Evidence Based Practice
Perspectives from a CNS

Michael Criswell DNP, CCNS
What’s wrong with this picture?
• 191 standardized, private hospital patient rooms
• A fully electronic medical record system that allows seamless linkage with all Indiana University Health partners
• 12 technologically-advanced surgical suites with open heart and neurosurgical capabilities
• Level III Neonatal Intensive Care Unit
• Dedicated oncology unit
• Life Line air and ground critical transport on site
Illustrating a Point on EBP

Great things are not accomplished by those who yield to trends and fads and popular opinion.” -Jack Kerouac
Lunar Astronaut Buzz Aldrin Celebrated Communion on the Moon after he landed in the Lunar Module “Eagle”
Astronaut Buzz Aldrin says that when he landed on the moon in the Lunar Module “Eagle” on the Sea of Tranquility on July 20, 1969, he called the Houston Space Center to request a moment of silence and celebrated the Christian sacrament of Communion. (Guideposts, 1999)
FACT OR FICTION?

NASA Kept the Lunar Communion Service a Secret for 20 years
IT IS FICTION!

NASA did blackout the broadcast of the communion service but it was not blacked out for 20 years as has been described.
FACT OR FICTION?

A Crocodile found in New Orleans swimming down the street after Hurricane Katrina, was **21 feet long**, **4,500 lbs**, and around **80 years old**.

Specialists said that he was looking to eat humans because he was too old to catch animals.

The crocodile was killed by the army and that its carcass was in a freezer at the Azur Hotel.
IT IS FICTION!

The story is a hoax!

The pictures are authentic, but are of a crocodile that was captured in the Congo, Africa long before Hurricane Katrina.

The army and the Azur hotel are in the Congo.

Estimates of the size of the crocodile are about 16 feet long and more than 1,000 lbs.
Aspartame

The ingredient of NutraSweet, Is Linked to Multiple Sclerosis and Systemic Lupus.
IT IS DISPUTED – FICTION!

David Squillacote, MD Senior Medical Advisor for the MS foundation:

“While there are good people who disagree about NutraSweet, the facts are, that there is no evidence about Aspartame affecting MS or Lupus no evidence that the product is bad for diabetics”.

FDA states Aspartame is one of the most studied and researched products. The American Diabetic Association says “it recognizes not credible scientific evidence linking Aspartame to any health-related problems for people with diabetes, and that Aspartame and other FDA approved non-nutritive sweeteners are acceptable sugar substitutes and a safe part of a diabetic meal plan”
On Evidence Based Practice:

“It ain’t what people don’t know that hurts them, it’s what they know that ain’t so”
Today’s Discussion

• The Definition of Evidence Based Practice (EBP) in Nursing
• Reflections on EBP: what it IS and what it is NOT
• EBP: my personal history
• Steps in EBP
• Making EBP a reality: information resources
• Where do we go from here: making change happen
What is Evidence Based Practice (EBP)

Definition:

“Evidence-Based Practice (EBP) is the conscientious use of current best evidence in making decisions about patient care”

(Sackett, Straus, Richardson, Rosenberg & Haynes, 2000).
EBP Is A Problem Solving Approach That Integrates:

• The best external evidence
• A search and appraisal of the most relevant literature to answer the clinical question.
• An Individual’s clinical experience
• Patient’s preferences and values

EBP IS NOT:

- A framework that we have been using for ages
- Research Utilization
- Quality improvement
- A cookbook or cookie cutter approach to managing clinical practice
- Only possible in ivory towers
- Restricted only to randomized clinical trials and systematic reviews
- A cost cutting approach or one that suppresses clinical freedom
What Does the Science Tell Us About EBP?

- It takes about one to two decades for original research results into daily practice (TRIP – II, AHRQ 2012)
- Unacceptable to patients best care practice recommendations
- EBP is a young discipline and evolving, we are just now beginning to see the positive impacts
- An evidence-based policy or procedure does not a practice change make!
- Efforts by the federal government and professional organizations:
  - Synthesis of evidence, including research evidence
  - Formulation of guidelines
  - Dissemination of guidelines
Quality Care Demands EBP

Professional social and ethical necessity to ensure safe patient care

Doing things the way that they’ve always been done is no longer acceptable.
A personal history

1976 – Nursing student (St. Elizabeth SON diploma program) working in ICU/CCU as nursing technician

Observed cardiac patients in one large room on bed rest for days after MI

Observed IV Lidocaine for all patients with AMI

Observed Lemon and Glycerin swabs used for oral care on all NPO patients
1979 – Graduated nursing school and worked in ICU/CCU.

Observed patients taken off ventilators for routine suctioning. Endotracheal tubes lavaged every 2 hours with NS then suctioned.

