Resiliency in Physician-Scientist Training

By Tejaswini P. Reddy, MD, PhD

Physician-scientists are defined as physicians who primarily focus on research, and in 2012, they accounted for 1.5% of the physician workforce.[1] These professionals have diverse interests and research expertise, spanning all fields of medicine and emerging from various training backgrounds. Physician-scientists are present in nearly every medical specialty/subspecialty and are in a unique position to bridge the gap between clinical practice and scientific discovery. The time between completing medical/graduate school and obtaining a faculty position is increasingly recognized as a crucial period for their development. The journey to become a physician-scientist is a long and challenging one that not only requires intellectual acumen, but also an exceptional degree of resiliency. Resiliency becomes a cornerstone of success in this career, enabling individuals to navigate the unique challenges of their dual responsibilities. From the early days of training to assuming leadership roles, resiliency manifests as an indispensable skill, empowering physician-scientists to confront obstacles and chart meaningful career trajectories.

The American Association of Medical Colleges (AAMC) defines resiliency and adaptability as "demonstrating tolerance of stressful or changing environments or situations and adapting effectively to them; being persistent, even under difficult situations; recovering from setbacks."[2] As physician-scientists trainees, our ability to be resilient is tested at every step in our journey, even as early as college. This is tested for us every day, whether it is by us handling demands of clinic work, studying for board exams, handling rejection of a grant application, navigating how to standardize a research protocol, or managing a research team.

Margarite Matossian, MD, PhD, a current clinical and research hematology/oncology fellow at the University of Chicago, notes that her undergraduate experiences provided her with skills that shaped her career path. As a chemistry major at Kalamazoo College, she found that a liberal arts education strengthened her interpersonal skills, enabling her to seek support and build a diverse network of peers and mentors. Her early research experiences reinforced the value of confidence in designing experiments, overcoming obstacles, maintaining accountability, and seeking help when needed. She found that seeking mentors, particularly a blend of mentors from various career stages, allowed her to seek guidance from those who underwent difficult stages of physician-scientist training, such as the transition from medical school to graduate school, residency/fellowship, and eventually writing that first career-development award as a research fellow.

Having a diverse group of mentors was essential for Dr. Matossian, especially the guidance of women physician-scientists who could provide insights on balancing lab research, clinical responsibilities, and family life. She emphasizes that achieving this balance has been key to her career longevity and resilience. In addition to maintaining balance, she highlights the importance of training programs—such as Medical Scientist Training Programs, Physician Scientist Training Programs, or equivalent residency and fellowship programs—that offer genuine support. Given that the path to becoming a physician-scientist can span nearly two decades, it is crucial to train in environments that foster clinical and research excellence, provide mentorship for securing grant funding and independent research careers, and offer financial and social support to help balance life outside of the lab and clinic. This support can come in various forms such as workshops to guide trainees on how to successfully obtain career development awards, provide protected research time from clinical obligations, increase stipends to support physician-scientists who are starting families, and increase institutional funding used for junior faculty to start their own laboratories/research groups.

Michael Davies, MD, PhD, professor and chairman of the Department of Melanoma Medical Oncology, as well as co-principal investigator of the T32 Research Program at MD Anderson Cancer Center, emphasizes that the demands of excelling as both a physician and a researcher can be challenging. He highlights that resiliency is a crucial skill developed early in MD/PhD training. Navigating each stage of this journey—whether mastering history-taking and physical exams, honing differential diagnoses, or crafting a compelling research aim for an F30 application—requires

adaptability. Physician-scientists must learn to "wear multiple hats," bridging the gap between scientific discovery and clinical practice. Dr. Davies advises trainees to seek out faculty mentors who not only support their long-term success but also provide guidance through key career transitions. For those pursuing junior faculty positions in academia, aligning with a department chair who shares their professional vision is essential. Beyond short-term goals, he encourages trainees to think deeply about the lasting impact they wish to make in the medical and scientific communities, shaping both their research contributions and professional legacy.

Timothy Yap, MD, PhD, the Ransom Home, Jr., endowed professor for cancer research and vice president, head of clinical development of the Therapeutics Discovery Division at MD Anderson Cancer Center, emphasizes that maintaining a regular clinic has been essential in keeping him grounded. It not only provides perspective but also reinforces the real-world significance of scientific advancements and the pressing need for innovation in patient care. Building strong, empathetic relationships with his patients and mastering the nuances of difficult medical conversations have been essential in keeping him motivated and focused as a clinician-scientist. He acknowledges that imposter syndrome has been a recurring challenge, but rather than viewing it as a limitation, he has transformed it into a source of motivation—keeping him humble and fostering continuous personal and professional growth. Dr. Yap also attributes the excellent mentorship he has received since the start of his career as a vital and continued source of strength and support. He encourages trainees to embrace the unknown, pursue research areas of unmet medical need, and to “stay a stem cell” for as long a time as possible by keeping an open mind, exploring different research possibilities, and allowing career trajectories to develop organically in response to both personal passions and the evolving scientific and clinical landscape.

A key concern in physician-scientist training and resiliency is the leaky physician-scientist pipeline, which is influenced by several factors. These include the increasing time required to reach clinical subspecialty training, challenges with work-life balance, medical school debt, and shifting career goals over time.[3] Rather than expanding the number of MD/PhD program slots, it may be more beneficial to enhance financial support for programs focusing on single-degree physician-scientists, such as the Burroughs Wellcome Physician-Scientist Training Program. Another approach could be to consider adapting aspects of the physician-scientist training model from the United Kingdom, where Dr. Yap completed his training. In the U.K. model, graduate research is often conducted during or after fellowship training, rather than predominantly before residency as in the U.S. model. Dr. Yap and his colleagues followed this approach, which allowed them to engage in research that aligned more closely with their eventual clinical interests. Adopting a similar system could help improve resiliency by enabling trainees to pursue research areas that are more directly related to their clinical focus and long-term careers.

The journey of becoming a physician-scientist is marked by both tremendous challenges and immense opportunities for growth. As the demands of clinical practice and research evolve, maintaining resiliency becomes even more crucial. Through the experiences shared by Drs. Matossian, Davies, and Yap, it’s clear a combination of mentorship, institutional support, and a flexible training model are vital to the long-term success and well-being of physician-scientists. By adapting training approaches, enhancing financial and social support, and fostering environments that nurture both personal and professional development, we can ensure that the next generation of physician-scientists not only survives but thrives in this dual-role career. Ultimately, the ability to bridge the gap between clinical care and scientific discovery depends on the strength, adaptability, and unwavering commitment of those who choose this challenging, yet incredibly rewarding, path.

References:

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