I)  compared with _________________________(C) more accurate in diagnosing _________________(O)?

#### PROGNOSIS/PREDICTION

In ______________ (P), how does ___________________ (I) compared to _____________(C) influence __________________ (O) over ______________ (T)?

#### MEANING

How do _______________________ (P) with _________________ (I) perceive _________________________ (O) during ________________ (T)?

---

Short Definitions of Different Types of Questions:

**Intervention**: Questions addressing the treatment of an illness or disability.

**Etiology**: Questions addressing the causes or origin of disease, the factors which produce or predispose toward a certain disease or disorder.

**Diagnosis**: Questions addressing the act or process of identifying or determining the nature and cause of a disease or injury through evaluation.

**Prognosis/Prediction**: Questions addressing the prediction of the course of a disease.

**Meaning**: Questions addressing how one experiences a phenomenon.
Sample Questions:

Intervention: In African-American female adolescents with hepatitis B (P), how does acetaminophen (I) compared to ibuprofen (C) affect liver function (O)?

Etiology: Are 30- to 50-year-old women (P) who have high blood pressure (I) compared with those without high blood pressure (C) at increased risk for an acute myocardial infarction (O) during the first year after hysterectomy (T)?

Diagnosis: In middle-aged males with suspected myocardial infarction (P), are serial 12-lead ECGs (I) compared to one initial 12-lead ECG (C) more accurate in diagnosing an acute myocardial infarction (O)?

Prognosis/Prediction: 1) For patients 65 years and older (P), how does the use of an influenza vaccine (I) compared to not receiving the vaccine (C) influence the risk of developing pneumonia (O) during flu season (T)?

2) In patients who have experienced an acute myocardial infarction (P), how does being a smoker (I) compared to a non-smoker (C) influence death and infarction rates (O) during the first 5 years after the myocardial infarction (T)?

Meaning: How do 20-something males (P) with a diagnosis of below the waist paralysis (I) perceive their interactions with their romantic significant others (O) during the first year after their diagnosis (T)?

©Ellen Fineout-Overholt,2006 This for may be used for educational & research purposes without permission
<table>
<thead>
<tr>
<th>PICO Question by Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient population/disease (P)</strong></td>
</tr>
<tr>
<td><strong>Intervention/topic of Interest (I)</strong></td>
</tr>
<tr>
<td><strong>Comparison of Intervention or Issue of Interest (C)</strong></td>
</tr>
<tr>
<td><strong>Outcome of Interest (O)</strong></td>
</tr>
<tr>
<td><strong>Time (T)</strong></td>
</tr>
<tr>
<td><strong>Setting (S)</strong></td>
</tr>
<tr>
<td><strong>Combined PICO/PICOT question format</strong></td>
</tr>
</tbody>
</table>

**Type of Question**

<table>
<thead>
<tr>
<th><strong>Intervention/Diagnosis/Diagnostic test</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Systematic review/meta-analysis of RCTs</td>
</tr>
<tr>
<td>2. RCTs</td>
</tr>
<tr>
<td>3. Non-RCTs</td>
</tr>
<tr>
<td>4. Cohort study or case-control studies</td>
</tr>
<tr>
<td>5. Meta-synthesis of qualitative or descriptive studies</td>
</tr>
<tr>
<td>6. Qualitative or</td>
</tr>
</tbody>
</table>
| Prognosis/Prediction/Etiology | 1. Synthesis of cohort study or case-control studies  
|                             | 2. Single cohort study or case-control studies  
|                             | 3. Meta-synthesis of qualitative or descriptive studies  
|                             | 4. Single qualitative or descriptive studies  
|                             | 5. Expert opinion  
| Meaning                     | 1. Meta-synthesis of qualitative studies  
|                             | 2. Single qualitative studies  
|                             | 3. Synthesis of descriptive studies  
|                             | 4. Single descriptive studies  
|                             | 5. Expert opinion  

References

*include in your evidence search*
Rapid Critical Appraisal Questions for Cohort Studies

