

Classroom to Care

Essential strategies to boost clinical reasoning



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Webinar Guest Facilitator



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Webinar Guest Speaker



Dr. Timothy Gaul

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Co-founder and chief educator for the Clinical Reasoning Club at the Cyril and Metodija School of Medicine Skopje North Macedonia

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How often do you teach clinical reasoning?

- A. In every lesson or conversation
- B. When teaching specific classes
- C. A few times per semester
- D. I do not teach clinical reasoning

Poll

1

How confident are you in teaching clinical reasoning?

- A. Not confident at all
- B. Somewhat confident
- C. Neutral (neither confident nor unconfident)
- D. Confident
- E. Very confident

Poll

2



Question 1

What is your **biggest challenge** when teaching clinical reasoning?



Question 2

What kinds of **resources** would help you teach clinical reasoning?



Question 3

What, aside from medical knowledge, is **essential** for clinical expertise?



Learning Outcomes

- 1 Gain familiarity with basic tenets of clinical reasoning in medical education (diagnostic CR)
- 2 Review some terminology
- 3 Examine evolution of the field
- 4 Address some ways to develop CR for clinicians and medical educators alike

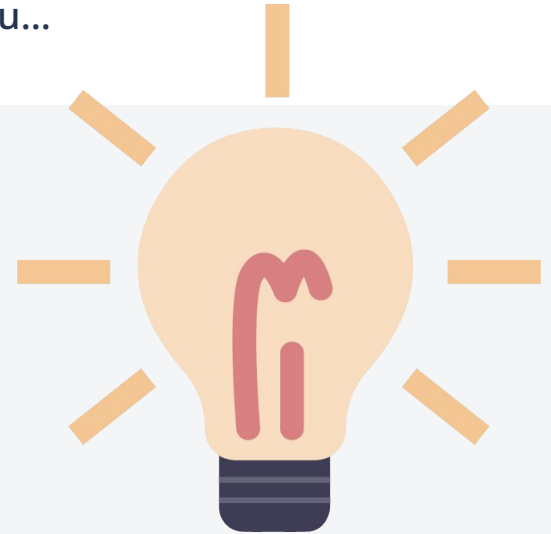
Conflict of Interest/ Disclosure

The bulk of this talk was taken from the ACP Teaching Medicine Series text titled Teaching Clinical Reasoning written by Drs. Robert L. Trowbridge, Joseph J. Rencic and Steven J. Durning

The Beginning of a Journey!

Dr. Tim, our professors have us memorize thousands of facts.
Can you teach us how to be doctors? **Can you...**

teach us how to think?





Challenges & Opportunities

Medical (Diagnostic) Clinical Reasoning

“The cognitive and noncognitive process by which a health care professional consciously and unconsciously interacts with the patient and environment to collect and interpret patient data, weigh the benefits and risks of actions, and understand patient preferences to determine a working diagnostic and therapeutic management plan whose purpose is to improve a patient’s well-being.”





Metacognition

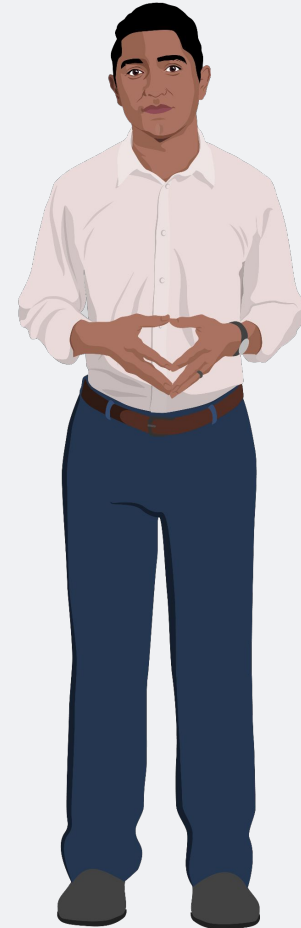
Making a Major Impact

Reduce medical errors

Decrease health care costs

Minimize biases during decision-making

Improve patient and physician satisfaction



Teaching Clinical Reasoning

Trowbridge, Rencic & Durning

“Current training programs are focused appropriately on COMPETENCY—acquiring a broad knowledge base, learning the art of physical examination, and synthesizing information to derive appropriate diagnostic considerations.

