Igniting the Flame: Mentoring the Staff Nurses in Evidence Generation and Utilization

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ADVANCING NURSING THROUGH KNOWLEDGE & INNOVATION

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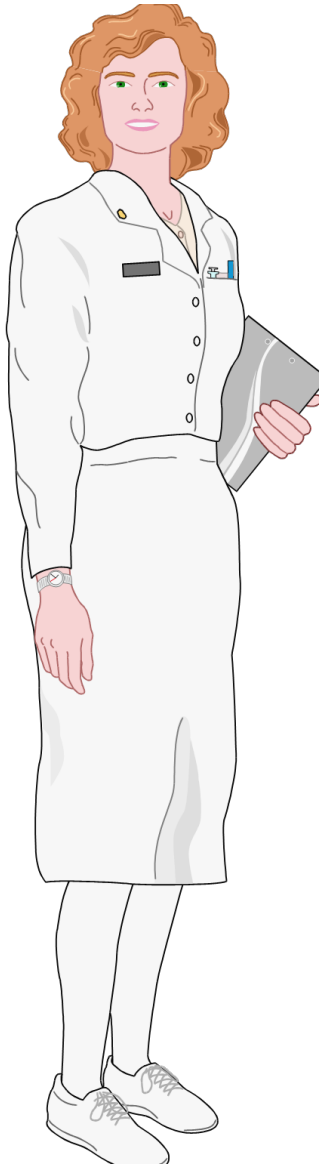
Research/Evidence Based Practices

- “I could never do that”
- “I don’t know how I would ever get started”
- “Boring”
- “The process seems so frightening & overwhelming”
- “I really don’t understand it or know enough about it to be able to do research”

University/Education Outcome:

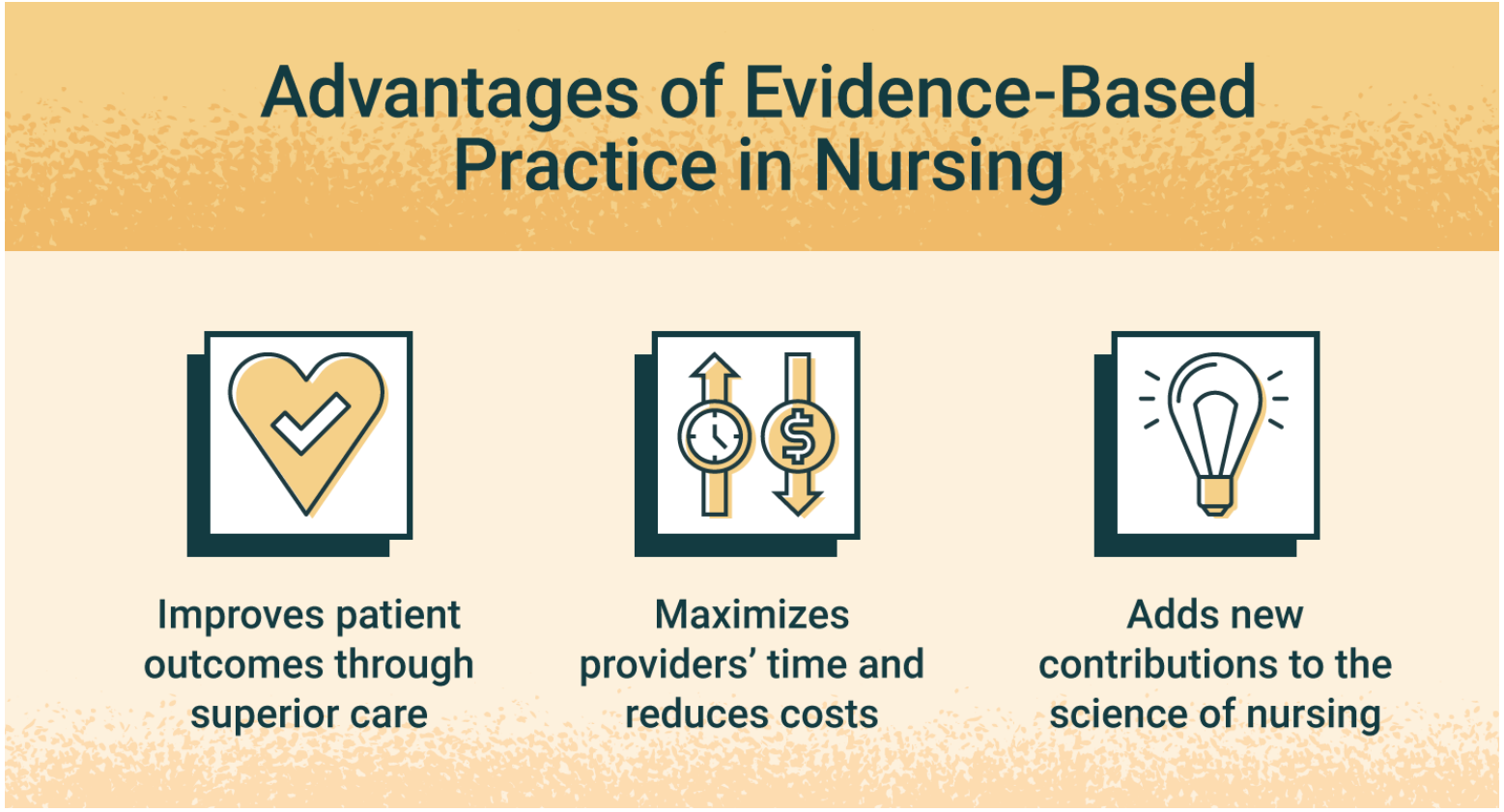
Limited knowledge in evaluation of research, quality improvement, evidence-based practice---how to utilize it or conduct it.



“Because we always do it that way”

Research/Evidence-Based Utilization Activities

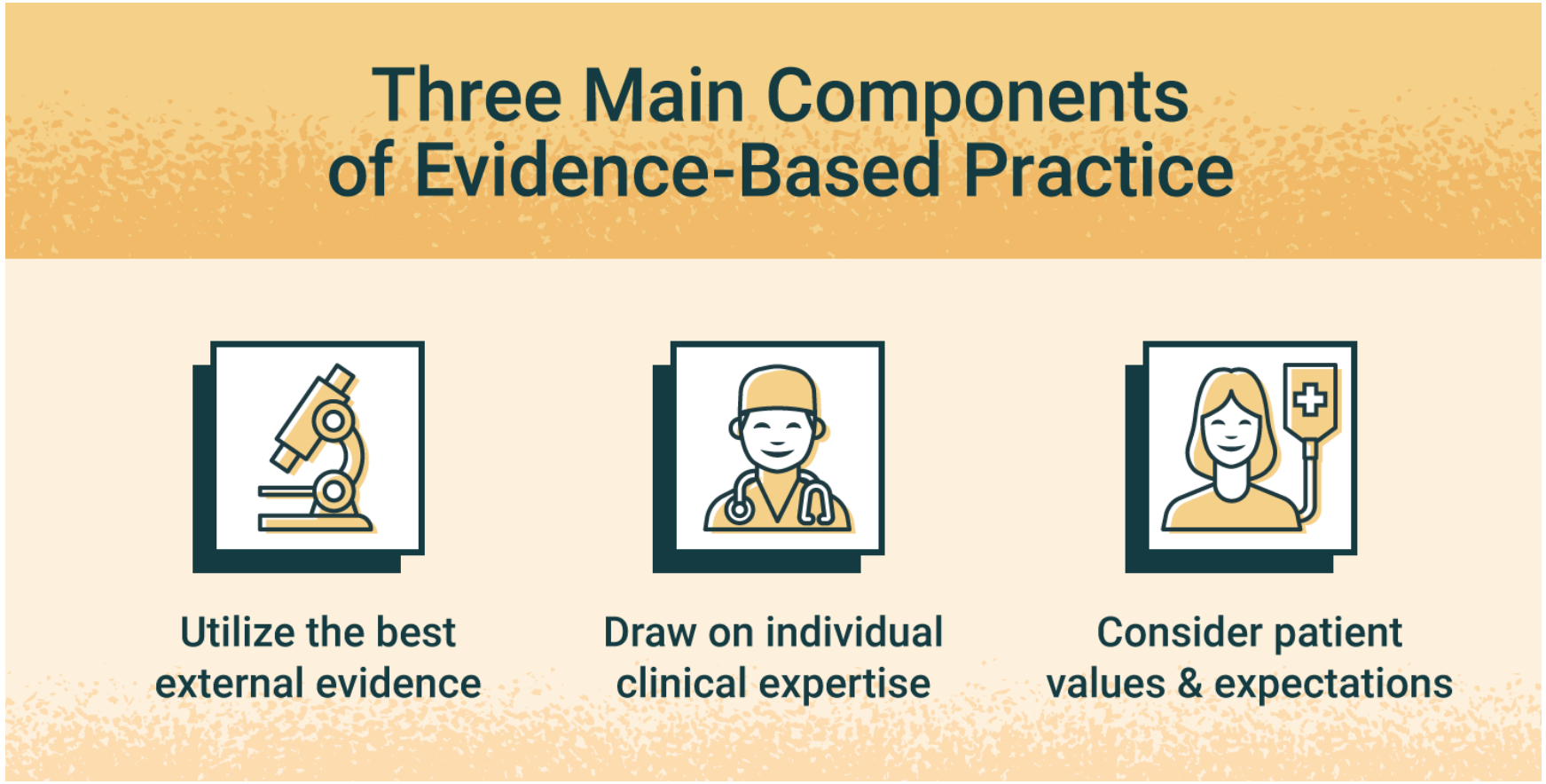
Provides the reasoning by which:



