

# The Thinking Doctor's Ward Round

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Why the ward round? For folks of a certain age the very mention of ward rounds may conjure up the image of Sir Lancelot Spratt barking orders to an entourage of junior staff following in his wake. Whilst we no longer practice in such a hierarchical world, I fear we have neglected the importance of the ward round - and with it the importance of the clinical decision making process itself. If you ask a lay person what a surgeon does they will be able to answer: they operate. But what of physicians? When, as a medical registrar, I was involved in the Belfast City Hospital's Patient Access Project, the group looking at surgical through-put easily identified the theatre session as the focus of their work (Figure 1). For acute medicine the group took a little longer, but we recognised that, for physicians, the consultant ward round was where we needed to look (Figure 2). In fact, the ward round is as core to the business of inpatient medicine as the theatre session is to the practice of surgery. However they are seldom treated with similar respect. Let us for a moment compare the two.

First, let us think about the operating theatre list. Before the list can start it is recognised that certain core staff must be present: the patient, the surgeon, the anaesthetist, the theatre sister, the assistant surgeon, operating department orderlies. In addition there must be the patient - suitably prepared and consented, along with all relevant notes and results. All this is in the safe and controlled environment of the operating theatre. Once the operation starts the surgeon's concentration must not be interrupted. The importance of maintaining theatre safety is highlighted in the WHO safer surgery checklist<sup>1</sup>.

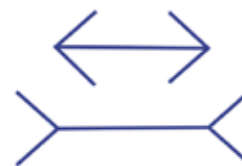
How about the medical post-take ward round? Again, for the round to be effective certain core staff should be present. Ideally, the consultant, the trainee from the night shift who has seen the patients, and the trainee who will be providing ongoing care that day, also a member of the nursing team caring for the patient, along with appropriate members of the allied health care professions. Of course there should be the patient, along with the case notes and all relevant results (Figure 3). This is the ideal but how often does that work out in practice? I am sure I am not alone in finding that the night team melt away under pressure of EWTD, the daytime F2 is bleeped off to the take-in, no nurse is available, notes have gone astray and we leave the familiar surrounding of our own ward to see the outliers in ENT only to find that the patient has gone for a CT scan.

I fear I must seem as if I am complaining about the inconvenience of it all. I am not. Let us reflect on what the ward round is. It is a series of clinical encounters with patients. For Edmund Pellegrino, the clinical encounter is the core of medical practice. It can be viewed as a series of three questions: What is the problem?, What are the possible solutions? and What is the best solution for this patient?<sup>2</sup> It is our difficulties with the first of these questions that I would like to explore further; the difficulties with diagnostic reasoning.

There is ample evidence that patients come to harm through medical practice. The seminal report *To Err is Human* estimated that 44000 - 98000 Americans die each year through medical error<sup>3</sup>. In the Harvard Medical Practice Study<sup>4</sup> diagnostic errors accounted for 17% of all adverse events. These are not small numbers of patients. Our newspaper headlines tell a similar story: "Father's heart attack missed at A&E...NHS compensation to miss diagnosed patients rises to £98 million...One in six NHS patients misdiagnosed." Behind each story and each statistic is an individual patient who has been let down by the system.

How can we improve our diagnostic reasoning? Let us begin by thinking about thinking itself. We are highly trained professionals, we like to think we can think but we can be caught out. Below are some mind games to try for yourself.

## 1. Which Line is Longer



## 2. How many Fs?

FINISHED FILES ARE THE RESULT OF  
MANY YEARS OF SCIENTIFIC STUDY  
COMBINED WITH THE EXPERIENCE OF  
MANY YEARS.

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### Patient pathway for elective surgery



Fig 1.