But, competency is not enough; the quest to improve clinical reasoning demands that we also produce well-calibrated physicians who know when to slow down, ask for help, or defer making diagnosis if need be.”



Barriers to Teaching CR

1

Lack of curricular time

2

Lack of consensus regarding the best means of teaching the ability to reason (BTW it's not simply 'see more patients' and 'read more!')

3

Lack of faculty expertise

4

Lack of clear means of assessing the effectiveness of instruction and performance of the learners themselves

Bringing Clinical Reasoning to Medical Education

- Students
- Residents
- Attendings (deliberate practice)
- Faculty

A state rather than a trait.

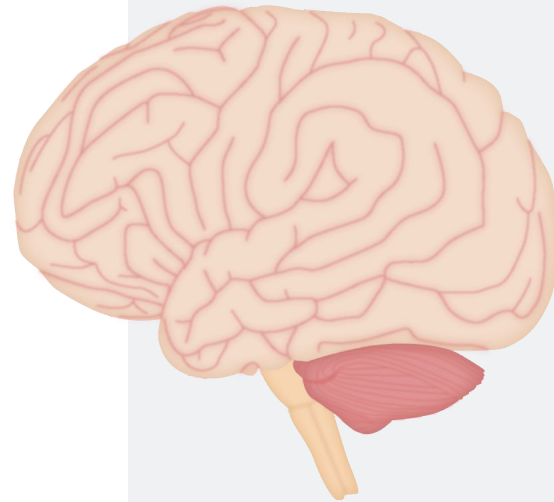




Current theories & evolution of thought

The Field Has Gained Contributions From Several Disciplines...

- Neuroscience
- Educational Sciences
- Psychology





Yet it's important to realize how little is yet known about the process!

Diagnostic Clinical Reasoning

“the process-from beginning to end- of arriving at a diagnosis and or treatment...a skill in making and justifying decisions in doing so...synthesizing and prioritizing patient information for management of patient illness”

A process

A skill

A structure



Some Terminologies



Dual process theory

System 1 & System 2
thinking

Cognitive load theory

Chunking

Bayesian reasoning

Semantic qualifiers/
key findings

Illness scripts

Problem
representation

Summary statement

Context specificity

Metacognition

Heuristics




Understanding Cognitive Loading

The theory that describes the limitations of human working memory.

Dual Process Theory

describes cognitive processes as the interplay of 2 approaches...



Nonanalytic reasoning= fast,
subconscious, low effort- System
1...Pattern recognition

Analytic reasoning= slow, conscious,
involves compare and contrast- system
**2...Inductive or
hypothetico-deductive**

Heuristics & Chunking

1

Heuristics:

these are mental 'shortcuts' or 'rules of thumb' that are used subconsciously in approaching a situation of problem

2

Chunking:

a cognitive process of grouping and relating bits of information...a processing tactic that prevents cognitive overload

3

Chunks vary in size and organization and are affected by ongoing knowledge gains and experience

Illness Scripts

Your mental model that categorizes a disease by its:

Clinical findings

Risk factors

Pathophysiology

Natural history of disease

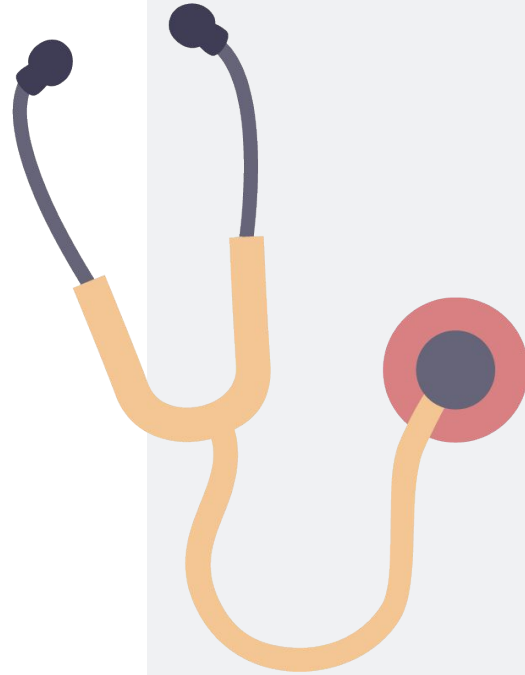


Illness Script (continued)

Each of us develops our own illness scripts

These are 'built' over time based on knowledge acquisition and experiences of disease

These are 'built' over time based on knowledge acquisition and experiences of disease





Practical

There are no shortcuts to becoming more than competent.



An 18 yo male comes to the emergency room complaining of a sore throat and a rash...

As experienced physicians, you would work the problem and do your best to help this young person.

But what **exactly** do you do to work the problem?



For Most of Us, It Would Be Something Like This:

Collect data (history and physical, laboratory, imaging, consultation, etc.)

Formulate a **problem representation**

Compare and contrast to know illness scripts.


Organize data

Generate **diagnostic impression and differential diagnosis**

Select a diagnosis and treat accordingly.

- **System 1**
- **Maybe system 2**

You are assessing and treating within minutes. This creates beautiful “cognitive symphony” all going on in a combination of subconscious and conscious via your long years of study, caregiving and continuing education.



**With a little bit of this ‘in
the recipe’...**

Suggestions for Interested Educators

- **Explore the interest** (personal and institutional) in creating a clinical reasoning curriculum
- **Introduce the concepts** of CR early in the learner's career
- Remember the field is in development and there is **no one right way** to teach diagnostic clinical reasoning—**pursue up to date literature** and other resources to fine tune both you and your trainee's skill sets



How to Teach Diagnostic Clinical Reasoning

What am I
teaching?

Who am I
teaching?



How will I
teach it?

How will I
know if the
students
understand?



SNAPPS



- **S**ummarize briefly the history and findings
- **N**arrow the differential to 2 to 3 possibilities
- **A**nalyze the differential by comparing and contrasting the possibilities
- **P**robe the preceptor by asking questions
- **P**lan management for the patient's medical issues
- **S**elect a case-related issue for self- directed learning

The One-Minute Preceptor

- Get a commitment (the differential diagnosis)
- Probe for supporting evidence (how the key findings of the case support or refute each diagnosis)
- Teach general rules
- Reinforce what was done right
- Correct mistakes



Clinical Reasoning is a **CONTEXT** (Situational) **SPECIFIC** Process





A Pearl or Two ... or More!

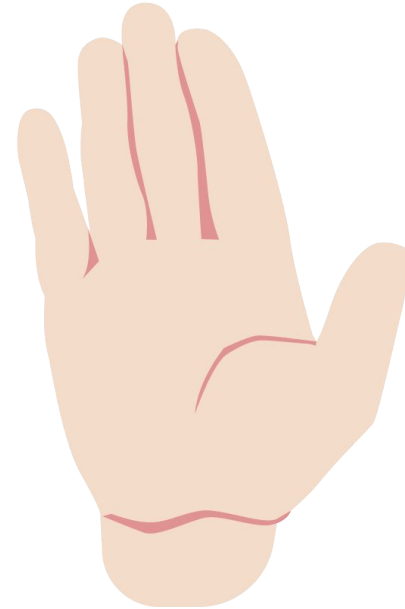
- **Teach with variety and creativity** to the learners' levels: small groups/ simulations/OSCEs
- **Teach relevant from irrelevant, typical from atypical** and the 'can't miss diagnosis'
- **Emphasize** common causes and big pictures concepts
- **Encourage both processes**–System 1 AND System 2– 'think out loud' with the learner present
- Frequent **feedback**



Some Cool Questions to Ask

- What else could it be?
- Is there anything that does not fit?
- What are you most worried about?

