USING ORAL CASE PRESENTATIONS TO TEACH AND ASSESS CLINICAL REASONING SKILLS ACROSS THE CONTINUUM OF LEARNERS

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Drs. Garg and Lewin have nothing to disclose
Objectives

• Define clinical reasoning and its key elements
• Explain the developmental progression of a learner related to clinical reasoning
• Participate in assessment of an oral case presentation
• Understand the utility of the Patient Presentation Rating tool in providing feedback
• Utilize tools to teach clinical reasoning concepts to learners across the educational continuum
Who Do You Work With?

- MS 3
- PGY-1
- PGY-3
- MS 4
- PGY-2
Case

A one month old girl is transferred from an outside hospital to your ED due to fast breathing and low oxygen saturations. She has had a previous hospitalization for RSV bronchiolitis. She also has a diagnosis of GERD and takes ranitidine daily. She has had a runny nose for several days. She lives at home with four older siblings in a chaotic household. There are smokers in the home. No fever. Her exam is significant for unilateral wheezing and a diffuse erythematous rash. She is afebrile. Her family history is significant for asthma.
What's pertinent?

- Fast Breathing
- GERD on meds
- Older siblings
- Low oxygen saturation
- Runny nose
- Unilateral Wheezing
- Family hx of asthma
What’s the diagnosis?

- Viral Illness?
- GERD?
- Foreign body?
Clinical Reasoning Defined

• Ability to “… sort through a cluster of features presented by a patient and accurately assign a diagnostic label, with the development of an appropriate treatment strategy as the end goal” (Eva 2007).

COMSEP Objectives Related to Clinical Reasoning

• Demonstrate an ability to generate an age-appropriate differential diagnosis and problem list based on the interview and physical examination. (CP)

• Outline a diagnostic plan based on the differential diagnosis, and justify the diagnostic tests and procedures

• Interpret the results of diagnostic tests or procedures, recognizing the age-appropriate values for commonly used laboratory tests

• Formulate a therapeutic plan appropriate to the working diagnosis (MU)

• Formulate an educational plan to inform the health care team and family of your thought process and decisions. (MU)
Sub-I Curriculum Learning Objectives

Related to clinical reasoning:

• Synthesize information to formulate a differential and primary diagnosis

• Develop a prioritized problem list

• Modify the primary diagnosis based upon interpretation of diagnostic studies

• Develop a prioritized management plan with the health care team and describe rationale for the clinical plan

• Recognize how clinical uncertainty affects patient care
ACGME Milestones Related to Clinical Reasoning

From the ACGME 21 selected milestones

• Gather essential and accurate information about the patient

• Make informed diagnostic and therapeutic decisions that result in optimal clinical judgment

• Recognize that ambiguity is a part of clinical medicine and respond by utilizing appropriate resources in dealing with uncertainty
Activity with Partner

• How and where do you currently assess clinical reasoning skills in your learners?
  • What level of learner(s)?
  • What’s the activity?
  • Where is the learner doing it?
  • What are you assessing and how?
Clinical Reasoning As A Developmental Process

May not elicit salient clinical features

Morning Report

Characteristic features of specific illnesses form clinical patterns

Uses understanding of disease to compare and contrast discriminating features

Outpatient clinic note

Patient Counseling

[Image and logo details]
Oral Case Presentation

• Ideal place to assess clinical reasoning
• Requires ability to gather and present large amounts of information
• Organization and synthesis of data is necessary
• Area many learners struggle with and often seek feedback to improve
Background Oral Case Presentation

• There is general agreement about what needs to be included in an oral case presentation among faculty.

• There is a difference in understanding of the purpose of oral case presentations between medical students and faculty.

• Case presentations don’t improve unless clinical reasoning is taught alongside presentation skills.

Haber, 2001; Green, 2005; Kim, 2005; Wiese, 2002
But How To Assess?

Patient Presentation Rating Tool:
- Developed with COMSEP grant
- Inter-rater reliability demonstrated
- Use can lead to improvement in presentation skills

Lewin, 2013; unpublished (but to be presented on Saturday!)
Listen to Presentation

In small groups,

• What clinical reasoning skills did you note?
• What feedback would you give?
• What were the positives and areas for improvement in this presentation?
• What level of learner is this?
Patient Presentation Rating Tool (PPR)

- 18 items broken into 5 sections:
  - History
  - Physical exam and diagnostic study results
  - Summary statement
  - Assessment and plan
  - Clinical reasoning/synthesis of information
  - General aspects

- Best use to date is for inpatients and in educational settings
9. Begins assessment with a summary statement that synthesizes the critical elements of the patient’s history, physical exam and diagnostic studies into one sentence

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<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>Questions/Comments</th>
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<tbody>
<tr>
<td></td>
<td>No summary statement or restatement of story without synthesis</td>
<td>Most pertinent information synthesized; may repeat some unnecessary information</td>
<td>Summary statement concisely synthesizes all key information</td>
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<td>Too much</td>
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10. Includes a prioritized problem list (by systems only if appropriate) including all active

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<th>Questions/Comments</th>
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<tbody>
<tr>
<td></td>
<td>No problem list of poorly organized list of used systems when inappropriate</td>
<td>Most important problems included and prioritized problem list; systems if appropriate</td>
<td>Complete problem list appropriately prioritized; systems if appropriate</td>
<td></td>
<td></td>
<td>Too much</td>
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11. Provides an appropriate differential diagnosis for each problem

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<th>Questions/Comments</th>
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<tbody>
<tr>
<td></td>
<td>No differential diagnoses are given</td>
<td>A ddx with several possibilities is given for major problems</td>
<td>Extensive ddx for all problems given</td>
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<td>Too much</td>
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Additional Items Related to Clinical Reasoning

- Includes a targeted physical exam stating the positive and negative findings that distinguish the diagnoses under consideration and any other abnormal findings.

