Using Science and the Art of Nursing to Improve Health Care Quality and Patient Outcomes through EBP: Part 1

Bernadette Mazurek Melnyk, PhD, CPNP/PMHNP, FAANP, FAAN
Associate Vice President for Health Promotion
University Chief Wellness Officer
Dean and Professor, College of Nursing
Professor of Pediatrics & Psychiatry, College of Medicine
Editor, Worldviews on Evidence-Based Nursing

The State of U.S. Healthcare and Health

• There are up to 200,000 unintended patient deaths per year (more than auto accidents & breast cancer)
• Patients only receive about 55% of the care that they should when entering the healthcare system
• Poor quality healthcare costs the United States about 720 billion dollars every year
• The U.S. healthcare system could reduce its healthcare spending by 30% if patients receive evidence-based healthcare
• One in 2 Americans have a chronic condition and 1 in 4 have multiple chronic conditions
• One in 4 Americans have a mental health disorder

Current State of Health in Nurses

Chronic Health Problems among Physicians, Nurses, and Other Workers

<table>
<thead>
<tr>
<th>% Obese</th>
<th>Physicians</th>
<th>Nurses</th>
<th>Other workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.5</td>
<td>15</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>% High Blood Pressure</td>
<td>18</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>% High Cholesterol</td>
<td>21</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>% Diabetes</td>
<td>4</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>% Depression</td>
<td>7</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>% Asthma</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>% Arthritis</td>
<td>9</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>% Cancer</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Gallup-Healthways Well-Being Index

What Will the Last 10 Years of YOUR Life Look Like?

In God We Trust, Everyone Else Must Bring Data!
Every day, we make behavioral choices that influence our health and wellness outcomes

Based on Evidence
What Do We Know?
People who have the following behaviors have 66% less diabetes, 45% less heart disease; 45% less back pain, 93% less depression, and 74% less stress

- **Physical activity** - 30 minutes 5 days per week
- **Healthy eating** - 5 fruits and vegetables per day
- **No smoking**
- **Alcohol in moderation** - 1 drink per day for women, 2 drinks per day for men

Kaylin's Story:
Australian Dream Trip Turned Nightmare


An Example of When Patient Preferences “Trump” the Best Evidence

The Difference between Research and an EBP Implementation Project

- **Research**: a rigorous systematic inquiry designed to generate new knowledge and external evidence
- **EBP Implementation Project**: Implementation of a practice change based upon external evidence generated from research for the ultimate purpose of improving patient outcomes (may also integrate internal evidence)

Acting on the Evidence

- Strength of the Evidence + Quality of the Evidence = Confidence to Act!

Annual Guide to Clinical Preventive Services

- Evidence-based gold standard recommendations adapted for a pocket-sized book
-Formatted for clinicians to consult for clinical guidance in their daily practice
- Recommendations are presented in an indexed, easy-to-use format with at-a-glance charts

Patient Outcomes With and Without Evidence-Based Practice

Why Must We Accelerate EBP?

Despite an aggressive research movement, the majority of findings from research often are not integrated into practice to improve outcomes.

The gap between the translation of research into practice and policy is huge; it often takes decades to translate research findings into practice and policy.

The So What Factor in an Era of Healthcare Reform

- Conducting research and EBP projects with high impact potential to positively change healthcare systems, reduce costs and improve outcomes for patients and their families
- Key questions when embarking on a research study or an EBP project:
  - **So what** will be the end outcome of the study or EBP project once it is completed?
  - **So what** difference will the study or EBP project make in improving healthcare quality, costs or patient outcomes?
Why Must We Accelerate EBP?