Nurses should feel empowered to change **practice using** proven methods

EVIDENCE - BASED PRACTICE MODEL

Evidenced-Based Practice



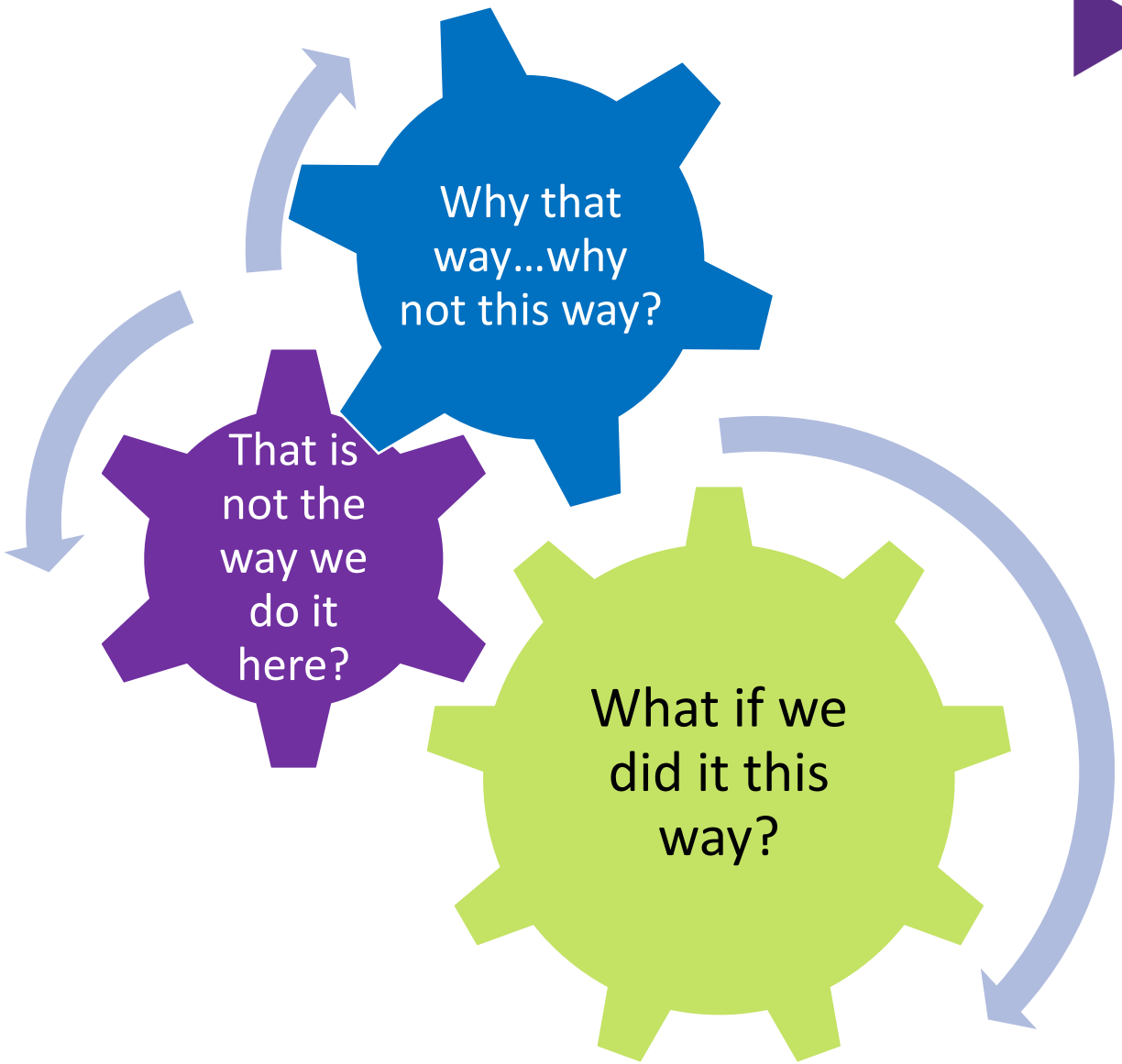
…..in making decisions about clinical practice.

Evidence Based Nursing

- Asking a clinical question
- Searching the literature for relevant research
- Critically appraising what has been found
- If change is warranted by the research evidence and if it fits with clinician skills, resource availability, and patient preferences, then the following stages also take place:
  - Implementing the change in practice
  - Evaluating the change in practice

