SHOW ME THE EVIDENCE!

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OBJECTIVES

1. Define evidence-based practice (EBP) and discuss its evolution
2. Describe a variety of schema for grading the evidence
3. Apply the principles of EBP to evaluating a guideline and to a clinical problem

WHY EVIDENCE-BASED PRACTICE?

Institute of Medicine
1999- To Err is Human: Building a Safer Health System
2001- Crossing the Quality Chasm: A New System for the 21st Century
2003 – Health Professions Education: A Bridge to Quality

IOM 6 AIMS FOR IMPROVEMENT

• Today’s health care should be:
  • Safe
  • Effective
  • Patient-centered
  • Timely
  • Efficient
  • Equitable

DEFINITION OF EBP

“THE MOST IMPORTANT REASON FOR PRACTICING EVIDENCE BASED ARE IS TO ENHANCE THE PROBABILITY OF A GOOD OUTCOME IN A GIVEN PATIENT”

HISTORICAL BACKGROUND OF EBP

- Florence Nightingale
  - Nurse, researcher, and statistician
- Alice McGaw
  - Nurse anesthetist, researcher, and statistician
- 1970's - Research Utilization
- 1992 - Evolution of Evidence-Based Practice
- 2004 - AACN "envisions a practice oriented doctorate for all APRNs for entry into practice by 2015"
  - Evidence-based Practice content a requirement for accreditation of programs

EVERY ANESTHETIC SHOULD INVOLVE UNIQUE, PATIENT-CENTERED DECISION MAKING

What does this mean for us?

Intuition and Anecdotal Evidence

Research Utilization

Evidence-Based Practice

MODEL FOR EVIDENCE-BASED DECISION MAKING

BENEFITS OF EBP

- Explosion of research
- How do I stay current - not enough hours in the day
- Increase in number of "questions"
- Speeds up the time from "the bench to the bedside"

FIVE FUNDAMENTAL STEPS

- Formulate a question
- Identify articles and other evidence-based resources
- Critically appraise the evidence and assess validity
- Apply the evidence
- Re-evaluate the application of the evidence and areas for improvement

http://hsl.lib.umn.edu/learn/ebp/mod01/index.html
**WHERE TO GO FOR INFORMATION**

- Evidence-based Nursing Journal
- MEDLine or comparable database
- BMJ Clinical Evidence
- The Cochrane Library
  - Cochrane.com
- Agency for Healthcare Research and Quality (AHRQ)
  - National Guideline Clearinghouse (guidelines.gov)
- [http://www.cochrane.org/cochrane-reviews](http://www.cochrane.org/cochrane-reviews)
- [http://musc.libguides.com/clinicians](http://musc.libguides.com/clinicians)

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**Journal Impact Factor**

A = the number of times articles published in 2012-2013 were cited in indexed journals during 2014
B = the number of articles, reviews, proceedings or notes published in 2012-2013
impact factor 2014 = A/B

[http://www.impactfactorsearch.com/](http://www.impactfactorsearch.com/)

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**HIERARCHY OF EVIDENCE**

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**GRADING THE EVIDENCE**

- Benefits
- Strength of Recommendation
- Considerations
  - Fundamental study design
  - Other factors
- Use of grading methods in the creation of guidelines

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**CDC GUIDELINES RANKING SYSTEM**

- **Category IA.** Strongly recommended for implementation; supported by well designed experimental studies
- **Category IB.** Strongly recommended for implementation; supported by some experimental studies and strong theoretical rationale
- **Category II.** Suggested for implementation; supported by suggestive clinical or epidemiological studies or theoretical rationale
- **No recommendation (unresolved issue).** Practices for which insufficient evidence or no consensus regarding efficacy exists
Grading the Evidence

Strength of Evidence Grades and Definitions

- **High**: High confidence that the evidence reflects the true effect. Further research is very unlikely to change our confidence in the estimate of effect.
- **Moderate**: Moderate confidence that the evidence reflects the true effect. Further research may change our confidence in the estimate of effect and may change the estimate.
- **Low**: Low confidence that the evidence reflects the true effect. Further research is likely to change the confidence in the estimate of effect and is likely to change the estimate.
- **Insufficient**: Evidence either is unavailable or does not permit a conclusion.

Applying Classification of Recommendations and Level of Evidence.

What is the best way to apply the evidence?

- Is the primary objective of the guideline consistent with my objective?
- Are the recommendations applicable to my patient care?
CHALLENGES

BARRIERS TO IMPLEMENTING EBP

- Lack of knowledge
- Regarding EBP strategies
- Regarding how to search and grade the literature
- Negative attitudes about research/EBP
- Demanding patient workloads
- Overwhelming amount of information

BARRIERS TO IMPLEMENTING EBP

- Lack of organizational support
- Lack of administrative incentives
- Patient expectations not in line with EBP
- Fear about practicing differently than peers


THERE MUST BE NO BARRIERS FOR FREEDOM OF INQUIRY. THERE IS NO SPACE FOR DOGMA IN SCIENCE. THE SCIENTIST IS FREE, AND MUST BE FREE TO ASK ANY QUESTION, TO DOUBT ANY ASSERTION, TO SEEK FOR ANY EVIDENCE, TO CORRECT ANY ERRORS

Robert Oppenheimer

SO HOW CAN WE OVERCOME THESE BARRIERS?

