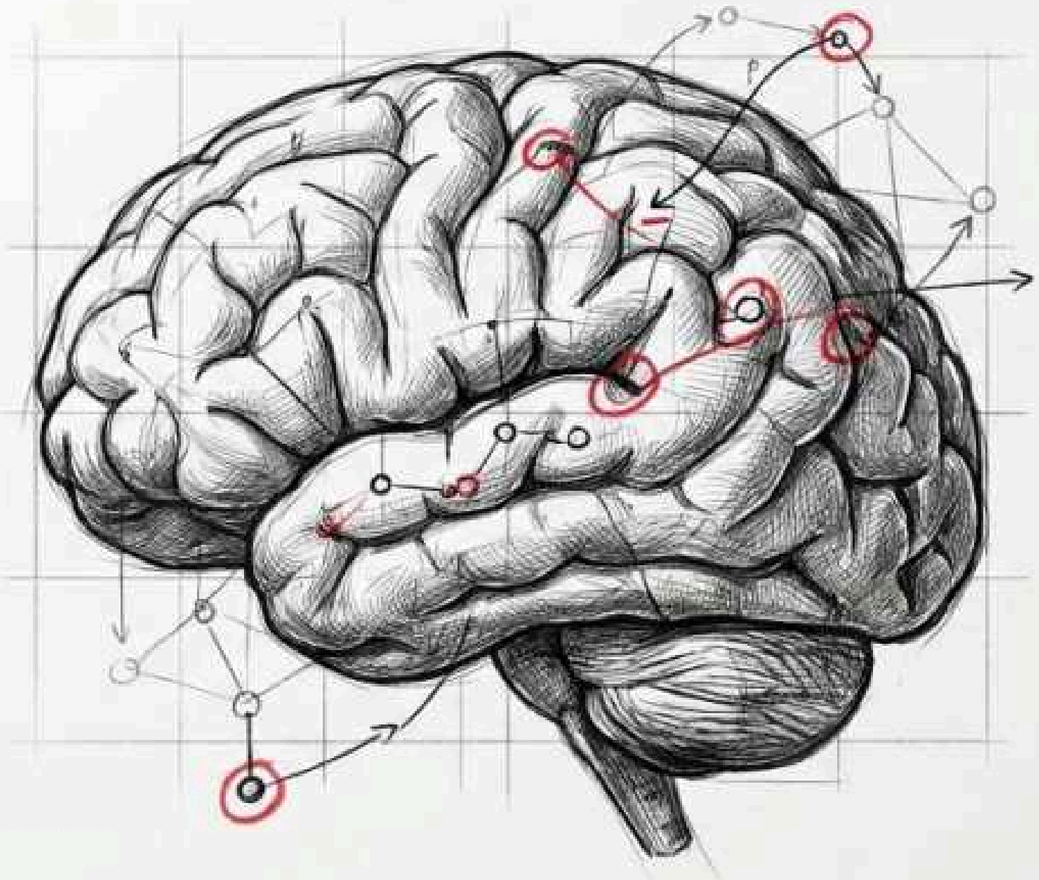


The Anatomy of Clinical Decision Making

Translating patient data into diagnostic certainty

¶ 3.1

Information → Clinical Reasoning → Diagnosis + Plan

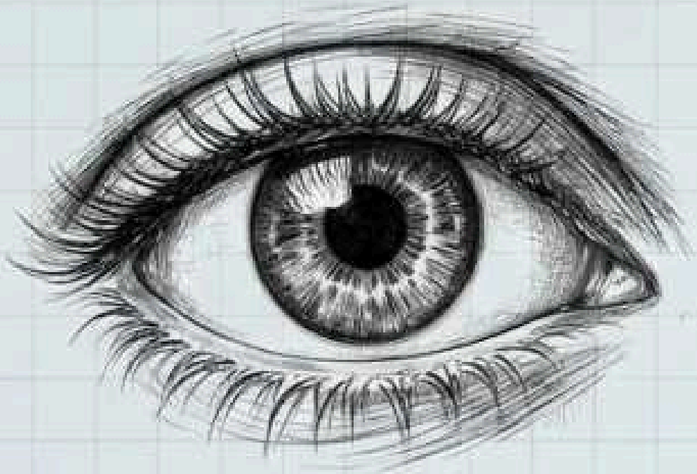
System 1

