INTRODUCTION

Uncertainty permeates generalist clinical method, yet as humans we seem hardwired to find uncertainty uncomfortable and so to seek certainty in our practice. We might anticipate that clinical uncertainty would have been alleviated by recent developments, such as evidence-based practice, precision medicine and artificial intelligence. However, the opposite appears to be true (1).

Uncertainty is more common in general practice due to the greater prevalence of presentations in the symptomatic, pre-diagnostic phase, delays in ordering and receiving test results and dealing with complex psychosocial and multi-morbidity issues.

Tolerating this uncertainty can be challenging, as it asks us to balance the need for rapid diagnosis and treatment with effective use of limited resources and resultant delays. A better understanding of uncertainty can therefore better equip us in dealing with these dilemmas and easing professional discomfort.

NEED TO KNOW

TYPES OF UNCERTAINTY

‘Diagnosing the type of uncertainty’(2) is important and there are several helpful models:

1) UNCERTAINTY ABOUT A TASK
Danczak and Lea (3) studied the uncertainty encountered by GP trainees and proposed that uncertainty could be mapped against 4 key areas of task required by junior doctors (see Fig 1).
Figure 1 - Mapping Uncertainty in Medicine from Danczak & Lea. ‘What do you do when you don’t know what to do? GP Associates in Training (AiT) and their experiences of uncertainty (3).

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<th>Doctor/patient dyad</th>
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1. **Analysing skills** to elucidate diagnosis. Can you collect the correct information and interpret it correctly? i.e. your clinical reasoning skills
2. **Networking skills** e.g. Do you know where or who to go to for advice on a particular issue? What are your local referral processes?
3. **Negotiating skills**: How well can you negotiate clinical management plans with your patients and their families? e.g. What if you want to admit a patient to hospital but they want to stay at home – how will you manage that?
4. **Team working**: Do you work as part of a functioning team that has trust between team members or do you worry that someone else may not execute their required part of the management plan? The ‘team’ may also be members of the patient’s family.

2) **SOURCE, ISSUE AND LOCUS OF UNCERTAINTY**

Another useful model is Han’s 3-dimensional model which classified uncertainty based on its source, the issue and the locus.

- **Source**: Han prompts us to consider if the reason for uncertainty is linked to:
  - *probability* e.g. we know there is only a 20% chance of particular treatment working
  - *ambiguity* e.g. experts may disagree on how best to manage a condition
  - *complexity* e.g. multimorbidity, the patient may have other medical issues which impact what drugs may be suitable to prescribe.
• **Issues** are classified as arising at 3 potential levels:
  o **Scientific issues** can relate to Diagnosis, Prognosis, Causal explanations and Treatment recommendations
  o **Practical (system-centred) issues** may relate to Structures or Processes of Care
  o **Personal (patient-centred) issues** can be psychosocial or existential.

The example used in Han et al’s paper illustrates how these different types of issues can all create uncertainty in cancer care and can be helpful in understanding how these manifest in clinical practice. It should also be remembered that there may be more than one source of uncertainty at any one time.

• **Locus** relates to where the uncertainty exists – is it in the mind of the doctor, the patient, both or perhaps neither? In the latter case, the concept of meta ignorance has been described – where individuals are unaware of the uncertainty which exists.

**THE IMPORTANCE OF UNCERTAINTY**

Uncertainty matters for both the welfare of patients and their doctors. Not surprisingly, diagnostic uncertainty is a leading cause of diagnostic error (4). For some doctors, diagnostic uncertainty can feel overwhelming and they may even feel they are failing their patients by being unable to come to a conclusive diagnosis (1). This can lead to increased referrals and investigations as doctors try to bring certainty to what they perceive as challenging situations (5).

A key tenet of patient-centred practice is the principle of shared decision making – where doctors and patient work together to agree a suitable management plan going forward. True shared decision making requires doctors to empower their patients to make informed decisions about their care and to do this, doctors must share the clinical, therapeutic and prognostic uncertainty with their patients. A key skill is sharing uncertainty while not increasing patient anxiety. To fully understand your patient, a biopsychosocial approach enables a richer understanding of the patient than a purely biomedical one. Furthermore, taking a more patient-centred approach has been shown to benefit doctors as well as patients as it can reduce stress in doctors (6).

From the doctor’s perspective, uncertainty has been recognized as a contributor to burnout and stress among the medical profession. While traditionally it was thought that tolerance of uncertainty was a relatively fixed trait, it is now thought that through better understanding of the sources of and responses to uncertainty, that individuals can increase their tolerance of uncertainty.
THE CONCEPT OF UNCERTAINTY TOLERANCE

Individuals vary in their response to uncertainty and it is important for doctors to develop an awareness of their own tolerance of uncertainty. For individual doctors, the sources of their uncertainty will vary: for some certain clinical areas provoke discomfort, while for others it may be particular types of patients or patient behaviours. To add complexity, patients also vary in their tolerance of uncertainty in a given situation.

