THRIVE in Uncertainty

A Guide for Resident Doctors, Supervisors and NHS Trusts

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About this guide:

“Medicine is a science of uncertainty and an art of probability” William Osler

What is this document?

Uncertainty is inherent within the practice of medicine and being able to manage clinical scenarios where there is uncertainty is an important part of a doctor’s role. How a doctor responds to uncertainty will impact how they think, feel and behave. Doctors who respond less positively to uncertainty, sometimes referred to as having lower Uncertainty Tolerance, are more likely to develop stress and anxiety (Hancock & Mattick, 2020) and make clinical decisions that are less positive for patients. This includes being more likely to order excessive investigations or admit patients to hospital (Strout et al, 2018).

Who is it for?

This document has been developed to provide guidance for Resident Doctors, their supervisors and their NHS Trusts on how to support Resident Doctors develop improved responses to uncertainty, sometimes referred to as Uncertainty Tolerance, in the clinical workplace.

It is has been designed with newly qualified doctors in mind. This is because we know that during periods of transition, particularly as medical students move into foundation roles, levels of Uncertainty Tolerance can reduce and doctors may be more likely to experience negative consequences when encountering clinical uncertainty (Brennan et al 2010, Dineen et al 2025, Hancock et al 2015).

How did we develop it?

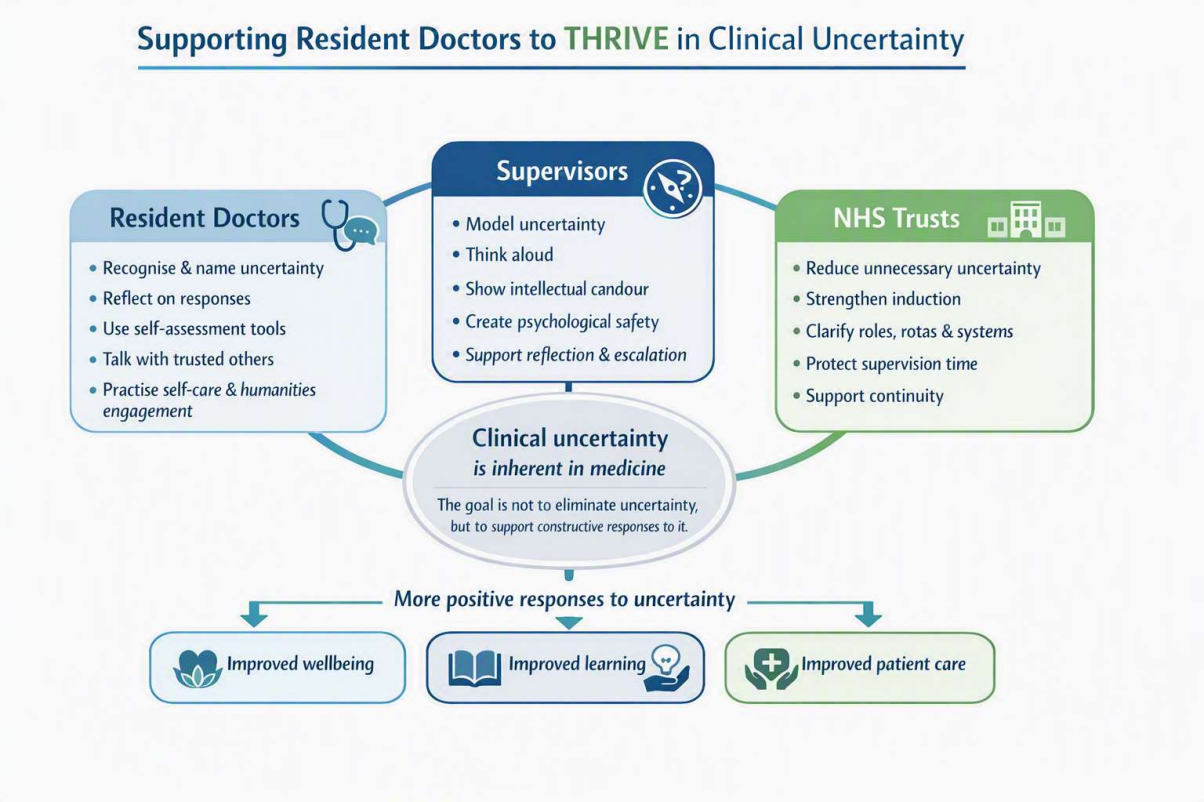
This guide builds on the experience of clinicians and educators and is informed by over 15 years of empirical research.

Terminology

Uncertainty is the subjective, conscious awareness of ignorance or a lack of understanding regarding specific aspects of the world. Differences in how individuals perceive and respond to uncertainty is termed their Uncertainty Tolerance (Hillen et al. 2017).