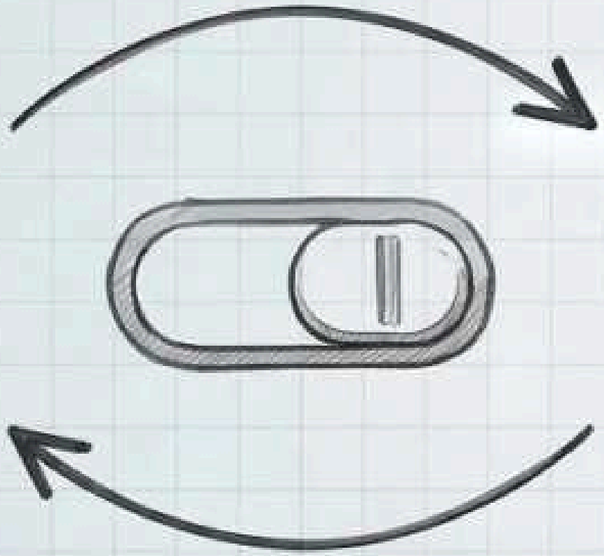
- Fast
- Intuitive
- Pattern Recognition

System 2

- Slow
- Deliberate
- Analytical

¶ 3.2





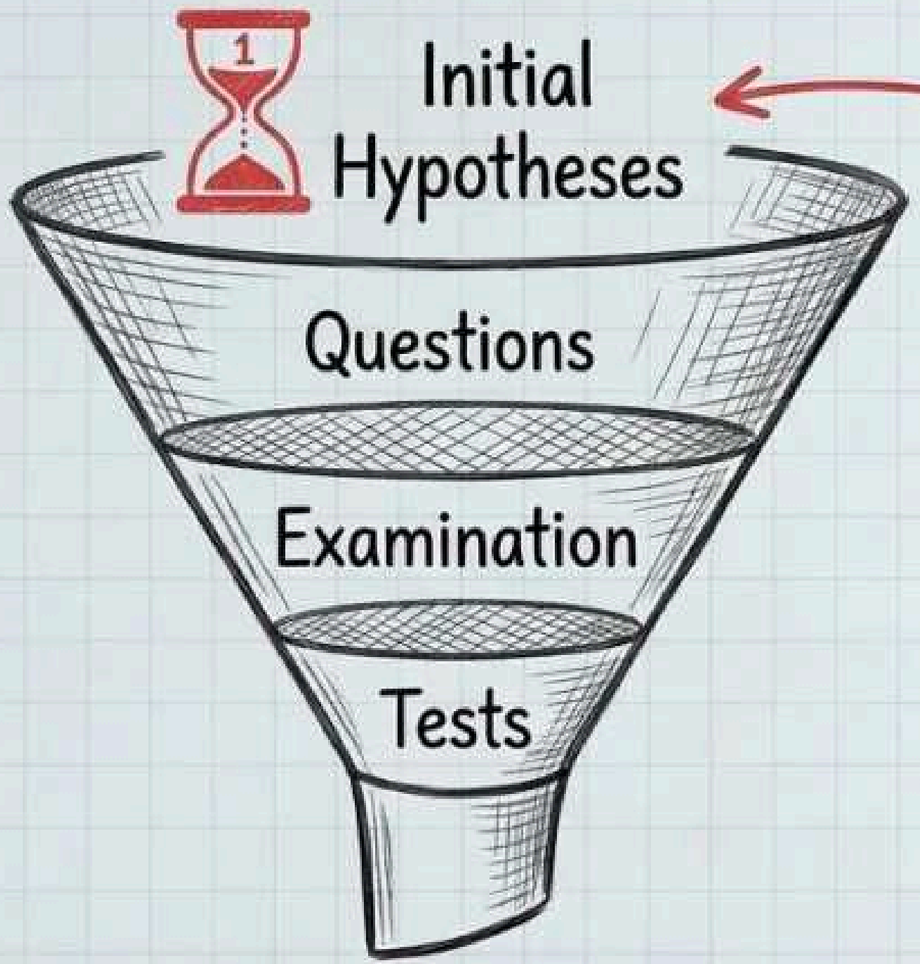


Experienced doctors
rely heavily on this.
Efficient and usually right.