Research-Evidence

- To Describe
- To Explain
- To Predict
- To Explore
- To Discover

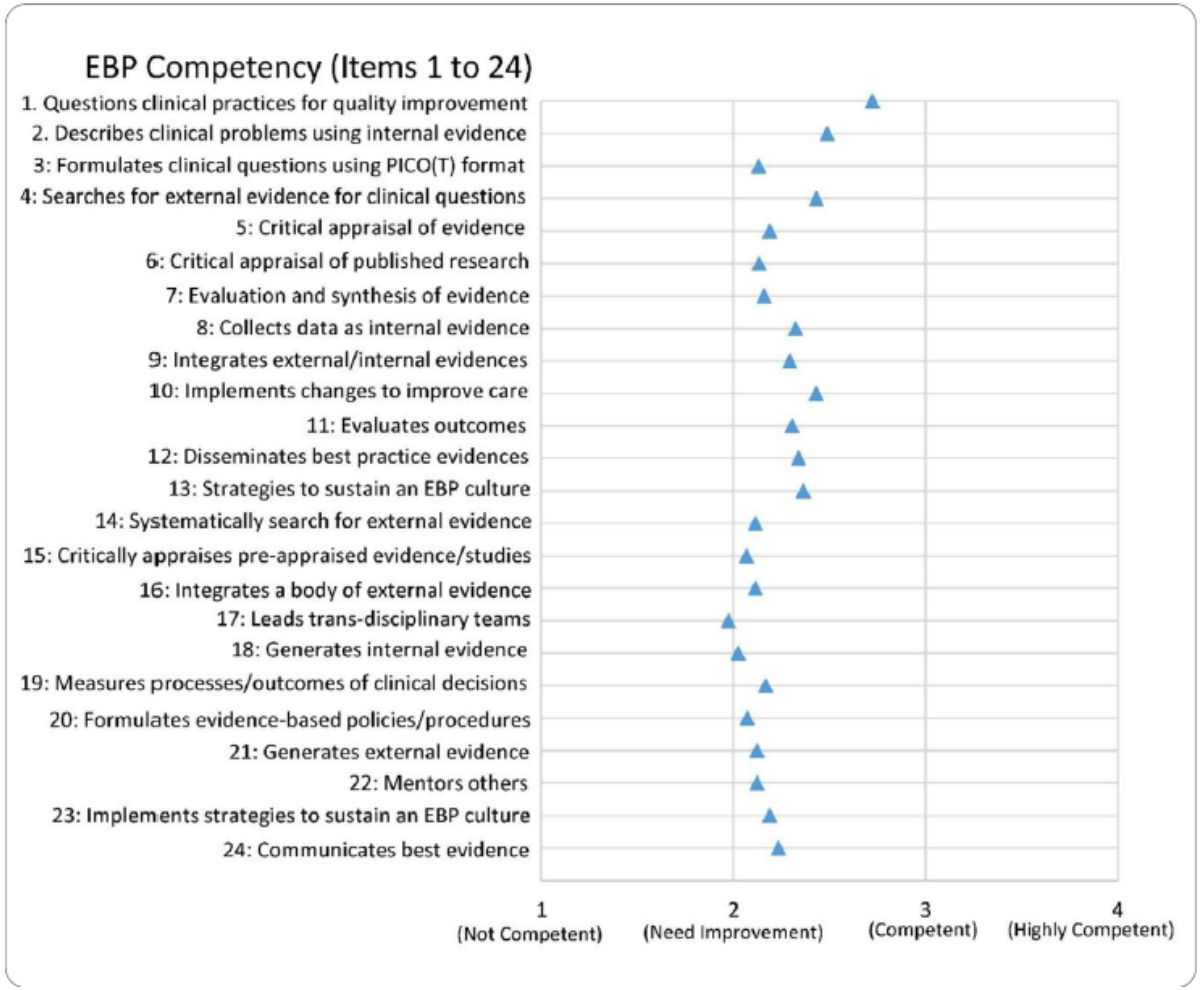


What's the Difference: QI, EBP, & Research

- Quality Improvement
  - Quality improvement seeks to standardize processes and structure to reduce variation, and improve outcomes for patients, healthcare systems, and organizations.
- Evidence-Based Practice
  - Integration of best practice research with clinical expertise & patient's unique preferences and values
- Research
  - Systematic inquiry to answer a question using disciplined methods

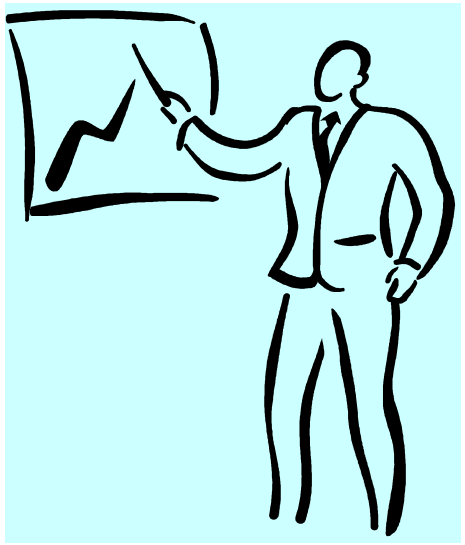
Nurses Self Perceived Deficits to EBP

- 2,344 nurses
- 19 Hospitals
- Younger nurses & nurses with higher education reported ↑ EBP competency
- + correlation between EBP competency & EBP mentors



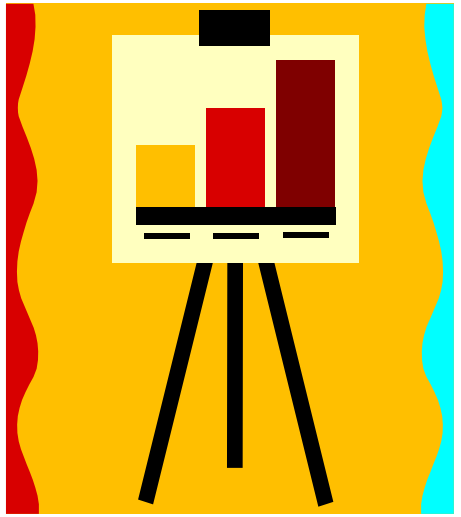
Melynk BM, et al. World Evidence-Based Nursing, 2017;0:1-10

Why Evidence Based Practice?



Everyone Must Bring Data!

& a Story

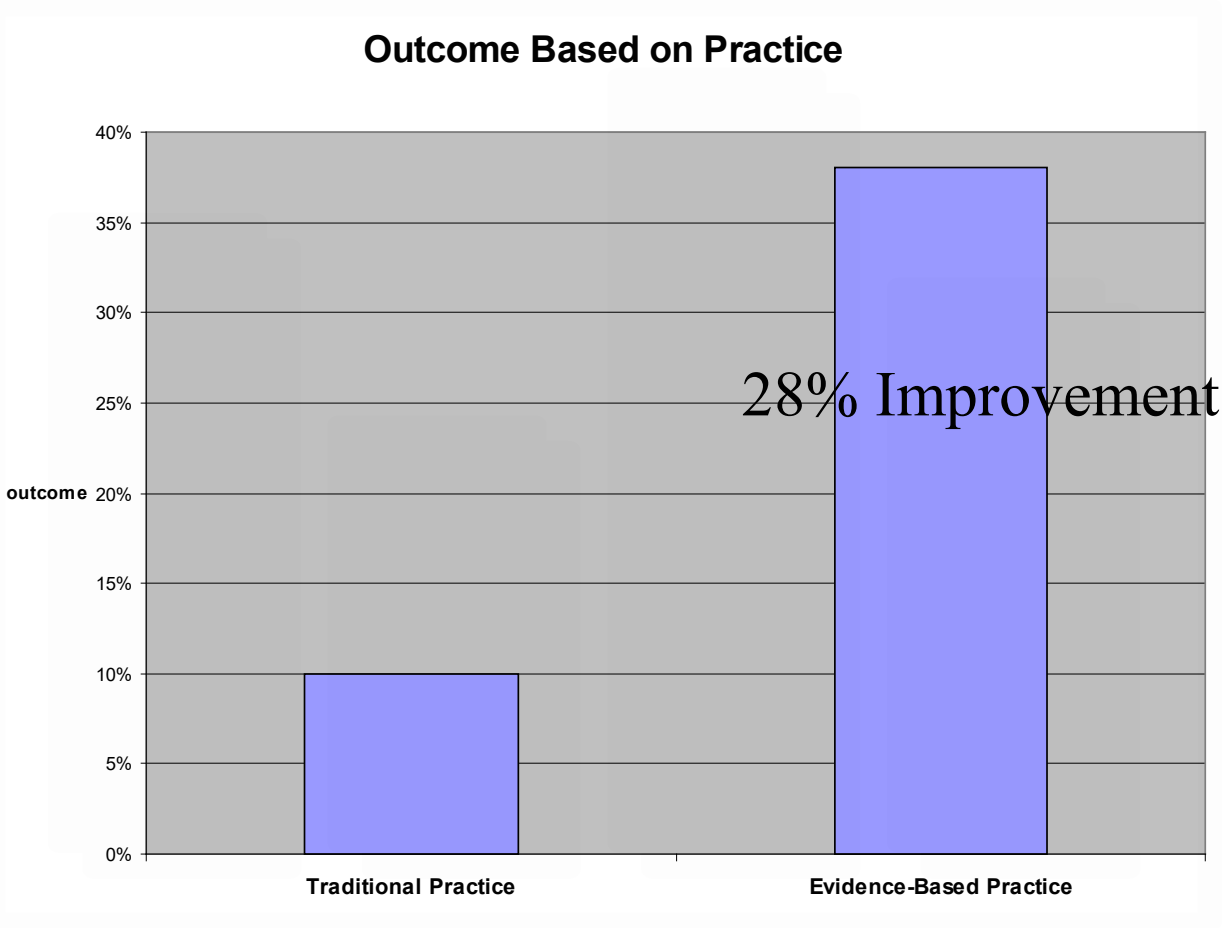


Examples of Dated Practices

- Recording vital signs every four hours at night on stable patients, despite their need for on disrupted sleep for recovery
- Removing urinary catheters only upon a physician's order to do so although the removal of catheters according to a nurse driven protocol is more efficient may prevent CAUTI's
- Not performing delirium screening on patients in the ICU. This failure cost 4 to 6 18 billion annually because delirium affects up to 80% of ICU patients.
- Valuing the role of family members: Knowing that the recognition of family involvement may lead to more efficient and effective care, as family members may significantly influence how a patient presents symptoms to healthcare providers.

Yoder JC, et al. JAMA Intern Med. 2013;173:1554-1555
Magers TL, Evidence Based Practice in Nursing and Healthcare: A guide to Best Practice. 2014;70-73
Peitz GJ, et al. Crit Care Med, 2013;41(suppl 10):S46-56
Lewin SA, Skea ZC, Entwistle V, et al. Cochrane Database Syst Rev 2001: CD003267.

