

No Learner Left Behind: Elements and Exercises to Promote Clinical Reasoning

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I. ENHANCING CLINICAL REASONING

(See Bowen, “Educational Strategies to Promote Clinical Diagnostic Reasoning” NEJM 2006 for further explanation/as a remediation prerequisite)

BACKGROUND

In pre-clinical years, students learn about medicine based on individual diagnoses/organ systems, often not in comparison. For some this approach may carry over into residency and beyond. These learners often read extensively and take thorough, detailed H&P's, but are unable to access their stored knowledge and apply it to clinical cases. Advanced clinical reasoning (CR) involves mental comparison of diagnostic possibilities from chief complaint presentation to plan generation, with constant modification as new information is revealed. This transition from 'novice' to 'proficient' clinical reasoner is actually achieved naturally by most clinicians as they advance through training and practice. CR remediation focuses on deliberate attention to improving this process. Focus is usually on presentations (the observers' window to learners' thought processes) and uses frequent 'stops' and challenges to determine reasoning behind learners' ideas and decisions. This intense approach can't be readily achieved in group rounds with large patient numbers, 1:1 is the ideal approach. In addition, learner buy-in is crucial, and the learner must be willing to reflect on improvement areas and recognize weakness areas when pointed out by observers.

ELEMENTS OF CLINICAL REASONING Coaches should promote learners' use of these learning strategies as they encounter cases:

1. Directed Data Acquisition

Learners elicit H&P information specific to the working differential (a *directed* history and physical exam) that was formulated from the chief complaint and that is constantly modified and reprioritized as new information is revealed.

2. Problem Representation

A problem representation (PR) is a 1-2 sentence summary of a case, usually generated at the start of the Assessment section. Failure to generate an appropriate PR can result in the random generation of hypotheses that are based on isolated findings in the case.

3. Semantic Qualifiers

Semantic Qualifiers (SQ's) are opposing, often paired descriptors that can be used to compare and contrast diagnostic considerations. Learners with strong CR skills, when generating a problem representation, use more SQ's than novice CR's when discussing the discriminating features of a case. Examples of SQ's:

- ONSET Slowly or suddenly or rapidly/ acute or subacute or chronic
- SITE Bilateral or unilateral
- SITE Central or peripheral
- COURSE Constant, intermittent, episodic, progressive
- SEVERITY Mild or moderate or severe
- CONTEXT At rest, with activity
- PT CHARACTERISTIC age, race, gender

4. Co-selection/Reading Horizontally/Compare and Contrast

Goal is to have learners read about patients focusing on DDX (not the primary diagnosis) and learn about many diagnoses in relation to each other.

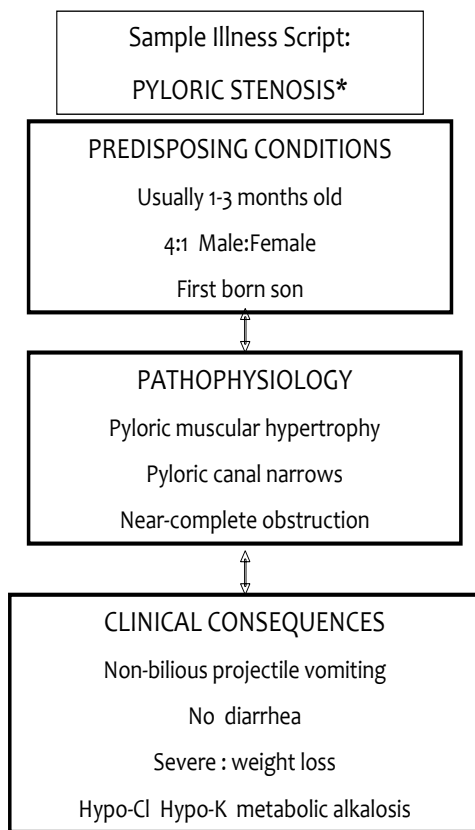
5. Illness script generation

Illness scripts are a way for students to organize the features of classic disease presentations, promoting ease of comparison. Illness scripts have three components: the predisposing conditions, the pathophysiological insult, and the clinical consequences (see examples). Learners can use clinical encounters and/or reading to help define primary illness scripts, and with time compare multiple illness scripts mentally as they encounter future cases.

Created by Michele Long, MD, Elizabeth Stuart, MD, MEd, Maryellen Gusic, MD

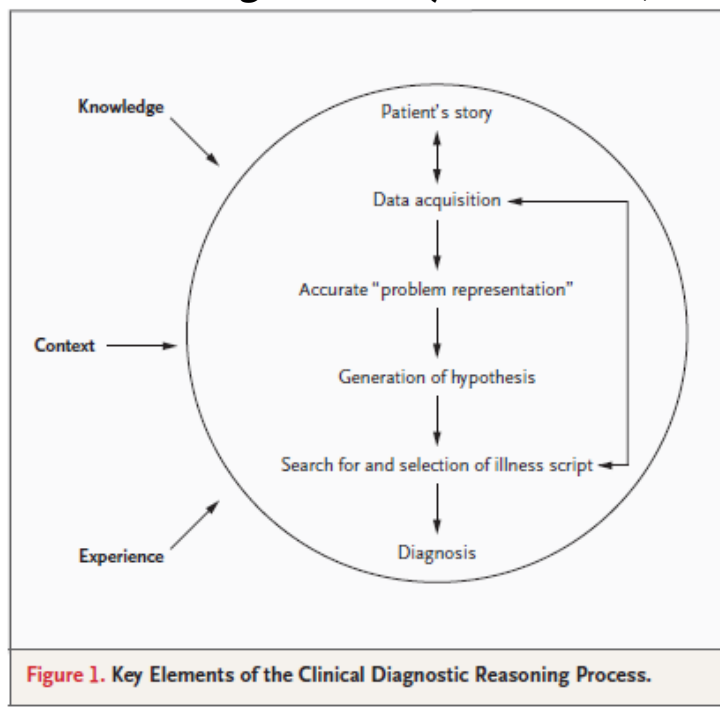
APPD and PAS Workshop: “No Learner Left Behind: Identifying, Diagnosing, and Remediating the Problem Learner”

