Practicing Evidence Based Practice: 
Developing a Multidisciplinary Clinical 
Practice Council Focused on Newborn Care

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Session Summary
Practicing evidence based practice across the various newborn care areas can be challenging. It not only requires a thorough assessment and critical appraisal of the evidence, but also requires the clinical team to build consensus and adhere to agreed-upon clinical practice guidelines. In this presentation, the development of a multidisciplinary clinical practice council responsible for developing and implementing evidence based clinical practice guidelines will be discussed. Challenges associated with this work and strategies for success will be presented.

Session Objectives
Upon completion of this presentation, the participant will be able to:

- make a case for the gap in clinical research and clinical practice and why this is a problem for patient care outcomes;
- define evidence based practice and strategies for implementation of EBP;
- propose a structure for the development of a multidisciplinary clinical practice council that helps ensure care is consistent and evidence based from one provider to another.

References


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The Plan for Today
• What’s the problem?
  – Science ~ Practice Gap
• What’s the solution?
  – How do we achieve the solution?
  – Developing an infrastructure and successful implementation of evidence based practice
• Starting from the ground up
  – Development of a Multidisciplinary Clinical Practice Council at Brigham and Women’s Hospital
  Department of Pediatric Newborn Medicine

Overcoming the Science-Practice Gap
What’s the problem?
Three numbers:
17
14
9

Clinical Research is SLOW
• To most people, randomized controlled trials (RCT) are the mainstay of clinical research
• But traditional RCTs are slow and expensive-and rarely produce findings that are easily implemented into practice.
• It takes an average of 17 years before 14% of research findings lead to widespread changes in care --- An average of 9 years for interventions recommended as evidence-based practice to be fully adopted

Bench to Bedside.....or Bench to Bookshelf?

Why are we turtles?

Current Funding Cycle for Research Articles
Limited dissemination, economic efficiency and social impact
Culture eats strategy for lunch

What’s the solution?

Overcoming the Science-Practice Gap

Evidence-Based Practice

Evidence-based practice (EBP) is a problem solving approach to clinical practice that integrates the conscientious use of best evidence in combination with a clinician’s expertise as well as patient preferences and values to make decisions about the type of care that is provided.

In God We Trust...

Everyone else must bring data!

The Beginnings of EBP

Florence Nightingale

Dr. Archie Cochrane

effectiveness and efficiency (1972)

Why Evidence-Based Practice?

- Practices routed in tradition are often outdated and do not lead to the best patient outcomes.
  - Use of soap and water to massage a bony coccyx or reddened heels in bed-ridden patients.
  - Daily changing of IV dressings.
  - Perineal shaves before child birth.
Why Evidence-Based Practice?
• Despite an aggressive research movement, the majority of findings from research are often not integrated into practice.
• It takes approximately 17 years to translate research findings into practice.
• Without current best evidence, practice becomes rapidly out of date to the detriment of patients.

What EBP is NOT
• Cookbook care that has no latitude for clinical judgment
• Care that excludes patient preferences
• Care that excludes a clinician’s expertise
• A process that ignores findings from qualitative and descriptive studies
• Something only for academicians

How to Conduct Evidence-Based Practice
1. Ask the burning clinical question in PICO format
   - Patient population
   - Intervention or interest
   - Comparison intervention or group
   - Outcome
2. Collect the best evidence.
   → Search first for systematic reviews (e.g., the Cochrane Database of Systematic Reviews) and evidence-based clinical practice guidelines (www.guideline.gov)
3. Critically appraise the evidence
   a. Are the results valid (as close to the truth as possible)?
      - Was random assignment used?
      - Was follow-up long enough to study the effects of the intervention and were all subjects accounted for at the end of the study?
      - Was the control group appropriate?
      - Were the instruments used valid and reliable?
   b. What were the results of the study (including magnitude and precision)?
      - What was the effect of the study?
      - Was the study appropriately powered for the outcome measures?
The Five Steps of EBP

3. Critically appraise the evidence
   c. Are the findings clinically relevant to my patient(s)?
      ■ What are the risks and benefits of treatment?
      ■ Is the intervention or treatment feasible in my setting?
      ■ What are my patient's values and expectations for the outcome
        that is trying to be achieved and the treatment?

