GPSA
GENERAL PRACTICE SUPERVISION AUSTRALIA

PODCAST   WEBINAR

Teaching Clinical Reasoning

Clinical reasoning is a core skill for GPs and fundamental learning objective of GP training. While developing clinical reasoning is based on accumulative experience, it is also a skill that you can teach your registrar.

These FAQs and answers are aimed at helping GP supervisors teach their registrars "to think like a GP".

What is clinical reasoning?

Clinical reasoning is the process of making sense of the breadth of (often ambiguous and/or conflicting) clinical information regarding a patient's presentation.
It encapsulates skills in:

• Data gathering

• Synthesis and interpretation

• Communication and consultation

• Patient-centred care and shared decision-making

• Managing uncertainty

• Evidence-based medicine

• Reflective practice

Are registrars tested on clinical reasoning skills during their training?

Yes. Clinical reasoning is prominent in case-based discussions in exams for both colleges. You should emphasise to your registrar that clinical reasoning will be assessed and is a fundamental skill for general practice.

How can I define clinical reasoning to my registrar?

There are multiple definitions of clinical reasoning and hence, many GPs find it tricky to articulate what it is. Many registrars have heard the term before, but have not had the experience to understand exactly what clinical reasoning is.

Some registrars may relate to this analogy: Think of clinical reasoning as a tree and the diagnosis is the end of one branch. GPs have to start at the trunk and pursue each branch to the smaller degree to reach a diagnosis.

A GPSA webinar poll which asked members to share how they define clinical reasoning provided some of the following examples which may also help you explain the concept:

• It's tricky to define, but you know it when you see it

• Common sense

• The process of coming to a diagnosis

• Thinking logically

• Working your way through pieces of information and making use of the data

• Putting the puzzle together

• Not jumping to conclusions

Or, you may find this definition useful:

Clinical reasoning is the ability to sort through the cluster of features presented by a patient and accurately assign a diagnostic label, with the development of an appropriate treatment strategy as the end goal. – Eva 2007

What strategies can I use to assess and teach my registrar clinical reasoning?

- Use the 'language' of clinical reasoning
- Make clinical reasoning an explicit element of teaching
- Ensure broad clinical exposure
- Incorporate clinical reasoning into consultation analysis
    - Consultation observation (including video review)
    - Problem case discussion
    - Random case analysis
    - Scenario-based discussion/role plays
- Incorporate clinical reasoning into corridor teaching
    - One-minute preceptor
    - WWW-DOC model
- Teach your registrar to use specific diagnostic strategies
    - Restricted rule-outs (Murtagh's process)
    - Clinical prediction rules
    - Diagnostic pause
    - Checklists
    - Gut feelings
- Teach reflection on practice
- Use 'near misses' and diagnostic error for teaching clinical reasoning
- Encourage use of clinical guidelines

What is the 'language' of clinical reasoning?

Having a basic understanding of a number of useful clinical reasoning concepts will provide you with a 'language' to better assess, communicate and facilitate your registrar's development of this skill.

This language includes:

- Dual process thinking
- Illness scripts
- Cognitive biases
- Reflective practice and metacognition

What is dual process thinking?

Clinical decision-making requires a dual process model of thinking and reasoning – an interplay between non-analytic (type 1) thinking and analytic (type 2) thinking.

Non-analytic reasoning – Type 1 thinking is rapid, intuitive and automatic processing which relies on the use of cognitive tools such as pattern recognition, illness scripts and heuristics (rules of thumb).

Examples include:

- Spot diagnosis – e.g., the herald patch of pityriasis rosea
- Murtagh's triads – e.g., dizziness + hearing loss + unilateral tinnitus = acoustic neuroma

Non-analytic thinking is the usual decision-making method of the expert, although they will usually revert back to more deliberate, analytic thinking for challenging or atypical presentations. While fast and efficient, non-analytic thinking is also prone to error.

Analytic (or hypothetico-deductive) reasoning – Type 2 thinking is deliberate, often repeated, hypothesis generation and testing and more the domain of the novice clinician. It involves detailed history taking, the specific seeking of confirmatory and contradictory information, and a deliberate, conscious analysis of the data.

What are illness scripts?

Illness scripts are mental categorisations of the important distinguishing features of an illness. They are used by GPs to compare a current presentation to those in a mental library of scripts to see whether there is a match.

E.g., If a 16-year-old girl comes into your clinic with her head down and wearing only black, as an experienced GP you instantly know there is likely to be a mood disorder. Your registrar is not likely to be attuned to illness scripts because these are based on non-analytic thinking and pattern recognition behaviour.

Why do I need to incorporate cognitive biases into my language of clinical reasoning with my registrar?

Most errors in clinical reasoning are not due to incompetence or inadequate knowledge but to flaws in thinking, perhaps also compromised by fatigue or time pressures. There are dozens of forms of cognitive biases and often, more than one of these biases features in a case of diagnostic error.

The following table lists some of the cognitive biases you can teach your registrar to help develop their clinical reasoning.

COMMON COGNITIVE BIASES	
Premature closure	Ending the decision-making process too early, i.e., the diagnosis is accepted before it has been fully verified.
Availability bias	Judging things as being more likely if they readily come to mind or have recently been encountered.
Anchoring bias	Fixing key features of the patient's presentation and not adequately considering additional information that may contradict the diagnosis.
Representativeness bias	Looking for prototypical manifestations of a particular disease and failing to accept atypical variants.
Confirmation bias	Only seeking information to support the diagnosis and not look for evidence to counter the hypothesis.
Overconfidence bias	Believing that we know more, or perform better, than we actually do.
Patient self-labelling	Favouring a diagnosis suggested by the patient rather than considering other possibilities.
Diagnostic momentum	A diagnosis by other GPs or specialist which sticks rather than considering new possibilities.

