



**Teaching Clinical Reasoning with the *Think Aloud* Technique**

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"Expert clinicians frequently use automatic unconscious thinking processes as they gather and analyze clinical information to generate diagnoses. When experts use *think aloud* techniques, they articulate their thinking as they are reasoning and by doing so make their thinking processes clear to students."<sup>1</sup> Think aloud is most commonly utilized as a research method for studying cognition, and is considered a reliable method for capturing peoples' thought processes.

Researchers at the Dunedin School of Medicine at the University of Otago in New Zealand, piloted a program in their clinical reasoning curriculum that incorporated online modules and training in the *think aloud* technique. Their pilot study found that the think aloud technique is an example of teaching clinical reasoning in an explicit, transparent way that allows students to better understand a clinician's thinking along the trajectory of a clinical problem and arriving at a diagnosis. Not only did researchers find that this model can be used to teach medical students, but can also serve as a means for attending physicians to assess a learner's clinical reasoning skills and provide immediate feedback on their student's thought process.

**Tips for incorporating the *think aloud* technique (examples incorporated from the pilot study by Pinnock, et al. 2016):**

- 1) Have the student present a patient on the inpatient wards outside of the patient's room. As the student presents the patient, have the student pause intermittently; during these pauses, the supervising physician will say out loud how she/he is thinking at each stage of the presentation. This will allow the student(s) to understand how the supervisor analyzes the information during the presentation to come to a diagnosis.
- 2) Have the student present a patient she/he has seen in clinic outside the exam room. Have the student pause during her/his presentation to explain how/what she is thinking. This allows the supervising physician to assess each stage of the student's reasoning.
- 3) Consider the learner's level of experience—for example, pausing after the HPI may help to gather the learner's initial instincts and broad differential, compared to talking through their thinking after the subjective/objective portion of the presentation for a more fully developed and specific assessment and plan.
- 4) Clinicians in this study appreciated the minimal training required to use this technique and that this style of teaching incorporated all stages of clinical reasoning, and could continue to educate students on core clinical reasoning skills such as utilizing pattern recognition and hypothetic–deductive thinking.
- 5) Potential barriers: Clinician supervisors voiced their concern about time limitations in the clinical setting that may prevent them from utilizing this technique. Researchers are following up with a study to help better understand this and other barriers to teaching clinical reasoning with the *think aloud* technique.

<sup>1</sup> Pinnock R, Fisher TL, Astley J. Think aloud to learn and assess clinical reasoning. *Med Educ* 2016 May;50(5):585-586. PMID: 27072473