- Included the pertinent positives and negatives from the H&P to support the differential diagnosis and plan.

- At the end of the presentation I had a clear picture of this patient’s situation and what needed to be done next.
Does this tool change the way you think of the assessment and plan you heard? The way you might give feedback?
What Are We Looking For in Our Learners

- Pattern Recognition
  - May not elicit salient clinical features

- Problem Representation
  - Characteristic features of specific illnesses form clinical patterns

- Semantic Qualifiers
  - Uses understanding of disease to compare and contrast discriminating features

- Illness Scripts
  - Early Diagnostic Hypotheses

- Premature Closure

Able to diagnose unknown
Make informed diagnostic and therapeutic decisions that result in optimal clinical judgment.

**Developmental Milestones**

- Recalls and presents clinical facts in the history and physical in the order they were elicited without filtering, reorganization, or synthesis. Analytic reasoning through basic pathophysiology results in a list of all diagnoses considered rather than the development of working diagnostic considerations, making it difficult to develop a therapeutic plan.

- Focuses on features of the clinical presentation, making a unifying diagnosis elusive and leading to a continual search for new diagnostic possibilities. Largely using analytic reasoning through basic pathophysiology in diagnostic and therapeutic reasoning; often reorganizes clinical facts in the history and physical examination to help decide on clarifying tests to order rather than to develop and prioritize a differential diagnosis. This often results in a myriad of tests and therapies and unclear management plans, since there is no unifying diagnosis.

- Abstracts and reorganizes elicited clinical findings in memory, **using semantic qualifiers** (such as paired opposites that are used to describe clinical information [e.g., acute and chronic]) to compare and contrast the diagnoses being considered when presenting or discussing a case. The emergence of pattern recognition in diagnostic and therapeutic reasoning often results in a well-synthesized and organized **assessment of the focused differential diagnosis and management plan**.

- Reorganized and stored clinical information (illness and instance scripts) leads to early directed diagnostic hypothesis testing with subsequent history, physical examination, and tests used to confirm this initial schema. **Well-established pattern recognition** leads to the ability to identify discriminating features between similar patients and to avoid premature closure. Therapies are focused and based on a unifying diagnosis, resulting in an effective and efficient diagnostic work-up and management plan tailored to address the individual patient.
How do we teach these skills?

• What are the concepts learners are lacking?
• How do we teach this in a targeted fashion beyond repetition?
• What makes a novice clinician into an expert?
Sub Intern Curriculum at Tufts

- 4 week curriculum
- 3-4 students per month
- Sub I’s record admission presentation in 1st and last week of rotation - reflection
- In between recordings, 2-1.5 hour teaching sessions
- 4 activities, 2 per session focused on clinical reasoning
Session 1

• Activity 1 Goals
  • Developing early hypotheses
  • Pertinent positives and negatives

• Activity 2 Goals
  • Patient words to problem representation
  • Using abstract terms and semantic qualifiers
Session 2

• Activity 3 Goal
  - Developing Illness Scripts

• Activity 4 Goals
  - Creating a syndrome statement
  - Comparing and contrasting differentials
  - What’s the diagnosis?
Problem Representation

• Making sense of the story
• Transformation of patient specific words into abstract terms
• 2 hours of funny whistling noise and fast breathing
  • =Acute onset of wheezing and tachypnea
• Characterization of the problem facilitates the retrieval of pertinent information from memory.
Small Group Activity - Problem Representation

Adapted from Lucey, C

<table>
<thead>
<tr>
<th>Lay Symptom Sign</th>
<th>Processed Symptom/Sign</th>
<th>Potential Diagnoses</th>
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<tbody>
<tr>
<td>Loose stools for 1 week</td>
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<td></td>
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<tr>
<td>Fever, Headache and stiff neck that developed over 6 hours</td>
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<tr>
<td>Shortness of breath for the last day in a tall male</td>
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<tr>
<td>Patient with fever and ANC of 50</td>
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<tr>
<td>Stomach pain that comes and goes and is crampy in nature</td>
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<tr>
<td>Chest discomfort after eating</td>
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<tr>
<td>No periods for 3 months in a 16 year old girl</td>
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<tr>
<td>Normal strength but wobbly walking</td>
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<tr>
<td>Brief fainting spell after standing up</td>
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<tr>
<td>Low blood pressure, fever, increased heart rate and WBC count</td>
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<tr>
<td>Right arm weakness and numbness since this AM</td>
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Illness Scripts

• Expert clinicians store and recall knowledge as diseases, conditions, or syndromes — “illness scripts” — that are connected to problem representations.

• These representations trigger clinical memory, permitting the related knowledge to become accessible for reasoning.
Illness Scripts

- Knowledge recalled as illness scripts has a predictable structure:
  - Predisposing conditions
  - Pathophysiological insult
  - Clinical consequences
Example of an Illness Script: UTI

PREDISPOSING CONDITIONS
- Uncircumcised male
- Anatomic abnormalities
- Intercourse

PATHOPHYSIOLOGIC INSULT
- Short urethra
- Obstruction to urine flow

CLINICAL CONSEQUENCES
- Fever
- Dysuria
- Urinary Frequency
- Urine Leukocytes
Illness Scripts-Large Group

- Work on defining illness scripts for the two diseases
- Use processed terms
- Focus on distinguishing features
Next Steps for the OCP Tool

• In small groups:
  • Look at the OCP tool and the milestones, and medical student objectives on your table
  • Determine how you could adapt the tool to observe a learner presenting a case
  • How could it be adapted to address your continuum of learners?
Worksheet for Home

• Identify one idea you will take from today to use at your home institution