

## **DIAGNOSTIC TEST MODULE**

### **Goal**

At the completion of this unit you will be able to determine whether clinical data (symptoms, signs, or test results) are likely to be accurate and useful in your own clinical practice.

### **Instructional Objectives**

At the completion of this session you will be able;

1. To assess the validity of an article about a diagnostic test
2. To calculate a Likelihood ratio (LR)
3. To interpret a Likelihood Ratio (LR) in relation to a specific diagnostic test
4. To determine the applicability of a diagnostic test to a particular situation
5. To interpret the Likelihood ratios associated with a multilevel test.

### **Reference (Further Reading)**

Guyatt G, Roman Jaeschke, Mark Wilson, Victor Montori, and Scott Richardson. What is evidence-based medicine. In Guyatt G, Rennie D, Meade MO, Cook DJ. Users' Guides to the Medical Literature: A Manual for Evidence-based Clinical Practice. 3rd ed. New York, NY: McGraw-Hill; 2015.

### **Diagnosis**

1. Diagnostic Tests (Chapter 18 pgs 345 -357)
2. Advanced Topics in Diagnosis (Chapters 19 pgs 359 - 418
  - a. 19.1 Spectrum Bias
  - b. 19.2 Examples of Likelihood Ratios
  - c. 19.3 Measuring Agreement Beyond Chance
  - d. 19.4 Clinical Prediction Rules

### **Problem Based Educational Strategy**

1. Read the Clinical Scenario.
2. Compose a well-built clinical (PICO) question about the clinical problem.
3. Complete a literature search using the headings from your well-built clinical question.
4. Read the Users' Guides to the Medical Literature reference articles; Diagnosis.
5. Complete the attached Users' Guides to the Medical Literature Worksheet.
6. Determine whether you should change your approach to the problem.

## **Scenario**

You are a pediatric resident currently completing a rotation in the Emergency Department. You see a 17-month-old boy with rectal temperature 38.8 Celsius, and 10 white cells on urinalysis. A urine culture is pending. You realize that this child should have further evaluations for his presumed pediatric UTI, as you have read about the concern of vesico-ureteral reflux. One of your pediatric colleagues in ED states that the child must have a Micturating Cystourethrography (MCU) when the child has recovered, while another tells you the only good test is the  $^{99m}\text{Tc}$ -dimercaptosuccinic acid (DMSA) scan.

Considering your colleagues enthusiasm, you are keen to see whether or not this information is true, and you decide to check the published evidence. You frame an appropriate PICO question, go to PubMed 'clinical queries', and put in your search terms: UTI AND MCU AND DMSA.

On viewing the results of your search you find there are no systematic reviews, but you then select "diagnostic test" from the pull-down menu and the first paper in "Clinical Study Categories" looks highly relevant.

Citation: A quick read of the abstract suggests interesting results, so you decide to get a copy of the full paper to critically appraise it.

After critical appraisal, do you believe that an early DMSA versus a MCU has a role in the assessment of children with complication due to UTI?