### Patient pathway for acute medical admissions

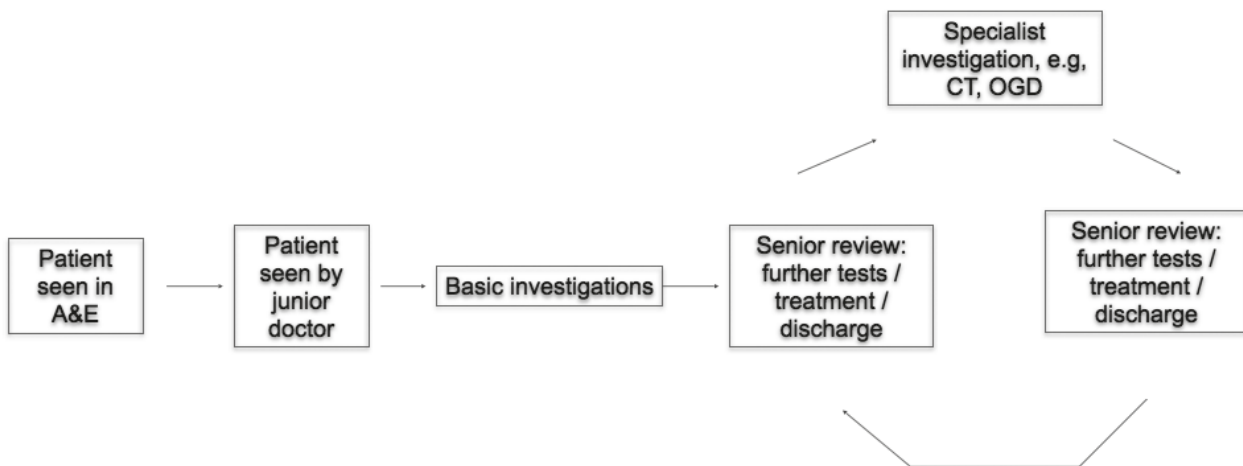


Fig 2.

### 3. A female student who is a shy poetry lover is likely to be studying

- Chinese literature
- MBA?

### 4. A bat and ball cost £1.10

The bat costs £1.00 more than the ball.  
How much does the ball cost?

Based on Kahneman D. *Thinking fast and slow*. London: Penguin Books; 2011

I think most readers will have seen the parallel line test before and will have answered that they are the same length (Assuming, of course, I have not “cheated” and made them unequal!). When counting Fs, most will count three on their first go - there are in fact six. The shy, poetry loving student is far more likely to be studying for an MBA as, regardless of her own characteristics, MBA courses are much more common. The ball costs 5 pence.

### HOW ABOUT A CLINICAL TEST?

In the case of a 55 year old lady presenting with shoulder pain and is found to have hypercalcaemia with an elevated ESR

and CRP is the diagnosis more likely to be multiple myeloma or a malignancy with bony metastases **or** supraspinatus tendonitis with co-incidental primary hyperparathyroidism and an occult splenic abscess?

If you subscribe to Occam’s Razor (“*Entia non sunt multiplicanda praeter necessitatem*” -Entities must not be multiplied beyond necessity)<sup>5</sup> you will have favoured the former, whereas the latter may prove Hickam’s Dictum. (“Patients can have as many diseases as they damn well please”).<sup>6</sup>

We all use many different strategies in clinical decision making. Canadian Emergency Physician Pat Croskerry has done much work in this area and lists the following common approaches:

- Pattern Recognition
- Rule out-worst case scenarios (ROWS)
- The Casablanca strategy
- Heuristics / CDR (Cognitive disposition to respond)
- Hypothetico-deductive method<sup>7</sup>