- Education along with the belief that EBP will improve patient care
- Use of personalization
- How to find information quickly
- Case reports comparing RCTs to tradition
- Conferences/educational offerings
- translation of evidence into practice
- Allocated time for practitioners to research best practices

JOURNAL CLUBS

Every other Wednesday
5pm, SEMINAR ROOM
FREE DRINKS & NIBBLES
ALL WELCOME
TIME TO RE-EXAMINE OUR SACRED COWS

Or how do we get beyond dogmatic decision-making

WHAT METHODS CAN BE USED TO DECREASE PATIENT RISK FROM PERIOPERATIVE HYPOTHERMIA?

INADVERTANT PERIOPERATIVE HYPOTHERMIA

- Consequences
  - Brown & Odom’s Meta-analysis
  - Multiple RCTs with significant findings of increased infection rates with hypothermia
  - Effective warming measures
  - Multiple RCTs on forced air vs other measures
  - Recent RCTs on room temp irrigation
    - Kim, Y., Lee, J., Yang, S, et al.

OPERATING ROOM TEMPERATURE AND INFECTION

- No good studies were found relating warmer room temperature to infection rates
- “often cool ambient room temperatures are necessary for the OR staff” — Weirich, AORN Journal
- Kiekkas & Karga (2005) studied the effects of prewarming

EXPERT OPINION

- Bruce, et al study
- American Institute of Architectural Committee on Architecture for Health
- American Society of Heating, Refrigerating, and Air Conditioning Engineers Committee Draft Proposal
- Conducted a literature search and found no direct correlation between relative humidity <35% and infection or fires

GUIDELINE FOR PREVENTION OF SURGICAL SITE INFECTION, 1999

Alicia J. Mangram, MD; Teresa C. Horan, MPH, CIC; Michele L. Pearson, MD; Leah Christine Silver, BS; William R. Jarvis, MD
Hospital Infections Program
National Center for Infectious Diseases
Centers for Disease Control and Prevention
Public Health Service
US Department of Health and Human Services
www.cdc.gov/guidelines
WHAT'S NEXT?

- Review clinical practice guidelines
- Current ASPAN guideline does not address starting ambient room temperature
- Evidence based patient care should be our primary priority
- Anecdotal information not supported by retrievable evidence
- Cooler temp for surgeon comfort, need for cooler rooms with more staff, prevent adhesives from drying too quickly

LET'S SEE IF THERE IS A SYSTEMATIC REVIEW OR A META-ANALYSIS TO COVER THIS TOPIC

COCHRANE LIBRARY

BODY WARMING OF PEOPLE UNDERGOING SURGERY TO AVOID COMPLICATIONS AND INCREASE COMFORT AFTER SURGERY

Madrid, Urritia, Roque J Figuls, Pardo-Hernández, Campou, Paragua, Maestre, Alonso-Coello

- Forced-air warming seems to have a beneficial effect in terms of a lower rate of surgical site infection and complications, at least in those undergoing abdominal surgery, compared to not applying any active warming system.
- It also has a beneficial effect on major cardiovascular complications in people with substantial cardiovascular disease, although the evidence is limited to one study.
- It also improves patient’s comfort, although we found high heterogeneity among trials.
- While the effect on blood loss is statistically significant, this difference does not translate to a significant reduction in transfusions. Clinical relevance of blood loss is questionable
- Overall heterogeneity of studies

Cochrane Review published April 2016

ROCURONIUM VERSUS SUCCINYLCHOLINE FOR RAPID SEQUENCE INDUCTION INTUBATION

Tran DTT, Newton EK, Mount VAH, Lee JS, Wells GA, Perry JJ

- In the previous update, we had concluded that propofol was the superior induction agent with succinylcholine. There were no reported incidences of severe adverse outcomes.
- We found no statistical difference in intubation conditions when succinylcholine was compared to 1.2 mg/kg rocuronium; however, succinylcholine was clinically superior as it has a shorter duration of action.

What new drug may have an impact on this study in the future?

The Cochrane Library Collection 2015

BETA BLOCKERS ARE BUSTED – WHAT HAPPENS NEXT?

HOW HEART GUIDELINES BASED ON DISGRACED RESEARCH MAY HAVE CAUSED THOUSANDS OF DEATHS

PERIOPERATIVE BETA-BLOCKER CONTROVERSY BEGINS AGAIN WITH NEW META-ANALYSIS

2014 ACC/AHA GUIDELINE ON PERIOPERATIVE CARDIOVASCULAR EVALUATION AND MANAGEMENT OF PATIENTS UNDERGOING NONCARDIAC SURGERY
WHAT ABOUT HEALTH SERVICES RESEARCH IN THE COCHRANE DATABASE?

MOVING ON TO USING GUIDELINE.GOV

AHRO National Guideline Clearinghouse

PRACTICE GUIDELINES FOR THE PREVENTION, DETECTION, AND MANAGEMENT OF RESPIRATORY DEPRESSION ASSOCIATED WITH NEURAXIAL OPIOID ADMINISTRATION: AN UPDATED REPORT BY THE AMERICAN SOCIETY OF ANESTHESIOLOGISTS TASK FORCE ON NEURAXIAL OPIOIDS AND THE AMERICAN SOCIETY OF REGIONAL ANESTHESIA AND PAIN MEDICINE.

March 2016

QUESTIONS
REFERENCES


Bruce, N., Duval, C., Sah, K., & Roth, V. Does high humidity in the OR impact surgical site infection rates? American Journal of Infection Control, 25(5), 619.


REFERENCE


REFERENCE
