

Clinical Excellence: Make It a Habit

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If we want trainees and clinicians to excel and reach their maximal potential, we must turn to the science of expert performance to develop road maps for specific skills. But we must do more than endorse hard work, deliberate practice, or 10,000 hours of practice in general terms. Reading about these concepts leaves trainees and teachers motivated but uncertain about how to begin the journey toward expert performance in a skill. Training programs must provide specific answers to these questions: What does the hard work look like for a given skill? How should the 10,000 hours (or far less that we have with trainees) be spent wisely? And what can institutions do to support the quest for excellence?

Clinical reasoning, an exalted but also exasperating topic in medical education, exemplifies a domain for which these questions can be answered. Decades of research have established the methods of expert problem solvers across many professions. Simply put, these individuals are successful because they commit to becoming expert lifelong learners. They pursue specific high-effort, high-return learning methods which rigorously and continuously challenge their mental models and problem-solving skills. The mystery is not how to optimize reasoning. The mystery is why we have not adopted these approaches in our current educational system.

Four literature-derived learning methods of professionals with outstanding reasoning and judgment can be readily adapted to medicine. Integrating these approaches into practice-based learning requires a commitment to excellence and hard work on the part of the individual

trainee, and should be facilitated and fostered by the institution.

Progressive problem solving.

Outstanding problem solvers continue to learn *even when they do not have to* in order to prepare their mind for more challenging encounters in the future (e.g., treating a straightforward case of cellulitis but then deliberately taking a moment to recall three mimics of skin infection).¹ Today our best teachers make every case a “learning case,” but institutions need to help all their teachers understand how to reformulate common problems at a slightly higher level when learners approach competency. Regular exposure to this instructional approach will inculcate trainees to adopt this growth mindset and habitually create “micro-challenges” for themselves in the course of practice.

Feedback. Professionals with documented expert judgment (e.g., meteorologists) receive copious feedback,² while physicians learn the outcomes (e.g., final diagnosis) for a minority of their judgments. To maximize learning, minimize overconfidence (a consequence of “no news is good news”), and improve judgment, clinicians need a steady stream of patient outcome feedback. Institutions should develop electronic medical record systems that automate this process (e.g., “please send secure email when Mr. Smith’s serology results return in four weeks”).

Simulation. The more times the brain tackles a problem, the better it gets at solving that problem. This is why pilots sit in flight simulators, musicians rehearse, and chess masters study published matches. Medical education has embraced simulation for psychomotor skills, but needs to do the same for cognitive challenges. Simulation opportunities exist in published cases and with virtual (computer-based) patients, which institutions can make available. The key to optimizing reasoning is analyzing the cases step-by-step, focusing on the same iterative struggles that faced the treating clinicians, and integrating feedback in real time. Cook and Triola

affirm that the greatest strength of virtual patient experiences is the enhancement of clinical reasoning.³

Deliberate practice. This model of expertise development focuses effort and feedback on one area until the gap between current and desired performance is closed. Deliberate practice requires coaching for guidance, but it also requires time for solitary self-study (e.g., online modules to improve dermatologic diagnosis). Institutions should provide both and ensure that trainees regularly pick one skill at a time and are deliberate about improving it.

To allow individuals to achieve their maximal potential in any skill or competency, we must apply the literature-derived, high-yield lifelong learning approaches of other successful professionals. Teachers and trainees need road maps that offer adaptations of these methods to medicine and establish early goals. This sets the stage for individuals and institutions to consider how to allocate their time and energy to make the goals achievable and pragmatic. Specific road maps should be derived—and critically evaluated—for each of the core skills of the modern physician.

Excellence is a mindset, not an end point. It cannot be short-tracked, but it can be fostered by programs and institutions that encourage its underlying fundamentals to become lifelong habits. The science of excellence and expertise can be translated into action steps—it is up to medicine to take it or leave it.

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