1. Are the results of the study valid?
   a. Was there a representative and well defined sample of patients at a similar point in the course of the disease?  
      Yes  No  
      Unknown
   b. Was follow up sufficiently long and complete?  
      Yes  No  
      Unknown
   c. Were objective and unbiased outcome criteria used?  
      Yes  No  
      Unknown
   d. Did the analysis adjust for important prognostic risk factors and confounding variables?  
      Yes  No  
      Unknown

2. What are the results?
   a. What is the magnitude of the relationship between predictors (i.e., prognostic indicators) and targeted outcome?  
      ___________________
   b. How likely is the outcome event(s) in a specified period of time?  
      ___________________
   c. How precise are the study estimates?  
      ___________________

3. Will the results help me in caring for my patients?
   a. Were the study patients similar to my own?  
      Yes  No  
      Unknown
   b. Will the results lead directly to selecting or avoiding therapy?  
      Yes  No  
      Unknown
   c. Are the results useful for reassuring or counseling patients?  
      Yes  No  
      Unknown

©Fineout-Overholt & Melnyk, 2009. This form may be used for educational, practice change & research purposes without permission
Rapid Critical Appraisal Checklist for a Randomized Clinical Trial (RCT)

1. **Are the results of the study valid?**
   A. Were the subjects randomly assigned to the experimental and control groups?  Yes  No  Unknown
   B. Was random assignment concealed from the individuals who were first enrolling subjects into the study?  Yes  No  Unknown
   C. Were the subjects and providers blind to the study group?  Yes  No  Unknown
   D. Were reasons given to explain why subjects did not complete the study?  Yes  No  Unknown
   E. Were the follow-up assessments conducted long enough to fully study the effects of the intervention?  Yes  No  Unknown
   F. Were the subjects analyzed in the group to which they were randomly assigned?  Yes  No  Unknown
   G. Was the control group appropriate?  Yes  No  Unknown
   H. Were the instruments used to measure the outcomes valid and reliable?  Yes  No  Unknown
   I. Were the subjects in each of the groups similar on demographic and baseline clinical variables?  Yes  No  Unknown

2. **What are the results?**
   A. How large is the intervention or treatment effect (NNT, NNH, effect size, level of significance)?  
   B. How precise is the intervention or treatment (CI)?

3. **Will the results help me in caring for my patients? (40 pts)**
   A. Were all clinically important outcomes measured?  Yes  No  Unknown
   B. What are the risks and benefits of the treatment?  
   C. Is the treatment feasible in my clinical setting?  Yes  No  Unknown
   D. What are my patients/family’s values and expectations for the outcome that is trying to be prevented and the treatment itself?  

©Fineout-Overholt & Melnyk, 2005. This form may be used for educational, practice change & research purposes without permission.
Rapid Critical Appraisal of Systematic Reviews of Clinical Interventions/Treatments

1. Are the results of the review valid?

A. Are the studies contained in the review randomized controlled trials?  Yes  No

B. Does the review include a detailed description of the search strategy to find all relevant studies?  Yes  No

C. Does the review describe how validity of the individual studies was assessed (e.g., methodological quality, including the use of random assignment to study groups and complete follow-up of the subjects)?  Yes  No

D. Were the results consistent across studies?  Yes  No

E. Were individual patient data or aggregate data used in the analysis?  Individual  Aggregate

2. What were the results?

A. How large is the intervention or treatment effect (OR, RR, effect size, level of significance)?  __________________

B. How precise is the intervention or treatment (CI)?  __________________

3. Will the results assist me in caring for my patients?

A. Are my patients similar to the ones included in the review?  Yes  No

B. Is it feasible to implement the findings in my practice setting?  Yes  No

C. Were all clinically important outcomes considered, including risks and benefits of the treatment?  Yes  No

D. What is my clinical assessment of the patient and are there any contraindications or circumstances that would inhibit me from implementing the treatment?  Yes  No

E. What are my patient’s and his or her family’s preferences and values about the treatment that is under consideration?  Yes  No

©Fineout-Overholt & Melnyk, 2005. This form may be used for educational, practice change & research purposes without permission.
Rapid Critical Appraisal of Qualitative Evidence

1) Are the results of the study valid (i.e., trustworthy and credible)?
   a) How were study participants chosen?