4. Integrate evidence, clinical expertise, and patient factors/preferences to implement a decision.

5. Evaluate the outcome through measurable factors.

Rating System for Levels of Evidence
(from Melnyk & Fineout-Overholt, 2005)

- **Level I:** Evidence from a systematic review or meta analysis of all relevant randomized controlled trials or evidence-based clinical practice guidelines based on systematic reviews of RCTs
- **Level II:** Evidence obtained from at least one properly designed randomized controlled trial
- **Level III:** Evidence obtained from well-designed controlled trials without randomization
- **Level IV:** Evidence obtained from well designed case control and cohort studies

Rating System for Levels of Research Evidence

- **Level V:** Evidence from systematic reviews of descriptive and qualitative studies
- **Level VI:** Evidence from a single descriptive or qualitative study
- **Level VII:** Evidence from opinion of authorities and/or reports of expert committees

Modified from: Concato, 2000; Guyatt & Rennie, 2002; Harris et al., 2001

In Sum…Evidence Based Practice

- How do we practice it?
  - Convert the need for information into an answerable question
  - Find the best evidence for answering the question
  - Critically evaluate the evidence for its applicability and validity
  - Consider the critical evaluation in terms of knowledge and patient particulars
Evidence Based Practice: The 4 As

- How do we practice it?
  - ASK: answerable questions
  - ACCESS: the best information
  - APPRAISE: the information for validity and relevance
  - APPLY: the information to patient care with consideration of the individual patient and your clinical judgment.

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

Major Barriers to the Advancement of EBP

- Low comfort level with search techniques.
- Perceived lack of time to search for the best evidence.
- Challenges with critically appraising research/the evidence for practice.
- Lack of organizational/administrative support.
- Lack of team or structure for this work.
- Negative attitudes toward change: “We’ve always done it this way” “Nothing is broken here”.

Key Facilitators of EBP

- Individual knowledge and skills of EBP
- Beliefs that EBP improves care and outcomes
- Beliefs in the ability to implement EBP
- Mentor(s)/teachers who are skilled in EBP
- Administrative/organizational/leadership support
- Strategic planning and dedicated resources and support for EBP

Recommendations for Advancing EBP

Ask yourself the following questions:

- To what extent is the care that I deliver evidence-based?
- How much do I believe that implementing and teaching EBP will lead to the highest quality of care for patients and their families?
- How much knowledge of the EBP process do I possess?

Creative Strategies for Implementing EBP

EBP Rounds/Journal Clubs/Case Discussions/Grand Rounds/M&M Rounds

Includes:
- Presentation of the problem
- PICO clinical question
- Search strategy and evidence found
- Critical appraisal of the evidence
- Clinical application and translation to practice
EBP helps overcome the clinical research/science ~ clinical practice gap

Overcoming the Science-Practice Gap: Dissemination and Implementation Research

- **Dissemination Research:** Addresses the targeted distribution or spread of information and interventions to specific public health and clinical practice settings

Dissemination Research

- Successful dissemination of health information may occur quite differently depending on whether the audience consists of consumers, caregivers, practitioners, policymakers, employers, administrators, or other multiple stakeholder groups.

Dissemination Research

- Moving the field forward will require studies identifying mechanisms and approaches to package and convey the evidence-based information necessary to improve public health and clinical care services in ways relevant to local settings.

Overcoming the Science-Practice Gap: Dissemination and Implementation Research

- **Implementation Science:** The study of methods to promote the integration of evidence and change practice patterns and health care policy within real-world public health and clinical service settings.