Observed patient’s families only allowed to see patients 10 minutes 2 times a day.

Observed patients on bed rest for days while on ventilators no DVT prophylaxis.

Patients still in multi-patient rooms no privacy.
A personal history:

1984 – Graduated from Purdue University BSN Program worked in ICU.  
ICU patients now in private rooms  
Learned about nursing research. Always wondered why they waited until senior year to provide students with research information. 

1986 – Attending Emory University for MSN as CNS, 1st son Matt is born my wife Ruth had enema, episiotomy, and shave prep This was supposed to be the natural childbirth experience
A personal history

1987 – Graduated from Emory University with MSN. Thesis focused on the impact of adherence to central venous catheter protocols for dressing changes and the incidence of CL infections

1991 – My second son Seth is born, none of the interventions we experienced with Matt during childbirth were done anymore.
A personal history

**2005** – Attending Purdue University DNP program working as nursing clinical track professor EBP in Nursing a new catch phrase– attended the EBP immersion course at ASU by Bernadette Melnyk and Ellen Fineout-Overholt

**2008** – Graduated from Purdue University SON DNP program. DNP research focused on family presence in the ICU and the impact on nursing.

Observed ICU nurses allowing patients in ICU every 2-4 hours for 10 minutes at a time and not at all during night.
A personal history

2012 – Working as a CNS for IU Health Arnett Hospital.

Open family visitation is present in critical care and supported. Family satisfaction scores for HCAHPS improve.

Adherence to CL, VAP, CAUTI bundles supported by the evidence has reduced incidence of nosocomial infections to near zero levels in ICU for 15 months.
1856- A Bit of EBP History

- Nursing pioneer Florence Nightingale- systematic thinker and passionate statistician
- Nightingale assessed the environment, collected data, identified interventions and monitored patient outcomes. This approach mirrors modern-day evidence-based practice.
- Returning from Crimean War, after witnessing the desperate loss of life, unsanitary conditions, investigated causes of high mortality.
- She utilized the best possible research, accessed available government statistics and expertise.
- Resulted in recommendations for the creation of a statistical department to track rates of disease and mortality.
1972 - Move Forward in History

• 1972- The EBP movement founded by Dr. Archie Cochrane – British Epidemiologist

• Published landmark book that criticized the medical profession for not providing rigorous reviews of evidence so policy makers could make about healthcare.

• Strong proponent of RCT’s – provided the strongest level of evidence to base clinical decisions.

• Died in 1988 – his influence and calls for systematic reviews of RCT’s launched the Cochrane collaboration in 1992.
In 1997, the Agency for Healthcare Research and Quality launched its initiative to promote evidence-based practice in everyday care through establishment of the Evidence Based Practice Center (EPC) Program.

A “science partner”- with private and public organizations in their efforts to improve quality, effectiveness, and appropriateness of healthcare by synthesizing the evidence and facilitating translation of evidence based research.

After the 1997 IOM report “To Err is Human” which estimated that deaths due to medical errors exceeded the number attributable to the eighth leading U.S. cause of death, called for results to minimize medical errors.

The 2001 report identified that due to rapid changes in medical science and technology, and complexity of health care, the system has fallen short, creating a chasm, in its ability to translate knowledge into practice and to apply technology safely and appropriately.

In the report’s redesign of health care systems to achieve improvement aims— Rule # 5: All decision making is evidenced based— “Patients receive care based on the best clinical scientific knowledge. Care should not vary illogically from clinician to clinician or from place to place”.
Nursing Models for Evidence Based Practice

- EBP models assist nurses in transforming the evidence into clinical practice.
- The use of models can maximize nurses time and resources, and aid in implementation completion.
- No one single nursing model will meet all nursing practice needs
- Organizations need to use a systematic approach to selecting the correct model that best meets the needs of their institution
Iowa Model (Titler 1994)

- Organizational Model incorporates research and other forms of evidence.
  - Identification of significance, problem focused triggers, knowledge focused triggers,
  - priority for organization, team formation,
  - assemble relevant and related literature,
  - critique and synthesize research
The ACE STAR Model
(Stevens - 2004)

A model for understanding the cycles, nature and characteristics of knowledge that are utilized in various aspects of EBP.

Configured as a 5 point star, the model illustrates five major changes of knowledge transformation:

1. Knowledge discovery
2. Evidence summary
3. Translation into practice
4. Integration into practice
5. Evaluation
ACE Star Model of Knowledge Transformation

Discovery
Research

Evidence
Summary

Translation to
Guidelines

Practice
Integration

Process,
Outcome
Evaluation
Other Nursing Models of EBP

• Rossworm and Larrabee Model (1999) – A Model for Change to Evidence Based Practice:
  – This model guides practitioners through entire process of EBP using similar stages as the nursing process.