   ____________________

   b) How were accuracy and completeness of data assured?

   ____________________

   c) How plausible/believable are the results?
   i) Are implications of the research stated? Yes No Unknown
      (1) May new insights increase sensitivity to others’ needs?
      (2) May understandings enhance situational competence?
   d) What is the effect on the reader?
      (1) Are results plausible and believable? Yes No Unknown
      (2) Is the reader imaginatively drawn into the experience? Yes No

   Unknown

2) What were the results?
   a) Does the research approach fit the purpose of the study? Yes No Unknown
   i) How does the researcher identify the study approach? Yes No Unknown
      (1) Are language and concepts consistent with the approach? Yes No Unknown
      (2) Are data collection and analysis techniques appropriate? Yes No Unknown
   ii) Is the significance/importance of the study explicit? Yes No Unknown
      (1) Does review of the literature support a need for the study? Yes No Unknown
      (2) What is the study’s potential contribution?

   ____________________
   iii) Is the sampling strategy clear and guided by study needs? Yes No Unknown
(1) Does the researcher control selection of the sample?  Yes  No  Unknown

(2) Do sample composition and size reflect study needs?  Yes  No  Unknown

b) Is the phenomenon (human experience) clearly identified?
   i) Are data collection procedures clear?  Yes  No  Unknown
   (1) Are sources and means of verifying data explicit?  Yes  No  Unknown
   (2) Are researcher roles and activities explained?  Yes  No  Unknown

   ii) Are data analysis procedures described?  Yes  No  Unknown
       (1) Does analysis guide direction of sampling and when it ends? Yes  No  Unknown
       (2) Are data management processes described?  Yes  No  Unknown

c) What are the reported results (description or interpretation)?
   i) How are specific findings presented?
       ______________________________
       (1) Is presentation logical, consistent, and easy to follow?  Yes  No  Unknown
       (2) Do quotes fit the findings they are intended to illustrate?  Yes  No  Unknown

   ii) How are overall results presented?
       ______________________________
       (1) Are meanings derived from data described in context?  Yes  No  Unknown
       (2) Does the writing effectively promote understanding?  Yes  No  Unknown

3) Will the results help me in caring for my patients?
   a) Are the results relevant to persons in similar situations?  Yes  No  Unknown
   b) Are the results relevant to patient values and/or circumstances?  Yes  No
Unknown

c) How may the results be applied in clinical practice?

____________________
<table>
<thead>
<tr>
<th>Source (APA Citation)</th>
<th>Purpose of study</th>
<th>Theoretical framework</th>
<th>Design/Method</th>
<th>Sample/setting</th>
<th>(names and definitions) Independent and dependent Variables Measured</th>
<th>Outcomes measure</th>
<th>Findings</th>
<th>Level of evidence (Strengths, Limitations)</th>
</tr>
</thead>
</table>
### Synthesis Table

<table>
<thead>
<tr>
<th>Source (author and Date)</th>
<th>Sample Size</th>
<th>Sample Design</th>
<th>Intervention</th>
<th>Major findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source (APA Citation)</td>
<td>Purpose of study</td>
<td>Design/ Method</td>
<td>Sample/setting</td>
<td>Independent and dependent Variables Measured</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Burke &amp; Renker, 2014</td>
<td>Measures efficacy of standardized process to assess and give pain medicine Increase PACU nurse’s confidence in assessing sedation when given medications and quality of care Facilitate communication during handoffs</td>
<td>Quasi-experimental Pre: 3 months Post: 30 months one year later</td>
<td>PACU Midwestern inner-city hospital (two PACUs and six nursing units) Patient: PACU, nonventilated, trauma or nontrauma-related (knee, elbow, shoulder) Subsequent surgeries were not included N=842 Nurses: PACU and postsurgical nurses N=67 46 PACU 21 patients</td>
<td>Independent: PACU POSS protocol Dependent variable: quality of patient care</td>
</tr>
</tbody>
</table>