Why Evidence Based Practice?



Takes 17 years to translate findings into practice (Balas & Boren, 2000)—now 15 years (Kahn, Chambers & Neta (2021)

Heater, Becker, & Olson, 1988

Why Evidence Based Practice?

- Without evidence, practice is rapidly outdated:
  - 30-40% receive outdated practice
  - Dry dressing to allow pressure injuries to heal (Field FK, Kerstein MD. Overview of wound healing in a moist environment. *Am J Surg*. 1994;167(1A):2S-6S)
  - Shaving patients for Surgery (Tanner J, *Cochrane Database Syst Rev*. 2021;8(8):CD004122. Published 2021 Aug 26.)

Can you think of practice that you do that may be outdated?

Evidence Based Interventions

- Skin risk assessment in predicting patients likely to breakdown
  - Braden Skin Risk Assessment
- Oral care antisepsis & brushing the teeth for reducing the incidence of healthcare acquired pneumonia
- Best time of day to weigh a patient?
- Mobilization of patients reduces the risk of de-conditioning and long term complications of functional limitations

www,ihi.org; Macklebust,JA (2009) The Braden Scale reliable assessment to effective interventions
Morris PE, et al. Crit Care Med, 2008;36:2238-2243
Pohlman MC, et al. Crit Care Med, 2010;38:2089-2094
Schweickert WD, et al. Lancet, 373(9678):1874-82.
Schleder B. et al. J Advocate Health 2002;4(1):27-30

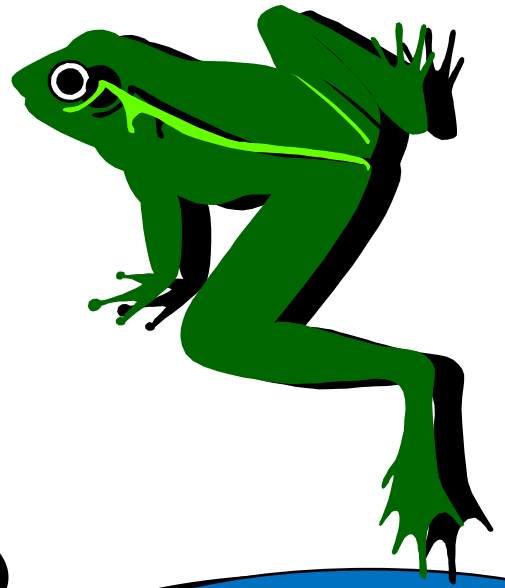

We Will Make a
Significant Difference in
Every Life with Touch

How Do We Get Information to Leap From the Pages of Magazines and Into Our Heads and Become Part of Our New Daily Routine?

Practice

Evidence

practice



Research

Starting the Journey

How to Make EBP Happen!!

- Organizational assessment
- Adopt a model that address QI, EBP & research conduct
- Create an evidence based friendly climate
- Increase comfort level in reading research
- Creating a PICOT question
- Personal ownership in the process
- Baby steps—QI, implementing guideline then conducting research
- Disseminating results

Pick a EBP Model

- Iowa Model
- Advancing Research and Clinical Practice through Close Collaboration (ARCC model)
- Joh Hopkins Nursing Evidence Based Practice Model

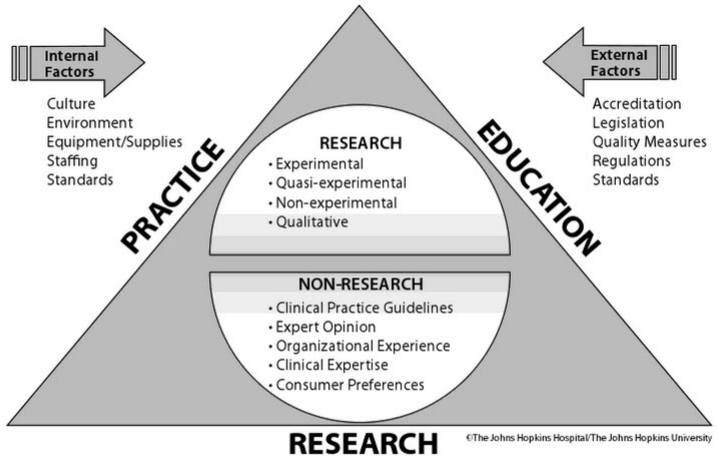
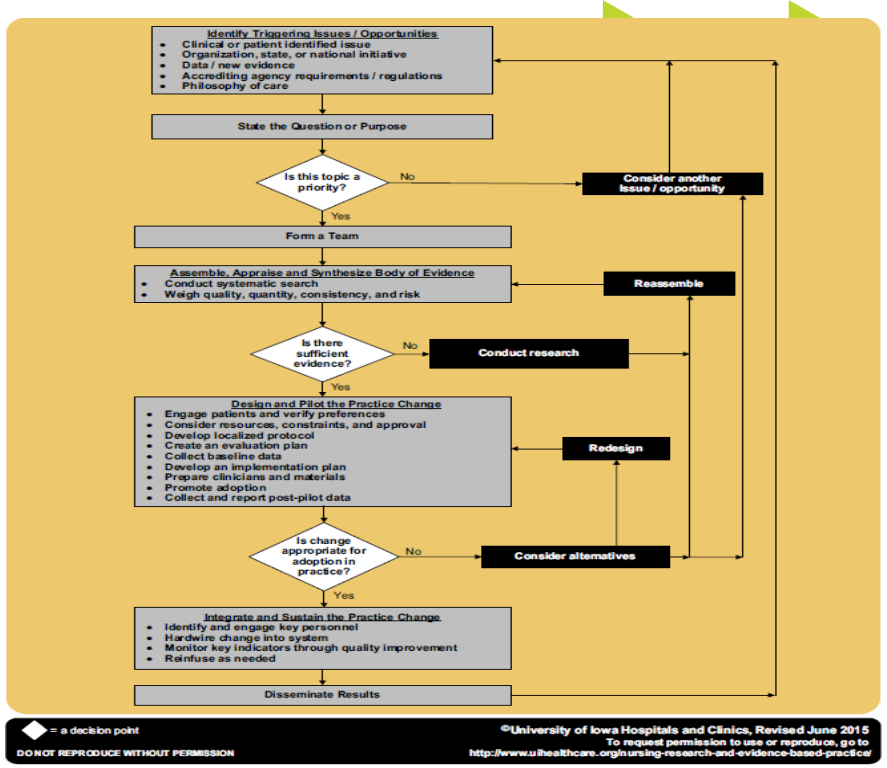
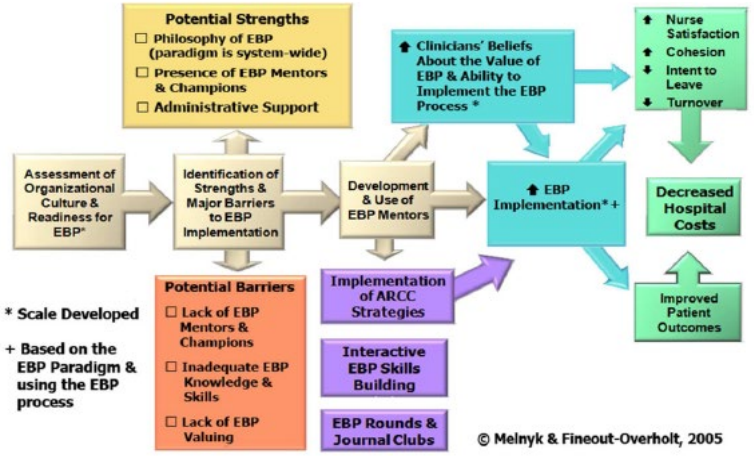


Figure 3.1 The Johns Hopkins Nursing Evidence-Based Practice Model





Key Component For a Successful Journey

Create a Research Friendly Climate

“The difference between what we know and what we do is lethal.”

