

Five Lessons of Resilience in Science

Kizzmekia S. Corbett-Helaire^{1,2}

¹Department of Immunology and Infectious Diseases, Harvard T. H. Chan School of Public Health, Boston, Massachusetts; and ²Howard Hughes Medical Institute, Chevy Chase, Maryland

Science is hard, and discovery can be daunting.

There ... I said *it*. Not only are we grappling with the complexities of research itself, but we are also navigating a uniquely competitive and demanding work environment. There is constant call to be innovative in our approaches, find the field-transforming result first, and push the boundaries of technology. For many, including myself, the highlight reels of our careers are publicly visible, creating the illusion of perfect paths through the academic pipeline. But, in fact, our success stories are often marked by the challenges we've overcome and the glass ceilings we've broken, symbolizing triumph over adversity. Following the pandemic whirlwind, a career shift from government to academia, and many personal life changes, I have pivoted my way through the struggle to realize some success.

I now have a growing laboratory of my own; thereby, being a mentor to my trainees is now perhaps my most important role. In times when the truths of science are sometimes denied, work-life balance is deemed frivolous, and, frankly, climbing the academic career ladder has become increasingly difficult, I find myself mentoring in a way that highlights the following lessons in resilience that I've learned along my career journey.

1. **Own your dreams.** I began my career at the University of Maryland, Baltimore County on the pre-med track, only to realize soon after I wanted to be a research scientist. During my "Social Basis of Public and Community Health" course during freshman year, I began to visualize my science through a public health lens. With each pivot, my dreams grew farther from the dreams that everyone else had for me—I was not going to be a physician. My passion inspired me to use viral immunology to inform vaccine development, and ultimately, to lead a team that developed a coronavirus disease 2019 (COVID-19) mRNA vaccine.

2. **Don't let failure stop you.** Little-known fact: I didn't get into graduate school the first time I applied. Unbeknownst to me, that failure was a blessing disguised as a bend in my until-then perfect career trajectory. I would have never realized this blessing in disguise had I given up on my dream to become a scientist with that first setback. I persevered. I pivoted. I enrolled in a postbaccalaureate program, building my resume, retaking the Graduate Record Examination, and tending to my mental health. Following that, I was accepted into nearly every graduate school I applied to. I elected to enroll in the PhD program at the University of North Carolina at Chapel Hill, where I was afforded training among some of the best viral immunologists in the world—and also where my interests in coronaviruses (CoVs) was piqued.

3. **Let the science lead you.** Next, I spent 5 years at the National Institutes of Health (NIH) Vaccine Research Center studying immune responses to Middle East respiratory syndrome (MERS) CoV in an attempt to develop a vaccine. The outlook was dismal for a CoV vaccine becoming a reality during my fellowship so as a side project, I took on a more promising influenza vaccine project. Then in 2020, we learned of an increasing number of people in China being infected by a novel CoV. We immediately realized that our MERS-CoV research could be adapted to tackle the bubbling pandemic. Prior to that, we had built a data package that suggested the optimal vaccine platform for a CoV pandemic would be mRNA [1] although, at the time, no mRNA technology had been approved for medical use beyond clinical trials. For 5 years prior, we had trekked along, letting the science lead us, and it paid off in the form of a highly effective vaccine that was authorized for emergency use in less than 1 year—a historical feat.

4. **Grow with your dreams.** Dreams aren't static—they evolve as you learn, grow, and change. Since 2006, when I was 20 years old, my dream was to work in a government laboratory, serving the country through my science. I accomplished that from 2014 until 2021 at the NIH. The pandemic opened my eyes to how deep understanding of public health would behoove the reach of my science, so I decided to pivot and become an assistant professor at the Harvard T. H. Chan School of Public Health. The school's missions were in line with where I had grown to find my own. Now, I'd be

Received 25 January 2024; accepted 25 January 2024; published online 31 January 2024
 Correspondence: Kizzmekia S. Corbett-Helaire, PhD, Department of Immunology and Infectious Diseases, Harvard T. H. Chan School of Public Health, Howard Hughes Medical Institute, 677 Huntington Ave, Room 406A, Boston, MA 02115, USA (kizzmekia_corbett@hsph.harvard.edu).

The Journal of Infectious Diseases® 2024;229:1252–3

© The Author(s) 2024. Published by Oxford University Press on behalf of Infectious Diseases Society of America. All rights reserved. For permissions, please e-mail: journals.permissions@oup.com
<https://doi.org/10.1093/infdis/jiae047>

able to do work that benefitted the world and fulfill my newly found purpose to increase scientific understanding and trust by effectively communicating that work.

5. **Rest.** Within 1 week of completing high school, I left for college and since then, I never stopped pushing towards my goals. Until December 2023, I'd never really taken a break. Vacations meant I spent days on the beach and nights answering emails and analyzing data. The COVID-19 pandemic provided an adrenaline rush that masked the exhaustion of 80-hour workweeks, the despair of grief, and the weight of the world on my shoulders. When the adrenaline left, I was exhausted. My last piece of advice is that before you reach the unavoidable point of exhaustion in your career, it is essential to define what rest means for you. For some, rest means spending weekends unplugged to reset. For many, rest means the occasional vacation or spa day. For me, at this stage in my career, rest means delegation and prioritization. Rest means realizing that I don't have to do everything. Rest means realizing which tasks are in parallel with my life's purpose.

Many of us who take on infectious diseases, whether it be from a basic science, medical, or public health stance, do so because we are fueled by our purpose to solve some of the world's most devastating diseases. Having a purpose-driven career may be motivating, but it certainly does not make the trajectory easy. When the journey becomes too difficult to navigate, heeding these lessons will help you to stay the course.

Here's to dreaming big. Here's to being resilient.

Here's to resting along the way.

Notes

Potential conflicts of interest. The author: No reported conflicts of interest. The author has submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest.

Reference

1. Corbett KS, Edwards DK, Leist SR, et al. SARS-CoV-2 mRNA vaccine design enabled by prototype pathogen preparedness. *Nature* **2020**; 586:567–71.