

Diagnostic Error (Part 2) – Decision-making and bias

Sep 12, 2017 | 0



| [medicolegal,onthepods,Working & training in healthcare](#)

Summary Writer: Rose McCarthy

Script Writer: Mark Graber, Owen Bradfield, James Edwards

Editor: Bruce Way, Amanda Walker

Interviewee: Mark Graber, Owen Bradfield, James Edwards

This is Part 2 of a series of 5 podcasts on diagnostic error. This podcast interview covers decision-making and bias

Dr Mark Graber is a Senior Fellow at RTI International and Professor Emeritus of Medicine at the State University of New York at Stony Brook. He has an extensive background in biomedical and health services research, with over 70 peer-reviewed publications. Mark is a national leader in the field of patient safety and originated Patient Safety Awareness Week in 2002, an event now recognised internationally. Mark has also been a pioneer in efforts to address diagnostic errors in medicine, and his research in this area has been supported by the National Patient Safety Foundation and the Agency for Healthcare Research and Quality. In 2008, he convened and chaired the first Diagnostic Error in Medicine conference. In 2011, Mark founded the new Society to Improve Diagnosis in Medicine and serves as President of SIDM.

Dr Owen Bradfield is a Senior Claims Manager, Medical Advisor and Medico-Legal Advisor at Avant. Owen graduated with First Class Honours in 2003 from Monash University's unique combined Bachelor of Medicine/Bachelor of Surgery and Bachelor of Laws program. He was awarded the Ebsworth & Ebsworth Prize for Medical Law and the Victorian Institute of Forensic Medicine Prize. Owen is a qualified medical practitioner and lawyer. He completed his internship at The Alfred Hospital in Melbourne and later completed his articles of clerkship at Slater & Gordon Lawyers. He also has experience in health services management and completed an MBA at Monash University, where he was awarded the prize for the top graduating student. In addition to his work at Avant, Owen also works as a part-time General Practitioner, is Deputy Chair of the Patient Review Panel and Chair of the Law Institute of Victoria's Health Law Committee.

Diagnostic error (Part 2) – Decision-making and bias

With Dr Mark Graber, leader in the field of patient safety, and Dr Owen Bradfield, lawyer, doctor and Senior Claims Manager for Avant Mutual

Introduction

This is Part 2 of a series of 5 podcasts on diagnostic error. Diagnosis is important to both patient and doctor. Diagnostic error can be defined as a failure to provide an explanation of the patient's health problem. There is a dichotomy within how clinicians think, relying on

both intuition and analytical thinking. Intuitive thinking is much more heavily utilised, however it is also more prone to diagnostic error.

1. What is the dual processing model of clinical reasoning?

- Research over the past decade has found that all people (including doctors) think with a dual processing paradigm
 - Whenever you are confronted with a new problem, there is a recognition centre in your brain that recognises what is going on and you know the answer (or in a doctor's case, you know the diagnosis)
 - This is the "intuitive" mode
 - However, this way of processing information is error-prone and can lead to diagnostic error
- On the other hand, when your brain doesn't recognise what's going on, you have to deliberately stop, think and reflect rationally about what's going on
 - E.g. in medical school every clinical problem is initially so hard and to get through that problem you need to think, read and consider all possibilities
 - With practice and experience, this then becomes automatic and we move into the "intuitive" mode

2. Do senior doctors and junior doctors think differently?

- When you are a very junior doctor, you think very differently
 - When working through a problem, junior doctors need to think about their pathophysiology and anatomy
- However, senior doctors recognise things
 - E.g. if it's influenza season and a patient comes in with a fever, headache and muscle aches, it doesn't take a lot of concentration for a senior doctor to say the diagnosis is influenza
 - This diagnosis is based on pattern recognition and also having seen it before
 - This intuitive thinking is fast and effortless, whilst not requiring cognitive expenditure of energy
- The problem with this type of thinking is that the senior clinician doesn't think about what else the diagnosis could be and for every presentation there is always other possibilities
 - Differentials for the above example are Ebola, primary HIV infection, mononucleosis

- There are approximately 200-300 presenting symptoms, but there are more than 10,000 diseases

3. What are heuristics?

- “Heuristics” is a word to describe these intuitive things going on in our brains
- It is the subconscious things going on in our brains which underlie all decisions and actions that we make
- Similar terms include “availability” (i.e. what springs into mind when seeing the patient) and “representativeness” (what you are seeing in that patient is the same features of the classic condition)