IF [Pattern is unclear]
OR [Case is unusual]
OR [Stakes are high]
→ Engage Analytical Reasoning

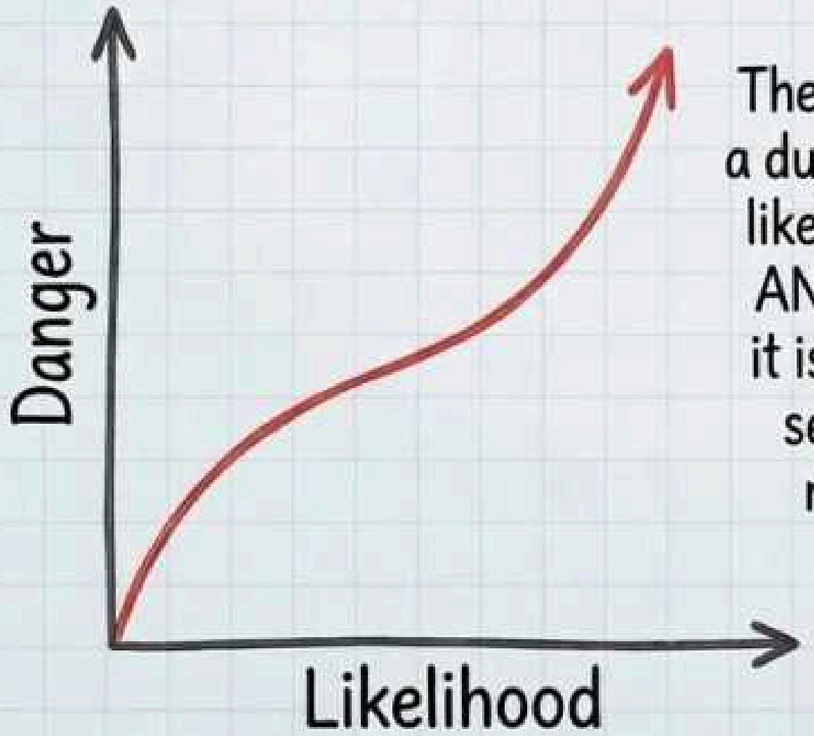
Good clinicians move fluidly between both modes.

¶ 3.3



Hypotheses generated often within the first minute.

The Differential Diagnosis (DDx)

