A Curriculum in Clinical Reasoning

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Introduction

Presentation

- Why teach clinical reasoning?
- Moving from novice to expert
- Role and place of biomedical knowledge
- Experience, practice and simulation
- Who delivers the curriculum
- Managing student expectations
- Assessment and student use of formulas
Work in groups

- When should students move from the checklists to more expert history taking?
- How can we provide opportunities for experience and feedback on clinical reasoning skills early in the curriculum?
- What different opportunities in the curriculum for learning clinical reasoning.
- How do we ensure the students have all the relevant knowledge prior to sessions on clinical reasoning

Debrief and summarize
Why Teach Clinical Reasoning

- To prevent errors
- To give students tools to deal with uncertainty

But clinician’s have always used clinical reasoning without it being taught.

Or have they?
Early Medicine and Curricula

- Early clinicians named a set of symptoms - e.g. consumption
- Understanding of the pathology and science increased
- Clinicians started to work out the underlying cause for the patient’s presentation
- Firms
- Apprenticeship
Current Situation

Role modelling and being involved in patient care is important

- Now more structured curricula
- Less time in apprenticeship
- Junior doctors hours- more disjointed follow up of patients
Your position is indicated on the map and you have to decide the quickest and safest route off the hill.

https://osmaps.orndancesurvey.co.uk/57.19577,-6.21118,18/pin

What factors make your decision making process easier and which factors make it difficult to make the right choice?

How would expertise in mountaineering help?
Novices

- Need rules to start with
- Follow rules rigidly
- Use hypothetical deductive reasoning?
- Use inductive reasoning
- Need metacognition to develop expertise
- Consider single concepts when dealing with cases
Experts

- Use fuzzy logic
- Use non analytical reasoning
- Draw on schema to help
- Intuitive decision making
- Can use several reasoning approaches according to situation
- Can use multiple concepts in one case
Moving from Novice to Expert

- Developing schema helps produce expertise
- Experience is needed
- Practice and feedback
- Reflection and metacognition
- Different teaching approaches as the learner progresses
- Challenge - some learners progress faster than others
- Use cases that are not clear cut
Biomedical Knowledge

» Content Specificity

» Cognitive processes to solve problems domain specific

But I would not expect to be able to diagnose what is wrong with a car that is “not well”. I do not know what the possibilities are or what causes the tinkling sound!
Studies Indicating Biomedical Knowledge is Important

- Encapsulation theory
- Relevant biomedical knowledge related to clinical cases does not atrophy
- Being taught the medicine before seeing a case allows students to learn the clinical reasoning process
- Trying to reason through a case without being taught the background knowledge can be confusing
Implications for Curriculum Design

- Clinical reasoning requires knowledge and cognitive ability
- In the early years students need to have the knowledge for the cases they work with
- In the junior years need to use cases where the possible diagnosis are conditions that have already been taught
- Keeping up with changes
Experience Practice and Simulation

- Need experience with many patients in multiple contexts
- Practicing the skill improves success
- Allow them to make mistakes
- Develop illness scripts
- Avoids cognitive overload
- Provide experiential learning
- Use simulation to start and gradually increase authenticity
- Helps students to make a clear decision and then get feedback
Varying Teaching Approaches

- Change teaching approach as the student moves through the curriculum
- Schmidt and Mamede (2015) suggest:
  - Development in memory of detailed causal knowledge explaining disease in terms of pathophysiological principles;
  - Encapsulation of pathophysiological knowledge;
  - Development of illness scripts.
Student Expectation

- Student expectations should be managed
- They expect clear answers after each case
- They do not always prepare their knowledge before teaching sessions
- They tend to try and take the shortcuts they see experts take
Example of Managing Student Expectations

“What I say to students is, you are watching somebody who’s essentially an expert in it, somebody who is really good so it’s like watching somebody parallel ski and then expecting that you can suddenly do that without having to learn how to ski yourself. You must go through steps in order to do that so that’s the way I try to reconcile it with students, saying, well actually these are experts. They’ve taken these shortcuts because they’ve got years of expertise to know that these shortcuts are (safe)” (tf4).
Assessment

- Drives learning
- Questions that students ask is a surrogate end point
- Avoid buzz words or phrases
- Use cases whose symptoms do not point to a clear diagnosis
Group work

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Summary
References


References