Dr. David Satcher

16th United States Surgeon General

Components of Creating a Research Friendly Climate

- Mentoring
- Increase comfort level in reading research
- Always question practices and actions within your environment
- Integration into the infrastructure

Cultivate a Spirit of Inquiry & EBP Culture

- Set EBP as an institutional expectation and build it into the vision, mission and strategic plan of the organization
  - Organizations strategic plan
  - Staff evaluations
  - Competencies
  - Clinical ladder
- Incorporate EBP guidelines and practice changes into policies and procedures

Melnyk, BM., Fineout-Overholt E. EBP in Nursing & Healthcare, Lippincott. 2011
Melnyk BM. Worldviews on Evidence Based Nursing, 2016;13(2):99-101

Cultivate a Spirit of Inquiry & EBP Culture

- Include EBP as part of every new clinician's orientation
- Provide ongoing continuing education on EBP
- Disseminate results of EBP implementation
- Provide library and internet resources
- Clinicians encouraged and supported to consistently ask questions about the care they are delivering
- Develop EBP mentors to work regularly with clinicians at point of care

Melnyk, BM., Fineout-Overholt E. EBP in Nursing & Healthcare, Lippincott. 2011
Melnyk BM. Worldviews on Evidence Based Nursing, 2016;13(2):99-101

Mentoring

- Serves as a knowledge resource of the evidence based/research & change process
- Cheerleader/Motivator
- Fosters personal & professional growth
- Role models research utilization behaviors
- Consider increasing numbers through a fellowship program

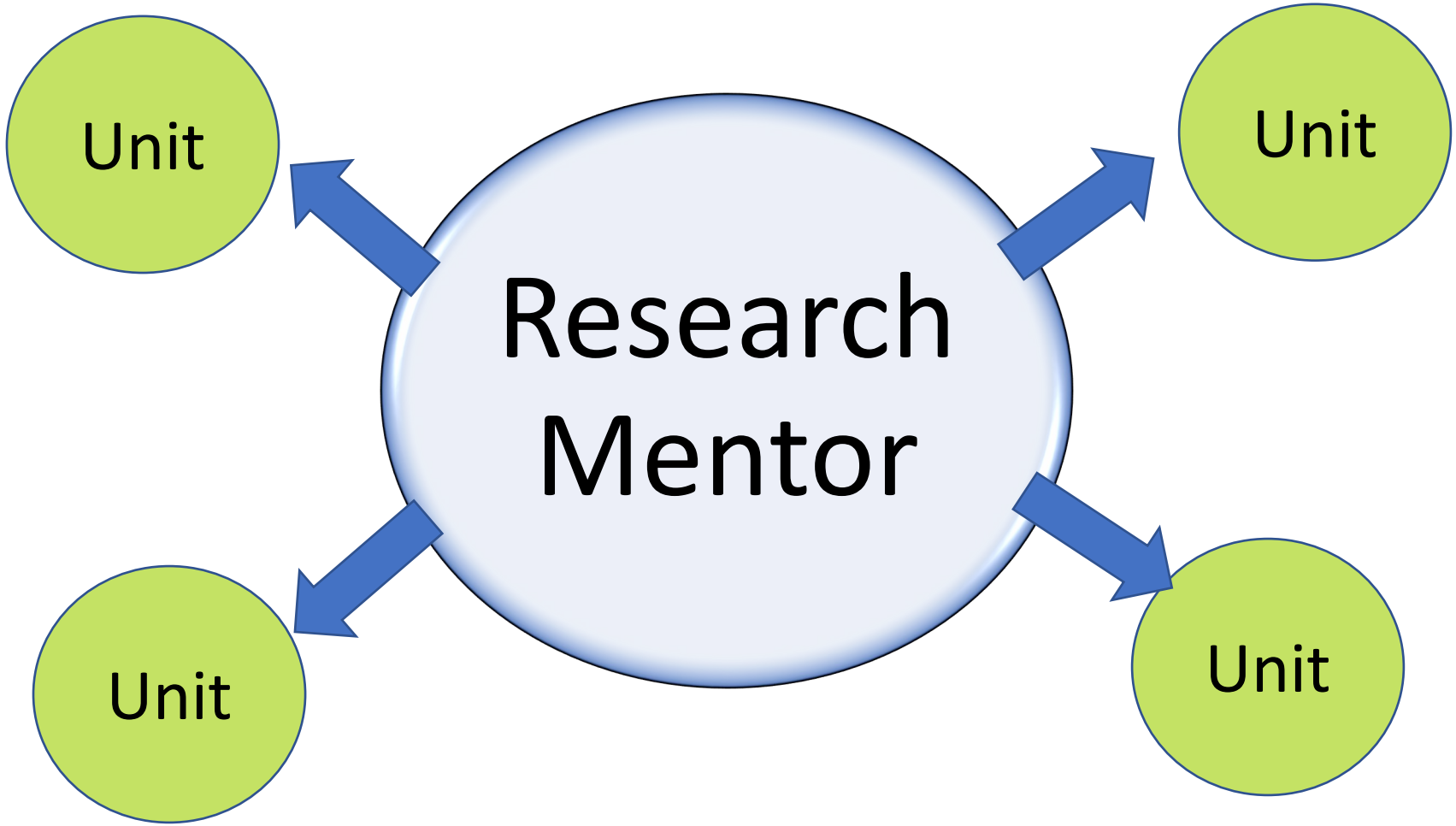
EBP/Research Mentor Qualifications

- Clinical currency
- Mentorship skills
- Research/EBP experience
- Positive attitude
- Strong interpersonal skills
- Familiar with the system

Links to Knowledgeable Resources

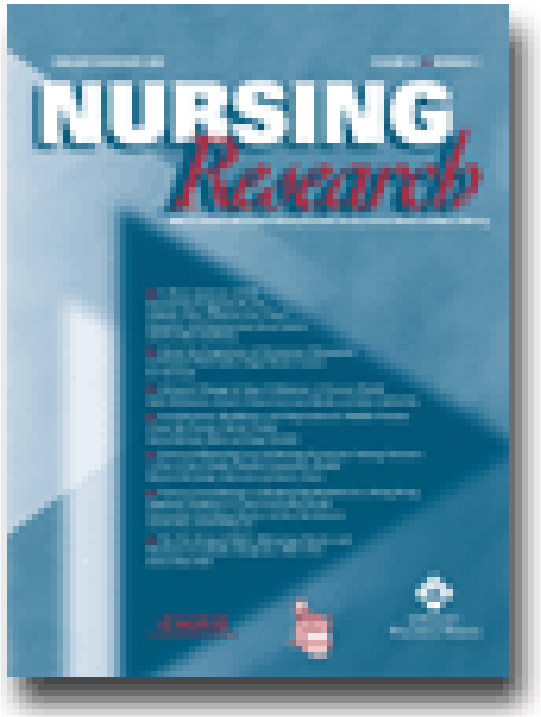
- Medical colleagues
- Graduate students
- Ph.D. faculty
- Onsite nurse researchers

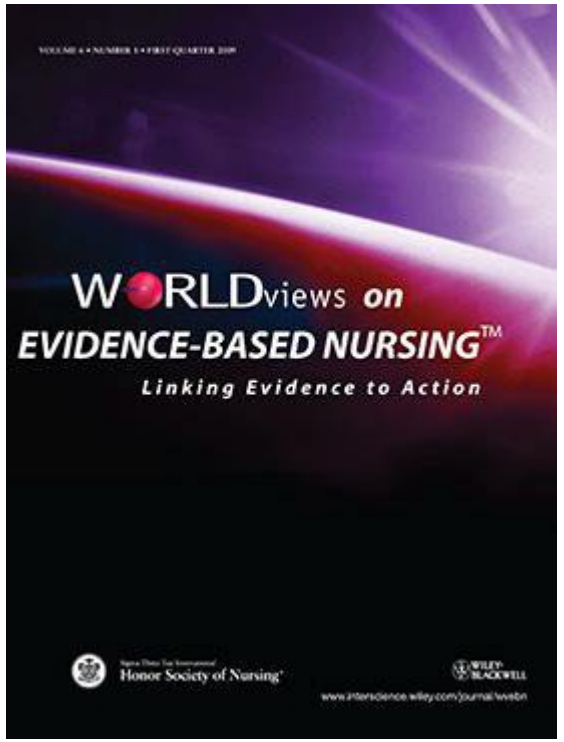
Example of a Unit Based Model



Local Level: Increased Comfort Level with Reading Research

- Journal Club





American Journal of Critical Care

Nursing Research

JBI COnNECT

Worldviews of Evidence Based Nursing

Journal Club

- ✓ Structured format
- ✓ Informal
- ✓ Unit-based

Purposes of a Journal Club

- Every level of practitioner can participate
- Promote critical thinking and clinical questioning
- Assess the validity and applicability of the literature
- Improve competence in critical appraisal
- Increase use of literature in clinical practice & influence change in practice
- Ideas can stimulate research studies or PI projects