Practices routed in tradition are often outdated and do not lead to the best patient outcomes:
- Daily changing of IV dressings
- Mayonnaise for head lice
- Sugar paste for pressure ulcers
- Albuterol delivery with nebulizers
- Checking placement of NG tubes with air
- Vital signs every 2 or 4 hours
- 12 Hour Shifts for Nurses

The Steps of EBP

Step 0: Cultivate a Spirit of Inquiry & EBP Culture
Step 1: Ask the PICO(T) Question
Step 2: Search for the Best Evidence
Step 3: Critically Appraise the Evidence
Step 4: Integrate the Evidence with Your Clinical Expertise and Patient Preferences to Make the Best Clinical Decision
Step 5: Evaluate the Outcome(s) of the EBP Practice Change
Step 6: Disseminate the Outcome(s)

A Critical Step in EBP: The PICO(T) Question

Ask the burning clinical question in PICO(T) format:
- Patient population
- Intervention or Interest area
- Comparison intervention or group
- Outcome
- Time

In teens with depression (P), how does CBT (I) versus interpersonal therapy (C) affect depressive symptoms (O) 3 months after treatment (T)?

Levels of Evidence

- Systematic review or meta-analysis of all relevant randomized controlled trials (RCTs)
- Evidence-based clinical practice guidelines based on systematic reviews of RCTs
- Evidence obtained from at least one well-designed RCT
- Evidence obtained from well-designed controlled trials without randomization and from well-designed case-control and cohort studies
- Evidence from systematic reviews of descriptive and qualitative studies
- Evidence from a single descriptive or qualitative study
- Evidence from the opinion of authorities and/or reports of expert committees

The EBP Process

Clinical Inquiry
- Formulate a Searchable, Answerable Question (PICO(T))

Search for the Best Evidence
- Rapid Critical Appraisal, Evaluation, and Synthesis of Evidence

Integrate the Evidence with Clinical Expertise and Patient Preference(s)

Generate Evidence Internal-QI, External-Research

Evaluate Outcomes based on Evidence

Disseminate the Outcome(s)
Findings from our EBP Survey with U.S. Nurses

Melynk et al., 2012, JONA

- Over 1000 randomly sampled nurses from the American Nurses Association
- The more years in practice, the less nurses were interested in and felt it was important to gain more knowledge and skills in EBP

Levels of... Chocolate

Godiva Truffles
Donnelly Chocolates
Ghirardelli Chocolate Bars
Hershey Kisses
Fannie Farmer Sampler
Nestle’s Quik

"Inspirational quotes are fine, but you’ll motivate more people with chocolate."

4/8/2016

Why Measure the Outcomes of EBP?

Outcomes reflect IMPACT!

EBP’s effect on patients
- Physiologic (complication reduction; health improvement)
- Psychosocial (quality of life; depressive and anxiety symptoms; patient satisfaction with care)
- Functional improvement

EBP’s effect on the health system
- Decreased cost, length of stay, rehospitalizations
- Nursing retention / job satisfaction
- Interdisciplinary collaboration

Percent of Respondents from the ANA Survey Who Agreed or Strongly Agreed with the Following Statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBP is consistently implemented in my healthcare system</td>
<td>53.6</td>
</tr>
<tr>
<td>My colleagues consistently implement EBP with their patients</td>
<td>34.5</td>
</tr>
<tr>
<td>Findings from research studies are consistently implemented in my institution to improve patient outcomes</td>
<td>46.4</td>
</tr>
<tr>
<td>EBP mentors are available in my healthcare system to help me with EBP</td>
<td>32.5</td>
</tr>
<tr>
<td>It is important for me to receive more education and skills building in EBP</td>
<td>76.2</td>
</tr>
</tbody>
</table>

The One Thing That Prevents You From Implementing EBP

<table>
<thead>
<tr>
<th>Reason</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Time</td>
<td>151</td>
</tr>
<tr>
<td>2. Organisational culture, including policies and procedures, politics, and a philosophy of “that is the way we have always done it here.”</td>
<td>123</td>
</tr>
<tr>
<td>3. Lack of EBP knowledge/education</td>
<td>61</td>
</tr>
<tr>
<td>4. Lack of access to evidence/information</td>
<td>55</td>
</tr>
<tr>
<td>5. Manager/leader resistance</td>
<td>51</td>
</tr>
<tr>
<td>6. Workload/staffing, including patient ratios</td>
<td>48</td>
</tr>
<tr>
<td>7. Nursing (staff) resistance</td>
<td>46</td>
</tr>
<tr>
<td>8. Physician resistance</td>
<td>34</td>
</tr>
<tr>
<td>9. Budget/payers</td>
<td>24</td>
</tr>
<tr>
<td>10. Lack of resources</td>
<td>20</td>
</tr>
</tbody>
</table>