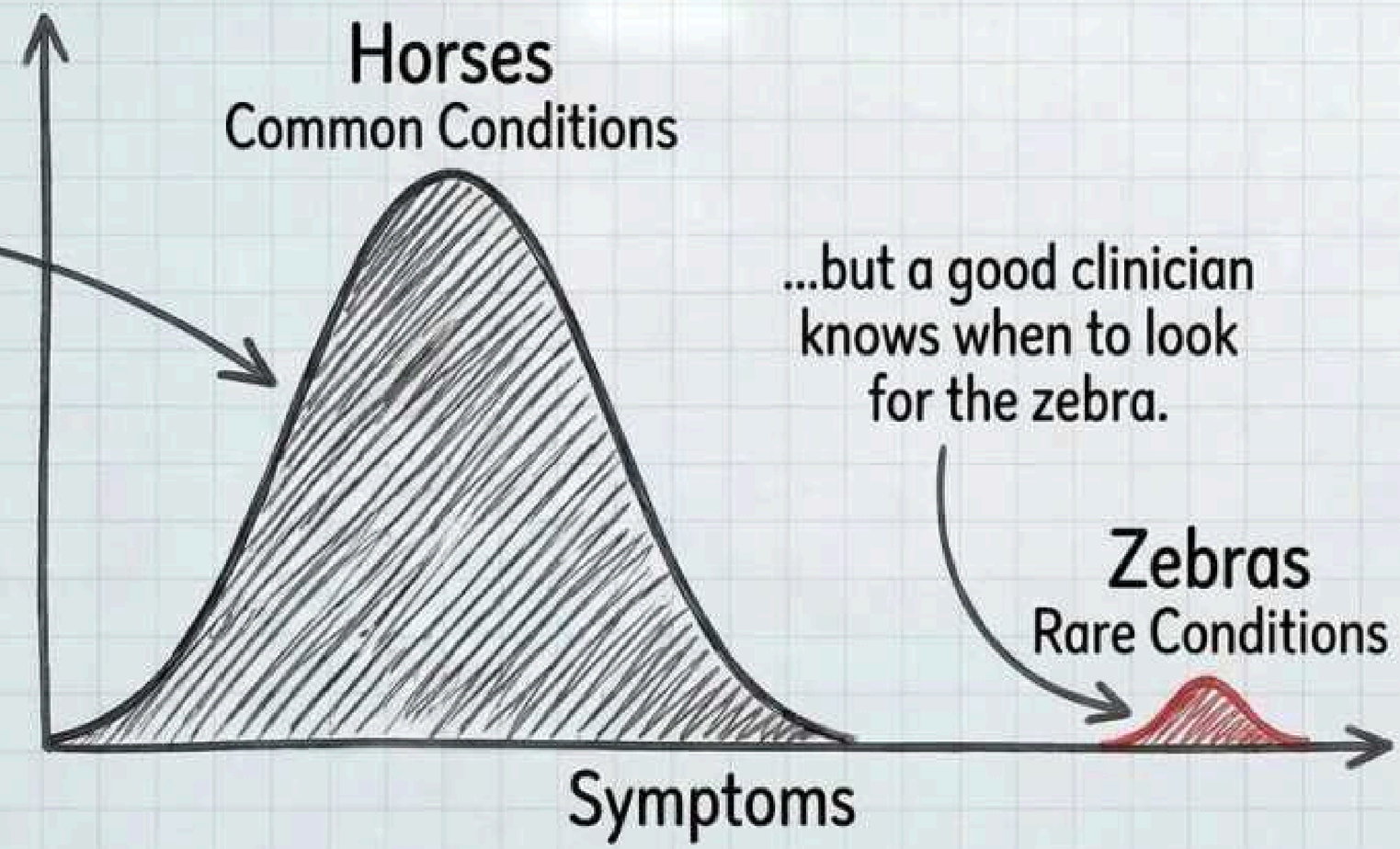


The DDx is ordered by a dual imperative—how likely the condition is, AND how dangerous it is to miss. Rare but serious conditions must be actively excluded.

Pretest Probability = P(Dx|Findings)

¶ 3.4

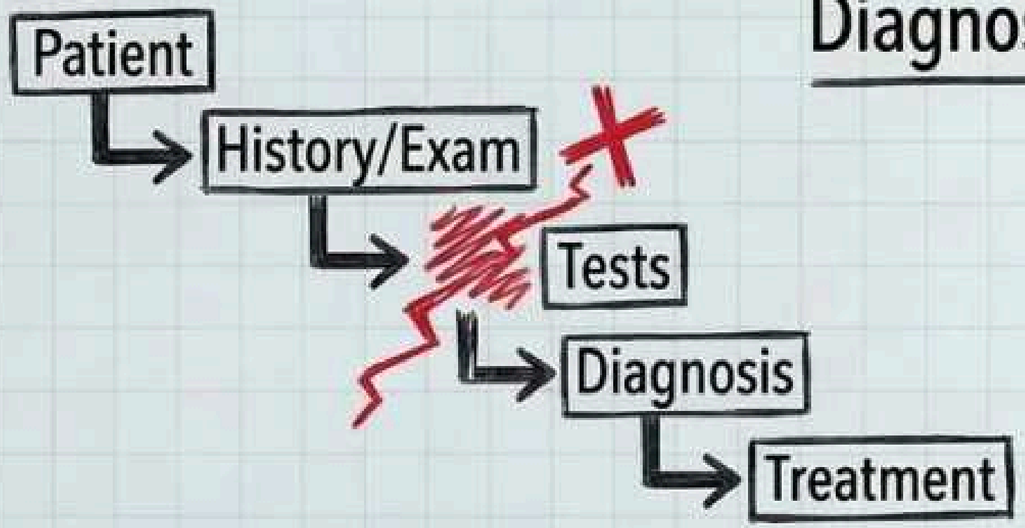
When you hear hoofbeats, think horses... (Common conditions are common).



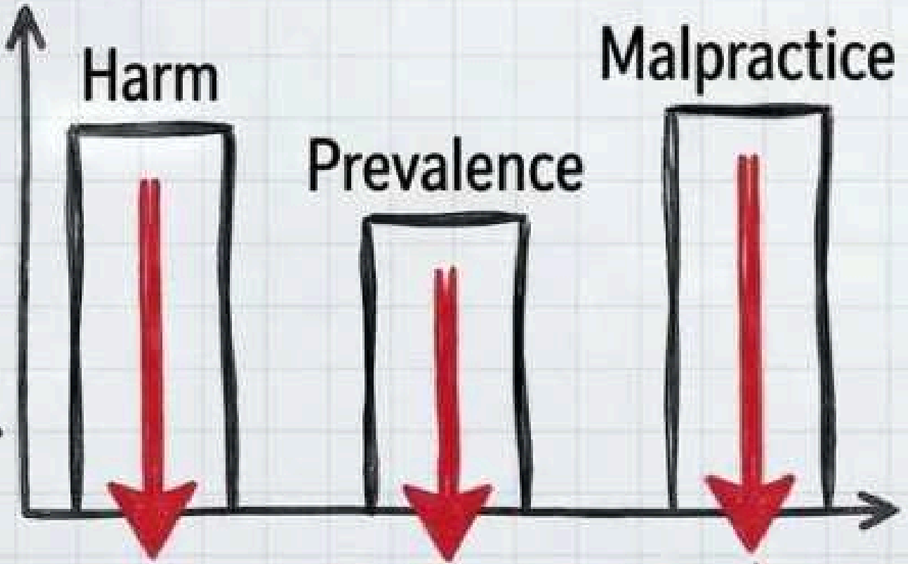
Pretest probability depends on condition baseline prevalence in patients like this one (Ref: Medicine 515 B).

