Finding the edge of the seat

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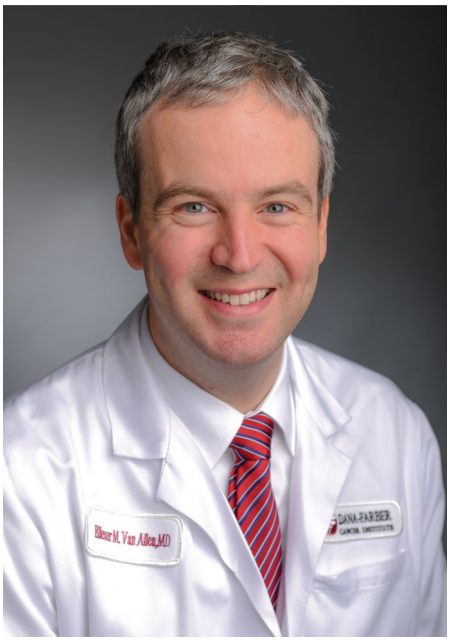
In 2006, as I began my fourth year of medical school, I was in an all-consuming professional crisis. I had just completed a challenging year of clinical rotations, after enduring over 100 hours of preclinical lectures in the two preceding years. Not only did I lack an idea what kind of doctor I wanted to become, I was increasingly consumed with self-doubt about whether I even wanted to be a doctor at all. The patient care experiences were inspiring, but I struggled with the constant shifting of clinical rotations and expectations while bouncing between prospective medical specialties every few weeks. Even worse, when I tried recalling any moment of intellectual excitement from the first two years of medical school, I could only recall tediously memorizing random factoids in a stuffy lecture hall, as far from the edge of the seat as the seat would allow. Simply put, I was lost.

This feeling of intellectual burnout was in stark contrast to the way I had felt as an undergraduate. My academic undergraduate experience had been defined by interdisciplinary quantitative work at the intersection of computer science, linguistics and philosophy, and I loved the coding and puzzles inherent in these pursuits. This quantitative, analytic way of thinking did not harmonize with the endless memorization that I encountered in medical school. By my fourth year, I feared that this was going to be a career defining feature of being a doctor, and that perhaps medicine was not for me.

Weighed down by this deflated mindset, I entered a fourth-year elective rotation with an oncology consult team. Working with families coping with cancer at a nonprofit called Camp Kesem during my early college years had been one of the driving motivations behind my pursuing a career in medicine, and I hoped that working with oncology patients would reinspire me. It was with considerable dismay, therefore, that I found myself



Credit: Dana-Farber Cancer Institute

pulled from the clinic one day to attend a required research lecture series at the outset of this rotation. I sat down in the seat and leaned back, blankly staring at yet another projection of yet another slide deck. Then, the first presenter walked up to the podium and began speaking. He described plans to generate massive data sets representing entire cancer genomes, stressing the need to turn these raw data into sequences that pinpoint the lesions that caused the cancers to arise. The next speaker described plans to generate transcriptional profiles of cancer cell lines treated with different drugs, and then said, "We're going to Google these data—you know, develop new algorithms to computationally dissect these data to discover which drugs killed which cells." It was a lightbulb moment for me.

One after another, the speakers described how expansive data sets derived directly from patients could reveal new biology and perhaps change clinical practice. For the first time in a long time, I found myself at the edge of my seat in a lecture room, listening closely and taking notes. The quantitative part of my brain was suddenly firing, and I could imagine the challenges and promise of leveraging these new genome-sequencing technologies for biological discovery that could also change the way cancer patients were treated. I also imagined the role I could have in this process, and a vision of myself as a physician–scientist working at the intersection of medical oncology and computational genomics began to emerge.

At the end of the session, I launched from that lecture hall seat and felt the self-doubt that came with my professional uncertainty begin to wash away. Over the intervening decade, I have worked to build and define this newfound vision. I began with self-directed readings in genetics during a hectic but galvanizing medicine residency, pursued medical oncology fellowship with postdoctoral work in computational oncology, and surrounded myself with like-minded interdisciplinary thinkers spanning oncology, computer science and biology. Now leading an interdisciplinary scientific group in a growing field I call clinical computational oncology, I regularly remind my lab members to reach for those moments in medicine and science that bring you to the edge of your seat. ❐

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