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Teaching Clinical Reasoning

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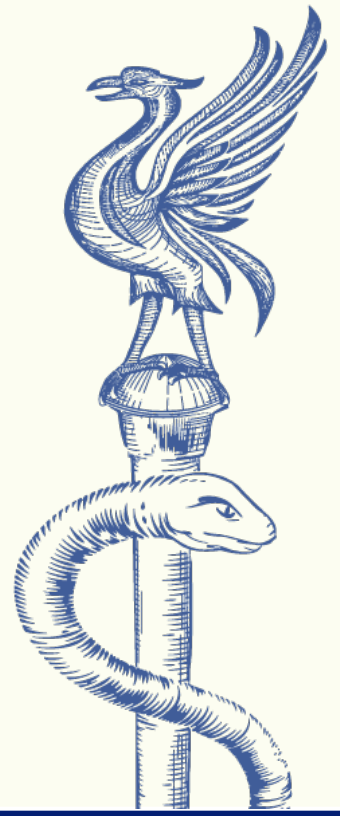

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Learning Outcomes.

By the end of this session you will be able to:

1. Describe the key concepts and models of clinical reasoning.
2. Identify and articulate common student difficulties in clinical reasoning
3. Learn and practice educational strategies for helping students overcome these difficulties
4. Explore questioning techniques that promote diagnostic thinking

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Introduction – we're doing this already

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What is clinical reasoning?

- The ability to sort through information presented by a patient, give a diagnosis and develop a treatment strategy (Eva 2007)
- Core component of medical practice.
- Included within many of the current educational and assessment frameworks.

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Consensus statement on the content of clinical reasoning curricula in undergraduate medical education

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What do we know about clinical reasoning?

Theorising clinical reasoning

- The literature is broad and diverse
  - Many different professions and theoretical frameworks
- Cognitive psychology?
  - Generating and testing hypotheses (Elstein et al 1978)
  - Organisation and retrieval of memories (Elstein and Schwartz 2002)
  - Prototypes built up through experience (Bordage and Zacks 1984)

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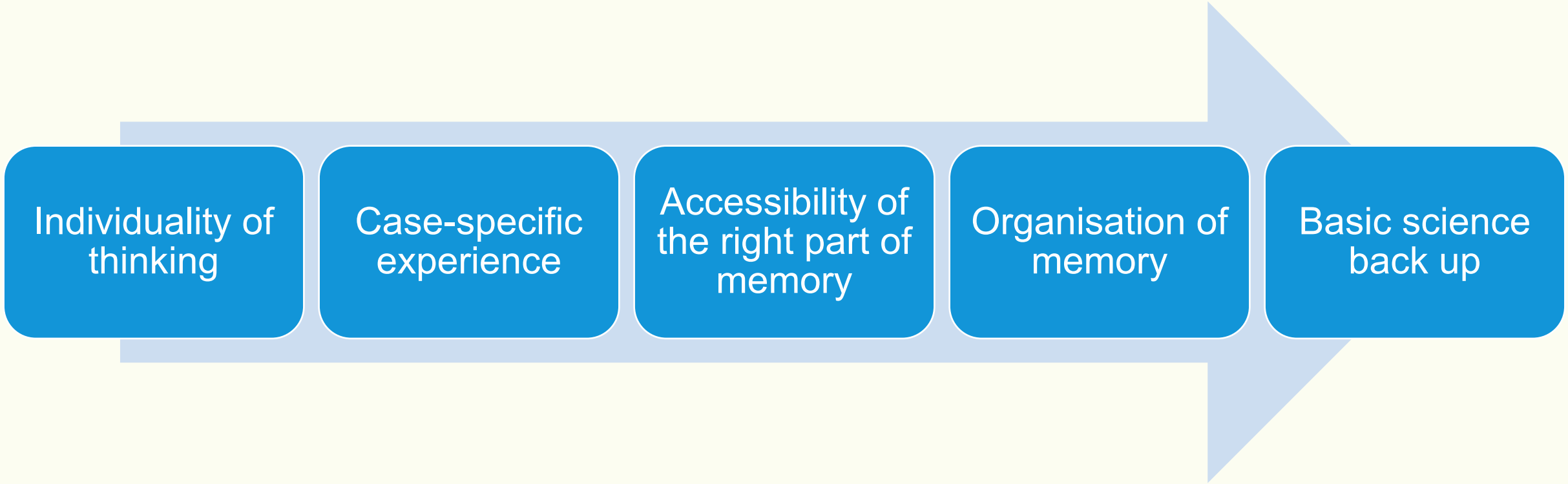
All these models share key features!

Features of clinical reasoning



(Gale and Marsden 1983; Grant and Marsden 1993; Patel and Groen 1986; Boshuizen and Schmidt 1992)

What techniques can we use?

