

Clinical reasoning

“The cognitive process underlying the diagnosis and management of a patient’s presenting problem” (Linn et al, 2012)

Strategies depend on situation

- Analytical (deductive/forward reasoning)
- Pattern recognition (illness scripts/backward reasoning)

These skills are easy to recognise in others but difficult to explain and problematic to explicitly teach and assess.

How does the context of clinical rotations affect development of these skills??

Case-based decision-making

Placing the “ideal” into context

- Patient factors
- Client factors
- Practice factors

Project aim: evaluate the efficacy of clinical rotations in developing students’ clinical reasoning and case-based decision-making skills



“Creating a Clinician”  
A methodology to evaluate clinical reasoning and case-based decision-making

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The pilot (2016-2017)

**Method** – before and after rotations, students hypothesised aloud about a case based on written information given in three sections (after Arocha & Patel, 1993), plus generated a case-management plan. Number of hypotheses and reasoning strategies analysed.

**Results** – students demonstrated improved reasoning strategies after rotations, and increased integration of context into management plans.

**Limitations** - very subjective method and lacking in evaluation of responses to uncertainty

The revised methodology

- Inclusion of script concordance tests to evaluate judgement in situations of uncertainty (Power *et al*, 2016)
- Verbal think aloud during completion to identify good and poor reasoning strategies.
- Original methodology retained and refined alongside this.

Tried April 2017

**Outcome** – increased depth of understanding of reasoning processes, testing at different levels and more rigorous platform for comparison

Have a go at a SCT!

References  
Arocha, J.F., Patel, V.L. and Patel, Y.C., 1993. Hypothesis generation and the coordination of theory and evidence in novice diagnostic reasoning. *Medical Decision Making*, 13(3), pp.198-211.  
Dory, V., Gagnon, R., Vanpee, D., Charlin, B., 2012. How to construct and implement script concordance tests: Insights from a systematic review. *Medical Education*, 46, pp552-563.  
Linn, A., Khaw, C., Kildea, H., Tonkin, A., 2012. Clinical reasoning: A guide to improving teaching and practice. *Australian family physician*, 41(1)  
Power, A., Lemay, J-F., Cooke, S., 2016. Justify your answers: The role of written think aloud in script concordance testing. *Teaching and learning in medicine*, 29(1), pp59-67.

You are presented with an 8 year old FE Yorkshire terrier which has been drinking excessively and urinating overnight in the kitchen					
	Ruled out or almost ruled out	Less certain	Neither more nor less certain	More certain	Certain or almost certain
If you were thinking of hyperadrenocorticism, and then you find that the owner has always had to tempt her to eat and, recently, the dog has been off her food, this diagnosis becomes:					
If you were thinking of diabetes mellitus, and then you find the dog was in oestrus 6 weeks ago, this diagnosis becomes:					
If you were thinking of hypercalcaemia, and then you find the dog has enlarged lymph nodes, this diagnosis becomes:					