Implementation Science

- Seeks to understand the behavior of health care professionals and support staff, healthcare organizations, and family members in context as key variables in the adoption, implementation and sustainability of evidence-based interventions and guidelines.
Implementation Science

- These types of studies should not assume that empirically-supported interventions can be transferred into any service setting without attention to local context, nor that a unidirectional flow of information (i.e. publishing a recommendations or a guideline) is sufficient to achieve practice change.

From PAR-13-055

Where does D&I Research fit?

![Diagram showing the translation process from research to practice]

RE-AIM

RE-AIM framework is designed to enhance the quality, speed, and public health impact of efforts to translate research into practice in five steps:

- **Reach** your intended target population
- **Efficacy** or effectiveness
- **Adoption** by target staff, settings, or institutions
- **Implementation** consistency, costs, and changes made during delivery
- **Maintenance** of intervention effects over time

How do we accomplish this?

- RE-AIM is an outcomes framework that can be used for planning and evaluation
- Each dimension is an opportunity for intervention
- All dimensions can be addressed within a given study

Key Strategies in Planning and Development Phases of Research

<table>
<thead>
<tr>
<th>Phase</th>
<th>Strategies</th>
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<tbody>
<tr>
<td>Reach</td>
<td>Collected data on nonparticipants</td>
</tr>
<tr>
<td>Efficacy/Effectiveness</td>
<td>Measure intervention outcomes</td>
</tr>
<tr>
<td>Adoption</td>
<td>Set clear goals and interventions</td>
</tr>
<tr>
<td>Implementation</td>
<td>Create standard tools and training materials</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Acceptable maintenance assessment period</td>
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STARTING FROM THE GROUND UP:
IMPLEMENTING EVIDENCE BASED PRACTICE FROM THE VERY BEGINNING

A5: Practicing Evidence Based Practice: Developing a Multidisciplinary Clinical Practice Council Focused on Newborn Care
The Strategic Plan: Aims to Facilitate our Mission and Goals

Why is this Important?

- The increase in medical expenditures seems to be outstripping both the health benefits and the nation’s financial underpinning to pay

Evidence Based Practice Relies on Clinical Practice Guidelines

- One of the main tools of EBP is represented by the Clinical Practice Guidelines (CPGs).
- CPGs are a means to improve the quality of delivered health care:
  - CPGs are systematically developed statements to assist clinician and patient decisions about appropriate health care for specific clinical circumstances (Institute of Medicine, 1992).
**Traditional Clinical Practice Guideline Lifecycle with Ongoing Monitoring and QI**

**Rationale for Clinical Practice Guidelines**

**Vehicle for Guideline Development, Review and Approval: Multidisciplinary CPC Committee**

**In addition to improved patient care outcomes, decreased cost, and less variation in care, why implement guidelines?**

- The implementation of clinical guidelines will likely result in an increased ability to:
  - Focus energy on where guideline can be improved, thereby enhancing the quality of care for all infants and families (i.e. study of deviations)
  - Focus energy on families
  - Have a consistent plan of care that the entire care team, including the family, can anticipate
  - Study our care, it’s evidence base, and ultimately, patient care outcomes

**What’s our definition of guidelines?**

- **Institute of Medicine**: Clinical practice guidelines are systematically developed statements to assist clinician and patient decisions about appropriate health care for specific clinical circumstances (IOM, 1992).

- **Pediatric Newborn Medicine at BWH**:
  - Clinical practice guidelines will be statements that are systematically developed by a multidisciplinary group. These guidelines will assist the clinical team and family decision making about optimal health care for a specific clinical circumstance. The CPGs implemented will ensure that the care provided in our NICU, across our well-newborn nurseries, and in the Center for Labor and Birth is uniformly excellent, consistent, and evidence based.

**A5: Practicing Evidence Based Practice: Developing a Multidisciplinary Clinical Practice Council Focused on Newborn Care**
How do we support the Guideline Development Groups (GDG)?