Chief Nurse Survey Demographics

- 93% currently in the CNO role
- Ages ranged from 32-68 (M= 55 years)
- Years in practice ranged from 8-47 (M=31 years)
- Years as a CNO ranged from <1- 32 (M= 9 years)
- 92% female; 94% White
- 6% bachelor’s degree; 69% master’s degree;
- 8% PhD prepared; 10% DNP prepared
- 45 States and DC represented
- 18% work in Magnet facilities
- 55% reported having clinical ladder systems
- 47% had no ongoing nursing research projects
What % of your annual operating budget do you spend on building and sustaining EBP in your organization?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>15%</td>
</tr>
<tr>
<td>1 to 10</td>
<td>59%</td>
</tr>
<tr>
<td>11 to 25</td>
<td>18%</td>
</tr>
<tr>
<td>26 to 50</td>
<td>5%</td>
</tr>
<tr>
<td>51 to 100</td>
<td>2%</td>
</tr>
</tbody>
</table>

Performance Metrics

Core Measures

- Catheter-Associated Urinary Tract Infections
- Pressure Ulcers
- Vascular Catheter-Associated Infections
- Falls and Traumas
- Medication Errors

EBP Priorities

How much do you believe implementation of EBP improves quality & patient outcomes?

<table>
<thead>
<tr>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
</tr>
</tbody>
</table>

EBP Beliefs, EBP Implementation, EBP Culture

<table>
<thead>
<tr>
<th>Description</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBP_Beliefs_SUM</td>
<td>275</td>
<td>18.00</td>
<td>80.00</td>
<td>60.2</td>
<td>11.2195</td>
</tr>
<tr>
<td>EBP_Belief_Implementation_SUM</td>
<td>275</td>
<td>.00</td>
<td>72.00</td>
<td>27.8</td>
<td>14.9707</td>
</tr>
<tr>
<td>ORG_CULT_READINESS_SUM</td>
<td>275</td>
<td>14.00</td>
<td>70.00</td>
<td>41.9</td>
<td>11.8030</td>
</tr>
<tr>
<td>EBP_READINESS</td>
<td>275</td>
<td>1</td>
<td>5</td>
<td>3.41</td>
<td>1.180</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>275</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CNOs EBP Beliefs
I am sure that I can implement EBP

CNOs EBP Beliefs
I am sure about how to measure the outcomes of services provided to patients

CNOs EBP Implementation
In the past 8 weeks I have... Generated a PICOT question about my leadership or clinical practice in my organization

CNOs EBP Implementation
In the past 8 weeks I have... Accessed the National Guidelines Clearinghouse

Organizational Readiness for EBP
To what extent do you believe that EBP is practiced in your organization?

Organizational Readiness
In your organization, to what extent is there a critical mass of nurses who have strong EBP knowledge & skills?
As a CNO/CNE, what are the top priorities that you are currently focused on in your role?

Creating a Culture and Environment to Sustain EBP

What Works

The only person that likes a change is a baby with a wet diaper!

An Essential Element Required for a Successful Change to System-wide EBP

A Vision with Specific Written Goals

We must begin with the end in mind

SHOCK!

“You are asking me to implement EBP on top of everything else that I do?”

