

EVIDENCE-BASED HEALTH CARE
AND OTHER MYTHS OF A MODERN AGE...

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An Overview of EBM

Evidence-Based Health Care

Definition

- Conscientious, explicit, judicious use
 - Current best evidence
 - To make decisions about health care
- Application of working knowledge to treatment:
 - Medical informatics
 - Clinical epidemiology
- Integration of:
 - Clinical expertise
 - Best external evidence
 - Patient and society values
 - Patient expectations

Ways to Classify the Evidence

Type of Review – or Individual Study

1. Systems
2. Synopses
3. Syntheses
4. Studies

Hierarchy of Evidence

Classification of Intervention Studies

Evidence Level	Therapy/prevention/etiology/harm
1a	Systematic review with homogeneity of RCTs
1b	Individual RCT with narrow confidence interval
1c	All or none
2a	Individual cohort study or ↓ quality RCT
3a	Systematic review with homogeneity of case-control
3b	Individual case-control
4	Case series (poor cohort or case-control)
5	Expert opinion without explicit critical appraisal or based on physiology or bench research

The Most Basic of Statistics

- Validity
 - Accuracy of measure
 - Measure what we intends?
- Reliability
 - Repeatability of measure
- P-value (probability)
 - Not as good as we think
- Number needed to treat
- Number needed to harm



Two Different Approaches to Evidence-Based Practice

- Clinical practice guidelines
 - “Top-down” approach
 - Tell clinicians how to practice
 - Favored by health care systems
- Evidence-based medicine
 - “Bottom-up” approach
 - Teach clinicians how to find answers
 - Favored by medical educators

Basic 5-Step Process of Evidence-Based Practice

1. Formulate the question
2. Search for answers
3. Appraise the evidence
4. Apply the results
5. Assess the outcome

Methods of Evidence-Based Practice

- **Formulate the question**
 - **Patients or problem of interest**
 - **Intervention**
 - **Control or alternative treatment**
 - **Outcome of interest**
- Search for answers
- Appraise the evidence
- Apply the results
- Assess the outcome

Example of 4-Part Question (PICO)

