EVIDENCE-INFORMED PRACTICE: RESEARCH LITERACY & SHARED DECISION-MAKING

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Images courtesy of: Colours of Hope foundation, E. Woten, I. Bicksler & S. Baker
OUTLINE

• **Part I:** Foundations of evidence-informed practice & shared decision-making

• **Part II:** Research Literacy in the context of the EIP cycle

• **Part III:** Closing remarks

*Evidence-informed practice = EIP*
BREAKING DOWN BARRIERS TO EIP

BREAKING DOWN BARRIERS TO EIP

**Challenges/Barriers**
- Low research fluency
- Mistrust in research
- Research access issues

**Myths/Fallacies**
- Ignores client
- Supplants or devalues clinical expertise
- “Cookbook” medicine
  - Terminology has not helped!

FOUNDATIONS OF EIP

• Terms (used interchangeably):
  • Evidence-informed practice (EIP)
  • Evidence-based practice (EBP)
  • Evidence-based care or medicine (EBC/EBM)

• Preferred term increasingly: EIP
  • NIH, NAM, ACIH, etc.

• Goal: Enact EIP during midwifery care
  • Research literacy (not doing, but using)

“Our heads are round so thought can change direction.”
—Allen Ginsburg
**WHAT IS EVIDENCE-INFORMED PRACTICE (EIP)? IT’S A TRIAD – CLINICAL JAZZ**

**Core Principles**
- The better the research evidence, the more confident our clinical decisions.
- Research evidence alone is never sufficient to make clinical decisions.

**Improved Client Care**

EVIDENCE AS SUPPORT OF EXCELLENCE IN CLIENT CARE

Why evidence-informed practice?
- Central to ethical, quality care
- Clinical care is a constantly evolving practice (as is research)
- Critical questioning of the status quo
- Enhanced provider-client relations
- Interprofessional collaboration
- Professional competencies
- Knowledge gap fulfillment

Ultimately: improves client care with greater efficacy, facilitates informed choice, upholds shared decision-making at heart of MMOC

Using research is (thus) important!
- Practice Guidelines (e.g., GBS)
- Informed Consent documents (e.g., Vitamin K)
- Care Behaviors (e.g., informed choice)
WHAT IS EVIDENCE? (& WHAT IS NOT)

• Primarily:
  • Scientific data (research evidence)

• Secondarily:
  • Clinical expertise (Dokko, Wilk & Rothbard, 2009)
  • Intuition (Dane, Rockmann & Pratt, 2012)
  • Client values/needs

• Evidence is not:
  • Popular practices – open to many biases, fads, dogmas and false beliefs (Abrahamson, 1996)
  • What your preceptor did or “what has always been done”
**WHAT’S MY ROLE IN TEACHING YOU EIP?**

- “My goal is not to replace or substitute for your experience. Rather, my role is to teach you evidence-based [informed] frameworks that will help you better leverage your experience.” (Sim Sitkin)
  
  - As Sitkin states, scientific data are best utilized when it adds depth and power to clinical expertise, personal experience, and/or intuition.
  
  - Personal experience and intuition are important components of practice, but they are not reliable nor complete sources on their own.
  
- Your role in enacting EIP as awesome midwives!
AN EXAMPLE OF INTEGRATING SCIENTIFIC EVIDENCE:

• How many of you have ever suggested to a client that Ibuprofen (Advil and Motrin) is a good tool for reduction of pain?
  • Did you research this tool? If so, how?
  • Do you know the correlation between Ibuprofen and reduction in pain (from -1 to +1)?
  • Do you know the variance in the effect that is explained by the cause?

• Would you be surprised to know that in a well-constructed, gold standard study, Ibuprofen was found to influence only 2% of the pain that people experience? (Meyer et al., 2001)
THE EIP SANDWICH

How effective is the practice?

What's the take home message?

How strong is the evidence?