May 2009



*By Long, M, using 'Bordage' format

Key Clinical Reasoning Elements (From Bowen, NEJM 2006)



II. CLINICAL REASONING EXERCISES FOR LEARNERS WITH DIFFICULTY

1. CR SKILLS INTEGRATION EXERCISE

EXPLANATION: This exercise can be used to highlight and emphasize many key components of clinical reasoning (directed history-taking and exams, generation of problem representation, use of semantic qualifiers, co-selection of diagnostic possibilities reflecting horizontal reading and illness script comparison)

TOOL: The CR Recording Template to help coach document learners' thoughts

THE STEPS

- Provide chief complaint/problem – learner defines a working differential diagnosis and identifies key questions to ask, exam findings to look for
- Learner performs a **directed H&P** in steps– explicitly stating questions and exam maneuvers to elicit differentiating features and narrow the preliminary DDX
- Generate **problem representation** (summarize the case in 1-2 sentences) using **semantic qualifiers**
- Develop and defend dx, comparing this cases' illness script with other probable diagnoses (**co-selection**/horizontal reading)
- Note: may use 'CR Skills Integration Template' to record learner's thoughts

* Exercise stops if learner has insufficient **knowledge** at any point; resume exercise after reading*

2. HIGHLIGHTER EXERCISE*

EXPLANATION: This exercise can be done using any dictated H&P and a highlighter pen. Results, assessment, and plan should not be provided to the learner. It can be either focused or expanded.

THE STEPS

- Take someone else's written/dictated H&P, minus assessment and plan
- Learner highlights key clinical features (the parts that seem most important to consider in establishing a diagnosis and plan of care)
- Summarization of case and discussion of highlighter choices and reasoning with coach

Expanded:

- Generation of problem representation using semantic qualifiers
- Outline DDX, prioritize DDX and explain rationale

3. PERSUADE THE PHYSICIAN EXERCISE*

EXPLANATION: The learner is placed in the role of a patient, having to describe how they would persuade a physician that they had a certain disease or that they needed a certain test performed. This exercise lets the learner verbalize common/classic disease presentations.

THE STEPS: Coach tells learner:

- You have [symptom] and are worried that you might have [diagnosis].
- You make an appointment with the [clinic, PMD, ED], hoping the doctor will send [test].
- What information will you give the busy doctor... to convince her within the first 3 minutes of the interview that you have [diagnosis] and/or need [test]?

EXAMPLE: Coach tells learner:

- You have a headache. You believe you might have a brain tumor. The doctor you are seeing has never met you before. You have 2 minutes to persuade the doctor that you need a head CT scan to rule out a brain tumor. What will you tell her about your signs and symptoms?

*Adapted from Stuart, AE. 'Clinical Reasoning Skills' Workshop; USC Innovations in Medical Education Conference 2009

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II. CLINICAL REASONING EXERCISES FOR LEARNERS WITH DIFFICULTY (cont.)

4. PROBABILITY POKER

DEVELOPED BY: MARYELLEN GUSIC, MD

EXPLANATION: Use with a small group of learners to reveal clinical reasoning as elements of a case are revealed.

TOOLS: A grid for each learner (see template below); markers (poker chips or candy)

THE STEPS

- Pass out a grid and a pile of markers (~10) to each learner
- Present a brief clinical scenario; learners provide 3-5 preliminary diagnoses and record in grid
- Prompt learners to ask questions to obtain clinical information
- After 2-3 questions, ask each learner to mark on their grid the most likely diagnosis/diagnoses. The one that is the most probable should have the most chips. The students can add/subtract diagnoses throughout the exercise (up to 5 total diagnoses).
- Repeat above step with further questions about the patient's history, PE, etc.
- At the end of the 'game', ask each learner to commit to the most likely diagnosis and justify the prioritization of this diagnosis.
- Learners should use the Notes section to record pertinent "positives" and "negatives", and compare and discuss these at the end (thus, you can avoid rewarding a correct diagnosis that is arrived at for the wrong reasons).

Diagnosis #1	Diagnosis #2	Diagnosis #3	Diagnosis #4	Diagnosis #5
Notes:	Notes:	Notes:	Notes:	Notes:

CR SKILLS INTEGRATION EXERCISE RECORDING TEMPLATE*
(**Bold** = questions for students, record answers)

Chief Complaint:

DDx1?

Directed questioning for Hx?

Hx results

Directed questioning for PE?

Exam Findings

DDx2?

Studies?

Labs, Results

DDx3?

One Sentence Summary (PR with SQ's):

Clinical case presentation to attending: (paragraph length or so, oral or written) including reasoning, map to **Illness Scripts** based on **problem representation, comparing/contrasting** dx possibilities

*Developed by Michele Long, MD

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III. SELECTED REFERENCES ON CLINICAL REASONING AND REMEDIATION

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