INCORPORATING CLINICAL REASONING INTO YOUR CLASSROOM AND CURRICULUM

KRISTY DOWERS, DVM, MS, CSU
COLORADO STATE UNIVERSITY
• Clinical Reasoning (CR) Process
• Implementation
• Examples
• Idea exchange
“I taught this to them myself and they act as if they’ve ever heard it.”

Source: Any clinical instructor
How we learn a new physical skill?
How we learn new physical skill?

See one → Do one → Teach one

Create the need to know → Foundational knowledge → Context

Model, Practice, Feedback, Assess
Educational Strategies to Promote Clinical Diagnostic Reasoning

Judith L. Bowen, M.D.

Clinical teachers differ from clinicians in a fundamental way. They must simultaneously foster high-quality patient care and assess the clinical skills and reasoning of learners in order to promote their progress toward independence in the clinical setting. Clinical teachers must diagnose both the patient’s clinical problem and the learner’s ability and skill.

THE PROCESS

Identify Patient

Acquire Data

Translate into succinct “Problem Representation”

Identify Problems

Generate Hypotheses

Generate “Illness Script” for Hypotheses

Diagnosis

Patient signalment and presenting complaint

The Process

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Diagnosis

The Process

1. Identify Patient
2. Acquire Data
3. Translate into succinct “Problem Representation”
4. Identify Problems
5. Generate Hypotheses
6. Generate “Illness Script” for Hypotheses
7. Diagnosis

Convert the “data”, e.g., into a summary using medical terminology.
Create a Problem List – reminiscent of SOAPS

THE PROCESS

Identify Patient

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Identify Problems

Generate Hypotheses

Generate “Illness Script” for Hypotheses

Diagnosis

What differential diagnoses are you considering?

1. Identify Patient
2. Acquire Data
3. Translate into succinct “Problem Representation”
4. Identify Problems
5. Generate Hypotheses
6. Generate “Illness Script” for Hypotheses
7. Diagnosis

THE PROCESS

Explain the features of the differential diagnosis and compare to your patient. What fits? What doesn’t fit?

1. Identify Patient
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4. Identify Problems
5. Generate Hypotheses
6. Generate “Illness Script” for Hypotheses
7. Diagnosis

THE PROCESS

Identify Patient

Acquire Data

Translate into succinct “Problem Representation”

Identify Problems

Generate Hypotheses

Generate “Illness Script” for Hypotheses

Diagnosis

Return to next data collection phase.

• Introduce **The Process**
• **Anatomical structure(s)** featured

Translate into succinct **“Problem Representation”**

Identify **Problems**

• Practice **“succinct” problem representation**
• Practice **listing problems**
Ms. McGillacuddy brings her 2 year old, FS, German shepherd dog into the clinic. She’s 35 kg on the scale in the lobby: “This is Gertie and I’m super worried about her because she’s been barfing up some icky brown stuff for about 3 days. She seems exhausted, just lying around, not interested in her walks. She hasn’t even been greeting me when I get home. Her diet isn’t any different. I feed her only the very best: Zappo’s Canine Grub. I’m sure you know it. She does get some treats, especially when my roommate has Cheetos –they’re Gertie’s favorite. But yesterday, she didn’t eat her Zappo’s and even refused a Cheeto. What can you do for her, doc?!”
A 2 year old, FS, German shepherd dog, weighing 35 kg, presents for a 1 week history of vomiting, lethargy and inappetence, which progressed to anorexia yesterday. No change has been made to her commercial diet.

- Vomiting
- Lethargy
- Anorexia
• Define and model **medical errors**
• Show **application**

- Generate **Hypotheses**
- Generate "**Illness Script**" for Hypotheses

• Model process with **incorporation** of medical errors
Rodney, the ferret presents with hypoglycemia.

Larry, the llama, presents with tetraparesis.

Medical Error: Premature closure
• **Introduce reasoning strategies**

![Diagram showing the process: Identify Patient, Acquire Data, Translate into succinct “Problem Representation”, Identify Problems, Generate Hypotheses, Generate “Illness Script” for Hypotheses, Diagnosis.]

• **Practice** the process with deliberate ‘stopping points’

• **Test** their clinical reasoning
A prison in Boston with an outbreak of diarrhea affecting 20% of the prison population.

1. Write a **problem representation**.
2. Indicate what steps are next in **The Process**.
3. Decide which data points are most **relevent**.
4. Identify a **reasoning error** made in the case.
5. Write an **Illness Script**, e.g., justify a hypothesis we provide.
Teams create cases and compete to solve them using The Process.

mesocestoides  

dermatofibrosis

Opisthorcus felineus  

phosphofructokinase deficiency

osmotic fragility syndrome
<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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<tbody>
<tr>
<td>Fall</td>
<td>3 hours</td>
<td>3 hours</td>
<td>1 hour</td>
</tr>
<tr>
<td>Spring</td>
<td>--</td>
<td>5 hours</td>
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<tr>
<td>Capstone</td>
<td>Summer cases</td>
<td>Summer cases</td>
<td>Cases</td>
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Beg  Borrow (permanently)  Steal (outright)  Sacrifice
THE FINAL INGREDIENTS?

WHAT ELSE MAKES IT SUCCESSFUL

• Adopt a foundational Process
• Identify ‘open’ areas in the curriculum
• Target anatomical structures of The Process:
  • Define Model
  • Practice
  • Context
  • Assess the “process” and “anatomical structures”
• Assess Clinical Reasoning

Mandate and Buy-In
Exhausted after a long day of clinical reasoning...