

Millennials in Medicine: Cross-Trained Physicians Not Valued in Medical Marketplace

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Health organizations must improve recruitment of millennial physicians who bring new skills in order to have more engaged employees and healthier patients.

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Millennials, defined as those born between 1981 and 1996, currently comprise 15% of all active physicians in the US.^{1,2} A recent survey found that nearly 4 of 5 US millennial physicians have a desire for cross-sectional work in areas beyond patient care, such as academic research, health care consulting, entrepreneurship, and health care administration.³

For employers and educators, a better understanding of these preferences, through consideration of the unique education and skill set of the millennial physician workforce, may lead to more effective recruitment of young physicians and improved health systems, avoiding a mismatch between health care provider skills and available jobs that can be costly for both employers and employees.⁴

This article describes how US millennial physicians are choosing to cross-train (obtaining multiple degrees and/or completing combined medical residency training) throughout undergraduate, medical, and graduate medical education. We also outline ways in which the current physician marketplace may not match the skills of this population and suggest some ways that health care organizations could capitalize on this trend toward more cross-trained personnel in order to effectively recruit and retain the next generation of physicians.

MILLENNIAL EDUCATION

Undergraduates

The number of interdisciplinary undergraduate majors increased by almost 250% from 1975 to 2000.⁵ In 2010, nearly 20% of US college students graduated with 2 majors, representing a 70% increase in double majors

between 2001 and 2011.^{6,7} One emerging category of interdisciplinary majors in US colleges is health humanities programs, which have quadrupled since 2000.⁸

Medical school applicants and matriculants reflect this trend. Whereas in 1994, only 19% of applicants to medical school held nonscience degrees, about one-third of applicants now hold such degrees.^{9,10} We have found no aggregated data on double majors entering US medical schools, but public class profiles suggest that medical school matriculants mirror their undergraduate counterparts in their tendency to hold double majors. In 2016, for example, 15% of the incoming class at the University of Michigan Medical School was composed of double majors, increasing to over 25% in 2017.¹¹

Medical Students

Early dual-degree programs in undergraduate medical training were reserved for MD/PhD programs.¹² Most US MD/PhD programs (90 out of 151) now offer doctorates in social sciences, humanities, or other non-traditional fields of graduate medical study, reflecting a shift in interests of those seeking dual-degree training in undergraduate medical education.¹³ While only 3 MD/PhD programs in the 1970s included trainees in the social sciences, 17 such programs exist today.¹⁴

Interest in dual-degree programs offering master's level study has also increased over the past decade. In 2017, 87 medical schools offered programs for students to pursue a master of public health (MPH) and 41 offered master of science degrees in various fields, up from 52 and 37 institutions, respectively in 2006.¹⁵ The number of schools

offering combined training in nonscience fields has also grown, with 63 institutions now offering a master of business administration (MBA), nearly double the number offered in 2006.¹⁵ At some institutions more than 20% of students are earning a master's degree or doctorate in addition to their MD degree.¹⁶

Residents

The authors found no documentation of US residency training programs, outside of those in the specialty of preventive medicine, providing trainees with formal opportunities to obtain an MBA or MPH prior to 2001.¹⁷ However, of the 510 internal medicine residency programs listed on the American Medical Association residency and fellowship database (freida.ama-assn.org), 45 identified as having established a pathway for residents to pursue an MBA, MPH, or PhD during residency.¹⁸

Over the past 20 years, combined residency programs have increased 49% (from 128 to 191), which is triple the 16% rate (1,350 to 1,562) of increase in programs in internal medicine, pediatrics, family medicine, psychiatry, and emergency medicine.^{19,20} A 2009 moratorium on the creation of new combined residency programs in psychiatry and neurology was lifted in 2016 and is likely to increase the rate of total combined programs.²¹

The Table shows the number of categorical and combined residency programs available in 1996 and in 2016. Over 2 decades, 17 new specialty combinations became available for residency training. While there were no combined training programs within these 17 new combinations in 1996, there were 66 programs with these combinations in 2016.^{19,20}

Although surgical specialties are notably absent from the list of combined residency options, likely due to the duration of surgical training, some surgical training programs do offer pathways that culminate in combined degrees,²² and a high number of surgery program directors agree that residents should receive formal training in business and practice management.²³

THE MEDICAL JOB MARKET

Although today's young physicians are cross-trained in multiple disciplines, the current

job market may not directly match these skill sets. Of the 7,235 jobs listed by the *New England Journal of Medicine* (NEJM) career center (www.nejmcareercenter.org/jobs), only 54 were targeted at those with combined training, the majority of which were aimed at those trained in internal medicine/pediatrics. Of the combined specialties in the Table, formal positions were listed for only 6.²⁴ A search of nearly 1,500 federal medical positions on USAJOBS (www.usajobs.gov) found only 4 jobs that combined specialties, all restricted to internal medicine/pediatrics.²⁵ When searching for jobs containing the terms *MBA*, *MPH*, and *public health* there were only 8 such positions on NEJM and 7 on USAJOBS.^{24,25} Although the totality of the medical marketplace may not be best encompassed by these sources, the authors believe NEJM and USAJOBS are somewhat representative of the opportunities for physicians in the US.

