A new era of medical education

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When a colleague asked me at morning handover the ominous question, “Do you remember that patient you sent home yesterday with gastritis?” my heart immediately began to race. As it turned out the “gastritis” patient I had discharged (with a stern warning to cut back on his drinking) had returned to the emergency department later the same day with worsening chest and epigastric pain from an extensive type A aortic dissection requiring immediate surgery. Fortunately, the patient survived this clear diagnostic error and ultimately did well but I was left shaken and filled with questions. As I reviewed the case in fine detail through many sleepless nights, I could immediately recognise several instances where my diagnostic thinking had gone awry. The patient had been handed over to me as a case of gastritis in a well-known binge-drinker and I had never actually questioned the accuracy of that diagnosis. His pain had come on very suddenly, which is unusual for gastritis, but that fact didn’t figure prominently enough in my reasoning. He had required morphine for pain but how often is gastritis that painful? Even though it gradually became clear where I had made errors in reasoning, I was left with the even larger question of how my thinking had gone so wrong? I considered myself a good doctor but wondered now if “good doctors” could really make such mistakes? Was I, in fact, a “bad” doctor?

Thus began a personal journey to turn what had been a horrible mistake into a learning experience that would not only help my own healing but would hopefully help future patients by improving my diagnostic accuracy. Thus began hours of thinking, reading, and learning about the cognitive processes that underlie the complex activity of diagnosis. Thus began my travels to Australia and the United States (US) to talk with and learn from experts in clinical reasoning. Thus began my travels, along with those of my friend, colleague, and techno-geek Dr Nic Szecket, to teach clinical reasoning to students and colleagues. Thus began the podcast iReasoning, whose tagline is, “Conversations to inspire critical thinking”.

When we began the iReasoning podcast some five years and 62 episodes ago, Nic and I wanted to address what seemed to be a gap in many medical school curricula and post-graduate training programmes. Many educational efforts, despite significant improvements over the years, seem to still be focused on the transmission and retention of factual information rather than the development of frameworks and strategies to guide the reasoning process. We saw an opportunity to address that gap in medical education through a creative, non-threatening, self-paced, and increasingly popular format: the podcast. As we set about purchasing some basic equipment and (mostly Nic) learning about the technical stuff like “stingers” (little musical clips often employed in podcasting), sound engineering, recording, and editing, we had very few expectations. We thought we might have a dozen or so listeners (mostly our mothers, spouses, and kids who would be forced to listen out of familial obligation) but never imagined we would reach a point of 13,000 downloads a month from all over the world (mostly from Australia, New Zealand, the US, and the United Kingdom, but also from as far away as Iceland). Clearly, we had tapped into something, the desire for which we had vastly underestimated.

There is no doubt that factual, disease-based knowledge is important in transitioning from a good medical student to a good doctor. However, the possession of such knowledge alone is not sufficient. Patients do not generally present themselves to us with diseases; rather they come with stories of how this feels, and for how long. They present with weakness and dizziness that they struggle to describe. Becoming an experienced clinician involves taking the mental index cards we filed away in drawers called “What I Know About Congestive Heart Failure” or “Everything I Remember About Pulmonary Embolism” for example and placing them in a new drawer labelled “Shortness of Breath”. We can then compare and contrast the data we glean from the patient, the physical examination, and ancillary testing with the index cards or “illness scripts” in the shortness of breath drawer to find the best match. But often the process of re-categorising the disease-based anatomy and pathophysiology we learned in medical school into an accessible compendium of symptom-based frameworks is left to us to figure out, or worse yet, to chance.

In the journey from student to expert clinician, there is no substitute for seeing patients. Lots of them. But quantity alone is not sufficient. Becoming an expert requires deliberate and painstaking practice. Through iReasoning, we have attempted to break down the complex process of diagnosis into recognisable chunks that learners can deliberately practice to improve. We have attempted, for example, to emphasise and articulate the frameworks we use for various common disease presentations. We have attempted to take from student to expert clinician. Whether via Facebook Live events, Twitter groups, or online courses, medical students today have a dizzying menu of educational options that extend well beyond the traditional medical school curriculum. Even the most traditional medical journals have begun to expand their offerings to include video tutorials and interactive simulations, all in an attempt to provide wider opportunities for self-directed learning and deliberate practice.

These are exciting times in medical education. It has never been easier to fill in gaps in our knowledge base, flesh out the illness scripts
and frameworks we have developed for various diseases and presentations, and to engage with realistic patient simulations. Gone are the days when a medical student would have to go physically to the medical library and search through printed sources that might or might not hold the answer to a pressing question. Not all sources of online information and education are of equal quality, of course, but with a bit of diligence, curiosity, and healthy skepticism it should be possible to find sources that one can trust and use to catalyse the alchemy that turns experience into expertise. We are proud that IMreasoning has contributed, even to a small degree, to this amazing educational revolution.

References
1. Nahill A, Szecket N. IMreasoning: Conversations to inspire critical thinking in clinical medicine and education [Internet]. Available from: https://imreasoning.com/

About the author
Dr Art Nahill, MD, FRACP, is an American-trained physician and clinical educator with over 20 years of experience. He is also the co-host of the popular IMreasoning podcast which explores the process of clinical reasoning, diagnostic accuracy, and cognitive bias.

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