While low Uncertainty Tolerance can have negative consequences for doctors and their patients in some scenarios it can be beneficial for Resident Doctors to experience emotional discomfort when encountering clinical uncertainty. For example, this might temporarily increase a RD’s awareness of a clinical problem, stimulate the RD to pay increased attention to a clinical scenario or activate them to seek additional clinical support or expertise (Ilgen et al, 2020).

We are not proposing that doctors should never experience a negative emotional response to uncertainty, but we seek to support RDs to more positively respond to uncertainty when they encounter it. That is to recognise it, name it, sit with it (when appropriate), and openly discuss with their peers and patients all with the aim of improving wellbeing of doctors and the quality of care they provide. We hope that this guide will help Resident Doctors to THRIVE when experiencing uncertainty (*T — Tolerate uncertainty, H — Hold uncertainty openly, R — Reflect on responses, I — Identify support and escalation, V — Voice uncertainty with others, E — Enable learning, wellbeing and patient care*).



What these guidelines are not

While this guide is aimed at Resident Doctors, their supervisors and NHS Trusts, much of this work begins at medical school (Patel et al, 2022). There is much that can be done to modify teaching resources, assessment methods and curricula both at an undergraduate and postgraduate level, to support learners develop more positive responses to uncertainty. However this is not the focus of this guide. If you would like a further conversation about these aspects please do get in touch (Jason.hancock@nhs.net j.hancock2@exeter.ac.uk).

Guidance for Resident Doctors

Be aware that lower having a lower UT can increase your risk of emotional distress and burnout. It can also result in negative patient outcomes. Suggestions to improve your tolerance to uncertainty include:

- Take time to understand that the practice of medicine involves inherent uncertainty. Try to identify this, name it, and engage with it when you encounter it within your clinical practice. Consider engaging with journal clubs and other opportunities to question medical "truths" and to explore the certainty behind treatment guidelines at the level of the individual (Stephens & Lazarus, 2024).
- Use self-assessment tools to help you understand your own beliefs about the role of uncertainty within medicine, your preferences related to uncertainty and your own responses to clinical ambiguity or uncertainty (Box 1).
- Prioritise personal reflection when encountering clinically uncertainty scenarios (Box 2).
- Seek out conversations with trusted others related to uncertainty. This may be supervisors or peers. This is with the purpose of better understanding how others make sense of uncertainty, what strategies they have developed for identifying and responding to uncertainty and what you can learn from them.
- Have an awareness of periods where your own tolerance of uncertainty may be lower than usual and may be more likely to result in stress or anxiety. This includes periods of transition into new environments and periods of stepping up into a more senior clinical role (such as a new foundation doctor, or new consultant) (Brennan et al 2010, Collini et al 2023, Dineen et al 2025, Hancock et al 2015).
- Make time for self-care and consider prioritising engagement and reflection on medical humanities (Box 3).

Box 1: Self-assessment tools
The Tolerance of Ambiguity of Medical Students and Doctors scale (TAMSAD) has been developed to evaluate a doctor's tolerance of ambiguity and uncertainty.
The 29 item version of the scale can be completed in 3 minutes and supports a doctor to better understand their own responses to ambiguity and uncertainty (Hancock et al 2015).
Shorter versions of the scale are available which explore different aspects of a doctor's beliefs about the role of uncertainty within medicine, their preferences for uncertainty within medicine and their responses to uncertainty and complexity in the clinical environment (The mystery of medicine, Medicine is clear, Discomfort from Uncertainty, Affinity for complexity, Desire for definitive working environments) (Hancock et al 2024).

Box 2: reflection – "what, so what, now what"
Engaging in critical reflection (Dineen et al 2025) either alone or in discussions with supervisors or colleagues can support development of more positive responses to uncertainty. The purpose of reflection is for a doctor to better understand their own responses to uncertainty, consider what influenced these responses, consider how they have responded previously and what worked or didn't work, in order to consider what might be done differently the next time the doctor encounters a similar scenario.

This could include making use of reflective tools such as "What? So what? Now what?" to help structure the process (GMC 2020) or engaging in reflective writing either to be included within a doctors learning portfolio or for their own private notes (Nevalainen et al., 2010).

Box 3: Humanities engagement
Engagement with art using visual thinking strategies (Bentwich & Gilbey, 2017), museum art and critical engagement and reflection on its various meanings (Gowda et al., 2018, He et al., 2019) and with literature (McCartan-Welch, 1997) have all been shown to support learners develop more positive responses to ambiguity and uncertainty.

