

# Modern Healthcare

THE ONLY HEALTHCARE BUSINESS NEWS WEEKLY | DECEMBER 21, 2020 | CRAIN

## Preventing another healthcare crisis: a shortage of clinician-scientists

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As we live through the explosive third wave of the COVID-19 pandemic, we look again to health experts for care and direction. Among those professionals, it is the physician-investigators who provide the answers to our questions and design our course of action.

Physician-investigators are on the front lines, caring for patients as they study how this new infectious disease makes us ill. Their goal is to learn from each patient, collaborating with their peers around the world, to save lives based on a bedrock of shared evidence. Then they offer the best current advice to community healthcare providers and agencies, first responders, nursing homes, schools and businesses. But that is not all they are doing.

It was physician-investigators who isolated the virus from patients and, working with basic scientists, developed tests, drugs and vaccines and then ran the clinical trials to ensure that we ended up with safe and effective treatments as quickly as possible.

I suspect most patients do not realize the roles played by physician-investigators, nor know that these rare dual-trained professionals have been critical to American dominance in biomedical discovery and commerce over the last six decades. Further, we are at a tipping point that puts the health of the population and our global competitiveness at risk.

The U.S. now has only a fraction of the physician-scientists it did in decades past.

We know why we are losing these dual-career unicorns, and we can restore their ranks.

To enter practice as a physician-investigator requires high school, college, medical school, clinical residency, research fellowships and, for many, more graduate school as well. Those who train to be full-time doctors or scientists enter the workforce a decade sooner. Since the average medical student accumulates \$200,000 of educational debt, it is tempting to give up the quest to master two disciplines.

Once the physician-investigator is in practice, the challenges actually increase.

Physician-investigators are given “protected time” away from the demands of clinical service to pursue research when they start, but they must succeed in the fierce competition for grant funding not only to conduct the research studies but to pay their salaries for the time they are investigators and not generating revenue by seeing patients.

Fulfilling two roles is demanding. It places great pressure on young families, especially because physician-investigators earn lower salaries than full-time clinicians.



Steve Zylius/UCI

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Even though physician-investigators are among the most successful applicants for funding from the National Institutes of Health because they are active in both the spheres of care and discovery, federal funding for training and biomedical research has decreased in real dollars over the last 20 years, while other nations have increased spending, reducing the U.S. share of global research and development. Concurrently, dollars in the healthcare system that once supported training and research have been extracted by health management and insurance companies in the effort to decrease healthcare costs.

Physician-investigators are the tether between the patient and discovery science, and it is in all our interests to restore their numbers and to simultaneously create cohorts of nurse-investigators, pharmacist-investigators and other clinician-researchers.

Like other academic health systems, the University of California at Irvine is working to decrease the years and costs to achieve dual degrees, fund more time during post-graduate training for research, and underwrite physicians, nurses and pharmacists so they can maintain a tangible connection to discovery throughout their careers. However, these programs are limited in scope as most depend on philanthropy.

As the incoming administration selects the healthcare issues it will confront, I suggest convening all those who depend on the work of clinician-researchers in a search for creative solutions. This should include federal agencies like the NIH, National Science Foundation and Defense Department, as well as insurers, healthcare systems and health-related businesses, particularly, drug and device manufacturers.

There are opportunities at every point in the life cycle of the clinician-researcher when funding would facilitate this career path, including tuition for college and professional school, early career research grants, and nonclinical salary support to allow time to launch novel programs of investigation. Perhaps new streams of federal, state and industrial support can be earmarked based on the benefits to society of speeding delivery of drugs to market, creation of new evidence-based treatment innovations, or facilitating medical regulatory processes and sponsored clinical trials.

Throughout this pandemic, clinical investigators have been essential to scientific breakthroughs, including developing vaccines at breakneck speed and showing us which drugs are safe and effective. To continue to protect our health and global competitiveness, America needs to replenish the ranks of clinically active investigators.