Adapted from: Lefebvre, R. (2015). Intro to EBC P. PIE Conference, Quad Cities, IA.
EIP Cycle – it’s a process, not a destination

Courtesy of: John Stites & PIE Conference 2015
RESEARCH LITERACY IN THE CONTEXT OF THE EIP CYCLE
EIP: ASSESSING THE CLINICAL SCENARIO
CASE STUDY

• Maggie is Latina, 28 years old, partnered, G2P1. Recently relocated to the area, Maggie shares a home with her mother, who is pro-medicine, against what she calls “hippy” alternatives. Maggie’s partner, Erin, will join her in two months. By LMP Maggie is 16 weeks gestation, no allergies or current medications. Maggie reports that her vaginal discharge “looks funny” and “smells gross!”. Routine prenatal labwork is all WNL. She had a vaginal culture that is positive for Bacterial Vaginosis (BV). Maggie is relieved to have an explanation for her “annoying” symptoms, but worries about how to treat BV, prefers no medical drugs, and wonders what it will cost.
• You are the midwife. You want to offer probiotic treatment as an alternative option to pharmaceutical treatment and implement shared decision-making.
• According to your clinical experience and Aviva Romm in Botanical Medicine for Women’s Health, BV is implicated in second trimester miscarriage, premature rupture of membranes, preterm labor, chorioamnionitis, and post-cesarean and postpartum endometritis.
CASE STUDY

• What do we need to research further?
  • **What is the efficacy of probiotics for treating BV?**
  • Are there other underlying causes of BV to be considered?
  • How might Maggie’s current living situation impact her engagement with alternative treatments like probiotics?
    • Remember: her mother is against all alternative therapies. Will Maggie feel supported?
  • What are the risks to pharmaceutical options for treating BV?
  • Which treatment options are cost-effective?
    • Remember: Maggie is also concerned about cost
## EIP: ASKING QUESTIONS – PICO FRAMEWORK

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<tbody>
<tr>
<td>✓ Population ✓ Patient/Client ✓ Problem/Occurrence</td>
<td>➢ Intervention or Exposure</td>
<td>➢ Comparison</td>
<td>➢ Outcome</td>
</tr>
</tbody>
</table>

- **Who is the client?**
  - [pregnant person – self-identified as Latina, queer, low-income, G1P2]

- **What is the problem or occurrence?**
  - [BV]

- **What are the practice options (intervention, care action, etc.)?**
  - [probiotics]

- **What do we compare the intervention/action/practice with?**
  - [Clindamycin or Metronidazole]

- **What are the possible outcomes (range of outcomes)?**
  - [PROM, LBW, preterm labor, discomfort, efficacy of probiotics, risks/benefits of probiotics, etc.]
# EIP: ACQUIRE – SOURCING THE LITERATURE

**Searches should be:**

- Comprehensive, but focused
- Use scholarly sources, peer-reviewed or refereed
- Recent (last 5 to 10 years) – classical works for context okay too

<table>
<thead>
<tr>
<th>Source</th>
<th>Type</th>
<th>Access</th>
<th>Found @</th>
</tr>
</thead>
<tbody>
<tr>
<td>BioMed Central</td>
<td>Publisher</td>
<td>Open Access</td>
<td><a href="http://www.biomedcentral.com">www.biomedcentral.com</a></td>
</tr>
<tr>
<td>DynaMed Plus</td>
<td>Pre-appraised lit</td>
<td>Subscription</td>
<td><a href="http://www.dynamed.com">www.dynamed.com</a></td>
</tr>
</tbody>
</table>
• Articles are (blind) reviewed by several other experts in the field in order to ensure quality and credibility.
  • Experts on not just content, but methodologies

• How do you know?
  • Limit database to search for peer-reviewed journals only
  • Journal will tell you as part of scopes and aims section
  • Other clues, like DOIs.

• Great resource to learn more: https://www.angelo.edu/services/library/handouts/peerrev.php
KEY CONCEPT: DOI

• Digital Object Identifier – it’s like a SSN for published, peer-reviewed articles!


Cheyney M, Bovbjerg M, Everson C, Gordon W, Hannibal D, Vedam S.
PMID: 24479690
Similar articles

https://www.doi.org/
KEY CONCEPT: OPEN ACCESS

• Open Access
  • Made available freely to the public by the publishers
Open access journals

All articles in open access journals which are published by Elsevier have undergone peer review and upon acceptance are immediately and permanently free for everyone to read and download.

Published articles:
- Are fully peer reviewed
- Are immediately free to access and downloadable from ScienceDirect
- Permitted re-use defined by the author's choice of Creative Commons user licenses
- Published with CrossMark® to maintain the publication record

Open access publication fee
A fee is payable by the author, or their institution or funder to cover the publication costs. Fees range from $500 to $5,000 US Dollars. Visit your journal's homepage for specific pricing information.