STRESSED!
Change Fatigue

Critical Components of an EBP Culture

A Philosophy, Mission and Commitment to EBP:
- There must be commitment to advance EBP across the organization as evidenced in orientation, clinical ladders, evaluations

A Spirit of Inquiry:
- Health professionals are encouraged to continuously ask questions, review and analyze practices to improve patient outcomes

EBP Mentors:
- Who have in-depth knowledge and skills in EBP, mentoring others, and overcoming barriers to individual and organizational change

Critical Components of an EBP Culture

Administrative Role: Modeling and Support:
- Leaders who value and model EBP as well as provide the needed resources to sustain it

Infrastructure:
- Tools and resources that enhance EBP across the organization; computer for searching, up-to-date data bases, library resources

Recognition:
- Individuals and units are rewarded regularly for EBP

EBP Competencies for Practicing Nurses and Advanced Practice Nurses

The Establishment of Evidence-based Practice Competencies for Practicing Registered Nurses and Advanced Practice Nurses in Real-World Clinical Settings: Proficiencies to Improve Healthcare Quality, Reliability, Patient Outcomes, and Costs

2014 Bernadette Mazurek Melnyk, RN, PhD, CNPN/PMHNP, FAANP, FNAP, FANN
Lynn Gallagher-Ford, RN, PhD, DPFNAP, NE-BC
Lisa English Long, RN, MSN, CNS
Ellen Fineout-Overholt, RN, PhD, FAAN

Making Use of the Competencies

The new EBP competencies should be integrated into healthcare system orientation programs, clinical ladders, and performance appraisals

Incorporating the competencies into real-world practice settings will assist healthcare systems in improving quality, safety, and patient outcomes as well as reducing costs!

Return on Investment with EBP

It is critical to establish ROI with EBP projects

ROI helps with sustainability of EBP

We must measure quality indicators, which include:
- Hospital-acquired conditions (HACs) declared by the Centers for Medicare and Medicaid (CMS) as preventable unless present upon admission to the hospital (Centers for Medicare & Medicaid Services (CMS), 2014); or

- Those included in the scoring for the value-based purchasing program (VBP) that CMS began in 2013, whereby incentive payments will be distributed across all hospitals performing in the top 50% on selected quality indicators. These incentive payments are based on how closely hospitals follow best clinical practices and how well they enhance patients’ experiences of care (CMS, 2012).
Evidence to Support ARCC

- **Study #1**: Descriptive correlational study with 160 nurses
- **Study #2**: A psychometric study of the EBP beliefs and EBP implementation scales with 360 nurses
- **Study #3**: A randomized controlled pilot study with 47 nurses in the VNS
- **Study #4**: A quasi-experimental study with 159 nurses in a clinical research medical center environment
- **Study #5**: A pre-experimental study with 52 clinicians at WHHS

Outcomes of Implementing the ARCC Model at Washington Hospital Healthcare System

- Early ambulation in the ICU resulted in a reduction in ventilator days from 11.6 to 8.9 days and no VAP
- Pressure ulcer rates were reduced from 6.07% to 0.62% on a medical-surgical unit
- Education of CHF patients led to a 14.7% reduction in hospital readmissions
- 75% of parents perceived the overall quality of care as excellent after implementation of family centered care compared to 22.2% pre-implementation

The simple provision of resources and dissemination of information alone will not lead to uptake of EBP

A multi-component active strategy is necessary, including behavior and organizational change strategies

**Diffusion of Innovation**

- **Innovators**: 2.5%
- **Early Adopters**: 13.5%
- **Early Majority**: 34%
- **Late Majority**: 34%
- **Laggards**: 16%

A key ingredient for success is persistence as there will be many “character-building” experiences along the way!!

“**At least I have found 9000 ways that it won’t work.**”

Thomas Edison
Ask yourself:

• What will you do if you know you can not fail in the next 2 to 5 years?
• What is the smallest EBP change that you can make tomorrow that would have the largest positive impact for your patients’ outcomes?

“...because we’ve always done it that way.”

The Next 2-5 Years

What can we do together in the next 2 to 5 years if we know that we cannot fail?

Let’s shoot for the moon, even if we miss, we will land amongst the stars.

There Is A Magic In Thinking Big!

-Gary Brown