Guidance for supervisors

- Begin by reflecting on your own responses to uncertainty including what you believe to be true about medicine, the role of doctors and the role of uncertainty in medicine. Self-reflection tools can support this process (Box 1).
- Have an awareness that early career doctors will have different responses to uncertainty which will be influenced by many factors. This includes transition periods such as the first weeks of a new placement or following a change in level of seniority being 'higher risk' for reduced tolerance of uncertainty (Brennan et al 2010, Collini et al 2023, Dineen et al 2025, Hancock et al 2015).
- Aim to reduce role ambiguity wherever possible setting clear expectations and facilitating regular feedback for Resident Doctors. Be clear on escalation pathways particularly at the start of new placements (Dineen et al 2025).
- The following educational strategies can be used to support Resident Doctors develop improved tolerance of uncertainty in the clinical environment. The use of these strategies will need to be continually revisited and the quantity of uncertainty that a Resident Doctor can engage with may need to be gradually increased based on their experience and other factors (Stephens & Lazarus, 2024):
    - Talk aloud about dilemmas in clinical care during ward rounds, clinics and MDTs. Consider making explicit: what's known, unknown, plausible worst/best case scenarios and the key next data needed to reduce uncertainty. This role modelling can normalise the discomfort Resident Doctors feel in similar scenarios (Lazarus et al 2022). It is also an opportunity to demonstrate "Intellectual candour" (Box 4) which can support early career doctors to better understand how uncertainty can be approached.
    - Work to create a psychologically safe environment within supervision (Box 5).
    - Support and encourage Resident Doctors to engage in short reflective exercises after difficult cases involving uncertainty (Box 2).
    - Sign post to uncertainty within relevant training curriculum (linked to portfolio, postgraduate curriculum or GMC GMP standards). This will help Resident Doctors understand what it is that they do not know as individuals (i.e. known unknowns) and what is not yet known across the body of medicine (i.e. unknown unknowns) (Stephens et al 2022).

Box 4 – strategies for demonstrating intellectual candour
Intellectual candour is the sharing of personal experiences. In this case to demonstrate to Resident Doctors that the supervisor is also uncertain (sharing their own vulnerability), but providing them with examples of how the supervisor intends to work through the clinical uncertainty (maintaining their credibility) (Molloy & Bearman, 2019).
One strategy would be to explicitly acknowledge uncertainty when it is present in clinical scenarios and then think aloud about the approaches that the supervisor intends to use next. Phrases that might be helpful to do this include: 'I'm not sure what the diagnosis is, but this is what I'm thinking…', or 'What I'm struggling with here is…, and this is what I am going to do next to address this is…' (Stephens & Lazarus, 2024).

Box 5 – strategies for developing psychological safety in supervision

- *Provide clarity around your role, expectations of student role (Hardie et al, 2022)*
- *Ensure that supervision takes place at a consistent time/ place where possible and is not interrupted by clinical pressures.*
- *Allow enough time for supervision, take time to understand your trainee, their current learning needs and priorities.*
- *Consider the need for additional ad hoc/ as needed supervision as other issues and challenges arise during the placement.*

Guidance for NHS trusts

Before a placement

- Reduce unnecessary uncertainty so that a Resident Doctor can focus on engaging with clinical uncertainty when the placement begins:
    - Consider developing enhanced interim placements to prepare Resident Doctors for practice, particularly those who are about to begin Foundation training (Burford et al 2023, Dinnen et al 2025).
    - Ensure that inductions appropriately familiarise Resident Doctors with working environments, IT systems, and sources of support.
    - Provide Resident Doctors with on call rotas and work schedules in an appropriate time frame prior to the placement beginning.
    - Provide clarity on administrative issues related to the placement including car parking and how to take annual leave prior to the placement beginning.

During a placement

- Ensure that Resident Doctors are clear on their roles and responsibilities.
- Have an awareness that transitions into new placements are high risk periods for Resident Doctors having a lower tolerance of uncertainty (Brennan et al 2010, Collini et al 2023, Dineen et al 2025, Hancock et al 2015). Consider offering enhanced senior support during these periods and be clear on escalation pathway for clinical support (Dinnen et al 2025).
- Do not assume that those Resident Doctors who have not recently moved to a new trust or location will manage the transition better (Hancock et al 2025).
- Support supervisors and Resident Doctors with the resources and time required to deliver supervision in a way that promotes psychological safety (Box 5). This includes ensuring there is space available and that supervision is explicitly included within a supervisors job plan.
- Attempt to design rotas and training placements in a way that supports continuity of care and familiarity with individual patients. This supports Resident Doctors to engage more positively with clinical uncertainty (Dineen et al 2025).

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