Levin R & Fledman HR. Teaching Evidence Based Practice in Nursing, 2006. Springer, NY

Appraisal Tools

JBI CRITICAL APPRAISAL CHECKLIST FOR STUDIES REPORTING PREVALENCE DATA

Reviewer_____Date_____

Author_____Year_____ Record Number_____

		Yes	No	Unclear	Not applicable
1.	Was the sample frame appropriate to address the target population?	☐	☐	☐	☐
2.	Were study participants sampled in an appropriate way?	☐	☐	☐	☐
3.	Was the sample size adequate?	☐	☐	☐	☐
4.	Were the study subjects and the setting described in detail?	☐	☐	☐	☐
5.	Was the data analysis conducted with sufficient coverage of the identified sample?	☐	☐	☐	☐
6.	Were valid methods used for the identification of the condition?	☐	☐	☐	☐
7.	Was the condition measured in a standard, reliable way for all participants?	☐	☐	☐	☐
8.	Was there appropriate statistical analysis?	☐	☐	☐	☐
9.	Was the response rate adequate, and if not, was the low response rate managed appropriately?	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

Comments (Including reason for exclusion)

SYSTEMATIC REVIEW

CEBM — UNIVERSITY OF OXFORD

Are the results of the review valid?

What question (PICO) did the systematic review address?

What is best?	Where do I find the information?
The main question being addressed should be clearly stated. The exposure, such as a therapy or diagnostic test, and the outcome(s) of interest will often be expressed in terms of a simple relationship.	The Title, Abstract or final paragraph of the Introduction should clearly state the question. If you still cannot ascertain what the focused question is after reading these sections, search for another paper!

In this paper

Yes ☐ No ☐ Unclear ☐

Comment:

F – Is it unlikely that important, relevant studies were missed?

What is best?	Where do I find the information?
The starting point for a comprehensive search for all relevant studies is the major bibliographic databases (eg Medline, Cochrane, EMBASE, etc) but should also include a search of reference lists from relevant studies and contact with experts, particularly to inquire about unpublished studies. The search should not be limited to English language only. The search strategy should include both MESH terms and text words.	The Methods section should describe the search strategy, including the terms used, in some detail. The Results section will outline the number of titles and abstracts reviewed, the number of full-text studies retrieved, and the number of studies excluded together with the reasons for exclusion. This information may be presented in a figure or flow chart.

In this paper

Yes ☐ No ☐ Unclear ☐

Comment:

https://www.cebm.ox.ac.uk/resources/ebm-tools/critical-appraisal-tools
https://jbi.global/critical-appraisal-tools

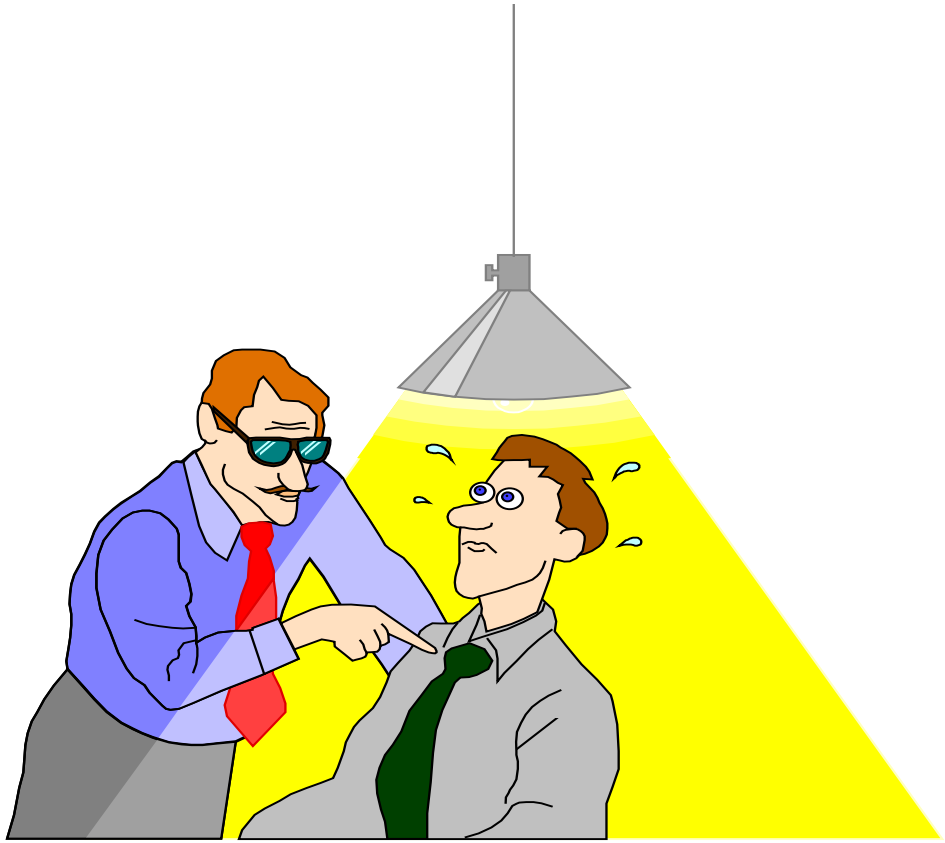
Clinical Practice Questions:

- What is the frontline strategy for hand washing? Is it soap & water or alcohol based hand washing?
- Does the trendelenburg position create any real improvement in perfusion/flow?
- Does the use of toothbrushing reduce the incidence of ventilator associated pneumonia?
- Which antiseptic is best for preparation of a central line insertion site?

Journal Club Outcomes

- ✓ Increased familiarity of the research terminology and process
- ✓ Revisions in policies and procedures
- ✓ Stimulated additional clinical questions

Questioning the Practice and Actions within your Environment



Personal Ownership in the Process

- Begin reading research articles
- Link with research knowledgeable individuals to help answer your questions
- Individual application of research findings if appropriate

Librarian's Role

- Master's degree in accessing information
- Frequently nurses unaware of what the librarian can do for them
- Training offered in multiple aspects of searching
  - Database searches
  - Best sources to answer nurses questions
  - How to formulate questions
- Partner in the process

Krom ZR, et al. Clin Nurs Specialist. 2010;24(2):54-59

My Story: Animal Research: Lateral Positioning

- Immobile 6-10 hrs
  - △ significantly lower PaO_2 ‘s & higher shunts
- Alternate lateral positioning every hour
  - △ moderate elevations in PaO_2 & lower shunts
- Alternate lateral positioning every 30 minutes
  - △ highest PaO_2 & lowest shunts

Ray JF, et al. Arch Surg 1974;109:537—41.

PICO Technique for Developing Questions

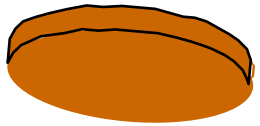
- P: Population
- I: Intervention
- C: Comparison Intervention
- O: Outcome
  - Intervention, Secondary Prevention, Prognosis and Harm Questions
- T: Time

PICOT

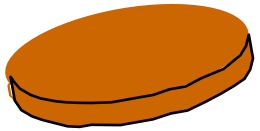
P	I	C	O	T
Population/disease (i.e. age, gender, ethnicity, with a certain disorder)	**Intervention or Variable of Interest (exposure to a disease, risk behavior, prognostic factor)**	**Comparison: (could be a placebo or "business as usual" as in no disease, absence of risk factor, Prognostic factor)**	**Outcome: (risk of disease, accuracy of a diagnosis, harm questions**	**Time: (time frame the question will be measured within**

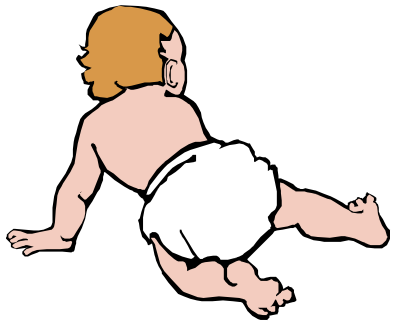
In a population of adult medical ICU patients undergoing neuromuscular blockade, does sedation amount and types affect the recall perceptions of the patients during their hospital stay?