- Toolbox
  - How to assess the evidence (GRADE assessment)
  - Blank templates
  - Example guidelines
- Logistics: scheduling help, meeting help, and sponsor identification when necessary to problem solve any unexpected issues
- CPC Chair acts as a sounding board/problem solver/voice of reason

Implementation of Guidelines

Guidelines in Review

Communication and Implementation

- Brigham Baby News
- 7 in 7 on 7
- Core Clinical Faculty Meeting
- Other existing clinical groups
  - Well-baby care improvement team meetings
  - Infection control team meeting
  - Nursing clinical practice council meetings
- NICU Ops
Quality Improvement
Guidelines are followed with QI

A multidisciplinary intervention to standardize feeding practices during blood transfusion in the NICU

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Example: Feeding during PRBC transfusion

BACKGROUND:
- Several studies report an association between blood transfusions and necrotizing enterocolitis (NEC) in premature neonates.
- The practice of withholding feeds during blood transfusions may be protective against the development of NEC.
- However, many infants may be made NPO unnecessarily, thereby compromising nutrition with unclear clinical benefit.
- Therefore, we sought to standardize clinical practice surrounding feeding and blood transfusions.

METHODS
- A multidisciplinary guideline development group designed a clinical practice guideline for feeding during blood transfusions.
- The guideline states that infants <21 days old and <29 weeks or <1250 grams birth weight should be NPO four hours before and after blood administration.
- We reviewed the records of all blood transfusions in the Brigham and Women’s NICU for four months pre- and post-implementation of the feeding guideline.
- Data Collection: demographics, feeding status, NPO time, ventilation mode and FiO2, apnea/bradycardia spells, feeding intolerance, abdominal girth, and clinical diagnosis of NEC

RESULTS
- Gestational age and birth weights were similar in the pre- and post- groups.
- Prior to guideline implementation:
  - 33.3% of infants were made NPO for blood transfusion
  - 36.5% were fed during transfusion
  - 30.2% were NPO for another clinical indication prior to transfusion.
- After guideline implementation:
  - 53.4% of infants were made NPO for blood transfusion
  - 22.4% were fed during transfusion
  - 24.3% were NPO for another clinical indication prior to transfusion.
- Following guideline implementation, nearly all infants (98%) meeting inclusion criteria were made NPO per the guideline, but total NPO time for transfusion remained similar to pre-intervention. No infant was diagnosed with NEC within 72 hours of blood transfusion.

DISCUSSION
- The implementation of a clinical guideline for NPO status during blood transfusion in preterm infants resulted in more uniform feeding practices during transfusions.
- Interestingly, it did not reduce the number of arguably unnecessary NPO events for low risk infants, nor did it result in shorter NPO time.
- The intervention resulted in closer monitoring of glucose during NPO time, and no hypoglycemic complications were identified.
- Further efforts will be necessary to minimize transfusion-associated risk while still maximizing nutrition.

Example: Feeding during PRBC transfusion

INTERDISCIPLINARY
Researchers integrate “information, data, techniques, concepts” from two or more disciplines to advance fundamental understanding or to solve problems.

UNIDISCIPLINARY
Researchers from a single discipline work together to address a common problem.

TRANSDISCIPLINARY
Researchers integrate and also transcend disciplinary approaches to generate fundamentally new conceptual frameworks, theories, models, and applications.

MULTIDISCIPLINARY
Researchers from different disciplines each make separate contributions in an additive way.

Keys to Success: Team Science

Example: Feeding during PRBC transfusion

Example: Feeding during PRBC transfusion
Keys to Success: Team Science

Unidisciplinary

Multidisciplinary

Interdisciplinary

Transdisciplinary

Keys to Success...
And Challenges Along the Way

- Communication
- Consensus building
- Implementation and operational issues
  - Change Management Strategies
- Accountability
- Revision process

Slow and steady wins the race, but it’s time to be more hare and less turtle!

Questions and Discussion

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