

Journal Club: Intro Session

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Internal Medicine

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Objectives

- Club Overview and Mission Statement
- Background
- Presentation Outline
- Study Types
- Examples

Club Overview and Mission Statement

Mission Statement

“Interdisciplinary student-led journal club which examines a set of landmark medicine-focused clinical trials with the following goals: Prepare 3rd and 4th year students to use evidence-based medicine during intern year; understand the implications of current research on patient care; foster skills to critically analyze medical papers”

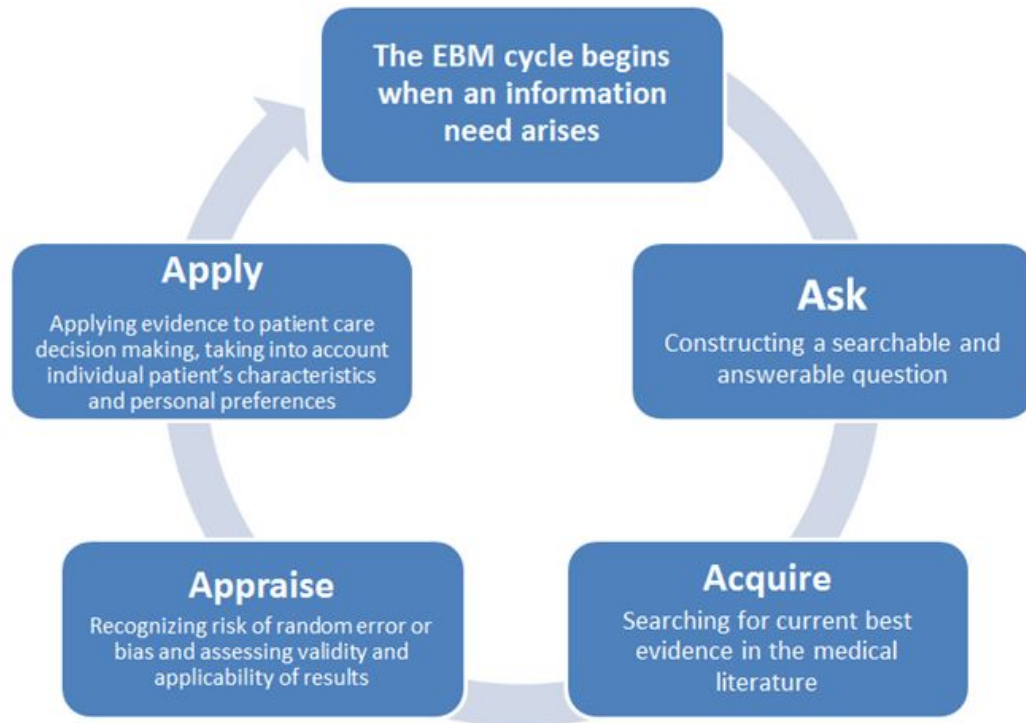
Goals

- ▶ Knowledge:
 - Increase exposure to the body of research that underlies clinical decisions
 - Understand how specific trials are being applied in the clinical setting
 - Understand the fundamental design, methods, and analysis of clinical research
- ▶ Skills
 - Learn how to apply clinical research to patient care
 - Learn to critique research
 - Learn to present clinical research
 - Learn how to ask clinical questions
- ▶ Attitude
 - Confidence in ability to reference, interpret and apply clinical research
 - Desire to apply EBM to clinical practice in the future

Background

Evidence-Based Medicine: Definition and Cycle

Evidence-based medicine is the conscientious and judicious use of current best evidence from clinical care research into the management of individual patients.



References:

[Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS. Evidence based medicine: what it is and what it isn't. BMJ. 1996;312\(7023\):71-2.](#)

[Guyatt G, Dummond R, Meade MO, Cook DJ. Users' Guides to the Medical Literature: A Manual for Evidence-Based Clinical Practice, 3E. McGraw-Hill Professional; 2014.](#)

Evidence-Based Medicine

*Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means **integrating individual clinical expertise with the best available external clinical evidence** from systematic research. By individual clinical expertise we mean the proficiency and judgment that individual clinicians acquire through clinical experience and clinical practice. Increased expertise is reflected in many ways, but especially in more effective and efficient diagnosis and in the more **thoughtful identification and compassionate use of individual patients' predicaments, rights, and preferences in making clinical decisions about their care**. By best available external clinical evidence we mean clinically relevant research, often from the basic sciences of medicine, but especially from patient centered clinical research into the accuracy and precision of diagnostic tests (including the clinical examination), the power of prognostic markers, and the efficacy and safety of therapeutic, rehabilitative, and preventive regimens.*

The EBM Philosophy



Presentation Outline

Presentation Outline

- ▶ Case
- ▶ PICO
- ▶ Background
- ▶ Internal Validity and Methods
- ▶ Results
- ▶ External Validity and Application

Case Presentation

- ▶ HPI
- ▶ ROS, PMH, PSH, Allergies, Medications, FHx, SHx
- ▶ Vitals and Physical Exam
- ▶ Labs
- ▶ Imaging