What are some examples of some cognitive biases and how I could talk to my registrar about these?

Here are a few examples of how to bring cognitive bias into your discussion with your registrars.

1. **Premature closure** is the most common cognitive bias for registrars.

    If you are sitting in on a consult with your registrar and premature closure occurs, discuss how asking the patient a few more questions could have helped them "climb further up the tree" to getting a clearer idea for the diagnosis.

2. While teaching your registrar about the pitfalls of the cognitive bias of **diagnostic momentum**, you could say: *"You are a fresh set of eyes in our practice. Having you see my patients is a wonderful opportunity to cast a new judgement on old problems; so, if my diagnosis doesn't really work for you, come and tell me or at least, talk to the patient about it."*

3. Talk about how **self-labelling** can sometimes work in the reverse. For example, you or your registrar may see a child with what looks to be a typical viral infection. You may be about to label it as such when the mother says Scarlet fever has been prevalent at the child's pre-school. Obviously this is valuable information which could lead to avoiding a diagnostic error.

Why is metacognition and reflective practice important in the language of teaching clinical reasoning?

Metacognition demonstrates being reflective: it is an awareness of one's own thinking. Metacognition and reflective practice is critical to effective clinical reasoning because it allows a GP to step back and look beyond the patient interaction. E.g., they may learn to ask themselves questions like *"How is the patient responding?"* Or, *"Am I articulating my diagnostic reasoning?"*

A supervisor can develop their registrar's awareness about metacognition in their clinical reasoning with the following terms:

*   An awareness of your own cognitive processes

*   Thinking about thinking

*   The ability to recognise, analyse and discuss thinking processes

*   Reflective practice

How can I help my registrar 'unpack' their clinical reasoning?

Again, use the 'language' of clinical reasoning. E.g., After sitting in on a registrar's consultation you may say *"I saw how you did this really well. It was fantastic the way you did a restrictive rule-out Murtagh's Process,"* or *"It was great how you applied a clinical prediction rule; that is a diagnostic process that will help your clinical reasoning."*

How can I make clinical reasoning an explicit element of teaching?

Perhaps your registrar has sat in on one of your consultations. You can unpack your clinical reasoning by thinking aloud. Articulate the way you approached the situation by using the language of clinical reasoning. The more often you do this, the more you will help your registrar develop their clinical reasoning.

How can I provide my registrar with broad clinical exposure to cases limited in our practice by demographics?

Your registrar should be exposed to classical, atypical and simulated cases. This will help them develop illness scripts and pattern recognition.

Hopefully, your registrar will see enough classical cases but perhaps your practice does not see many children or elderly people. Perhaps your registrar is male, so does not see a broad spectrum of female cases. You can still provide clinical exposure to cases not available to your registrar through targeted discussions in your scheduled teaching sessions.

Example case

Your clinic does not see many elderly people.

As supervisor, you could say, *"An 82-year-old man presents with sore shoulders, what do you think?"*

Your registrar may answer with *"I need more history"* and you reply *"Of course you do, but what are you thinking so far?"*

You can then work through the case together, discussing your registrar's clinical reasoning. So, while your registrar has not actually seen the patient, this discussion has still been valuable clinical exposure to develop their clinical reasoning.

How can I give clinical exposure to atypical cases?

Discuss cases, perhaps some of your own, where there was a near miss or poor patient outcome. Point out to your registrar how some serious conditions can present in a typical way. Open disclosure about near misses and diagnostic error can be valuable teaching opportunities, particularly if you discuss how clinical reasoning may have played a role.

How can I simulate cases?

You can broaden your registrar's clinical exposure by inventing scenarios. E.g., It can be fun to incorporate a three-minute role play into your teaching.

How can I incorporate teaching clinical reasoning into consultation analysis with my registrar?

Consultation analysis is the bread and butter of the GP apprenticeship model. You can observe your registrar's consultations in the following ways:

- Direct observation
- Problem case discussion
- Random case analysis
- Role plays

In each of the above methods for consultation analysis, you can examine and develop your registrar's clinical reasoning by discussing the following:

- Data gathering and synthesis
  - History and examination
  - Identification of patient's agenda
  - Incorporation of other data
  - Weighting
- Explanation
  - Thinking aloud
  - Differential diagnoses
  - Likelihoods

- Follow-up and safety netting

Remember, helping your registrar articulate their internal thinking to you as supervisor and their patients is a powerful tool to minimising diagnostic error.

How can I incorporate clinical reasoning into corridor teaching?

Ask the registrar to summarise the clinical scenario in two or three sentences, including the most important positive and negative features and the working diagnosis. This allows you to briefly appraise critical elements of the reasoning process – data gathering, weighting and synthesis. It is also a useful way of seeking the registrar's understanding of the most discriminating items of the clinical assessment and mirrors the college examination processes (especially the FRACGP Key Features Paper).

What teaching tips can I use to help my registrar develop their clinical reasoning and avoid diagnostic error?

- Explicitly describe heuristics
- Promote the use of diagnostic timeouts (e.g., washing hands or stepping out of the room to get something, allowing time to think)
- Promote the practice of worst-case scenario medicine
- Promote the use of a systematic approach to common problems
- Ask why
- Emphasise the value of the history and clinical examination
- Teach Bayesian theory
- Acknowledge how the registrar makes the patient feel
- Seek data that doesn't fit
- Encourage learners to slow down
- Admit one's mistakes