- Encourage to students to think things over (increasing organisation of memory)
- Identify *forceful features* (which will be individual to each clinician)
  - What cases have you seen like this?
  - What stands out to you?
  - Diagnostic ease is associated with identifying many forceful features
- Change features in the presentation (what if…?)
- Give small pieces of feedback (manage cognitive load)
- Encourage analytic and non-analytic thinking

Common Errors

- Set effect
  - The student becomes trapped in one inappropriate way of seeing the data and is unable to think of other explanations
- Failure to make the correct interpretation
  - The student does not consider the right explanation because of a knowledge deficit or they fail to identify a forceful feature
- Designation of irrelevance
  - Pertinent information is discarded because there is a knowledge deficit or they fail to identify enough hypotheses to guide reasoning

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Don’t tell the student the answer!

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For each case discuss:

What error has the student made?

How would I draw out the thinking process of the students?
How could they be encouraged to develop their thinking?

Case 1 – Problem Representation

In this case, the patient had a pulmonary embolism.

The student missed that he had major risk factors (cancer and chemotherapy). And missed the examination findings (hypoxia with tachycardia).

- Ask the student to frame the problem differently
- What might they think if the patient hadn't mentioned anaemia?
- Ask them to explain how anaemia causes breathlessness – is this consistent with all the symptoms?

Case 2 – Premature Closure

The student has closed prematurely on a diagnosis of a UTI

Ask the student:

- Is there anything else in the history that could counteract that diagnosis?
- What cases like this have you seen? What features were the same or different? What diagnoses did these turn out to be?
- Ask the student to explain their thinking process (rather than focussing on the outcome)

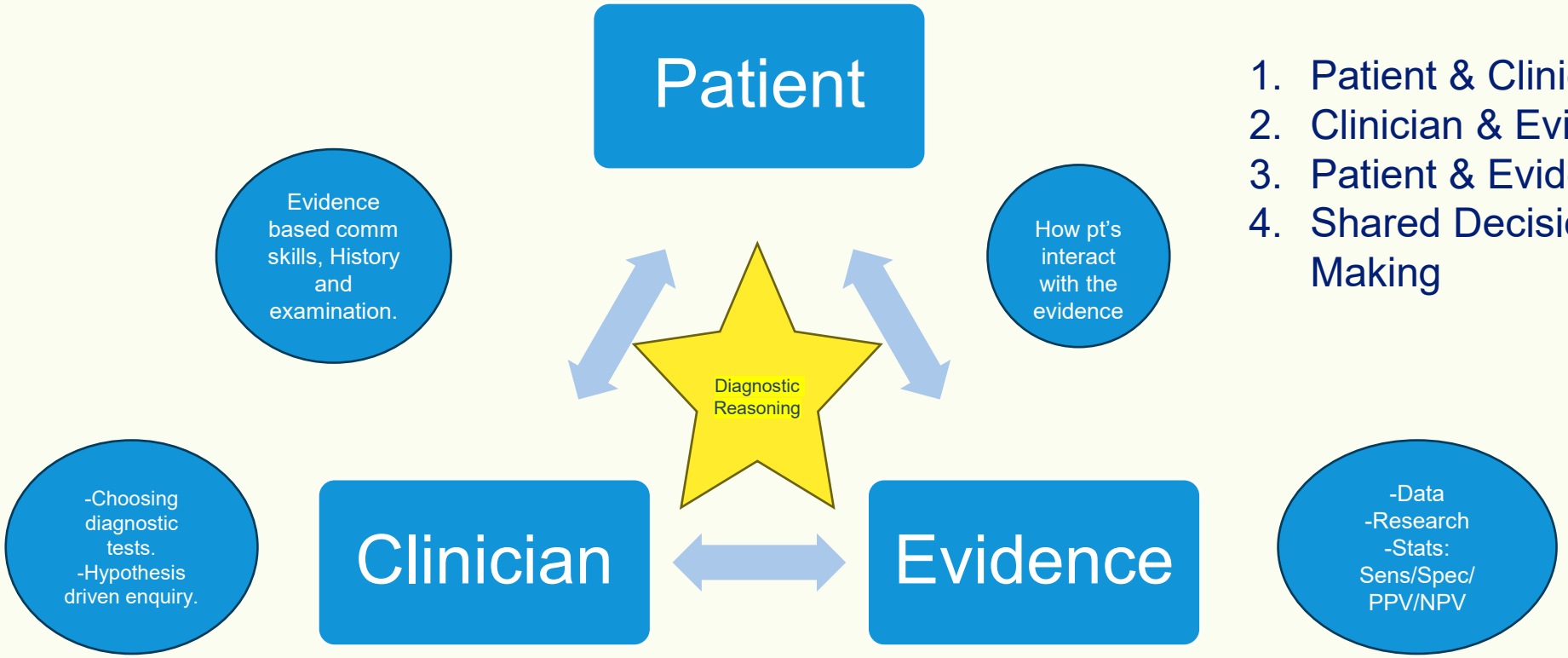
Case 3 – Many diagnoses!

The student has jumped to a diagnosis of malignancy. They need to be supported to work through and eliminate other diagnoses.

Ask:

- Can they think of other options? What other causes of weight loss are there?
- Would this be different if the patient was 70 years old?
- Explore the feeling that “something serious must be going on” – what is the student linking to in their mind?

3 Domains & 4 Interactions



1. Patient & Clinician
2. Clinician & Evidence
3. Patient & Evidence
4. Shared Decision Making

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Conclusion