I can’t make a difference

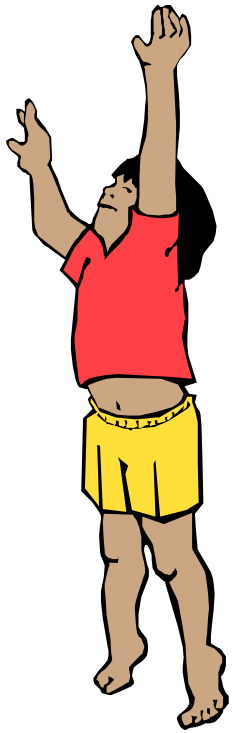


Look at the difference I can make





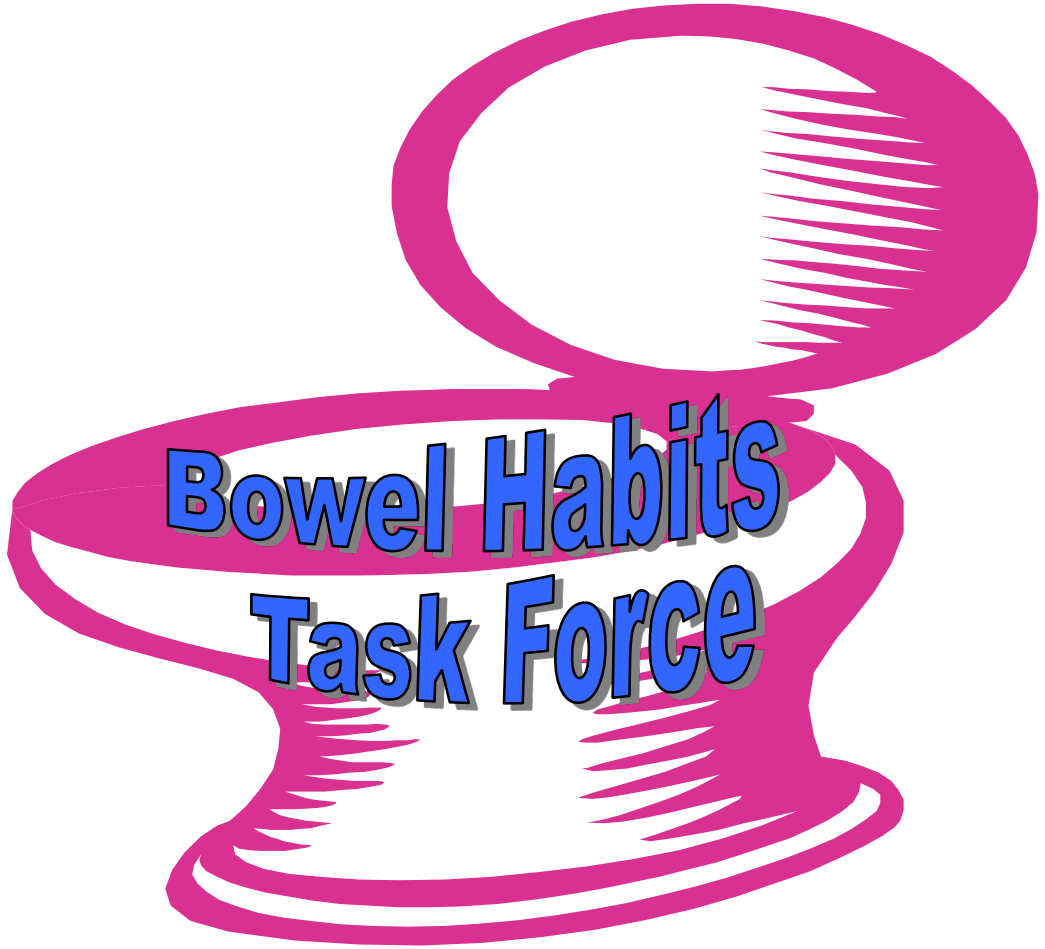
Quality Improvement Projects



Evidence-based Guideline Utilization & Product Evaluation

Clinical Research

Tools & Techniques



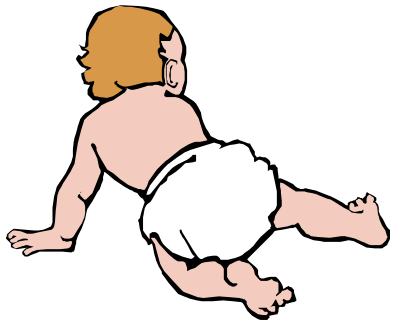
Driving Clinical Questions

- What process did we have to assess bowel habits on admission and during the ICU stay?
- Was there a connection between constipation and inability to tolerate tube feeding or reach nutritional goal?
- Did problems with constipation delay weaning?

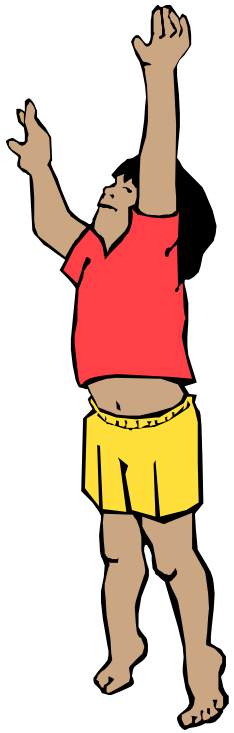
The Quality Improvement Process

- Data collection tool designed
- Data collected on 25 consecutive patients on mechanical ventilation
- QI statistics performed

- Results shared with multidisciplinary team
- Protocol for assessment and management of bowels developed and implemented
- Results demonstrated less constipation. Hard to measure correlation of weaning due to wean protocol tested during this times



Quality Improvement Projects



Evidence-based Guideline Utilization & Product Evaluation

Clinical Research

When the Evidence Comes Pre-Packaged

Guidelines for the Prevention of Intravascular Catheter-Related Infections

CDC. Prevention of Catheter Infection: MMWR 2002;51 (No. RR-10):[1-29]

Health Care Acquired Infections: Central Lines 1996

- Pre-central line infection rate:
  - 6.38 per 1000 catheter days
- Pre-implementation practice
  - Gown, glove, mask and drape
  - Routine change of central lines every 4 days
  - Dressing change every 4 days/prn when soiled with gauze dressing

Healthcare Acquired: Central Lines Implementation of CDC Guidelines (1996)

- No routine changes of central lines
- If infection suspected, perform guidewire exchange and culture the tip
- If tip positive, remove line and perform a new stick
- No routine dressing changes/use of transparent dressing to view the site

Health Care Acquired Infections: Central Lines

	Device Utilization	Bloodstream Infection	Rank Comparison
Benchmark MICU Central Line data	> 50	6.1	50-75%
(Pre change) HFH MCC Central Line data	> 90	6.38	50-75%
(Post change 2000) HFH MCC Central Line data	> 90	2.90	10-25%
(Post change 2002) HFH MCC Central Line data	> 90	1.33	10-25%

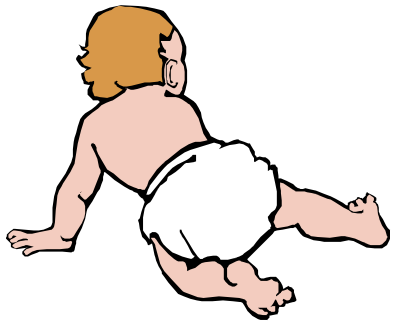
New CDC Guidelines (2002)

- If infection of the line is strongly suspected, pull & insert at a new site
- If mechanical or other issues arise, use guide wire technique
- Gauze dressings changed q 2 days, transparent changed q 7 days &/or no longer occlusive
- CHG prep for insertion & care

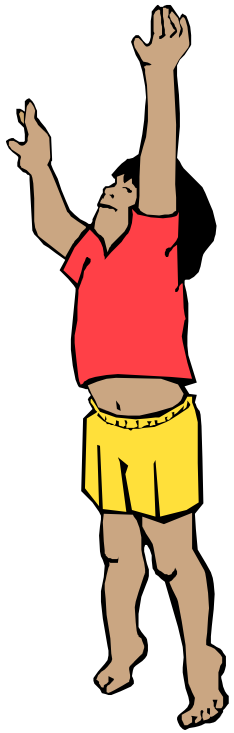
New Guidelines…New Practice

- Lessons Learned
  - Standardization across all ICU's in both practice & equipment is necessary to reduce process variation
  - Line cart is not enough to ensure the correct procedure is done
  - Old habits are hard to break so remove the opportunity
- New Practices
  - Guidelines reviewed and adopted at institutional critical care
  - Insertion equipment available in one kit
  - Remove products to prevent use