Funding body agreements
To ensure authors can comply with open access policies, Elsevier has established agreements with a number of funding bodies. List of agreements

A-Z Directory of open access journals
TIPS OF THE TRADE

- Use different **keyword combinations**
  - E.g. – “home birth” versus “homebirth”
  - E.g. – “labor” versus “labour”

- Expand (and contract) **years included**
  - Last 5 years is considered gold standard
  - Expanding to 10 is acceptable
  - Classical articles of any date may also be included for context

- **Backwards chaining** method – looking at references cited to find additional articles

- **Forward chaining** method – looking at who else cited the article you are looking at in order to get additional recent results

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**Outcomes** of care for 16,924 planned home births in the Midwives Alliance of North America Statistics Project. M Cheyney, M Bovbjerg, C Everson… - Journal of Midwifery, 2014...

Between 2004 and 2010, the number of home births in the United States increased, the need for accurate assessment of the safety of planned home birth outcomes of planned home births in the United States between 2004...

Cited by 87 Related articles All 7 versions Cite Save
Probiotics for vaginal health in South Africa: what is on retailers' shelves?

Happel AU, Jaumdally SZ, Pidwell T, Cornelius T, Jaspan HB, Froissart R, Barnabas SL, Passmore JS.


PMID: 28103868 Free PMC Article

Bacterial vaginosis and spontaneous preterm birth.

Brabant G.


PMID: 27793493

Effect of probiotics on vaginal health in pregnancy. EFFPRO, a randomized controlled trial.


PMID: 27342046

Similar articles
Probiotics in pregnancy and maternal outcomes: a systematic review.

Lindsay KL\textsuperscript{1}, Walsh CA, Brennan L, McAuliffe FM.

Abstract

OBJECTIVES: To systematically review the literature on the use of probiotics in pregnancy and their impact on maternal outcomes.

METHODS: Online databases were searched in April 2012 using the following terms to identify eligible studies: "probiotics", "pregnancy", "maternal outcomes" and "metabolism". Primary outcomes of selected studies were maternal fasting glucose during pregnancy and rates of gestational diabetes mellitus (GDM). Secondary outcomes were rates of pre-eclampsia, maternal inflammatory markers and lipid profiles and gestational weight gain. Studies whose primary outcomes were bacterial vaginosis, pre-term delivery and infant atopy were excluded. Only English-language articles were included. The limited number of eligible studies and varying outcomes precluded formal meta-analysis of these data.

RESULTS: Initially, 189 articles were identified and screened. Seven articles met inclusion criteria and are included in the present review. Results demonstrated that probiotic use in pregnancy could significantly reduce maternal fasting glucose, incidence of GDM and pre-eclampsia rates and levels of C-reactive protein.

CONCLUSIONS: Probiotics hold potential as a safe therapeutic tool for the prevention of pregnancy complications and adverse outcomes related to maternal metabolism. Further randomised controlled trials are urgently required, particularly among those at high risk of metabolic disorders, such as overweight and obese pregnant women.
STRUCTURED CLINICAL QUERIES IN PUBMED
HTTPS://WWW.NCBI.NLM.NIH.GOV/PUBMED/CLINICAL

PubMed Clinical Queries

Results of searches on this page are limited to specific clinical research areas. For comprehensive searches, use PubMed directly.

Please enter search terms:

Search

Clinical Study Categories
This column displays citations filtered to a specific clinical study category and scope. These search filters were developed by Maynes RD et al. See more filter information.

Systematic Reviews
This column displays citations for systematic reviews, meta-analyses, reviews of clinical trials, evidence-based medicine, consensus development conferences, and guidelines. See filter information or additional related sources.

Medical Genetics
This column displays citations pertaining to topics in medical genetics. See more filter information.

PubMed Clinical Queries

Results of searches on this page are limited to specific clinical research areas. For comprehensive searches, use PubMed directly.

bacterial vaginosis probiotics

Search

Clinical Study Categories
Category: Therapy
Scope: Broad

Systematic Reviews

Results: 5 of 13

Treatment of bacterial vaginosis in pregnancy in order to reduce the risk of spontaneous preterm delivery - a clinical recommendation.

Medical Genetics
Topic: All

Results: 5 of 29
Probiotics in Curing Allergic and Inflammatory Conditions - Research Progress and Futuristic Vision.
Dhuma K, Lethief SK, Manuir AK, Khondia R, Abdul Samad H, Ismail HM, Joshi SK.
Recent Pat Inflamm Allergy Drug Discov. 2016 Dec 28; Epub 2016 Dec 28.

Purification and genetic characterization of gassenin E1, a novel co-culture inducible bacteriocin from Lactobacillus gassen EV1461 isolated from the vagina of a healthy woman.
Karlson-Guzman A, Canabate-Guerrero D, Martin V, Rust-Guerra JL, Rodriguez JM.
PICO USING PUBMED

FUN TIP! – “PUBMED4HH”

PubMed4Hh
PubMed for Handhelds (PubMed4Hh)
National Library of Medicine
The world's largest medical library

PICO
Search MEDLINE/PubMed via PICO
Patient, Intervention, Comparison, Outcome
Patient/Problem: medical condition
Intervention: therapy, diagnostic...
Comparison: optional
Outcome: optional
Pub Type: Not specified

Clinical Queries
Search with no filters
OR USE FILTERS: Systematic Reviews
Clinical Queries
Indicate Category and Emphasis below (Clinical Queries only):
- therapy
- specific search (...

askMEDLINE
free-text, natural language
(English only) query for MEDLINE/PubMed

Journal Browser
TBL/Abstracts

ARCHIVE
PRE-APPRaised lIтератуRе

• Helpful, can save time, generally reliable, BUT...
  • You are borrowing someone else’s brain
  • Plus, not always comprehensive, especially for more marginalized care practices, models, or modalities
  • Subscription generally required

• Common ones include:
  • DynaMed: www.dynamed.com
  • Evidence Updates: https://plus.mcmaster.ca/evidenceupdates/
  • Clinical Evidence: http://clinical证据.bmj.com/x/index.html
  • UpToDate: www.uptodate.com
RECOMMENDATIONS & CLINICAL GUIDELINES

- To inform, but not necessarily determine

AHRQ ePSS (free) app
“LactMed” - National Library of Medicine’s Toxicology Data Network

Looking for information on how drugs or dietary supplements can affect breastfeeding? LactMed has information about maternal and infant drug levels, possible effects on lactation and on breastfed infants, and alternative drugs or supplements to consider.

- Drug Name Search
- Drug Class Search

“Prevent Group B Strep” - CDC w/ ACOG, AAP, ACNM, and AAFP Endorsement

Tools to Prevent Group B Strep
- Neonatal Providers
- Obstetric Providers
- Antibiotic Regimen

MORE APPS FOR GUIDELINES & RECOMMENDATIONS
EIP: APPRAISE – CRITICALLY EVALUATE

Guiding Questions:

✓ Reliable? Valid?
✓ Strength of evidence?
✓ Methodologically rigorous?

Reading Studies & Interpreting Stats:
• Cue Cards for reading and assessing research studies
  • PDF handout, courtesy of University of Western States

Image courtesy of: Google Images
THREE MAJOR RESEARCH PARADIGMS

• Qualitative Approaches
  • Quality elicited through narratives

• Quantitative Approaches
  • Quantity elicited through numbers

• Mixed Methods
  • Active mixing of methods to address the same research inquiry
  • Numbers & Narratives
EIP: APPRAISE – RELIABILITY & VALIDITY

• Reliability
  • Repeatability – if repeated, would results be the same?
  • Steadiness – within individual measures (e.g., a test)
  • Consistency – across studies for same topic

• Validity
  • Internal validity -- are you measuring what you think you are measuring?
  • External validity – generalizability (from sample to population)

• Relationship between reliability and validity
  • You cannot have validity without reliability
  • But, reliability does not equal validity
STRENGTH OF EVIDENCE (LEVELS OF EVIDENCE) PYRAMID FOR CLINICIANS

Note that “best evidence/evidence guidelines & summaries” do not count as original research nor a type of study.

As you move up:
- Stronger methodology
- Less chance of bias
- Controls for comparisons
- Fewer studies

1a. Systematic Reviews (SR), Meta-Analysis
1b. Randomized, controlled trials (RCT)
2a. Clinical trials, Cohort Studies
2b. Case Control, Case series
3a. Case study / case report
3b. Animal studies, in vitro studies
4. Expert opinions, editorials, ideas
5. Animal studies, in vitro studies
6. Expert opinions, editorials, ideas

To understand the rigor with which a study is conducted, you need to be able to recognize the study design. In doing so, you can identify strengths and limitations.