NSF, no significant finding; ADE, adverse drug events; SF, Significant finding; NP, Nurses’ Perception; QC, quality of care; Comm, Communication; C, Confidence; PMA, Pain med administration; OS, over-sedation; avg. LOS=average length of stay; F, Fidelity. ISS, Inova Health System acute care sedation scale; POSS, Pasero Opioid-Induced Sedation Scale; RASS, Richmond agitation sedation
<table>
<thead>
<tr>
<th>Source (APA Citation)</th>
<th>Purpose of study</th>
<th>Theoretical framework</th>
<th>Design/Method</th>
<th>Sample/setting</th>
<th>(names and definitions) Independent and dependent Variables Measured</th>
<th>Outcomes measure</th>
<th>Findings</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nisbet and Mooney-Cotter, 2009</td>
<td>To report and measures of reliability and validity of three sedation scales currently used to measures sedation.</td>
<td>Descriptive Cronbach alpha T-tests</td>
<td>Setting: Inova Health system N=535 identified 54 required 96 participated Excluded peds, periop, ED, and CC.</td>
<td>ISS POSS RASS</td>
<td>Validity of study tool Reliability of three sedation scales Total correct (score and nsg action) Ease of use, info give make CD, and confidenc e</td>
<td>1. Internal consistency 0.780 2. Reliability RASS α=770 POSS α=.903 3. POSS SF higher than RASS of total CS and NA 4. POSS SF higher than RASS in EU, UIP, and C</td>
<td>VI Answers PICO</td>
<td></td>
</tr>
</tbody>
</table>