PICO

- ▶ Population
- ▶ Intervention
- ▶ Control
- ▶ Outcome

Background

- ▶ Brief summary of data prompting the current study
 - Introduction section
 - Editorial

Internal Validity and Methods

- ▶ Design
- ▶ Inclusion and Exclusion criteria (spectrum of patients)
- ▶ Comparison to “gold standard” or best practices
- ▶ Randomization
- ▶ Allocation
- ▶ Blinding
 - Beware of PROBE
- ▶ Intention-to-treat versus Per Protocol Analysis

Results

- ▶ Figure 1
 - Are all patients accounted for?
- ▶ Table 1
 - Demographics and similarity between groups?
- ▶ Interesting statistical methods
- ▶ Graphs and tables from the study
 - Highlight key points
- ▶ P-values and CI
- ▶ RR or HR and $NNT = 1/ARR = 1/(CER-EER)$
- ▶ LR

External Validity

- ▶ Do the results apply to our patient?
- ▶ Will these results change our management?
 - Feasibility
 - Cost
 - Time
 - Burden on patient
 - Clinical significance

Summary Slide

- ▶ Key points and take-away from the study

Study Types

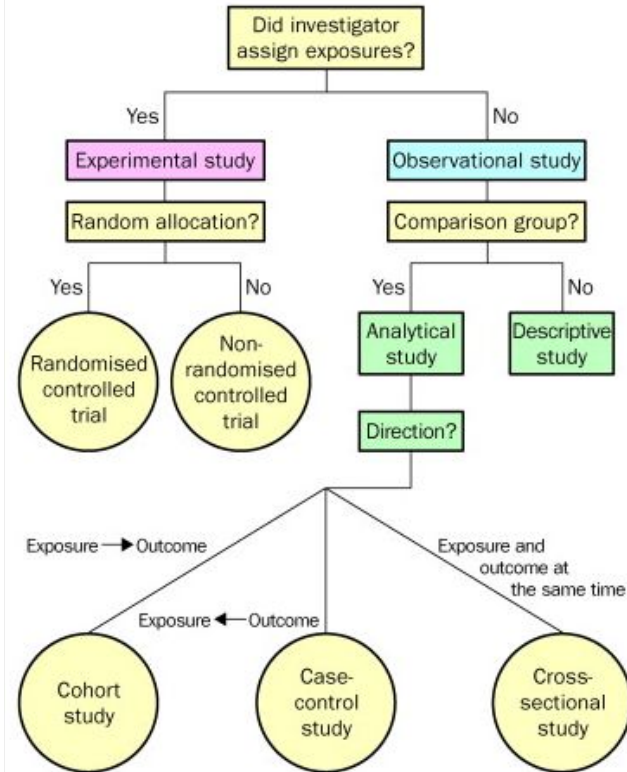


Figure 1.
Algorithm for classification of types of clinical research

Observational: cohort or case-control for therapy or harm

- ▶ Validity
 - Identification of therapy/harm versus control
 - Patient similarity and covariates
 - Adjustment and effect modifier
 - Outcomes selected
- ▶ Results
 - RR/HR or OR with and without adjustment
- ▶ Applicability
 - Similarity of population to individual patients
 - Confounding factors

Diagnosis

- ▶ Validity
 - Diagnostic uncertainty
 - Necessity of test
 - Population (bias?)
 - Spectrum of severity
 - Blinding
 - Reference standard
- ▶ Results
 - LR
 - ROC curves
- ▶ Applicability
 - Test availability and interpretation
 - Similarity of population to individual patients
 - Changes to our management

Treatment

- ▶ Validity
 - Randomized (and how?)
 - Allocation concealed
 - Blinding (double, PROBE, etc.)
 - Flow diagram (Figure 1)
 - Intention-to-treat versus per protocol analysis
 - Similarity of groups (Table 1)
- ▶ Results
 - Ratios, CI, p-values
 - Figures and tables with highlighting
 - NNT
- ▶ Applicability
 - Similarity of patient population to individual patients
 - Feasibility of treatment

Prognosis

- ▶ Validity
 - Identification of cohort and bias
 - Spectrum of population
 - Covariates
 - Follow-up period and lost to follow-up
 - Outcomes selected
- ▶ Results
 - RR or HR versus LR of outcome over time
 - Adjustments
- ▶ Applicability
 - Similarity of population to individual patients
 - Sufficient follow-up period
 - Confounders

Systematic Review and Meta-analysis

- ▶ Validity
 - Clinical question
 - Studies
 - Types
 - Databases and search terms
 - Unpublished studies and publication bias (funnel plot)
 - Validity and quality of the included studies (kappa stat)
 - Forest plot and I^2 stat
- ▶ Results
 - Ratios, CI, p-values
- ▶ Applicability
 - Patient population
 - Feasibility of intervention

Key Points

- Follow the format
 - Case
 - PICO
 - Background
 - Internal Validity and Methods
 - Results
 - External Validity and Application
- Use the inFOCUS critical appraisal templates based your study type
- Discuss clinical application with your mentor