• Stetler Model (1994) –
  – A prescriptive approach that emphasizes the key role of critical thinking in research utilization
Steps of Evidence-Based Practice

AHRQ Model of Knowledge Transfer:

• 1. Knowledge Creation and Distillation – the conduct of research and then converting the research findings into products that can be put into action (practice recommendations)

• 2. Diffusion and Dissemination – partnering with professional organizations and health care organizations to spread knowledge that will form the basis of action

• 3. Organizational Adoption and Implementation – Getting teams and individuals to consistently use the evidenced based research findings and innovations in everyday practice.
The A’s of the EBP Process:

**ASSESS** the patient:
1. Start with the patient – a clinical problem or question arises from the care of the patient

**ASK** the clinical question:
2. Construct a well built clinical question derived from the case (PICO)

**ACQUIRE** the evidence:
3. Select the appropriate resource(s) and conduct a search

**APPRAISE** the evidence:
4. Appraise that evidence for its validity (closeness to the truth) and applicability (usefulness in clinical practice)

**APPLY** talk with the patient:
5. Return to the patient – integrate that evidence with clinical expertise, patient preferences and apply it to practice
Asking the Clinical Question

P = population of interest
I = intervention of interest
C = comparison group
O = outcome of interest
T = time
Where Do You Get Your Information?
Sources of Information for Nurses

- **Primary Source** - original research published in peer reviewed journals; audience are researchers and specialists.

- **Secondary Source** – compilations are written in a language more accessible for the broader audience, derived from a primary source literature examples are: systematic reviews and meta analysis; audience colleagues in a respective discipline.

- **Tertiary Source** – textbooks, encyclopedias, guidebooks – filters and compiles primary and secondary sources. Provides a key overview of research findings excellent source for students.

- **Popular Source** – health science media is to make awareness of new research findings, prevention and treatment magazines, news intended for the general public.
Acquire the Evidence: Information Resources:

**National Guideline Clearinghouse**
A resource from the Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services

**Cochrane Collaboration**
Produces systematic reviews of health care interventions

**Joanna Briggs Institute**
Research review database on nursing and other health care topics

**CINAHL:** Cumulative Index of Nursing and Allied Health Literature (1982-present)
Studies in nursing, allied health, and biomedicine

**MEDLINE:** (1966-present)
Studies in medicine, nursing, dentistry, psychiatry, and allied health

Source: Evidence-Based Nursing: The Research-Practice Connection, S. J. Brown, 2009
Finding and Critically Appraising the Evidence Using a Problem Solving Approach

- Research Evidence:
  - Randomized Clinical Trials
  - Descriptive studies
  - Qualitative studies
- Principles of logic and theory
- Quality Improvement Studies
- Clinical Knowledge gained from practitioner's experience
- Patient and Practitioner’s preferences
Levels of Evidence:
Evidence Quality Based on Research Type AHRQ 2005

Level I: Meta-Analysis
(combination of data from many studies)

Level II: Experimental Designs (RCT)

Level III: Well Designed Quasi-Experimental Designs
(not randomized or no control group)

Level IV: Well Designed Non-Experimental Designs
(descriptive can include qualitative)

Level V: Case Reports Expert Opinions based on clinical experience, descriptive studies, expert committees
Strength of the Evidence: **SORT** Strength of Recommendation Taxonomy

A: Consistent good-quality, patient-oriented evidence

B: Inconsistent or limited-quality, patient-oriented evidence

C: Consensus, disease-oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention or screening
## GRADE: Grading of Recommendations Assessment Development and Evaluation (ABCD)

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<thead>
<tr>
<th>CODE</th>
<th>QUALITY</th>
<th>DEFINITION</th>
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<tbody>
<tr>
<td>A</td>
<td>HIGH</td>
<td>Further studies won't change confidence in estimate of effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(several high quality studies)</td>
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<tr>
<td>B</td>
<td>MODERATE</td>
<td>Further studies may have an impact on confidence of estimate of effect</td>
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<tr>
<td></td>
<td></td>
<td>(one high quality study)</td>
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<tr>
<td>C</td>
<td>LOW</td>
<td>Further research is likely to have an impact on confidence of effect</td>
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<tr>
<td></td>
<td></td>
<td>(one or more study with severe limitations)</td>
</tr>
<tr>
<td>D</td>
<td>VERY LOW</td>
<td>Any estimate of effect is uncertain</td>
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<td></td>
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<td>(opinion, no direct evidence)</td>
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How To Critically Appraise the Evidence