scale; CS, correct score; NA, Nursing action; EU, Ease of use, UIP useful information provided; C, Confidence
<table>
<thead>
<tr>
<th>Source (APA Citation)</th>
<th>Purpose of study</th>
<th>Theoretical framework</th>
<th>Design/Method</th>
<th>Sample/setting</th>
<th>Independent and dependent Variables Measured</th>
<th>Outcomes measure</th>
<th>Findings</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willens, Jungquist, and Polomano, 2013</td>
<td>Establish baselines practice analysis survey to develop clinical guidelines for monitoring patients for opioid-induced respiratory depression and excessive sedation.</td>
<td></td>
<td>Cross-Sectional Descriptive Survey</td>
<td>ASPMN current members Online survey January 2009 to February 2009 N=147 responses 90 unique institutions</td>
<td>None</td>
<td>None</td>
<td>Reported the use of sedation scales increased Scales used: Aldrete 30% POSS 21% Modified Ramsey 13% Ramsey Scale 15% RASS 12%</td>
<td>VI Does not answer PICO. Good background info</td>
</tr>
<tr>
<td>Source (APA Citation)</td>
<td>Purpose of study Theoretical framework</td>
<td>Design/Method</td>
<td>Sample/setting</td>
<td>Independent and dependent Variables Measured</td>
<td>Outcomes measured</td>
<td>Findings</td>
<td>Level of evidence</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------</td>
<td>---------------</td>
<td>----------------</td>
<td>-----------------------------------------------</td>
<td>-------------------</td>
<td>---------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>Jungquist, Correll, Fleisher, &amp; Gross, 2016</td>
<td>Cross-sectional survey of EMS Guideline monitor and document RR, LOS, and SPO₂ q 2 hours, 2.5 (30 minutes leeway) threshold the first 24 hours for PCAs</td>
<td>8 acute care urban and rural hospitals 100-500 beds During 2012 4,164 patients Excluded 1,342 PCA not started or ran &lt; 2.5 hours.</td>
<td>none</td>
<td>• Monitoring by CMS Emeasure specifications • Naloxone use</td>
<td>• NP assessed q 2.5 hours • NP assessed every 2 hours received naloxone (n=86). • 55 or 1.3% received naloxone. • RR to receive naloxone for patients who were not assessed q 4.5 hrs 1.43</td>
<td>VI Does not answer the PICO however shows the benefit of a sedation scale (scales used not noted).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NP, no patients; RR, relative risk.
<table>
<thead>
<tr>
<th>Source (APA Citation)</th>
<th>Purpose of study</th>
<th>Theoretical framework</th>
<th>Design/Method</th>
<th>Sample/setting</th>
<th>Independent and dependent Variables Measured</th>
<th>Outcomes measure</th>
<th>Findings</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooper, Stannard, &amp; Noble, 2015</td>
<td>JBI Systematic review PubMed and CINAHL Keywords: sedation opioids, Pasero English 1994-2014 Databases: PubMed EMBASE CINAHL PSycINFO Unpublished studies: Google Scholar Proquest (dissertr., theses)</td>
<td>Inclusion: PACU nurse adult patients</td>
<td>Descriptive study designs POSS tool</td>
<td>Nursing confidence using the POSS</td>
<td>No results yet.</td>
<td>Systematic review not completed or published yet just the method.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source (APA Citation)</td>
<td>Purpose of study/Theoretical framework</td>
<td>Design/Method</td>
<td>Sample/setting</td>
<td>Policy</td>
<td>Outcomes measure</td>
<td>Findings</td>
<td>Level of evidence</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------</td>
<td>---------------</td>
<td>----------------</td>
<td>--------</td>
<td>------------------</td>
<td>---------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>Smith, Farrington, &amp; Matthews, 2012</td>
<td>Standardize monitoring of sedation in adult and pediatric patients receiving opioids Iowa Model of EBP</td>
<td>EBP Project Developed protocol to monitoring sedation in patients receiving opioids for pain management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source (author and Date)</td>
<td>Sample Size</td>
<td>Sample Design</td>
<td>Intervention</td>
<td>Major findings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------</td>
<td>---------------</td>
<td>--------------</td>
<td>----------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Burke & Renker, 2014     | N=842 Nurses: PACU and postsurgical nurses N=67 46 PACU 21 patients | Quasi-experimental Pre: 3 months Post: 30 months one year later | PACU POSS protocol | 9. SF-↑NP of safe QC, CC comfort with comm  
10. SF - ↑in PACU c with PMA and avoiding OS  
11. 92.7% 15 minute assessment, 88.4% discharge, and used guidelines used appropriately compliance |
| Nisbet and Mooney-Cotter, 2009 | N=535 identified 54 required 96 participated | Descriptive | Use POSS, ISS, RASS | 1. POSS more reliable than RASS  
2. POSS SF higher than RASS of CS and NA  
3. POSS SF higher than RASS in EU, UIP, and C |
| Willens, Jungquist, and Polomano, 2013 | N=147 responses 90 unique institutions | Cross-Sectional Descriptive Survey | Use of POSS | Reported the use of sedation scales increased  
Scales used:  
Aldrete 30%  
POSS 21%  
Modified Ramsey 13%  
Ramsey Scale 15%  
RASS 12% |
| Smith, Farrington, & Matthews, 2012 | Not defined | EBP Project | Developed protocol to monitoring sedation in patients receiving opioids for pain management | 3. Improved ability to identify patients at risk for oversedation, start and stop monitoring, monitor after administration, use POSS for over sedation  
4. Improvement at 6 months, 2 years in documentation initial POSS, initial respiratory assessment, peak POSS assessment, and peak respiratory assessment |
EBP Project Challenge

1. Introduction
   Brief explanation of the clinical issue or interest, background, and its significance.

2. Clinical question addressed: PICO/PICOT format
   Formulate the clinical question in PICO/PICOT format

3. Search strategy for the Best Evidence
   Include all of the following in the databases used to find the evidence;
   keywords used for your search; terms used to limit your search; total number of studies found; & number of studies reviewed; number selected

4. Results of Critical Appraisal of the Evidence Performed
   Perform a rapid critical appraisal: number of articles appraised, level of evidence. Similarities and differences. Synthesis of the results.
   Recommendations. Implications for practice.

5. Evidence Integrated and Practice Change Implemented
   What really happened? How was the EBP practice change completed?
   Process of how the project was carried out, key stakeholders, solutions to barriers, timeline for success, EBP model used to implement practice change, and any challenges.

6. Outcomes Evaluated
   Results of measured outcomes.
7. Project outcome successfully Disseminated

   How and where was disseminated.