■ Patients or problem of interest

- In patients who have become pregnant through ART

■ Intervention

- Does the addition of progesterone during first trimester

■ Control or alternative treatment

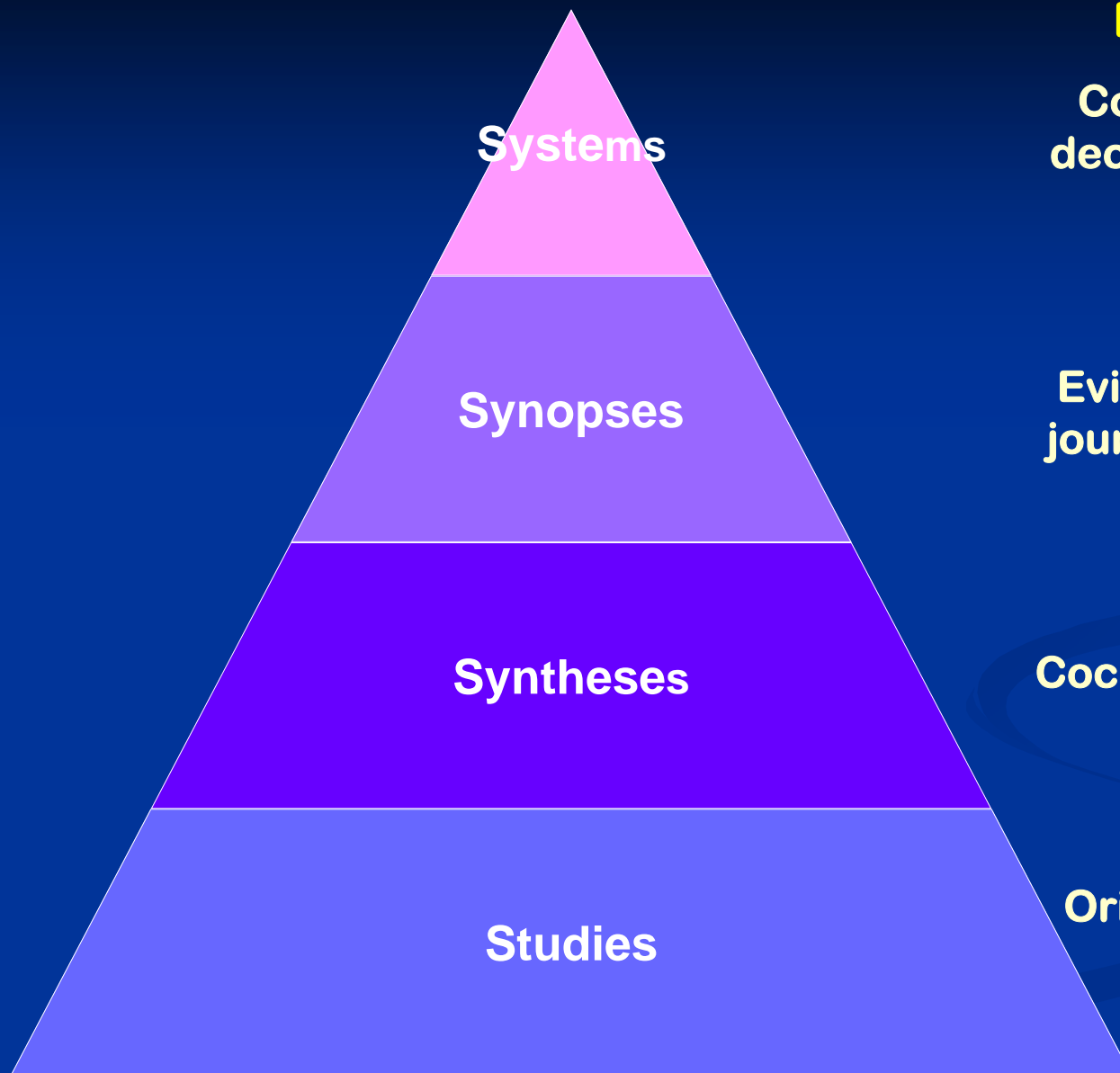
- When compared to usual care alone

■ Outcome of interest

- Increase percentage of pregnancies that progress to term birth of healthy newborns?

Methods of Evidence-Based Practice

- Formulate the question
- **Search for answers**
 - **What type of study best answers the question?**
 - **Where can I quickly find the evidence?**
- Appraise the evidence
- Apply the results
- Assess the outcome



