**Evidence Based Medicine and Journal Club Curriculum**

**1. General Pediatric Residents are expected to develop competency in the area of medical knowledge in the area of Evidence Based Medicine as defined by the American Board of Pediatrics in their General Pediatric Content Outline.**

1. Study Design
2. Understand the validity hierarchy for study design and study type.
3. Understand the uses and limitations of randomized clinical trials.
4. Understand the uses and limitations of controlled clinical trials.
5. Understand the uses and limitations of cohort studies.
6. Understand the uses and limitations of case-control studies.
7. Understand the uses and limitations of cross-sectional and longitudinal studies.
8. Understand the uses and limitations of systematic review and meta-analysis.
9. Understand the uses and limitations of epidemiologic studies.
10. Understand the uses and limitations of case reports/series and anecdotal evidence.
11. Understand how sample size affects the power of a study.
12. Understand how sample size may limit the ability to detect adverse events.
13. Identify the study design most likely to yield valid information about the accuracy of a diagnostic test.
14. Identify the study design most likely to yield valid information about the benefits and/or harms of an intervention.
15. Identify the study design most likely to yield information about the prognosis of a condition.
16. Data Analysis
17. Understand validity and how it might be compromised.
18. Understand reliability and how it might be compromised.
19. Understand bias and how it might distort the estimate of the association between exposure and outcome.
20. Understand confounding and how to control for it in a study.
21. Understand generalizability and how it relates to validity.
22. Understand the concept of intention-to-treat analysis to maintain the power of a study.
23. Understand the concept of number-needed-to-treat when utilized to describe therapeutic interventions.
24. Distinguish type I and type II statistical errors.
25. Assess how the data source (eg. diaries, billing data, discharge diagnostic code) may affect study results.
26. Reading and interpreting results
27. Understand prevalence and incidence.
28. Understand pre-test and post-test probability.
29. Understand positive and negative predictive values.
30. Understand sensitivity and specificity and how to apply them to test results.
31. Understand standard deviation in the interpretation of results.
32. Understand standard error in the interpretation of results.
33. Understand confidence interval in the interpretation of results.
34. Understand likelihood ratio and when it might be useful to reach a diagnosis.
35. Understand relative risk analysis and odds ratio.
36. Distinguish statistical significance from clinical importance.
37. Given the need for specific clinical information, identify a clear, structured, searchable clinical question.

**Overall General Goals and Objectives of the Rotation: *ACGME Competency: Practice-Based Learning and Improvement***

**Goal:** Pediatric residents will demonstrate that they are competent, as a General Pediatrician, to manage pediatric patients effectively by applying evidence obtained by the medical literature by the end of residency.

**Goal:** Pediatric residents will be able to have the medical knowledge necessary to do well on the general Pediatric Board Certification Exam in the area of Research and Statistics as noted in the General Pediatric Board Specifications listed above.

**Goal:** Pediatric residents will demonstrate the ability to critically read and evaluate a journal article to determine its scientific merit.

**Objective:** Pediatric residents will demonstrate they are able to apply the knowledge they gained from attending Pediatric Noon conference lectures and self-study on evidence based medicine by effectively presenting and facilitating discussion on an article discussing one of the concepts noted in the Pediatric Board Specifications at Journal Club, under the direction of their chosen mentor.

**Instructional Methods will include:**

* 5 part lecture series given by faculty during noon conference time:

Intro to EBM

Therapy

Diagnosis

Systematic Reviews/Clinical practice guidelines

Prognosis

* 4 part Journal Club series:

**Guidelines for Journal Club**

**Purpose:** To critically read and evaluate a journal article to determine its scientific merit.

**Residents can choose any member of the faculty to be their Journal Club faculty mentor.** Residents must select a faculty member who will be able to go over the clinical portions of the article with the resident and help the resident structure their discussion.

Faculty mentors may: offer assistance with searching for clinically relevant topic of either the resident or mentor’s choosing or offer an article pertinent to their practice for the resident to discuss, NO systematic reviews or clinical practice guidelines!

\* **Timeline for Preparation**

* Start: choose a faculty mentor within your area of interest
* Devise a PICO question which corresponds to your topic and select an article that answers that question OR choose clinically relevant article with your mentor’s guidance
* Approval: Send articles/questions and mentor selections to Dr. Blasick and Dr. Davis for approval at least 2 weeks prior to your presentation date
* Review the CASP appraisal worksheet associated with your general topic:
  + These may be found at <https://casp.uk.net/casp-tools-checklist> and in your Teams EBM Folder
  + Focus on answering the core questions of:
    1. **Are the results of the study valid?**
    2. **What are the results?**
    3. **Will the results help locally?/Are they clinically applicable?**
* 2-4 weeks prior to your JC Date: Meet with faculty advisor to discuss your article (schedule as early as possible! Bring your CASP ready to discuss)
  + Design your presentation plan and what specific statistical or EBM topics you will discuss at journal club
    - Remember this should be YOUR journal club
    - Your responsibilities are to address how the three core questions and review your specific teaching points
    - Part of the time needs to be prompted discussion – audience participation fosters better learning.
    - Powerpoint slides are OPTIONAL, should be limited and should not dominate the entire time
* 1 week prior: Dr. Blasick and Dr. Davis will email the article to faculty and residents; promote yourself, too; faculty responds well to personalized invitations to attend

\* The EBM noon conference should support the general topics of Journal Club, reinforcing SOME of those statistical/critical appraisal concepts in a way that can be applied to patients.

\*\*\*You do NOT need to cover everything that was covered during lecture series\*\*\*

\* **Journal Club Article Session general outline -** Total of 60 min, starting at 12am

* 12-12:15-time for residents to read the article if they have not at home
* 12:15-give a **short summary** of the article as a framework for the rest of the discussion time, based upon the article, “Improving journal club presentations, or, I can present that paper in under 10 minutes” Schwartz MD, et al. Evid Based Med. 2007 Jun;12(3):66-8 which you can find in your EBM Teams folder. This should take 10 min or less. Please include why this article in particular was chosen.
* 30 min of discussion of the article to address the three core questions listed above and to touch on the necessary critical appraisal skills needed to review the article.
* 5 minutes at the end for summary of main teaching points, your clinical bottom line from the article and last questions/comments.

If at any point in time you need assistance in this process, please contact Dr. Blasick or Dr. Davis.