Rate the evidence on a hierarchy:

( Level and Grade)

Ask the following 4 questions:

1. Are the results of the study valid?
2. What are the results are they significant?
   
   Evaluate the **POWER** of the evidence:
   
   Treatment effect, ARR, OR, NNT, CI
3. Can I generalize the results to help in caring for my patient?
4. Can you trust the results?
Applying the evidence to my patient:

- Is there consistency across similar studies?
- Types and quality of studies?
- Is there enough evidence to change practice?
- Is there enough evidence to continue the current practice?
- Are the study results similar to my patient of interest?
- Were all clinically important outcomes considered?
- Are the treatment benefits worth the potential harms and costs?
Translating the Evidence into Implementation

Is there sufficient evidence?

If yes – then move into translation and dissemination of research (pilot the change)

– “Diffusion of Innovation: the process by which an innovation is communicated among members of a social system” Everett Rodgers, 1995.

Dissemination of evidence is about Adoption and Process Improvement
A Meta-analysis indicates that patients who receive research-based nursing interventions can expect 28% better outcomes than 72% of the patients who receive standard nursing care.

Example of Asking the Important Clinical Question

“Does the use of a teaching tool on compression stocking use reduce the reoccurrence of venous ulcers in obese patients diagnosed with venous insufficiency when compared to usual care”?

Population = Obese patients diagnosed with venous insufficiency

Intervention = Compression stocking teaching tool

Comparison = Incidence of venous ulcer before the intervention

Outcome = Incidence of venous ulcer after the intervention

Time = 3 months, 6 months, ongoing
Use the Correct Search Terms

CINAHL PLUS Full Search under EBSCO Host:

• First run: Venous Ulcers
  – 1,075

• Second run: Define limits (narrow dates 1997-2012)
  – 905

• Third run: “Patient Education”
  – 39

• Fourth run: add “Tool”
  – 1
Guideline for the Management of Wounds in Patients with Lower-Extremity Venous Disease

• Educate patients that compression stockings or other compression wrap/bandages must be worn every day for the prevention of venous edema and venous leg ulcer recurrence. LEVEL A

• Compression therapy has been proven beneficial for venous ulcer treatment and is the standard of care. LEVEL A

• Leg elevation minimizes edema in patients with venous insufficiency and is recommended as adjunctive therapy for venous ulcers. The recommended regimen is 30 minutes, three or four times per day. LEVEL C

• Dressings are beneficial for venous ulcer healing, but no dressing has been shown to be superior. LEVEL A

• Pentoxifylline (Trental) is effective when used with compression therapy for venous ulcers, and may be useful as monotherapy. LEVEL A

• Aspirin (300 mg per day) is effective when used with compression therapy for venous ulcers. LEVEL B

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series.
Is EBP changing clinical practice?

Current state:

• A move from opinion to systematic review of the evidence
• Research and nursing practice are now partners
• Including patient preferences and partnership in care delivery and decision making
• EHR’s allow for access to patient data
• All health professionals use information systems and tools
• Patients have access to information and are making informed decisions
Myths and Barriers to EBP in Nursing

- **Resistant to Changes in Nursing Practice:**
  
  “I won’t ever use nursing research in my practice”
  
  “Nursing research is only for advanced practice nurses and nursing professors”
  
  “I won’t have to know anything about nursing research unless I work in a Magnet hospital”

- **Facing Your Fears:**
  
  “It is just too overwhelming”
  
  “I don’t have the knowledge or skills”
  
  “I have too many workload pressures and other competing priorities”

- **Lack of Continuing Education Programs**

- **Poor Administrative Support**
Future Nursing Education for EBP

• Reduce the gaps in nursing research knowledge by providing evidence based education and nursing research classes early!
  – (i.e., freshman or sophomore year of nursing program)

• Key elements of a best practice culture are EBP mentors, partnerships between academic and clinical settings EBP champions, clearly written research, time and resources, and administrative support

• Promote and ensure that nurses engage in lifelong learning. Nurses should achieve higher levels of education through an improved education system – seamless progression

• Nurses should practice to the full extent of their training – remove scope of practice barriers
In Closing: Do Things Right or Do the Right Things?

Doing things right means dotting all I’s and crossing all T’s

You can do things right and still miss the mark – you can be precise and well prepared but if you are doing the wrong things you will never achieve the desired results

Doing the right things – focusing on what’s important “The Big Picture”

The answer is EBP
"Don't accept your dog's admiration as conclusive evidence that you are wonderful."

Ann Landers
ANY QUESTIONS?

THANK YOU FOR INVITING ME TO SPEAK TO YOU TODAY.
References:

References:

