Evidence-based “Mal”-practice in Perinatal Care and Women’s Health

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Grand Objectives

- To place the emerging paradigm of evidence-based practice (EBP) in perspective as a set of methodologies available to the practitioner interested in improving patient outcomes and the delivery of health services.

- We will:
  - Explore the rationale for EBP
  - Discuss its application
  - Provide examples to illustrate its appropriate and inappropriate application in clinical practice

- Discuss examples of potentially inappropriate use of the evidence-based practice paradigm in perinatal care and women’s health.
Conflict of Interest Statement

- Dr. Kirby has grants and contracts from the Centers for Disease Control and Prevention, the Florida Department of Health, and the March of Dimes Foundation, and served as a consultant to UNICEF and AcademyHealth.
- Dr. Kirby chaired the scientific advisory committee for the Nplate pregnancy exposure registry for Amgen Corp, and has provided technical consultation concerning Botox and pregnancy outcomes for Allergan Corp.
- Dr. Kirby is president-elect of the American College of Epidemiology, past president of the Society for Pediatric and Perinatal Epidemiologic Research and the Association of Teachers of Maternal and Child Health, serves on the executive committee of the National Birth Defects Prevention Network, and on the board of the Perinatal Foundation. He is also treasurer of the 37th Street Foundation, a family charitable foundation. He also leads the USF team in the annual March for Babies in support of the March of Dimes Foundation.
- Dr. Kirby is a bluegrass and roots music fanatic, has been known to travel long distances in search of the true article, and has considered placing the following bumper sticker on his car: “Caution: this car breaks for bluegrass”.
- None of these relationships have any bearing on the content of this presentation.
Objectives

- to understand the basic principles for evaluating clinical research in the areas of randomized controlled clinical trials, outcomes research, and health services research
- to explore the role of research synthesis (meta-analysis, systematic reviews, and related methods) as tools for evidence-based practice
- to examine the concept of evidence-based practice and its application to obstetrics and gynecology
Objectives (continued)

- to identify situations where evidence-based ‘malpractice’ must be avoided as evidence-based practitioners attempt to make sense of research, editorials, and media hyperbole as it relates to their clinical setting.
"On the positive side, the fuss about evidence-based medicine is that there is a lot of new information that we could be harnessing to improve the care of our patients... The fuss on the negative side is that it's not all that easy for practitioners to take this new evidence in and incorporate it into practice."

R. Brian Haynes, MD
Some Perspectives on EBP

"without clinical expertise, practice risks becoming tyrannized by evidence."

David L. Sackett, MD
“... the tyranny of evidence a not wholly unexpected side effect, given the fact that the popularization of evidence-based medicine has happened concurrently with the cost-containment and quality-assurance movements in health care.”

Jonathan M. Ross, FACP
The Realistic Evidence-Based Rating Scale

- **Class 0**: Things I believe
- **Class 0a**: Things I believe despite the available data
- **Class 1**: Randomized controlled clinical trials that agree with what I believe
- **Class 2**: Other prospectively collected data
- **Class 3**: Expert opinion
- **Class 4**: Randomized controlled clinical trials that don’t agree with what I believe
- **Class 5**: What you believe that I don’t

The Practice of Evidence-based Practice

◆ “integrating individual clinical expertise with the best available external clinical evidence from systematic research”

◆ individual clinical expertise: the proficiency and judgment acquired through experience and practice in clinical settings

◆ external clinical evidence: clinically relevant research, from basic medical science and patient-centered clinical research

Sackett, Richardson, Rosenberg and Haynes: Evidence-based Medicine: How to Practice & Teach EBM (New York: Churchill Livingstone, 1997)
How Do We Practice EBP?

- EBP is a life-long process of self-directed learning, in which caring for patients creates for the clinician a need for clinically important information about diagnosis, therapy, prognosis, and other clinical and health services issues. In this process, we:
  - Convert information needs into answerable questions (testable hypotheses)
  - Track down the best evidence with which to answer them
  - Critically appraise the evidence for validity and usefulness
  - Apply the results of this appraisal in clinical practice
  - Evaluate performance
Why EBP?

- New types of evidence are being generated which, when known and understood, have the potential to create frequent and major changes in the way we care for our patients.
- Although we need this evidence daily, we usually fail to get it.
- Because of this, both our up-to-date knowledge and clinical performance deteriorate over time.
- Trying to remedy this personally through traditional CME/CEU programs (even great ones like today’s!) generally doesn’t improve clinical performance.
- A different approach to clinical learning has been shown to keep its practitioners up-to-date. EBP is that different approach.
Quality of Evidence

I: Evidence obtained from at least one properly randomized controlled trial.

II-1: Evidence obtained from well-designed controlled trials without randomization.

II-2: Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.

II-3: Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (i.e. results of introduction of penicillin treatment in 1940s) could also be regarded as this type of evidence.

III: Opinions of well-respected authorities, based on clinical experience; descriptive studies and case reports; or reports of expert committees.

Hierarchy of Evidence

- Randomized controlled trial
- Nonrandomized controlled trial
- Cohort study
- Case-control study
- Before-after study, intervention series, case series, case reports
So how do we judge the ‘evidence’?
What are the Basic Criteria of a Good Original Study?

- the problem is clearly identified
- the hypothesis is clearly formulated
- the topic is well documented
- the study design and protocol are established before the study begins
- all variables under study are well defined by operational criteria
What are the Basic Criteria of a Good Original Study? (continued)

- quality data are collected
- proper quantitative analysis of study data is performed
- critical evaluation of study results is done
- results are interpreted in relation to the initially stated problem and hypothesis
- the relevance of study results is addressed before putting them into practice
How Do We Decide If the Evidence from a Single Study is Valid?

- What study design was used?
- Was the assignment of patients to treatments randomized? Was the randomization list concealed?
- Were all patients entered in the trial included in the analysis? Were they analyzed in the groups to which they were randomized?
- Were study groups similar at the beginning of the study?
- Was the study conducted ethically?
Sources of Internal Heterogeneity in Medical/Health Studies

- **Logical approach to problem**
  - induction (data -> hypothesis -> evaluation)
  - deduction (hypothesis -> data -> evaluation)

- **Study design**
  - observational (case-control, cohort, cross-sectional)
  - experimental (clinical trial)

- **Intellectual quality**
  - rigor in defining study problem and executing the study
  - unbiased interpretation of results
Institute of Medicine Reports on Clinical Guidelines and Systematic Reviews

Evidence-based Practice Centers

- EPCs are primarily funded by AHRQ to conduct systematic reviews.
- The Pacific Northwest EPC at OHSU has worked with the USPSTF and many other partner organizations since 1998.
Some Analytical Tools for EBP

- Randomized Controlled Clinical Trials
  - Clinical research
  - Intervention research
  - Evaluation research
- Meta-Analysis
- Systematic Reviews
- Clinical Decision Analysis
Types of reviews

Reviews
(narrative/literature/traditional)

Systematic reviews

Meta-analysis

Adapted from The Cochrane Health Promotion and Public Health Field Website.
A systematic review (SR) is a summary of the health and medical literature using explicit methods to systematically search, critically appraise, and synthesize the world literature on a specific issue.

The goals are to minimize both bias and random error.

SRs may but need not include statistical methods for combining results of individual studies.

### Systematic Reviews

**Rate Studies for Quality (Risk of Bias)**

**Risk of bias:** Any process, effect, or error in the design or conduct of a study that systematically favors one intervention over others.

The USPSTF criteria to rate the quality of individual studies is based on a 3-point scale:

<table>
<thead>
<tr>
<th><strong>Good</strong></th>
<th>Meets all criteria depending on study design; study is well-designed and well-conducted in representative populations.</th>
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<tbody>
<tr>
<td><strong>Fair</strong></td>
<td>Does not meet all criteria, but limitations may not invalidate results.</td>
</tr>
<tr>
<td><strong>Poor</strong></td>
<td>Fails to meet criteria, limited number or power, important flaws in design or conduct, lack of information on important health outcomes, etc.</td>
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Systematic Reviews
Synthesize and Interpret Results

- Quantitative meta-analysis.
- Qualitative analysis.
- Estimates of effect size.
- Balance of benefits and harms.
- Strengths and limitations of evidence.
- Inform models.
- Applications to real world populations and practice.

Pacific Northwest Evidence-based Practice Center
Systematic Reviews
What They Can Answer

- Summary of available scientific evidence.
- Studies are collected, evaluated, and synthesized in accordance with an organized, structured, explicit, and transparent methodology.
- Provides accurate, independent information of benefits and harms of health care services and interventions for specific populations.
- Defines sources, type, strengths, and limitations of evidence.
- Avoids bias in finding, selecting, or analyzing evidence.
Systematic Reviews
What They Can’t Answer

• Summarize evidence that does not exist.
• Create a strong evidence base from weak or inadequate studies.
• Apply findings to all individuals or sub-groups when derived from other populations.
• Address all clinical issues, particularly timing, frequency, etc.
• Replace clinical judgement and individual considerations.
• Provide clinical recommendations.
How Do We Decide If the Evidence from a Systematic Review is Valid?

- Does it review randomized trials relevant to the treatment of interest?
- Is there a methods section describing:
  - finding and including all relevant trials?
  - assessing their individual validity?
- Were the results consistent from study to study?
Are the Valid Results of this Systematic Review Important?

- What is the magnitude of the treatment effect?
- How precise is the treatment effect?
- To answer these questions, we need to think in terms of Number Needed to Treat (NNT), and be able to convert results presented as OR’s and RR’s into NNT.
Formulae to Convert ORs and RRs into NNT

- For RR < 1: \( NNT = \frac{1}{1-RR} \times PEER \)
- For RR > 1: \( NNT = \frac{1}{RR-1} \times PEER \)
- For OR < 1:
  - \( NNT = \frac{1-(PEER \times (1-OR))}{(1-PEER)\times PEER \times (1-OR)} \)
- For OR > 1:
  - \( NNT = 1+\frac{(PEER \times (OR-1))}{(1-PEER)\times PEER \times (OR-1)} \)
- Where PEER is patient’s expected event rate
Meta-analysis

• Uses statistical methods to combine results from two or more studies to provide summary estimates.
• Should only be considered for studies providing data appropriate for these methods.
Meta-Analysis: Definition

- a systematic, organized, and structured evaluation and synthesis of a problem of interest based on results of many independent studies of that problem
Meta-Analysis: Three Components

◆ qualitative meta-analysis:
  – “a method of assessment of the importance and relevance of medical information from several independent sources through a general, systematic and uniform application of pre-established criteria of acceptability of original studies representing the body of knowledge of a given health problem or question”

Qualitative Meta-Analysis: Objectives

- to determine the prevalence, homogeneity, and distribution of quality attributes
- to expand the knowledge of missing and/or imperfect data
- to evaluate and interpret ‘outliers’ (study observations outside a customary range)
Meta-Analysis: Three Components (continued)

- **quantitative meta-analysis:**
  - a statistical integration of quantitative information on a given subject, drawing on the results of several independent studies
  - features include evaluation of homogeneity of findings and assessment of effect size across studies

- **integration of qualitative and quantitative findings**
Advantages of Meta-analysis

• Provides insights into study heterogeneity (differences between studies).
• Improves the power to detect small differences if individual studies are small.
• Determines the precision of the effect measure.
• Compares efficacy of multiple interventions.
• Evaluates the consistency and differences in effect measures of the same intervention across study characteristics.
• Resolves controversy from conflicting studies.
When to Use Meta-analysis

• After consideration of its purpose and appropriateness and how it could be used by stakeholders.
• After determination of heterogeneity of studies.
  – Clinical: variability in study population characteristics, interventions, and outcome ascertainment.
  – Methodological: variability in study design, conduct, and quality.
  – Statistical: variability in observed intervention effects across studies.
What are the Basic Components and Criteria of a Good Meta-Analytic Study?

♦ what question(s) should be answered?
♦ sources of studies are identified (using meticulous and comprehensive retrieval methods)
♦ selection criteria for inclusion of studies are defined
♦ an assessment of publication bias is made
♦ the study design for the meta-analysis is presented (type, steps, chronology, etc)
What are the Basic Components and Criteria of a Good Meta-Analytic Study?

(continued)

- methods and quantitative techniques used are described
- reasons for variability of studies are identified
- assessment of data within and between studies is carried out
- results and their practical relevance are proposed
- a bibliography is included (methods, reference data)
- a list of studies forming the subject of the meta-analysis is given
What Elements are Common to Both Good Original Studies and Meta-Analyses?

- solidity and validity of evidence
- (external) generalizability of findings
- applicability to particular settings and patients
- results answer relevant clinical questions
- results have an important effect on clinical practice (retain current clinical practice or change it)
Evidence-based “Mal”-practice

- This is a new term, another Kirby-ism.
- It does NOT refer to medico-legal applications that might have a bearing on the use of evidence-based practice.
- Rather, it is a term that can be applied to the deliberate or inadvertent misuse of the evidence-based practice paradigm by clinicians or researchers in their zeal to influence clinical policy or clinical decision-making.
Let’s look at a few examples

- VBAC and Cesarean section
- Folic Acid and prevention of neural tube defects
- Perinatal surveillance – Kick Counts
- Back to Sleep
- HRTs: the mystery continues
- These are selected from a wide-range of potential topics . . .
Trends

- The velocity of the increase in the primary Cesarean section rate and the decline in VBAC rates in the recent past in the US is unprecedented.
- In less than five years, more than ten years of increasing VBAC rates disappeared. There is still no end in sight, although there is an asymptote.
- Is this a good thing, or even a matter of concern?
Trends

- Rates of induction have increased dramatically across the nation.
- There are differences based on data source, but no one can dispute the direction of the trend (Kirby, Birth 2004).
Is this a clinical or a public health concern?

- Con: public health does not focus on clinical management of patients. That is in the responsibility of the health care system, peer review, quality compliance, and provider organizations.

- Pro: Cesarean section is among the most common surgical procedures. It is more expensive per total hospital stay than vaginal delivery, and leads to more complications and re-hospitalizations.
Is this a public health concern? (continued)

The Public Health Service has established goals for the year 2010 promoting continued reduction in overall Cesarean section rates and increases in VBAC rates for the United States.

- Objective 16-9a: Reduce C-S among low-risk nulliparous women

- Objective 16-9b: Reduce C-S among women with prior Cesarean birth

Will these objectives be met? Not without radical change in clinical practice in the next few years.
Clinical Documentation of Previous Cesarean Section

- Most clinicians practice in settings that do not have comprehensive, unified clinical informatics applications.
- In a patient who’s previous delivery was with another provider, how likely is it that the patient’s history will document the type of incision, the position of the uterine scar, whether single- or double-suturing was used, etc?
Key Publications Influencing Obstetrical Management of Labor and Delivery

- Several publications in the past few years have exerted vast influence on physician management of labor and delivery:
Sachs et al. on “The risks of lowering the Cesarean-delivery rate”

- Argued that there is no basis for a national public health goal targeting a C-section rate of 15% (or any other level).
- Recommended that trials of labor not be mandated for women with prior Cesarean deliveries, and not be conducted at all in facilities unable to perform emergency Cesarean delivery.
Greene on “Vaginal delivery after Cesarean section: is the risk acceptable?”

- Editorializes on Lydon-Rochelle et al., opining that the risks of uterine rupture associated with VBAC are so great that physicians should counsel all patients with previous Cesareans concerning these risks and obtain informed consent before undergoing trial of labor.
- Do we have randomized studies on this question? Can there ever be such studies?
% VBAC Low Risk* Mothers, U.S., 2001-2002

* Full-gestation (37+ weeks), vertex presentation, singleton births

Lydon-Rochelle & Greene 7/01
Lydon-Rochelle et al. conducted a population-based, retrospective study using linked hospital discharge and vital statistics data. There are issues with documentation of risk factors and outcomes in both vital statistics and hospital discharge data. This study showed an increased risk for uterine rupture with trial of labor, and even greater risks with induction (in turn greater still with use of prostaglandins). No data was presented concerning the location of the uterine rupture in relation to the uterine scar. Although many patients with uterine rupture had minor complications, rates were significantly higher than among patients delivering without uterine rupture. The study also demonstrates a baseline risk of uterine rupture (1.6/1000) even among women who underwent repeat Cesareans.
What Level of Evidence Does This Study Represent?

- Maybe II-2, or perhaps II-3
- Or perhaps, based on Greene’s editorial:
  - Class 2: Other prospectively collected data or Class 3: Expert opinion
- Does this study provide convincing evidence sufficient to recommend against recommending trial of labor? No – but it definitely argues against the increased risks associated with induction without or with prostaglandins for trial of labor.
- There may be a cautionary tale in the Lydon-Rochelle paper, but it is not a blanket injunction against VBACs.
Minkoff and Chervenak on “Elective primary Cesarean delivery”

- Reviews history of this concept since 1985.
- Describes risks and benefits of elective primary Cesareans for both mother and fetus.
- Does not perform either a systematic review or a meta-analysis.
- Summarizes the research literature (without any documentation to substantiate the statement):
  - “Unfortunately, the interpretation of many of the relevant studies on the subject is limited by their designs and by conclusions that sometimes conflict.”
Minkoff and Chervenak on “Elective primary Cesarean delivery” (continued)

- Concludes with the following statement:
  - “Although the evidence does not support the routine recommendation of elective cesarean delivery, we believe that it does support a physician’s decision to accede to an informed patient’s request for such a delivery”.
Commentary on Elective Cesareans

“That women are seeking elective cesarean deliveries is probably more significant in that it indicates failures of modern medicine and society at large in the sense that women may fear the experience of labor, and birth attendants may fear the legal risks of allowing appropriate women to have a trial of labor. Modern management of labor should be reassessed to address the concerns raised by proponents of elective cesarean delivery. If elective cesarean delivery becomes an acceptable alternative, we may never be able to undo the practice.”

Peter S. Bernstein, MD, MPH, Medscape Ob/Gyn & Women’s Health 7(2), 2002.
Greene 2004 commenting on Landon et al.

- Landon et al. report of prospective data from 19 centers, examining birth outcomes for those who underwent trial of labor vs. planned cesarean delivery in a pregnancy subsequent to a previous C-section.

- The findings do not differ greatly from those of Lydon-Rochelle, but somehow because these data are from the NICHD MFMU Network rather than mere population-based administrative data some feel they carry greater weight.
Greene 2004 commenting on Landon et al. (continued)

- “It is unlikely that a randomized trial would yield results substantially different from the accumulated data. Furthermore, it is doubtful that we can substantially better these results by improving the selection of patients for a trial of labor or by improving the conditions under which trials of labor are conducted.”

- Re risks: “Ultimately, risk, like beauty, is in the eye of the beholder.”
  - NEJM 2004;351:2648.
How do these influential publications rate in terms of EBP?

- Do any of them provide systematic reviews or meta-analytic summaries of the evidence?
- Are they based on randomized controlled clinical trials? Or well-designed multi-center cohort or case-control studies?
- Are they based on ‘expert’ opinion?
- Where do they rate on the ‘realistic evidence-based rating’ scale?
Folic Acid and NTDs

- Smithells et al. 1973: case-control study showing that periconceptional multivitamins prevent spina bifida
- Numerous other reports over ensuing 18 years
- MRC study published Sept 1991: RCCT
- Hungarian RCCT study shortly thereafter
Multivitamins with Folic Acid
Neural Tube Defect Studies, 1980-1999

'80-Smithells
'81-S. Wales
'88-Atlanta
'89-W. Australia
'89-CA/Illinois
'89-Boston
'90-Cuba
'91-UK-MRC
'92-Hungary
'93-New England
'95-California
'99-P.R. China

Risk Ratio With 95% Confidence Intervals

Source: Centers for Disease Control and Prevention
MV / Folic Acid - Non-NTD Birth Defect Studies

<table>
<thead>
<tr>
<th>Birth Defect Type</th>
<th>Study</th>
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<tbody>
<tr>
<td>All (excl. ntd)</td>
<td>Czeizel</td>
</tr>
<tr>
<td>Oro-facial clefts</td>
<td>Hayes</td>
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<tr>
<td></td>
<td>Shaw</td>
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<td></td>
<td>Tolarova</td>
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<tr>
<td>Cardiac outflow tract</td>
<td>Czeizel</td>
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<td>Botto</td>
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<td></td>
<td>Shaw</td>
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<td>Scanlon</td>
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<tr>
<td>Cardiac septal defects</td>
<td>Czeizel</td>
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<td>Botto</td>
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<tr>
<td>Limb defects</td>
<td>Shaw</td>
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<td>Yang</td>
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<tr>
<td>Urinary tract</td>
<td>Li</td>
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Risk Ratio With 95% Confidence Intervals

Randomized trials  Non-randomized trials  Observational studies

Source: Centers for Disease Control and Prevention
Folic Acid and NTDs (continued)

- CDC recommendations 1992
- FDA fortifies US food supply with 140 mcg/dl effective January 1998
- Evidence (Williams et al., Teratology 2002; Honein et al. JAMA 2001) shows that birth prevalence of NTDs in US declined; rates stabilizing since 2000
- Declines are at the very edge of the range suggested from the RCCTs (25-30% compared to anticipated 30-70%)
- Anencephaly decline smaller (~20%)
Folic Acid and NTDs (continued)

- Is the food supply fortified sufficiently at the current level? According to the FDA (Pediatrics, March 2006), evidence of safety of increased folic acid fortification is not presently available.
- How many pregnancies affected by NTDs might be prevented with higher levels of fortification, or if fortification were mandated in all nations?
- Does folic acid prevent other birth defects?
- What ‘evidence’ do we need?
Kick Counts

- Another interesting example comes from the field of perinatal surveillance.
- Through the 1980s, practitioners frequently counseled their patients to monitor ‘kick counts’ in the third trimester of pregnancy.
- What happened to change this practice?
Back to Sleep

- Sudden infant death syndrome (SIDS) the leading cause of postneonatal death in developed countries
- In the 1980s, several independent case-control studies suggest that sleep position (prone) is associated with an elevated risk of SIDS.
Back to Sleep (continued)

- These observations confirmed by a British cohort study. No RCCTs on this subject have been conducted.
- Provider and public health groups develop guidelines for sleep position, begin a national ‘Back to Sleep’ campaign in early 1990s.
- SIDS mortality declines, but not in all risk groups. Notably, among African-American infants the rates remain relatively high.
- These courageous folk were willing to act on a matter of public health significance without ‘Level I’ evidence.
- From an evidence-based perspective, what should be done next?
Hormone-replacement Therapy

- HRTs given to women in peri-menopausal period.
- Observational studies showed that women on a variety of regimens (estrogen therapy, hormone therapy, estrogen, estrogen+progestin) tended to have less bone loss, fewer cardiovascular events, lower overall mortality than women not receiving these therapies.
In these observational studies, study subjects were newly menopausal, and were generally symptomatic of recent estrogen deficit.

Millions of American women have been placed on these therapies in recent years.
The Women’s Health Initiative (WHI) studied the effect of estrogen+progestin in postmenopausal women ages 50-79 at enrollment (RCCT).

Published results have been interpreted as showing that there are no cardio-protective effects of E+P, and perhaps even that HRT is harmful.
Hormone-replacement Therapy: A Closer Look

- Who is being studied, and to whom are the results being generalized?
- HRT in the observational studies focused on newly menopausal women – the WHI subjects had a mean age of 63.3 years and were required to be at least 1 year postmenopausal to be enrolled.
- Can or should we make definitive changes in clinical practice, or health prevention strategies, on the basis of a single study, however large?
- The story continues to unfold . . .
Evidence-based Malpractice

- Perhaps these studies on method of delivery, folic acid, and HRT are the leading edge of a new phenomenon in clinical care: Evidence-based Malpractice.

- Practitioners of EBP sometimes forget the criteria for making clinical decisions, but none of the proponents of EBP would ever recommend that editorials and commentaries by influential physicians should form the basis for sea changes in clinical management.

- And yet, in the case of C-sections and VBACs, this appears to be what has happened in the US in the past several years.

- We must also be wary, in our evidence-based zeal, to avoid becoming evidence-based public health malpractitioners.
Where do we go from here?

- Clearly, more rigorous assessment of the research literature must be undertaken by leaders of the clinical community.
- Practitioners should not focus primarily on the most recent study, or the most vigorous or persuasive editorial.
- There is no substitute for evaluating the evidence and thinking for yourself.
- And yet, there are things we can do...
Antidotes to the Tyranny of Evidence: Seven Alternatives to EBP

Modified from Isaacs D. BMJ 1999;319:1618, with apologies, by RS Kirby
Eminence-based Practice

- The more senior the colleague, the less importance s/he placed on the need for anything as mundane as evidence. Experience, it seems, is worth any amount of evidence. These colleagues have a touching faith in clinical evidence, which has been defined as:
  - “making the same mistakes with increasing confidence over an impressive number of years”

- The eminent nurse or physician’s white hair (or loss thereof) are called the ‘halo’ effect.

Modified from Isaacs D. BMJ 1999;319:1618, with apologies, by RS Kirby.
Vehemence-based Practice

- The substitution of volume for evidence is an effective technique for brow-beating your more timorous colleagues and for convincing relatives of your ability.

Modified from Isaacs D. BMJ 1999;319:1618, with apologies, by RS Kirby.
Eloquence-based Practice

- The year-round sun tan, carnation in the hole, silk tie, Armani suit and tongue should all be equally smooth.
- Sartorial elegance and verbal eloquence are powerful substitutes for evidence.

Modified from Isaacs D. BMJ 1999;319:1618, with apologies, by RS Kirby.
Providence-based Practice

- If the caring practitioner has no idea of what to do next, the decision might best be left in the hands of the Almighty (or whatever entity the practitioner chooses to worship).
- Too many clinicians, unfortunately, are unable to resist giving God a hand with the decision making.

Modified from Isaacs D. BMJ 1999;319:1618, with apologies, by RS Kirby.
Diffidence-based Practice

- Some doctors see a problem and look for an answer. Others merely see a problem. The diffident doctor may do nothing from a sense of despair.
- This, of course, may be better than doing something merely because it hurts the doctor’s pride to do nothing.

Modified from Isaacs D. BMJ 1999;319:1618, with apologies, by RS Kirby.
Nervousness-based Practice

- Fear of litigation is a powerful stimulus to over-investigation and over-treatment.
- In an atmosphere of litigation phobia, the only bad test is the test you didn’t think of ordering.

Modified from Isaacs D. BMJ 1999;319:1618, with apologies, by RS Kirby.
Confidence-based Medicine

- This is, of course, restricted to surgeons!

Modified from Isaacs D. BMJ 1999;319:1618, with apologies, by RS Kirby.
Science is built up with fact, as a house is with stone. But a collection of facts is no more a science than a heap of stones is a house.

Jules Henri Poincaré
Questions or Comments?

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- Telephone: 813-396-2347
TOP TEN LIST

TEN BEST WAYS TO PRACTICE EVIDENCE-BASED PUBLIC HEALTH BADLY

With apologies to David Letterman, and thanks for editorial assistance to Elizabeth Kirby and for their insights to the following Internet and in-person contributors:

Ann Dozier, University of Rochester
Kate Kvale, Wisconsin Department of Health Services
William Sappenfield, University of South Florida

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Number 10

Use only the ‘evidence’ published in the most respected peer-reviewed journals.

Q: How do I decide which peer-reviewed journals are the best?

A: Only the best of these journals are cited in USA Today and Parade magazine. But always remember, the National Enquirer is the world’s most respected peer-reviewed journal, based on the legal (jury) definition of “peer”.
Top Ten List: Ten Best Ways to Practice Evidence-Based Public Health Badly

Number 10 (continued)

Corollary:

The ‘grey’ literature, it goes without saying, has no place in EBPH.
If you feel compelled to use ‘evidence’ anyway, use a dartboard to select which studies to include.

The dartboard can also be used to rate the studies, after being used in the context of the most recent political campaigns.
Don’t have a dartboard? Use the numerical digits from your most recent IRB protocol for your entry in next week’s Powerball lottery.

You won’t win, but at least you’ll finally feel that getting IRB approval was worthwhile.
Since most intervention studies, trials and observational research in public health use slightly different methods, measures, and outcomes, it is frequently difficult to employ meta-analyses as a tool for evidence-based public health.

If this is the case, congratulations – you’re done! Everyone knows that meta-analysis is the *sine qua non* on evidence-based practice, whether in clinical care or public health!
Evidence-based public health can only be done with the highest quality evidence, randomized, controlled clinical trials. If your evidence does not meet this standard, you have no business using it for EBPH.

Number 7
Top Ten List: Ten Best Ways to Practice Evidence-Based Public Health Badly

Number 6

Only highly-trained professionals have the necessary skills and training to conduct EBPH. Therefore, any new project must begin with an RFP (or in recent federal-speak, FOA, of even more current, NOFO), targeted for consulting firms or evaluation research groups.

The notion that public health agencies might have staff possessing these skills is too absurd to contemplate!
Number 5

Let the CIA weigh the evidence!

Or better yet, the Special Prosecutor.
Top Ten List: Ten Best Ways to Practice Evidence-Based Public Health Badly

**Number 4**

Data are the cornerstone of evidence-based public health practice. Therefore it goes without saying that the less attention paid to data management, collection, analysis and quality improvement in your public health programs, the better you will be able to practice EBPH badly.

This applies equally to evidence-based clinical practice.
EBPH requires qualitative as well as quantitative components. But trained qualitative researchers are so hard to find!

No problem, just collect interesting stories from your research team, and use them instead. Or, include a psychic on your team that assesses the evidence. Surely, no one could then criticize you for lack of a qualitative approach.
Number 2

After the analyses are done, and the reports are in, ignore the recommendations of the experts and do the opposite. After all, EBPH is an iterative process, and next time around perhaps the results will be to your liking!

Or, just collect and report the data that you want that supports your point of view!
Number 1

As with so many other lists, the best way to do evidence-based public health badly is to practice public health without any evidence-based perspective at all.

After all, in the words of an infamous philosopher, who of course goes unnamed:

“Ignorance is Blitz”