



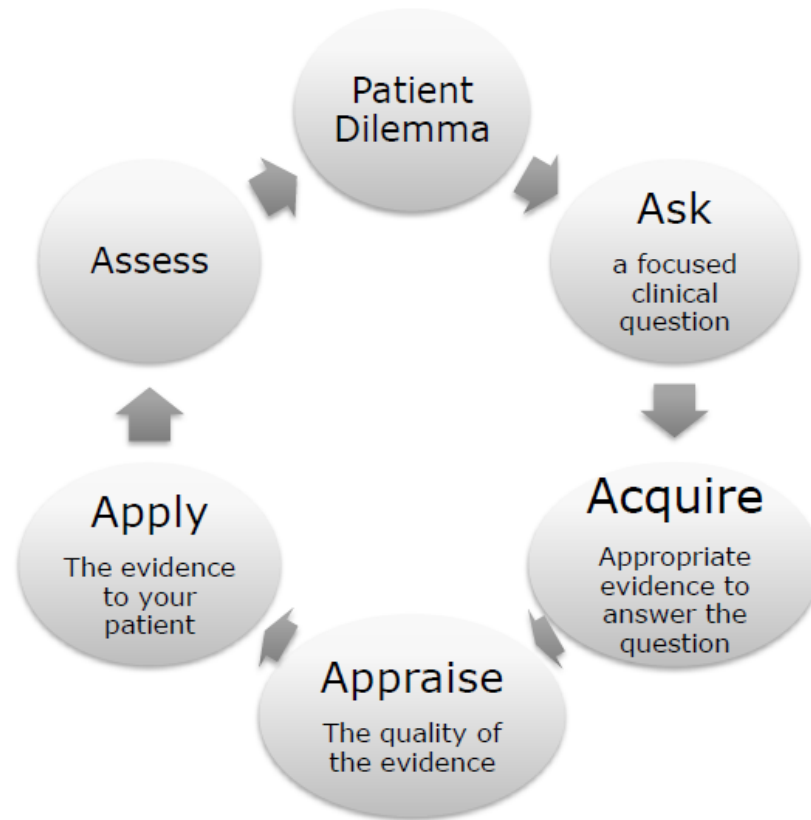
UNIVERSITY OF CALGARY
CUMMING SCHOOL OF MEDICINE
Department of Family Medicine

From PICO to EBM: Appraising Evidence.

*Use this document to
create your EBM
presentation in R1 and R2!*

How to practice EBM?

Five-A approach



Looking for Evidence:

What do I look for? P-I-C-O (P-E-C-O)

- Taxonomy used in EBM to help **formulate questions** and translate clinical problem into structured question and **identify key concepts**
- Elements:

Patient: *Which patient population?*

Intervention: *What intervention or evidence is involved?*

Comparison: *What was the comparator?*

Outcome: *What are the outcomes in the study?*

Looking for Evidence:

What field does my question fall into?

- **Therapy/Prevention** – *drug interventions, alt. methods of service delivery, etc?*
- **Diagnosis/Screening** – *new test valid and reliable versus gold standard?*
- **Etiology/Cause/Harm** – *exposure to harmful agent related to development of illness or disease?*
- **Prognosis** – *what happens if disease is caught at an early stage?*

Looking for Evidence:

Where do I look?

- **Ovid Medline / Pubmed**
- **Cochrane Library:** Cochrane reviews, DARE reviews Cochrane Central Register of Controlled Trials
- **ACP PIER** (via StatRef) shows specific evidence sources for its recommendations
- **Clinical Evidence or BestBETS** (synthesized evidence—check references)
- **ACP Journal Club** (or a relevant Evidence-based digest, such as Evidence-based Child Health, Evidence-based Eye Care, etc.)
- **Clinical Practice Guideline**— current, from reputable source, with appropriate levels of evidence
- **PSYCINFO**