Diagnostic Error = Missed, Wrong, or Delayed diagnosis.

¶ 3.5



Diagnostic Flow



- Causes substantial harm
- Most people experience ≥ 1 in their lifetime
- Leading cause of serious harm in malpractice claims



* Brought to wide attention by the 2015 National Academies report: *Improving Diagnosis in Health Care.*

Cognitive Biases

¶ 3.6

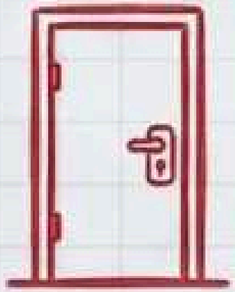
(Systematic patterns of thinking that mislead)

Anchoring

Sticking with an early impression despite new evidence.



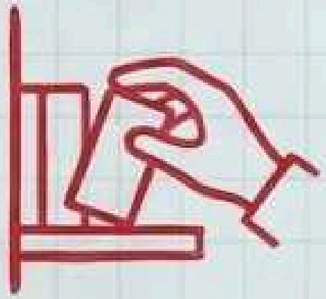
Premature Closure



Stopping the search once a plausible diagnosis is found.

Availability

Overestimating diagnoses that come easily to mind (e.g., seen recently).



Confirmation

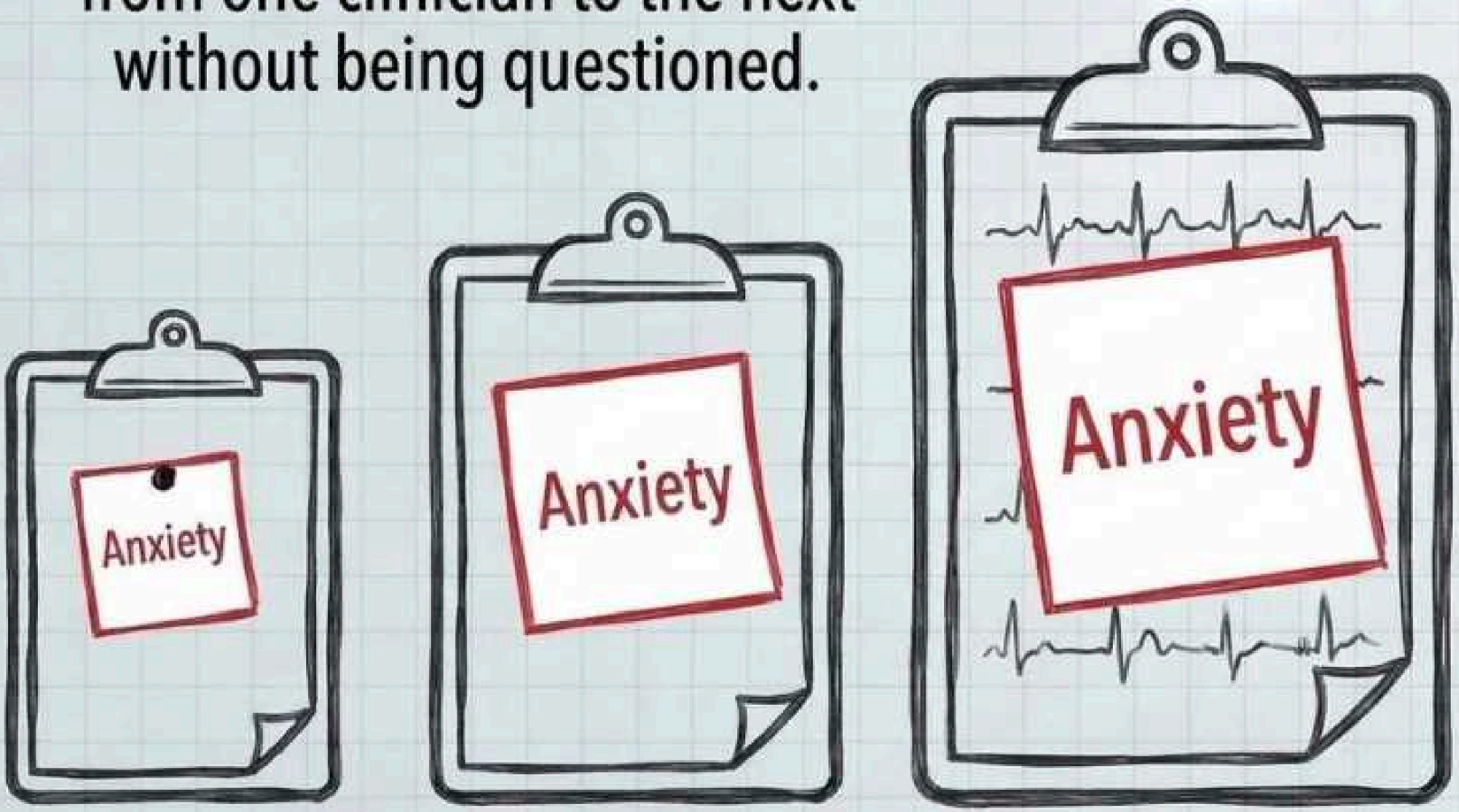


Seeking evidence supporting a favored diagnosis while overlooking evidence against it.

Diagnostic Momentum

¶ 3.7

A label, once attached, passes from one clinician to the next without being questioned.

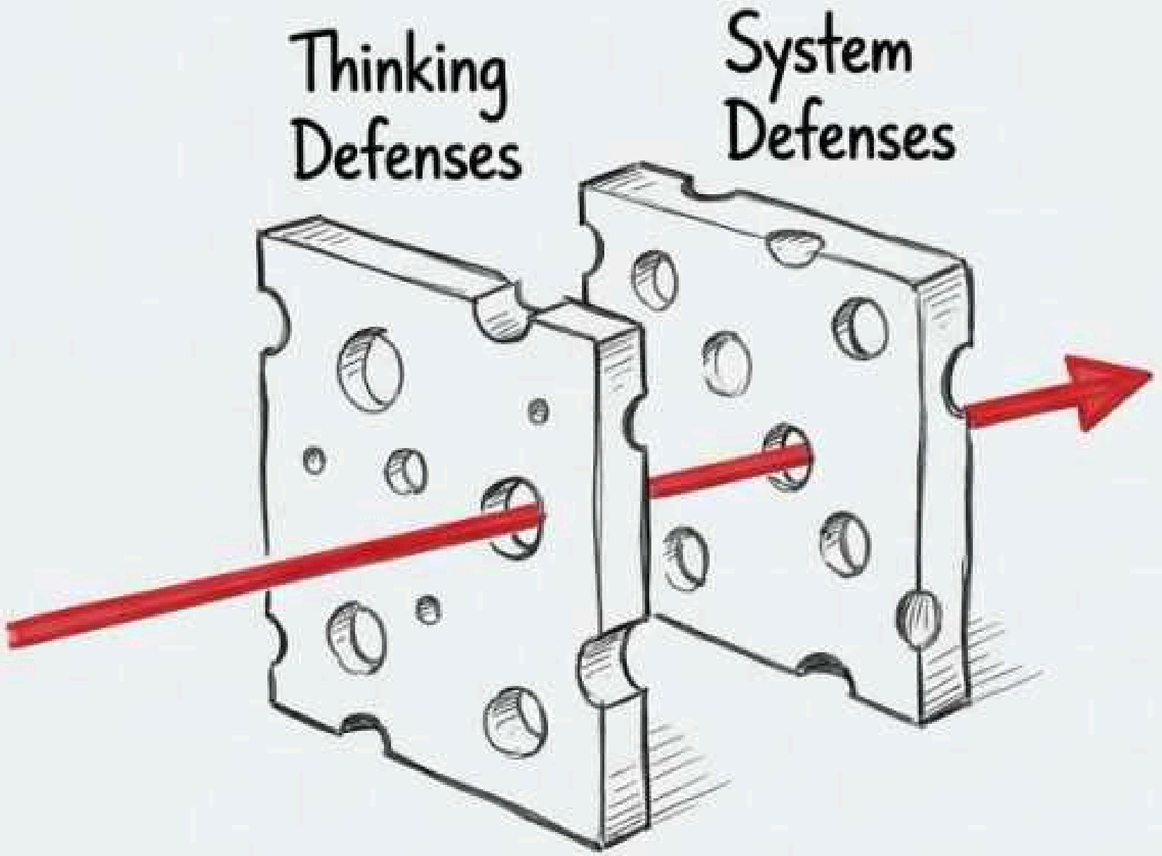


Physical symptoms dismissed due to labels.