Study design is directly connected with types of questions.

Type of question/Domains that questions fall into:

- **Therapy**: Questions about treatment in order to achieve some outcome (e.g., diet, supplementation, Vitamin K injection, probiotics, etc.).

- **Diagnosis**: Questions about identifying disorders or health concerns (e.g., gestational diabetes, iron deficiency anemia, cholestasis, etc.).

- **Prognosis**: Questions about disease progression or recurrence (e.g., early-onset GBS disease, late-onset VKDB, etc.).

- **Etiology/Harm**: Questions about negative impacts (risks) from an intervention/exposure (e.g., AROM, circumcision, etc.).
## EIP: APPRAISE – METHODOLOGICAL RIGOR

- Linking question type with study design type:

<table>
<thead>
<tr>
<th>Question Type</th>
<th>Study Design (ideal and real)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>Systematic reviews, meta-analyses</td>
</tr>
<tr>
<td>Therapy</td>
<td>RCTs, clinical trials (then move down the pyramid)</td>
</tr>
<tr>
<td>Diagnosis</td>
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</tr>
<tr>
<td>Prognosis</td>
<td>Cohort studies, case control studies (then move down the pyramid)</td>
</tr>
<tr>
<td>Etiology/Harm</td>
<td>Cohort studies, case control studies (then move down the pyramid)</td>
</tr>
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EIP: APPRAISE – METHODOLOGICAL RIGOR

Review forms (courtesy of: Center for Optimal Integration)
These documents (courtesy of the University of Western States) provide tools to summarize the EIP process and assess the validity and quality of differing study designs.

- Harm Critical Review form (case control, cohort study)
- Systematic Critical Review
- Therapy Critical Review
- Prognosis Critical Review
- Diagnostic Test Critical Review Form

Review forms located at: http://www.optimalintegration.org/project-perl/developing-programs/faculty-course-material.php

<table>
<thead>
<tr>
<th>Question Type</th>
<th>Study Design</th>
<th>Review Form to Use</th>
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<tbody>
<tr>
<td>Therapy</td>
<td>RCTs, Clinical trials</td>
<td>Therapy review</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>RCTs, Clinical trials</td>
<td>Diagnostic test review</td>
</tr>
<tr>
<td>Prognosis</td>
<td>Cohort studies, Case control studies</td>
<td>Prognosis review</td>
</tr>
<tr>
<td>Etiology/Harm</td>
<td>Cohort studies, Case control studies</td>
<td>Harm review</td>
</tr>
<tr>
<td>ALL</td>
<td>Systematic reviews, Meta-analyses</td>
<td>Systematic review (can use for both)</td>
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CASE STUDY: APPLY

• **Articles chosen**
  - I’ll talk with Maggie to implement shared decision-making using an evidence-informed practice framework.
EIP: APPLY – DETERMINING RELEVANCE

Clinical Jazz coined by: Shaughnessy, A.F. et al. (1998)
CLOSING REMARKS

PART III
EIP ➔ INTERPROFESSIONAL COLLABORATION & MIDWIFERY EXCELLENCE

• Become a member of Academic Collaborative for Integrative Health (ACIH)!
  • Project for Enhancing Research Literacy: http://optimalintegration.org/project-perl/perl.php

• Become a member of CEIPE!
  • Consortium of Evidence-informed Practice Educators

• Find ways to integrate research into your community!
  • E.g., Clinical Research Roundtables

• Increase your research fluency skills!
  • Course – STAT 2010: Principles of EIP (MCU)
  • Webinars – Research Literacy (ACIH Center for Optimal Integration)
  • Modules – Principles of EIP (University of Minnesota)
SAVE THE DATE

• Process of Integrating Evidence (PIE) for CIH Educators – 2017 Conference
  • When: 7/13 – 7/15 2017
  • Where: Bloomington, MN
• Two tracks:
  • teaching track aimed at classroom and clinic educators;
  • administrative/curriculum development track aimed at institutional administrators and curriculum designers
• Registration closes May 1st
• More info at: http://www.ciheducatorsforeip.org/
CLOSING INSPIRATION

I did then what I knew how to do. Now that I know better, I do better.

— Maya Angelou —

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References available upon request
Acknowledgments: PIE Conference 2015, Shannon Anton, April Kline

THANK YOU!