## The Consultant ward round: an integration point

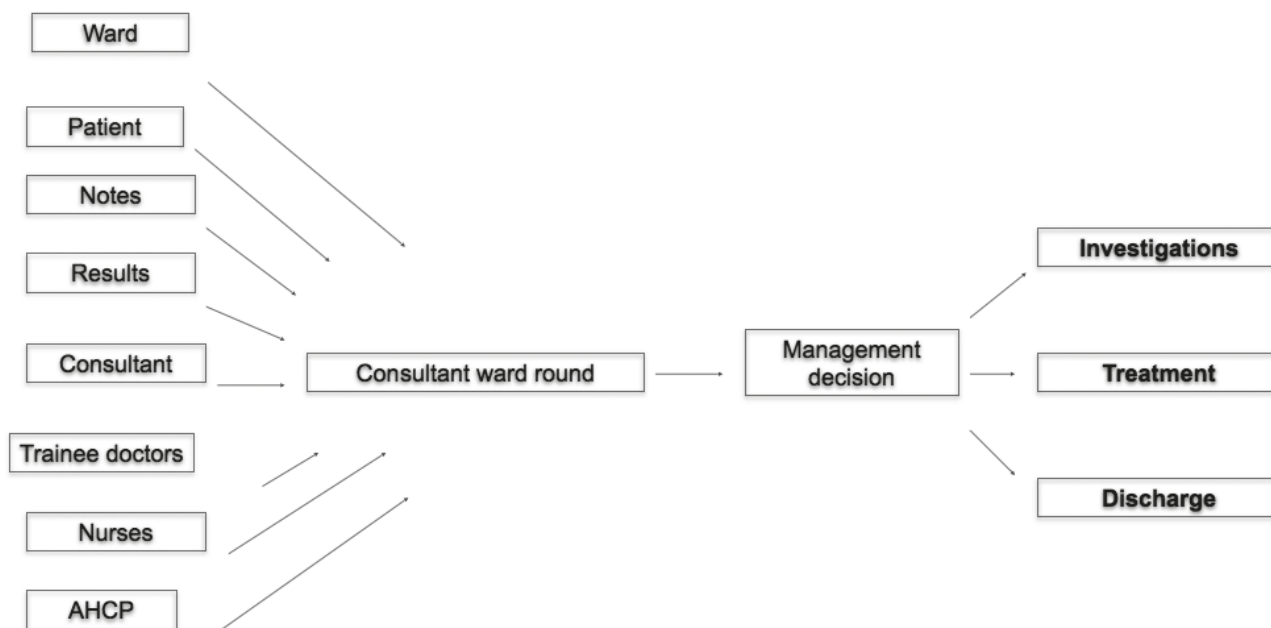


Fig 3.

Pattern recognition is easy - as you read the first lines of a history you start to look for patterns: headache with neck stiffness and photophobia- already the options are starting to line up. Add thunderclap onset (or fever) and our pattern is complete. But what of the cases where the pattern is incomplete - possibly because we have not observed all findings - or the pattern is unfamiliar. Pattern recognition depends also on practice - for an experienced clinician the complex case may seem to fit a pattern also. Here lies the peril of the expert: It is worth noting that in the counting Fs exercise above it is the accomplished reader who is likely to get caught out rather than the plodding, more cautious novice. We rely on patterns at our peril.

The Rule Out Worst Case Scenario is at least focused on risk management but can often fall short. The diagnosis of acute chest pain includes many serious differentials (myocardial infarction, pulmonary embolus, aortic dissection) and how far down our list of worst case scenarios we need to go will depend on the individual case. But we often need to be think beyond the immediate threat to reach a diagnosis. An extreme example is the discharge diagnosis of “troponin negative chest pain”. All we (and the patient) know is that the criteria for an acute coronary syndrome have not been met. The cause of the symptoms are unexplained.

As you may have guessed, the Casablanca strategy is to “round up the usual suspects”<sup>8</sup>: The lazy use of a standard battery of tests for a given symptom without any application of analysis.

Heuristics are mental short cuts which can aid rapid decision

making. However they are often accompanied with biases based on our CDRs (cognitive disposition to respond).

Some examples are listed in Table 1.

The hypothetico-deductive method is based on the scientific method and consists of the following steps: hypothesis generation, hypothesis evaluation, hypothesis refinement, and hypothesis verification. Error can occur at every stage. We can use the wrong information to generate a faulty hypothesis, we can fail to process information as we refine the hypothesis and we can seek to prove our own best guess rather than rigorously test our thinking.

In fact the thinking process used by doctors is not truly deduction. Rather it is better described as abduction<sup>9</sup>. Abduction involves the following steps:

- Hypothesis formation / invention
- The possible differential diagnoses are established from the observed data
- Testing against a knowledge base
- The supporting data is evaluated - this may involve testing of multiple hypotheses
- Reflection / explanation
- Does the whole story hang together as a logical coherent and sufficient explanation for the findings?