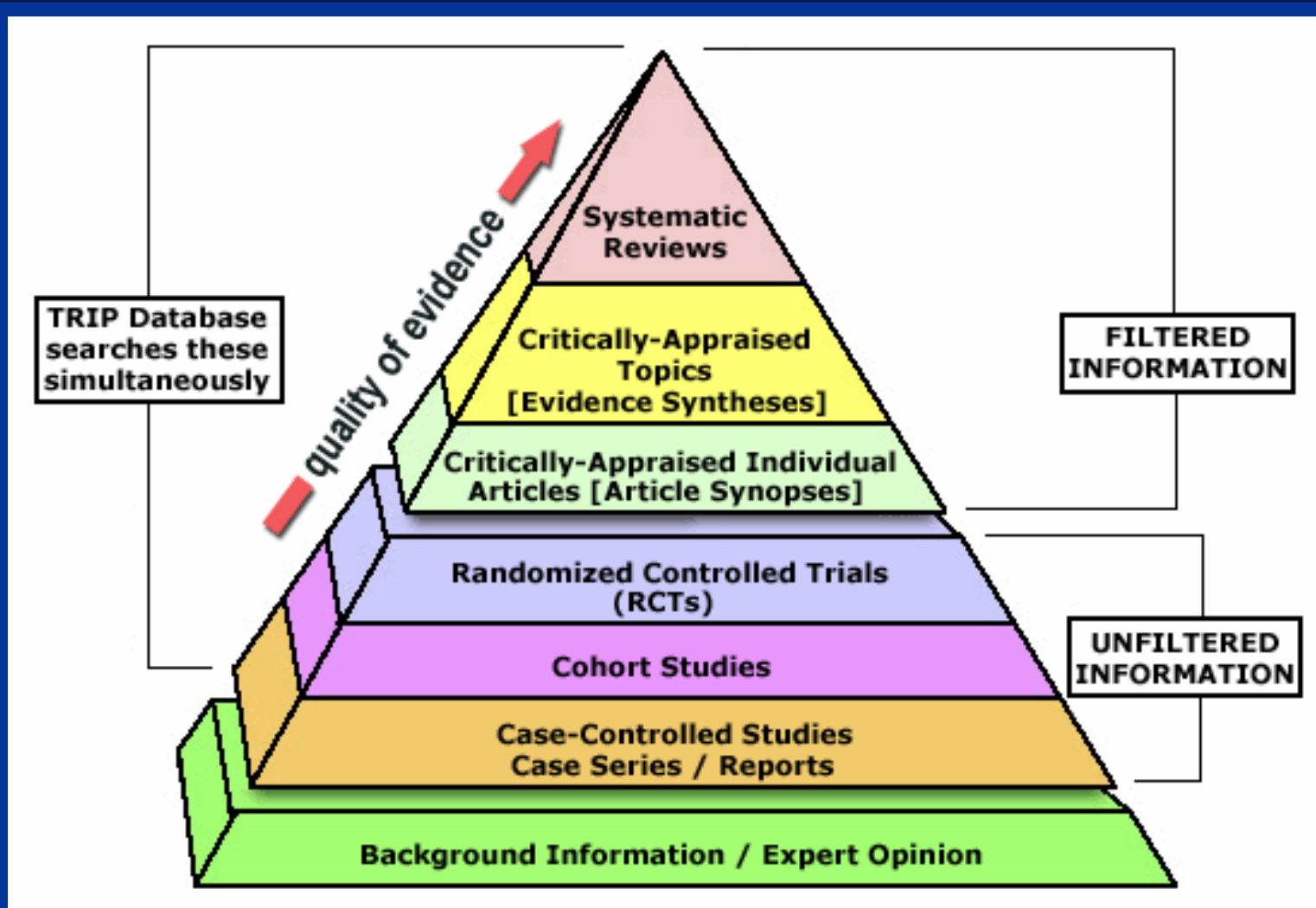
Examples

Computerized
decision support

Evidence-based
journal abstracts

Cochrane reviews

Original journal
articles



Searching for Answers → Examples

The “4S” Approach

- **Systems** (comprehensive resources)
 - Good Clinical Decision Support for Electronic Medical Records
 - Clinical Evidence (www.clinicalevidence.com)
 - British Medical Group
 - UptoDate (www.uptodate.com) (updated quarterly)
 - E-textbook
 - Collection of evidence-based guidelines
 - Some incorporated within electronic medical record

Searching for Answers: The “4S” Approach

- **Syntheses** (systematic reviews)
 - Cochrane Database (OVID)
(www.cochranelibrary.com)
 - DARE (<http://agatha.york.ac.uk/darehp.htm>)

Searching for Answers: The “4S” Approach

- **Studies** (original research)
 - OVID
 - PubMed
 - <http://www4.ncbi.nlm.nih.gov/entrez/query.fcgi>
 - Clinical queries screen has built-in filters
 - Type of question
 - Sensitivity versus specificity

Alternatives to the “4S” Search Approach – or help to find the studies

- TRIP database (www.tripdatabase.com)
 - Searches Cochrane, DARE, collections of systematic reviews and guidelines, and some on-line journals
 - Links to PubMed clinical queries
- SUMSearch (<http://sumsearch.uthsca.edu>)
 - Searches MEDLINE, DARE, National Guidelines Clearinghouse
 - Takes longer than TRIP

Methods of Evidence-Based Practice

- Formulate the question
- Search for answers
- **Appraise the evidence**
 - **Critical appraisal worksheets**
- Apply the results
- Assess the outcome

Appraising the Evidence - RCT

- Is the study valid?
 - Was it a randomized controlled trial?
 - Was the randomization list concealed?
 - Were subjects and clinicians blinded?
 - Were all subjects accounted for?
 - Was intention-to-treat analysis used?
 - Despite randomization, were the groups similar?
 - Aside from the experimental treatment, were the groups treated equally?