CLABSI rates decreased from 2.9 to 1.33 from 2000 to 2002



Quality Improvement Projects



Evidence-based Guideline Utilization & Product Evaluation

Clinical Research

Product Evaluation

- Cooling blanket product evaluation
- Randomization
- Inclusion/exclusion criteria
- Lacked sample size
- Low level statistics
- Not reviewed by Ethics

Setting the Stage: Product Evaluation

- Stepping stone for designing a research study to follow
- Helps to identify methodological problems
- Captures the interest of the staff to become involved in the research study

Clinical Research Study:
Cooling by Convection versus Cooling by Conduction

- 840 bed urban tertiary medical center
- 41 consecutive adults patients receiving mechanical ventilation
- Fever related to a suspected or documented infection
- Medical critical care area
- No difference in age, weight, sex, baseline fever

In a population of adult medical ICU patients with fever related to suspected or document infection, does better cooling occur with a convection blanket versus water conduction during their febrile period?

Methodology

- Alternating assignment of subjects to air or water flow groups.
- Machines set at 10^{o} C.
- Cooling therapy used until a temperature of 38.0^{o} C or a maximum of 8 hours of cooling reached.
- Data collection for 32 hours to examine fever recurrence and complications.
- Esophageal temperature probe used.
- Peripheral extremities were wrapped to reduce shivering.

Results

COMPARISON VARIABLE	AIRFLOW N MEAN SD	WATER FLOW N MEAN SD	P- VALUE *p <0.05
Rate of Reduction	21 -0.34 0.36	20 -0.10 0.15	0.006 (Wilcoxon Rank Sum)*
Hours to Recurrence	21 21.1 20.6	20 5.6 12.0	0.004 (Wilcoxon Rank Sum)*
Temperature Reached goal	15/21 (n) (71.4%)	8/20 (n) (40.0%)	0.043 * (chi-square)
Complications	2/21 (n) (9.5%)	2/20 (n) (10.0%)	1.00 (Fischer-Exact)

Study Follow Up

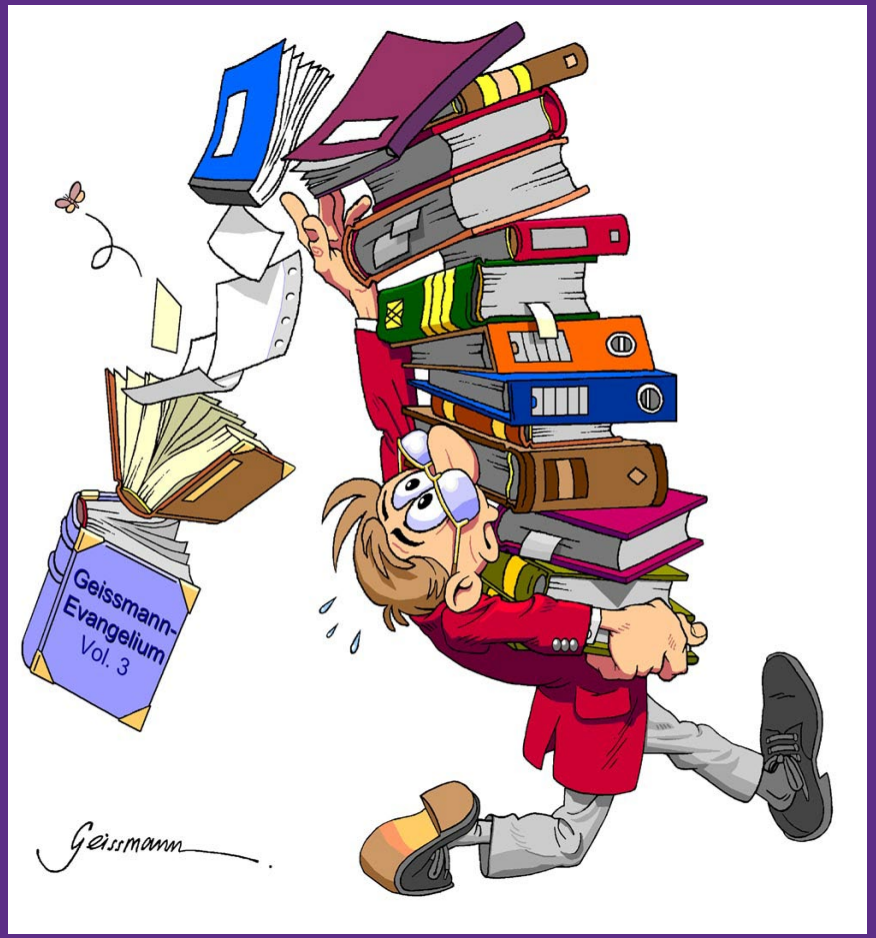
- Oral presentation at the Society of Critical Care Annual Scientific Symposium in 2000
- Publication in the American Journal of Critical Care in the Jan of 2001
- Staff nurse first author

It can be done!!!!

FUN AND INSPIRING

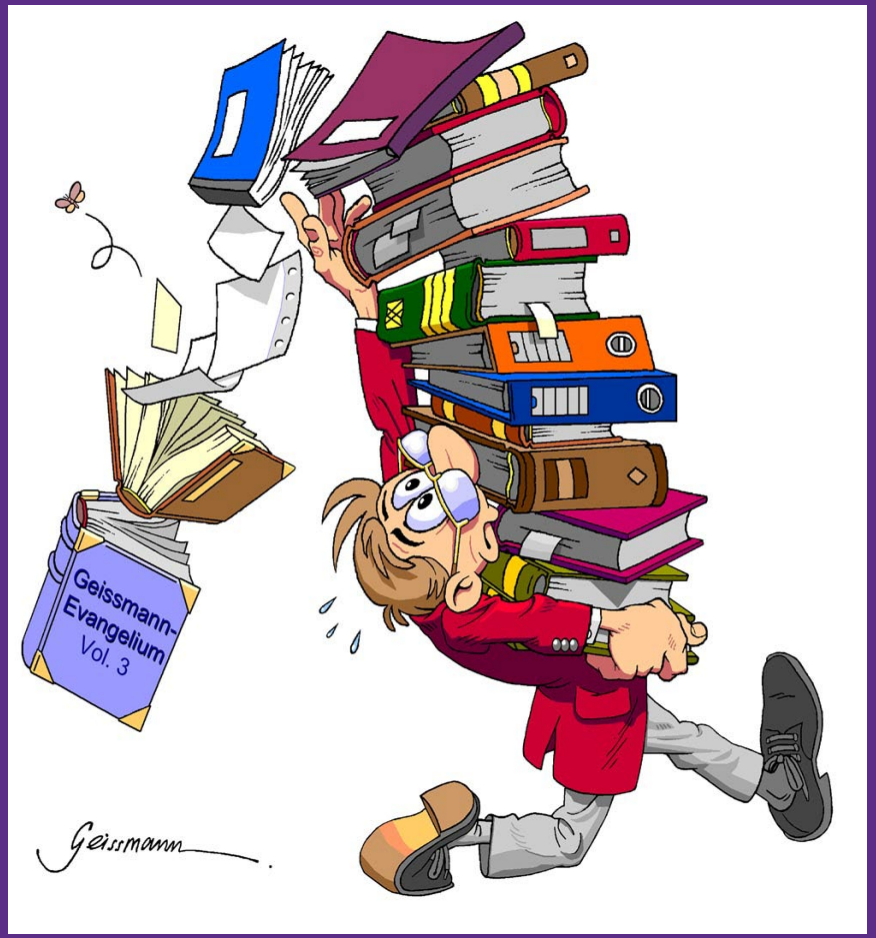
Take Home Points

- Learn to read research & use it in your daily practice
- Draw your research questions from daily practice
- Increase comfort with the inquiry process



Take Home Points

- Find a question you are passionate about answering
- Link with a mentor to write the proposal, submit to ethics, obtain biostatistical support and submit for publication
- You become the Mentor for your peers



Enjoy the Journey of Discovery

It will forever change the way you view your practice