Particularly risky labels:

- Mental illness
- Substance use
- Frequent attendance

¶ 3.8



- Tests not followed up
- Results not communicated
- Poor handovers
- Time pressure
- Fatigue
- Interruptions

E_{error} = Cognitive Biases ∩ System Factors

Most diagnostic errors involve both thinking and system problems.

Strategies to Reduce Error



¶ 3.9

- ☐ 1) Deliberately ask: What else could this be?
- ☐ 2) Consider the worst condition that must not be missed.
- ☐ 3) Use checklists for common presentations.
- ☐ 4) Take a diagnostic timeout to reflect.
- ☐ 5) Seek second opinions.
- ☐ 6) Follow up to learn how illness evolved.

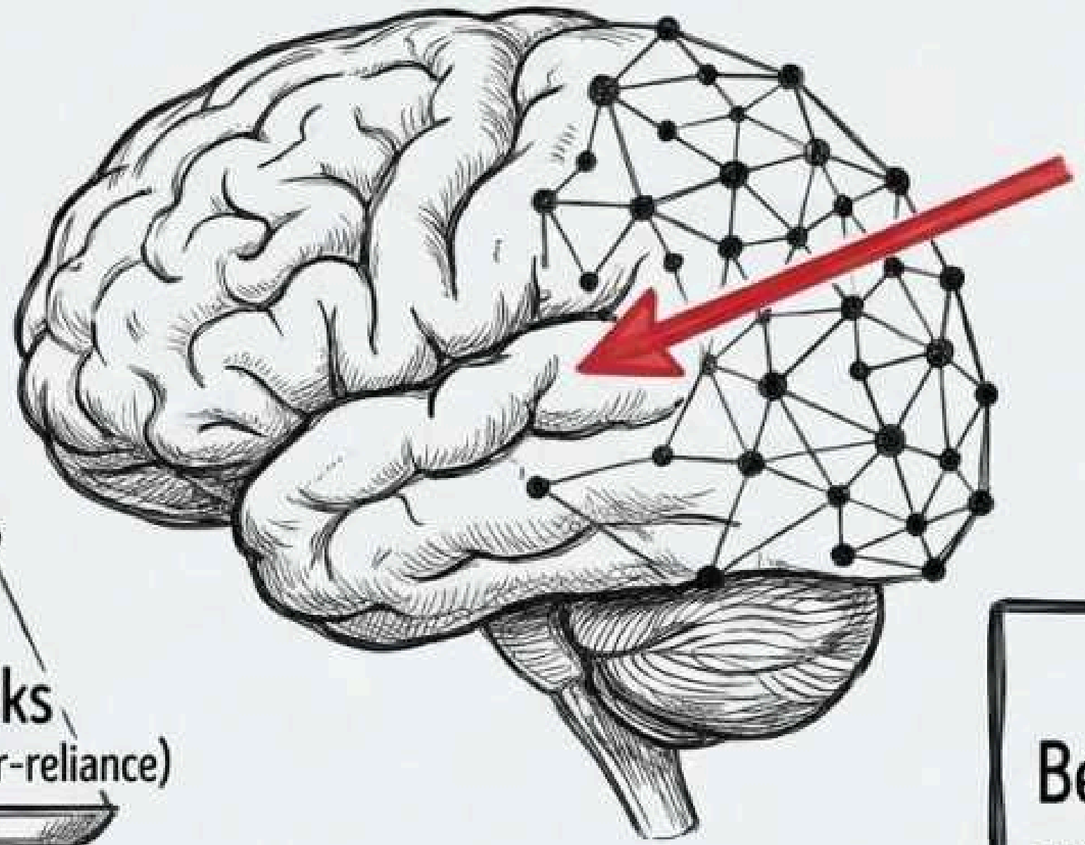
Safety-Netting

Telling patients what to watch for and when to return if things do not improve.

Diagnostic decision support tools (including AI) suggest possibilities clinicians might not consider.