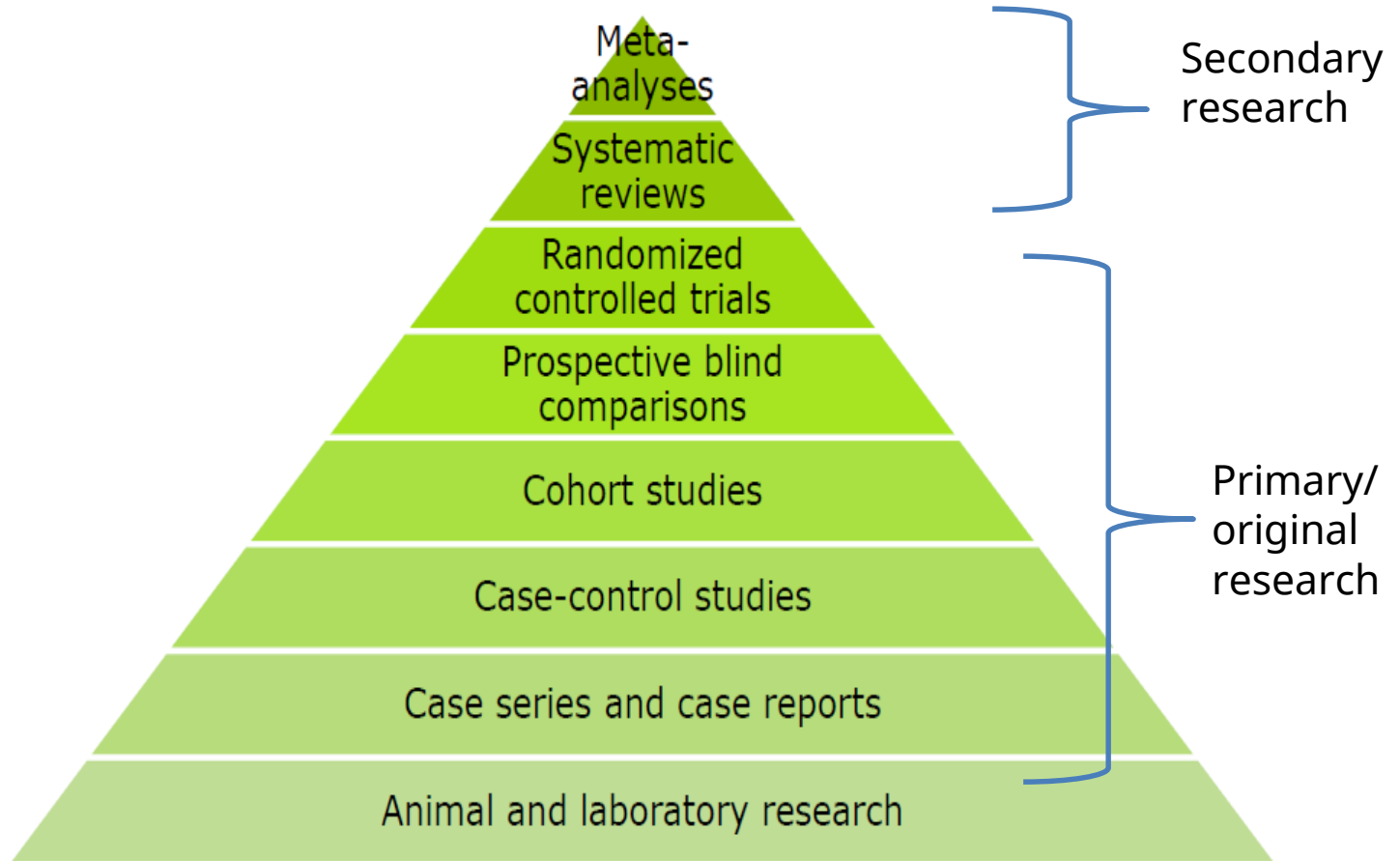
Anatomy of a Research Paper

- Abstract
- Introduction
- Methods
- Results
- Discussion

Anatomy of a Research Paper

- **Introduction** summarizes background of the study – **why**
- **Methods – how** the data was gathered and analyzed – vital for the critical appraisal of a paper
- **Results** – report findings objectively without speculation or interpretation – **what**
- **Discussion** – authors interpret the finding in light of the study design and other research. They may also discuss limitations of their work – **what it means**

Hierarchy of Evidence



Adapted from Will Olmstadt, Evidence-Based Medicine: The Basics (https://becker.wustl.edu/sites/default/files/EBM_Std.pdf)

Appraising a Research Paper

Appraising a research paper

Are the results **valid**?

- Is the research question focused?

Patient

Intervention

Comparison

Outcome

- Was the method used appropriate?
- How was it conducted?

Appraising a research paper

What are the **results**?

- How was data collected and analyzed?
- Are results significant?
- How precise are the results?
- How are they presented?

Appraising a research paper

Are results **relevant**?

- Will the results help my work with patients?
- Can I apply these results to my own practice?
- Is my local setting different?
- Are these findings applicable to my patients?
- Are findings detailed enough to be applied?
- Were all outcomes considered?

Appraising a research paper

Role of Statistics

- “... Critical appraisal should not... be regarded as just another aspect of medical statistics. This misconception often leads to an overestimation of the level of statistical knowledge required for critical appraisal.”
(Ajetunmobi, 2002)
- However, for quantitative papers, a little statistical knowledge can help a lot!