STRATEGIES FOR MANAGING UNCERTAINTY

A range of effective strategies have been described to help students and doctors to identify and manage uncertainty in their practice.

The first key step is to understand your gut reaction to uncertainty. This reaction may have been shaped by previous experiences, the culture in which you work/study, societal pressures or by nuances of the clinical situation. Gheihman et al prompt readers to reflect on a time where they felt uncertain (2) asking:

- How did that make you feel?
- What emotions arose?
- What thoughts came to mind?

For those that find questionnaires measuring attributes a useful tool to prompt reflection, the Intolerance of Uncertainty Scale can be a useful exercise (http://www.midss.org/content/intolerance-uncertainty-scale-short-form-ius-12). This shorter 12 item version may be a useful exercise to conduct with peers to prompt discussion. There's not a right or wrong score, it is merely a prompt to reflect on how tolerant of uncertainty you might be in comparison to others.

Starting to understand your cognitive, emotional and behavioural reactions to uncertainty can be useful. Hillen’s integrative model of Uncertainty Tolerance classifies reactions as positive and negative (7) (see Figure 2 below).

On a cognitive level, some may see uncertainty as a threat while others embrace this as an opportunity to learn and develop. PUNs and DENs are useful tools in this respect. In this model, doctors record where their lack of knowledge led to a patient’s unmet need (PUN) or they identified a learning need of their own which may not have hindered their immediate management of the patient (Doctors Educational Need - DEN).

What is your emotional reaction to uncertainty? Worry, fear and aversion are all negative emotional responses, while curiosity, courage and hope are positive. The final aspect to consider is your behavioural response to uncertainty. This can range from being paralysed by inaction and avoidance to taking action to find more information and making decision (try taking the questionnaire highlighted earlier to see where you are on this spectrum).
Our desire for certainty in medicine can leave us open to cognitive biases. Many medical school exams require recognition of patterns of symptoms and presentations and this pattern recognition is an important part of developing clinical knowledge. However, there is a risk that sole reliance on these methods can lead doctors to jump to incorrect diagnoses and it is thought that ‘premature closure’ (where doctors decide the diagnosis too early in a consultation) is the leading cause of misdiagnosis (8). This is seen commonly in clinical exams where students fail to collect adequate information to exclude other possible diagnoses or ignore important emerging information which doesn’t fit with their assumed diagnosis. Danczuk and Lea encourage learners to practice ‘holding uncertainty’ to allow more possibilities to remain ‘in play’ and increasingly students are being taught clinical reasoning models to provide structure to this process.
To counterbalance this tendency towards premature closure, safety-netting and a clear management plan should be a key part of every consultation (9). When done well, the safety net should be attempting to address the uncertainty that exists (e.g. if your rash spreads, then you should... or if the hoarseness hasn’t gone away in another 2 weeks, then you should come back and see me again).

**ACTIVE LEARNING**

✔ On placement, you will hopefully have the opportunity to follow the course of patients’ care, learning more about the natural history of disease and the potential benefit of time as a diagnostic tool in uncertain clinical presentations.

✔ Sharing your uncertainty with colleagues can be helpful in a number of ways. Different colleagues may have different knowledge and expertise that can be beneficial. Or perhaps presenting a case, analysing and articulating where the uncertainty lies can be helpful. Most importantly, the recognition that others may be equally perplexed by a complex case can be reassuring and your colleagues may be able to support you in identifying the best way forward.

✔ Talk with your GP tutor about the following:
  - During a surgery, focus on the safety netting undertaken by the GP. How specific were they? Was it clear to the patient?
  - Identify cases from a day in practice where understanding a patient from a biopsychosocial perspective (rather than purely a biomedical one) aided diagnosis.
  - Ask your GP tutor about how they manage uncertainty? What do they find challenging and how do they try and manage this?
  - Identify cases when a GP managed uncertainty without making the patient feel anxious or in doubt of their doctor’s abilities. Also think about situations that may affect clinical decision making (language barriers, Out of Hours work, co-morbidities in the patient). How may this affect clinical decisions?

**FURTHER LEARNING**

**RESOURCES**

REFERENCES


The following resources have been developed in conjunction with SAPC Heads of GP Teaching. If you have any queries or questions regarding the resources on offer, please contact Prof. Joe Rosenthal or Prof. Alex Harding, Co-Chairs of SAPC’s Heads of GP Teaching Group.