¶ 3.10



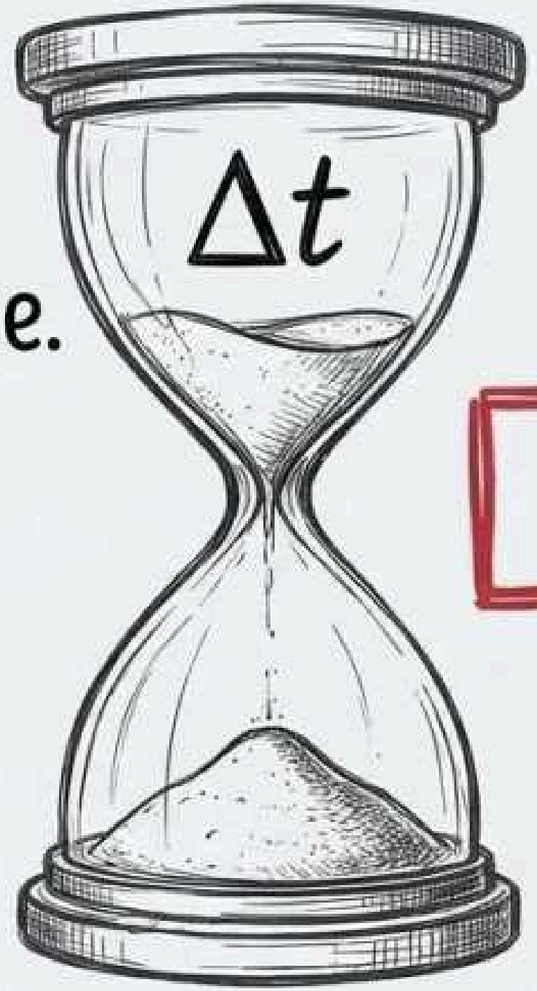


Current State:
Benefits in real practice are still being evaluated.

¶ 3.11

Uncertainty is a normal part of medicine.

Not every symptom can be explained at once.

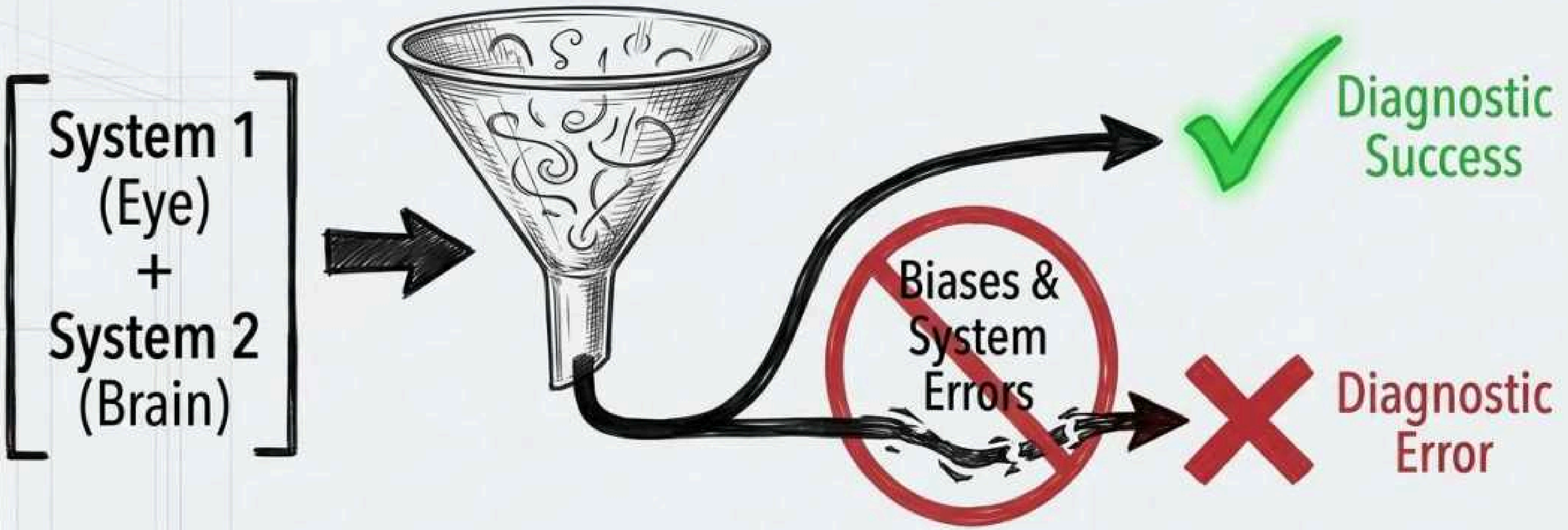


Sometimes the right course is careful watching over time.

Being comfortable with uncertainty, and honest with patients about it, marks a mature clinician.

¶ 3.12

Funnel (DDx)



Clinical reasoning combines fast pattern recognition with deliberate analysis. The differential diagnosis weighs likelihood and danger. Diagnostic error arises from the intersection of biases and system failures.

Next Lecture → Tests and how to interpret them. →