Medical jobs tailored to cross-trained physicians do not appear to have kept pace with the numbers of such specialists currently in medical school and residency training. Though millennials are cross-training in increasing numbers, we surmise that they are not doing so as a direct result of the job market.

Future Medicine

Regardless of the mismatch between cross-trained physicians and the current job market, millennials may be well suited for future health systems. In 2001, the National Academies of Sciences, Engineering and Medicine (NASEM) called for increasing interdisciplinary training and improving cross-functional team performance as a major goal for health care providers in twenty-first century health systems.²⁶ NASEM also recommended that academic medical centers develop medical leaders who can manage systems changes required to enhance health, a proposal supported by the fact that hospitals with medically trained CEOs outperform others.^{27,28}

Public Health 3.0, a federal initiative to improve and integrate public health efforts, also emphasizes cross-disciplinary teams and cross-sector partnerships,²⁹ while the Centers for Medicare and Medicaid Services (CMS) has incentivized the development of

TABLE Growth of Combined Residency Program Options From 1996 to 2016^{19,20}

Specialties	1996, No.	2016, No.
Internal medicine (categorical)	374	446
Internal medicine/emergency medicine	0	12
Internal medicine/emergency medicine/critical care	0	5
Internal medicine/family medicine	0	2
Internal medicine/pediatrics	99	79
Internal medicine/psychiatry	19	14
Internal medicine/anesthesia	0	5
Internal medicine/dermatology	0	7
Internal medicine/medical genetics	0	5
Internal medicine/preventive medicine	0	6
Internal medicine/neurology	0	2
Pediatrics (categorical)	199	204
Pediatrics/emergency medicine	0	4
Pediatrics/physical medicine & rehabilitation	0	3
Pediatrics/child psychology/psychology	10	9
Pediatrics/anesthesia	0	7
Pediatrics/medical genetics	0	16
Family medicine (categorical)	477	512
Family medicine/psychiatry	0	5
Family medicine/preventive medicine	0	3
Psychiatry (categorical)	190	209
Psychiatry/neurology	0	5
Emergency medicine (categorical)	110	191
Emergency medicine/family medicine	0	2
Diagnostic radiology/nuclear medicine	0	3

interprofessional health care teams.³⁰ While cross-training does not automatically connote interdisciplinary training, we believe that cross-training may reveal or develop an interdisciplinary mind-set that may support and embrace interdisciplinary performance. Finally, the US Department of Health and Human Services' (HHS) Strategic Goals emphasize integrated care for vulnerable populations, something that cross-trained physicians may be especially poised to accomplish.³¹

A PATH FORWARD

The education, training, and priorities of young physicians demonstrates career interests that diverge from mainstream, traditional options. Data provided herein describe the increasing rates at which millennial physicians are cross-training and have suggested that the current marketplace may not match the interests of this population. The ultimate question is where such cross-trained physicians fit into today's (or tomorrow's) health system?

It may be easiest to deploy cross-trained physicians in their respective clinical departments (eg, having a physician trained in internal medicine and pediatrics perform clinical duties in both a medicine department and a pediatrics department). But < 40% of dual-boarded physicians practice both specialties in which they're trained, so other opportunities should be pursued.^{32,33} One strategy may be to embrace the promise of interdisciplinary care, as supported by Public Health 3.0 and NASEM.^{26,29} Our evidence may demonstrate that the interdisciplinary mind-set may be more readily evident in the millennial generation, and that this mind-set may improve interdisciplinary care.

As health is impacted both by direct clinical care as well as programs designed to address population health, cross-trained physicians may be better equipped to integrate aspects of clinical care spanning a variety of clinical fields as well as orchestrating programs designed to improve health at the population level. This mind-set may be best captured by organizations willing to adapt their medical positions to emphasize multidisciplinary training, skills, and capabilities. For example, a physician trained in internal medicine and psychiatry may have the

unique training and skill-set to establish an integrated behavioral health clinic that crosses boundaries between traditional departments, emphasizing the whole health of the clinic's population and not simply focusing on providing services of a particular specialty. Hiring cross-trained physicians throughout such a clinic may benefit the operations of the clinic and improve not only the services provided, but ultimately, the health of that clinic's patients. By embracing cross-trained physicians, health care organizations and educators may better meet the needs of their employees, likely resulting in a more cost-effective investment for employers, employees, and the health system as a whole.⁴ Additionally, patient health may also improve.

There is evidence that cross-trained physicians are already likely to hold leadership positions compared with their categorically-trained counterparts, and this may reflect the benefits of an interdisciplinary mind-set.³³ Perhaps a cross-trained physician is more likely to see beyond standard, specialty-based institutional barriers and develop processes and programs designed for overall patient benefit. Leadership is a skill that many millennials clearly wish to enhance throughout their career.³⁴ Recruiting cross-trained physicians for leadership positions may reveal synergies between such training and an ability to lead health care organizations into the future.

Many millennial physicians are bringing a new set of skills into the medical marketplace. Health organizations should identify ways to recruit for these skills and deploy them within their systems in order to have more dedicated, engaged employees, more effective health systems, and ultimately, healthier patients.

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