It is more akin to the work of the detective rather than the scientist. Remember that Sir Arthur Conan Doyle's creation

TABLE 1

Examples of cognitive biases, based on Croskerry<sup>12</sup>

Anchoring: lock into salient features too early
Availability: judge things more likely if they readily come to mind
Base rate neglect: ignore true prevalence of disease, inflating or neglecting its base rate. Or deliberately inflate likelihood in ROWs strategy.
Confirmation bias: looking for evidence to support initial diagnosis
Diagnosis momentum: once a label is attached, it becomes increasingly sticky
Framing effect: 95% survival versus 1 in 20 likelihood of dying
Fundamental attribution error: blaming patient for their diseases
Gambler's fallacy: influence of preceding events
Omission bias: sins of omission seem less bad, "first do no harm"
Order effects: in receiving information "beginning... middle... end"
Outcome bias: favours diagnoses with better outcome
Overconfidence bias: act on hunch, incomplete information, opinion instead of evidence
Posterior probability error: just because you have migraine, doesn't mean you can't have a sub-arachnoid bleed... cf Gambler's fallacy
Premature closure: accepting a diagnosis before it has been verified, "When the diagnosis is made, the thinking stops."
Representative restraint: representative heuristic leads to atypical patterns being missed
Search satisfying: calling of the search early may miss co-pathology
Sutton's Law: "Where the money is!" (After Willie Sutton, New York bank robber)
Sunk costs: time and energy - and ego
Triage: "geography is destiny" or "to a man with an endoscope everything looks like a GI bleed"
Unpacking principle: rather failure to unpack initial information
Vertical line failure: silo thinking instead of lateral thought

of Sherlock Holmes is based on Joseph Bell who taught him at Edinburgh Medical School - and in turn Sherlock Holmes is the inspiration for the fictional Dr Gregory House. House's thoughts written on his white board may have more similarity with the police incident room wall chart than our ward round

notes.

Picking up a theme from Sherlock Holmes, reflection takes time. In the books Holmes speaks of his mental attic, in BBC's contemporary *Sherlock* he retreats to his "mind palace." Given that current RCP guidance suggests only 15 minutes per patient on our post take ward rounds, what are the implications for clinical reasoning?

*Thinking Fast and Slow* by Daniel Kahneman<sup>10</sup> has popularised the concept of the two systems approach to judgement and choice. System 1 is fast automatic, used frequently, emotional, stereotypic and operates subconsciously. System 2 is slow, effortful, used infrequently, logical, calculating and requires conscious thought. Strangely, the decision which system to use rests with System 1. Hence, when we are under pressure, we default to System 1 thinking. We have already mentioned use of heuristics as mental short cuts, and the attendant biases which may affect their usefulness, and it is upon these heuristics that System 1 depends. The dual system model is also applicable to medical decision making<sup>11</sup>.

How can we improve our clinical reasoning? Firstly, we need to have insight into the problem, to be aware of how we think (so called meta-cognition). Then, as we make decisions, we need to reflect on the decision making process, to be aware of biases and rushed System 1 errors. We can aim to develop our own clinical reasoning from the unreflective to that of the accomplished thinker<sup>12</sup>. We can use cognitive forcing strategies, such as, structured review of data and diagnostic checklist. We can use resources to decrease dependence on memory. We can make ourselves accountable to the rest of the team for our thinking processes. Thinking "out loud" on our ward rounds will allow others to follow our train of thought - and permit challenge when our reasoning is flawed. Training by simulation is useful. We must also take account of the impact of our mood and our environment. Rushed decisions made by stressed or fatigued individuals are likely to be poor quality decisions.

This takes us back to the ward round, with its poor structure, often chaotic environment and frequent time pressures. I conclude with a question: would the surgical team operate in the circumstances in which we conduct ward rounds? Should we not be doing all we can to ensure that the decision making process is sound? It falls to us to try, along with our colleagues in nursing, to give the ward round the respect that is its due.

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