Early learners (and educators) need to:



Slow down!

Beware BIASES !



- Visceral bias ('gut call')
- Confirmation bias
- Diagnostic momentum
- Overconfidence
- Premature closure ('anchoring')
- Framing bias
- Blind Obedience

BUILD, BUILD, BUILD

**EMPHASIZE building ILLNESS SCRIPTS
in early learning**





Moving away from the **'Master Diagnostician' model - Future Directions**

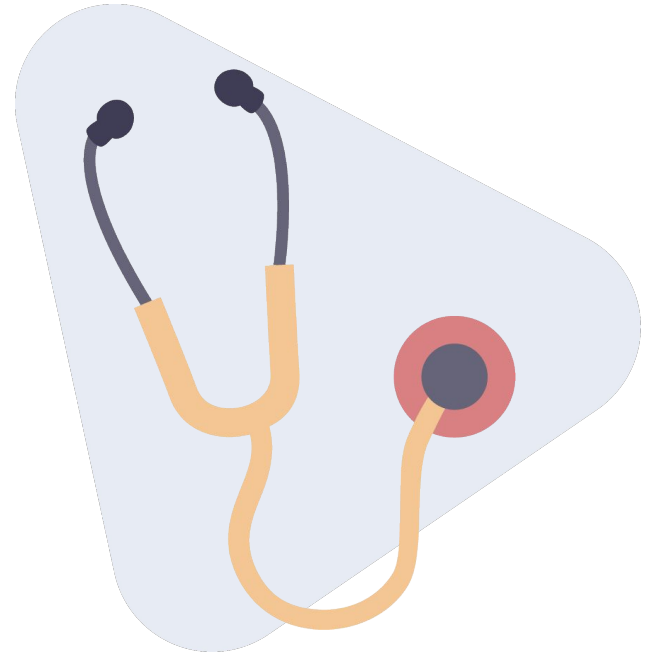
Clinical team input

Clinical support systems (AI)

Emphasizing the development of clinicians as **experts** in integrating personal clinical acumen with other contributions 'real- time'

“Nothing in medicine is higher stakes than reasoning effectively; but we have yet to establish methods that refine and enhance this key ability.”

Teaching Clinical Reasoning pg 200



Whatever the skill, to become an expert performer you need to **DELIBERATELY PRACTICE...**

A word for experienced clinicians who are pursuing 'expert performance'



Resources



Teaching clinical reasoning by Drs. Robert L. Trowbridge, Joseph J. Rencic and Steven J. Durning (ACP Teaching Medicine Series)-
www.acponline.org/teachingbooks

SNAPPS:

A learner-centered model for outpatient education. Acad Med. 2003; 78:893-8

YouTube recording:

Clinical Reasoning: Good to Great – online lecture given at the Icahn School of Medicine Department of Medicine Grand Rounds

YouTube recording:

Teaching clinical reasoning: four key lessons from the literature- Professor Steven Durning

Shared in chat!

We've just scratched the surface of the process now known as diagnostic clinical reasoning.

Hopefully we've piqued your interest enough to further explore the resources we've listed.

And finally, it's been our desire to help future physicians as well as experienced attendings to better understand HOW we learn and in so doing re-ignite a passion to KEEP ON LEARNING...our students and patients deserve nothing less



Q&A Session

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Important Post-event Information



- **Follow-Up:**
We will share the **recording** along with our follow-up **survey**, which we encourage you to complete.
- **Certificates:**
An attendance certificate for the seminar can be requested on the survey form.

Are You Interested in Our Future Events?

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TBD

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