4. Do heuristics have a role in decision-making?

- We wouldn't be able to get through our day if we didn't rely on this intuition
- For doctors, to get past this intuitive thinking, Dr Graber suggests always making a differential diagnoses list
- George Bordage's paper titled “*Why did I miss the diagnosis?*” states that the number one reason a diagnosis is missed by doctors is due to just not having thought of that diagnosis
- The minute we come up with a solution that solves a problem our brains are happy and we move on
- In practice, doctors will make a diagnosis they like and then move on
- A term for this is “satisfying” which is the opposite of optimising
- As medical students, we all learn to construct a list of differential diagnoses but we don't continue to do that when getting into clinical practice, we instead “satisfy” and are happy to accept the first diagnosis that comes into mind that explains everything we have in front of us

5. Often doctors run into problems with diagnostic error after they've arrived at an initial diagnosis, started treatment for that initial diagnosis and the treatment doesn't seem to be working. The diagnosis then needs to be re-evaluated. Any advice for when this occurs?

- Diagnosis is a process and it plays out over time
 - Illnesses evolve and you may not be able to diagnose something accurately when it first presents as it can be so non-specific

- It's only when watching how things play out and watching to see the response to initial treatment that you are able to figure out what is going on
- This is why follow-up is so important for achieving a high quality diagnosis
- Patients need to know when and how to get back to their doctor especially if symptoms haven't resolved or are not responding to treatment - follow-up gives a doctor a chance to re-evaluate

6. What is cognitive bias?

- Biases are the downside of heuristics - every heuristic has its drawback
- For example:
 - **Recognition heuristic:** with intuitive thinking you can be right 99% of time, but if you don't stop and think you will eventually miss a diagnosis - this will usually be in a patient that presents with signs/symptoms a little out of the ordinary
 - **Premature closure:** jumping to conclusions without considering other possibilities - this happens when not making a list of differential diagnoses
 - **Context errors:** when doctors are trying to make sense out of what's going on but some days we are just off and are in the wrong context - e.g. in a patient that is febrile and has muscle aches the provisional diagnosis would be a viral infection; however, if you are always in the context of "infections", you could miss other problems that can give you fever such as vasculitis

7. Are there any other biases found in medical legal claims?

- **Familiarity bias:** when having a longstanding relationship with patient or when going down a long diagnostic path (involving effort to get the patient back for investigations and discussions) - this causes a doctor to be invested in that diagnosis; taking a step back to re-evaluate if that diagnosis is correct can be difficult
- Follow-up is also very important as a large part of Avast claims relate to delayed diagnosis. This can involve:
 - A failure to initially discuss with a patient signs/symptoms to look out for if they're not improving
 - A problem with the follow-up system of a practice - e.g. a GP sends a patient for FOBT screening for colorectal carcinoma and the test result doesn't get seen by GP or the GP may see it and doesn't recall the patient

- **Cognitive errors:** the doctor may not have knowledge of the disease or have all the data; they may not be putting all the information together accurately
- **Affective biases:** our emotions and feelings can get in way of making a diagnosis - e.g. an alcoholic patient that over-utilises the Emergency Department for a variety of reasons and does not follow up with their GP as you always advise; this negative outlook on a patient can affect how carefully we assess them

Take home messages

- Ideally, there should be a course in medical school on all these cognitive biases
- Physicians should acknowledge that they are human and are prone to these biases
 - This would result in less diagnostic error as there are tricks you can use to avoid them
 - Premature closure: you may take a time-out to think about differential diagnoses
 - Affective bias: you may try to immunise yourself before seeing that particular patient and will ensure to rule out serious diagnoses first
- It is impossible to always prevent these mistakes, but even if you can't prevent them, you can recognise them - if you can recognise these biases, then you can intervene before there is harm

Reference

- Bordage, G. Why did I miss the diagnosis? Some cognitive explanations and educational implications. *Acad Med* 1999. (Available at: <https://www.ncbi.nlm.nih.gov/pubmed/10536619>)

Related Podcasts

- [Diagnostic Error \(Part 1\) - An overview](#)
- [Diagnostic Error \(Part 3\) - Preventing Diagnostic Error](#)
- [Diagnostic Error \(Part 4\) - Responding to Diagnostic Error](#)
- [Diagnostic Error \(Part 5\) - Learning and teaching about Diagnostic Error](#)

Tags: #Avant,#clinical reasoning,#cognitive bias,#diagnostic error,#medicolegal,#patient safety

A close-up photograph of a silver and black condenser microphone. In the background, a laptop keyboard is visible, and a person's hand is seen typing. The image is slightly blurred, focusing on the microphone.

If you enjoyed listening to this week's podcast feel free to let us know what you think by posting your comments or suggestions in the comments box below.

If you want to listen to this episode while not connected to WiFi or the internet, you can download it. To find out more go to Apple support (<https://support.apple.com/en-us/HT201859>)