Educational strategies for improving clinical reasoning

Reference:

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Tags

Clinical domain
Medical Expert

Educational domain
Teaching and learning
Undergraduate
(medical school)
(Post)graduate
(Residency training)
Clinical Reasoning

Background

Clinical reasoning, the expert process of gathering, processing, and using data to make clinical decisions, is clearly a fundamental aspect of medical education. While there is a significant body of literature (full of raging debates), there is no definitive guide on how to teach clinical reasoning. Enter this 2013 paper by Cutrer, Sullivan, & Fleming in a Peds journal.

Purpose

Cutrer et al set out to summarize the world’s literature on clinical reasoning, through the lens of teaching strategies for educators.

Type of paper

Narrative review

Key Points on the Methods

None. Nada. No idea how they came to settle on these points.
The major value of this paper lies in a clever and somewhat eclectic assembly of tools for teaching clinical reasoning to novice learners. While I disagree with some of the statements about the underlying psychology in some parts, this is a very useful collection. Their key tips can be summarized as follows:

<table>
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<tr>
<th>Concept</th>
<th>Teaching tips</th>
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| **Dual Processing Model**  
(system 1 is fast & accurate for exemplar cases; system 2 is slow and analytical for novel or complex cases) | Teach to toggle between like an expert  
(see Kahneman's works) |
| **Conscious Competence Model**  
(from unconscious incompetence to conscious incompetence, to conscious competence, to unconscious competence and finally reflective competence) | Use this as a diagnostic tool to diagnose the learner's current state and focus on getting to next level.  
(see Ericsson's career of work) |
| **Knowledge organization** | Provide scaffolding to organize knowledge  
Use illness scripts to organize key features or create exemplars of presentations  
Use active questioning to help learners assemble their own frameworks of knowledge  
Post contrasting or applied cases to test frameworks  
Connect presentations to diagnoses |
| **Data gathering** | Provide organizing mnemonics to help novices get high value info (OPQRST, SAMPLE)  
Direct observation & feedback on current data gathering strategies  
Ensure hx & px are used to test hypotheses at the bedside, like an expert |
| **Data processing** | Use RIME framework (Pangaro) to diagnose the learner on each case and guide to next level  
Enhance use of semantic qualifiers for key features of a case like experts do  
Use SNAPPS to elucidate learner's clinical reasoning process |
| **Metacognition** | Use diagnostic timeout  
Identify cognitive biases (Croskerry)  
Promote reflection-in-action (Schon) |
Key Conclusions

The authors conclude teaching clinical reasoning is hard, so teachers must use techniques as these to really be impactful.

Spare Keys – other take home points for clinician educators

As I said, this is a clever, albeit somewhat random, collection of helpful teaching tips. All clinical teachers should have this in their library.

I disagree with their statement that research suggests System 2 thinking is more accurate. The opposite is true of experts. The goal is to teach exemplars to get novices to see the patterns and heuristics.

Clinician-educators should familiarize themselves with some of the big-name authors referred to in the text (e.g. Schon, Kahneman, Pangaro).

Shout out

Thanks to Warren Cheung, a rising star CE, who sent this to me.