Appraising the Evidence - RCT

- Are the results important?
 - How large is the treatment effect?
 - How precise are the results?
- Can I apply the results to my patient?
 - Is my patient too different from those in the study?
 - Is the treatment consistent with my patient's values and preferences?
 - Is the treatment feasible in my setting?

Methods of Evidence-Based Practice

- Formulate the question
- Search for answers
- Appraise the evidence
- Apply the results
- **Assess the outcome**
 - **Patient response to treatment**
 - **Clinician's performance**

Sections of the Evidence-Based Paper APA Guidelines

1. Title Page
 2. Table of Contents
 3. Introduction
 4. Purpose
 5. Justification
 6. Definition of Terms
 7. Methodology
 8. Review of Literature
 9. Conclusions
 10. References
- Use appropriate APA headings for these sections
 - The Review of Literature may need subheadings

Introduction

($\frac{1}{4}$ to 1 page)

- Brief set of statements that introduces the reader
 - Approximately 1-2 paragraphs, $\frac{1}{4}$ to 1 page
- Leads logically to the statement of the question
- May include demographic/statistics that supports the importance of the problem
 - CDC is a good source for this kind of data
- Evaluation Criteria
 - Provides the foundation for the EBP question being explored.
 - Leads to the statement of the question

Example of Introduction

Condition x affects ___ percentage of the citizens of the United States (CDC, 2008). The burden of condition x includes _____, _____, and _____ (_____, _____, _____). Approximately \$\$\$\$ is spent annually on prescriptions and complimentary therapies for condition x (_____). This paper will explore _____ related to (prevention, assessment, diagnosis, treatment) of condition X. By determining the current best evidence regarding (prevention, assessment, diagnosis, treatment) of condition x, _____ will be (enhanced, promoted, relieved, etc.)

Purpose

($\frac{1}{4}$ to $\frac{1}{2}$ page)

- Establishes thrust and goal of the literature review
- Includes a researchable clinical question (PICO)
 - Related to Clinical Concept or future Capstone Project
- Evaluation Criteria
 - Stated clearly and concisely
 - Includes intervention and population being studied
 - Is of importance to advanced practice nursing

Example of Purpose

“The purpose of this evidence-based inquiry is to evaluate the current, best evidence-based literature related to _____. The clinical problem that will guide this review is: (PICO problem)” (one paragraph)

Justification

(1/2 to 2 pages)

- Why this question/purpose is important
 - Logical, documented argument
 - Claims, reasons, some evidence
 - May expand on introduction
 - Question can be answered through scientific inquiry
 - Sufficient research available to guide clinical practice
- Evaluation Criteria
 - Background information provides project foundation
 - Sufficient evidence from the literature presented
 - Substantiates that question is worthy of study
 - Developed in a logical manner
 - Documentation well cited

Definition of Terms

($\frac{1}{4}$ to 1 page)

- Listing of conceptual or operational definitions
 - Need citation for definition if one exists
- Evaluation
 - All essential definitions included
 - Appropriately referenced
- Use a lead-in sentence like, “For the purposes of this project, the following terms were defined:”

Methodology

(1/4 to 1 page)

- Methods used
 - Details of how ROL was accomplished
 - Resources used
 - Search terms
 - Start from the top of the pyramid and work your way down
- Evaluation
 - Methods clearly stated
 - Appropriate to the project
 - Steps follow a natural and logical progression

Review of Literature

(4 to 8 pages)

- Related to researchable clinical question
- Includes relevant research
 - Intervention
 - Population
- Recent research studies and articles from refereed sources
 - Organized with headings and subheadings
- For each source
 - Summarize evidence
 - Rate the strength of evidence

Review of Literature

(4 to 8 pages)

■ Evaluation

- Adequate in scope
- Sources are scientifically based
- Rationale for rating strength of sources
- Logically organized
- Appropriately referenced

Conclusions

(1/2 to 2 pages)

- Integrative summary of evidence
- Evaluation of:
 - Quality of literature
 - Basis for foundation for clinical decisions
 - Consistency of study designs/uniformity of findings
 - Conclusions related to what the evidence suggests
 - Implications of findings for practice/education
 - Areas of future research needed
- Evaluation
 - Conclusions logically and clearly stated
 - Sufficient discussion
 - Implications for practice/education clearly stated

References

- All references
 - APA Manual (5th Edition)