



Value and limits of experience

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Dear Colleagues,

Although we know intuitively that experience matters, in what way does it contribute to supporting high-quality practice? Is it a question of volume? Of age (the more seasoned the better)? Of our approach to working through a clinical presentation? What are potential pitfalls associated with experience?

The literature on procedural skills (eg, difficult intubation, laparoscopic surgery) provides several examples of the importance of experience (adequate exposure and autonomy) in influencing performance.^{1,2} In a review of all hospital-based deliveries in New York and Florida from 1992 to 2010, Asch et al found that experience matters, as reflected in a decrease in the rate of maternal complications observed following obstetricians' practices over a long period.³ Establishing a clinical diagnosis and initiating and monitoring treatment are important in family practice, as in all clinical disciplines. Particularly in family medicine, we need to determine when a watchful approach is appropriate. Evidence regarding the role of experience in clinical reasoning and expertise is particularly relevant. Traditionally, the analytical model has been described in problem solving as being most robust (hypothesis generation or differential diagnosis; process of elimination, to a most likely diagnosis). By contrast, the tacit or intuitive model of thinking is "a holistic perspective that takes into account all types of information that often cannot be easily articulated explicitly. Intuition as a holistic process integrates all information without the potentially biasing influence of prior expectations."⁴ The limitation of tacit reasoning is that it is more prone to error. In medicine, this is often manifested by premature closure of the diagnostic thinking process. Attribution, anchoring, and affective errors are examples of premature closure.⁵

It is thought that experience leads to the development of "illness scripts," which inform rapid and intuitive clinical reasoning processes. Experience affects the organization of knowledge. Expert knowledge is organized according to highly sophisticated schemas, whereas novices lack this deep structure. Others have referred to this as *categorization of scripts*.^{6,7} Such organization allows experts to analyze and interpret information and be able to problem solve rapidly. In *How Doctors Think*, Groopman describes his experience as an intern when he witnessed (but did not recognize) the rupture of an aortic valve in a patient he was interviewing; a cardiologist, visiting friends, made the diagnosis quickly, purely

on clinical grounds.⁵ This exemplifies tacit reasoning by an expert who had a large number of illness scripts appropriately categorized or calibrated in his brain.

How can we then maximize the value of experience to best serve our patients and communities? Some evidence suggests that an expert performance approach, through deliberate practice, is part of the answer. There are numerous examples of this in music, sports, and games such as chess. *Deliberate practice* is defined as "the individualized training activities specially designed by a coach or teacher to improve specific aspects of an individual's performance through repetition and successive refinement."^{8,9} Simulation has offered opportunities to better understand deliberate practice. Three factors that are essential to effective, transferable learning from experience in simulation also correspond to the elements of deliberate practice: having explicit performance goals; receiving immediate, accurate feedback; and repeatedly performing the assigned, relevant task.⁸

Some argue that aiming to expose learners early and regularly to clinical scenarios to build illness scripts might be necessary but insufficient—that we need to strive for *adaptive expertise* as an approach to practice, as an "ongoing process of continual reinvestment of cognitive resources in an effort to transform practice and extend the boundaries of knowledge."¹⁰

Clearly, there is more to learn here. We need to adapt the concept of deliberate practice for family medicine, as well as better understand and stimulate the development of adaptive expertise, particularly given the importance of context in family practice. 🌿

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