2024, Volume 57, Issue 2, 144-145, e-ISSN 1938-3800

Family Medicine

LETTER TO THE EDITOR

Anticipating Uncertainty: A New Frontier in Family Medicine Training

Waseem Jerjes [a,b]

AUTHOR AFFILIATIONS:

[a] Research and Development Unit, Hammersmith and Fulham Primary Care Network, London, UK

[b] Department of Primary Care and Public Health, Faculty of Medicine, Imperial College London, London, UK

CORRESPONDING AUTHOR:

Waseem Jerjes, Research and Development Unit, Hammersmith and Fulham Primary Care Network, London, UK,
waseem.jerjes@nhs.net

HOW TO CITE: Jerjes W. Anticipating Uncertainty: A New Frontier in Family Medicine Training. *Fam Med.* 2024;57(2):144-145.
doi: 10.22454/FamMed.2024.992217

PUBLISHED: 13 December 2024

TO THE EDITOR:

Identifying biomedical, interpersonal, and psychosocial uncertainties in their study of family medicine residents, Purkl et al [1] give much-needed depth to valuable insights. However, while this study explores how the residents respond to uncertainty in a rather thorough way, a critical question goes unasked: Can uncertainty itself be anticipated? This is the concept of preemptive uncertainty, [2] which presents a groundbreaking opportunity to transform the way we prepare future family physicians, shifting from a reactive approach to an approach that may anticipate and preemptively manage uncertainty.

Conventionally, uncertainty has been regarded as an inevitable consequence of medical practice, an obstacle to be managed when it arises. [3] But what if we could train residents to predict the development of uncertainty before it is fully manifest? In today's complex health care environment, this shift from reactive to proactive uncertainty management could represent the next evolution in family medicine education.

In the end, medicine is an information-heavy field; [4] as with any system, over time, patterns come to light that are not only biological and psychosocial but also influenced by patient histories and societal contexts—even subtle clinical cues. With concepts borrowed from the field of behavioral economics, in which prediction of risk and decision-making under uncertainty are paramount, [5] we can train our residents to recognize an early indication of uncertainty—whether a subtle clinical sign, complex patient narratives, or emerging trends of diagnostic ambiguity.

For example, one could refer to the concept of diagnostic anticipation. [2,6] This deals with teaching residents to anticipate when biomedical uncertainty is likely to arise, not only from the presentation of the patient but also from more subtle elements such as incomplete histories, ambiguous lab results, or even institutional patterns of error. Such training would involve pattern recognition skills—hitherto the domain of experienced practitioners—being taught in simulation-based environments or through new AI-driven diagnostic tools that can predict diagnostic ambiguity well before it would be apparent to the naked human eye.

On the psychosocial level, however, the challenge becomes even more interesting. Family medicine is one of the few disciplines that enjoys long-term relationships with its patients, where either interpersonal dynamics or psychosocial contexts make decisions hard to make. The deeper integration of social science into medical training could teach residents to map psychosocial risk factors leading to uncertainty. [7] Now imagine teaching family medicine residents not only how to respond to psychosocial uncertainty but also how to anticipate it. Consider being able to predict when a patient's employment situation or family stress is likely to interfere with treatment adherence or decision-making.

The complementary step would be incorporating anticipatory uncertainty training into decision-making algorithms or clinical pathways. Family medicine already embraces complexity, and building "uncertainty triggers" into standard clinical workflows could help both residents and practitioners recognize when a case is likely to veer from the expected

course. For example, algorithms concurrently working during patient consultations may flag specific constellations of symptoms, social factors, or vague diagnostics that signal the doctor to prepare for a course of action that is more detailed and uncertain. This approach could be particularly helpful in chronic disease management, where uncertainty, brought about by issues of patient adherence, psychosocial factors, or comorbidities, often has to be negotiated by the clinician.

Another interesting dimension to explore is the emotional preparation for uncertainty. While the residents are usually trained in clinical skills, little emphasis has been placed on one's psychological preparedness to tackle repeated ambiguity and complexity. Thus, a structured program of building emotional resilience and cognitive flexibility, with a particular aim toward handling uncertainty, can be integrated into medical training. The program could include mindfulness-based stress reduction techniques, cognitive-behavioral approaches for reframing uncertainty, and group-based reflective practices such as Balint groups focused explicitly on uncertainty. This program not only would build the resident's confidence in managing unpredictable scenarios but also help in reducing anxiety and preventing burnout, both of which are prevalent among physicians working in high-uncertainty environments like family medicine.

REFERENCES

1. Purkl L, Hierasimowicz K, Donner-Banzhoff N. Three types of uncertainty: a qualitative study of family medicine residents. *Fam Med.* 2024;57(1).
2. Strada A, Bolognesi N, Manzoli L. Diagnostic anticipation to reduce emergency department length of stay: a retrospective cohort study in Ferrara University Hospital. *Italy. BMC Health Serv Res.* 2020;20(1):624.
3. Bhise V, Rajan SS, Sittig DF, Morgan RO, Chaudhary P, Singh H. Defining and measuring diagnostic uncertainty in medicine: a systematic review. *J Gen Intern Med.* 2018;33(1):103-115.
4. Russell J, Boswell L, Ip A. How is diagnostic uncertainty communicated and managed in real world primary care settings? . *BMC Prim Care.* 2024;25:296.
5. Blumenthal-Barby JS, Krieger H. Cognitive biases and heuristics in medical decision making: a critical review using a systematic search strategy. *Med Decis Making.* 2015;35(4):539-557.
6. Dahm MR, Crock C. Understanding and communicating uncertainty in achieving diagnostic excellence. *JAMA.* 2022;327(12):127-128.
7. Cox CL, Miller BM, Kuhn I, Fritz Z. Diagnostic uncertainty in primary care: what is known about its communication, and what are the associated ethical issues?. *Fam Pract.* 2021;38(5):654-668.