

COMMENTARY

Hybrid Physicians Create ‘Social Capital’ for Health Care

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In modern health care, physicians are increasingly working across academic fields not previously associated with medicine, such as machine learning and health care design. These “hybrid physicians” have emerged because traditional medical expertise is no longer sufficient for health care systems to deliver the best quality care. Training programs for hybrid physicians are becoming common, with 9-10% of U.S. medical students currently enrolled in dual-degree programs and an increasing number of physicians completing fellowships in areas such as health informatics. Also, graduates of these programs assume professional roles that did not exist at the turn of the century. Nevertheless, institutions vary markedly in how they train and support physicians working across academic fields, in part because of uncertainty about their value to health care. In this article, we argue that hybrid physicians create “social capital,” meaning that they provide a social asset for their workplaces by improving the performance of their own teams, promoting communication across disciplines, and creating new opportunities for collaboration. Organizations are more likely to benefit from hybrid physicians if they actively invest in these positions and formalize their roles in management. Thus, we encourage organizations to more systematically cultivate and support physician leaders in these hybrid roles.

Introduction

Even prior to the Covid-19 pandemic, the health care landscape was being disrupted by scientific progress and increasingly powerful and pervasive information technology. Together, these have forced changes in education, professional development, and practice. In the modern health care world, physicians and institutional leaders have realized that traditional medical expertise, while still necessary, is no longer sufficient for their systems to deliver the best quality care. In response, a new kind of medical professional has emerged: the hybrid physician.

While initially an aberration within medical systems that favored the biomedical training of traditional MDs and, later, MD-PhD degrees, physicians with interest in nonmedical fields – e.g., business administration, biomedical informatics and artificial intelligence, health policy, law, and health care design – have begun to play vital roles in care delivery organizations. Forward-thinking CEOs and CMOs, innovative leaders in health care delivery, and even medical departments themselves are supporting their development. Today, training programs for hybrid physicians are common, and professional roles for these individuals are expanding to such a degree that it is hard to imagine that many of these positions didn't exist at the turn of the century.

Nevertheless, institutions vary markedly in how they train and support hybrid physicians, in part because of uncertainty around the value they bring to health care. We argue that hybrid physicians' major function is the creation of “social capital” – meaning that they provide a social asset for the groups they serve.¹ To fully take advantage of this valuable social capital, health care systems should work to cultivate physician leaders in hybrid roles.

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Emergence of Hybrid Physicians

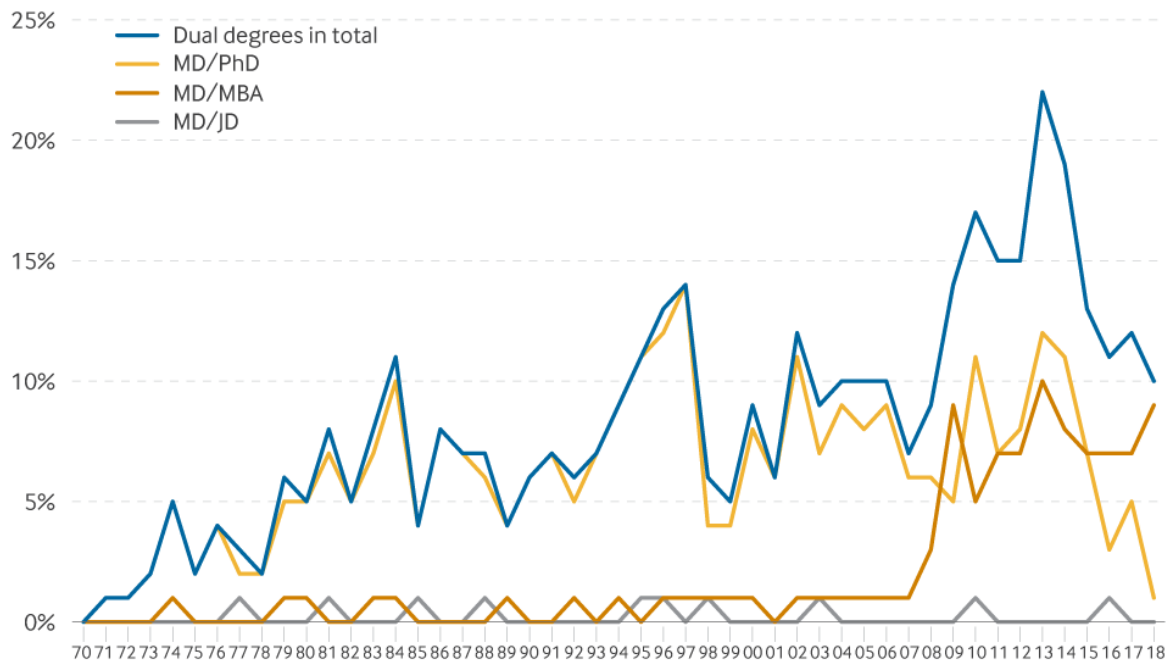
The evolution of hybrid physicians follows a well-established pattern that began with the rise of the “triple-threat” MD in the second half of the 20th century – physicians who excelled at bedside clinical practice, but who also engaged in research exploration and medical teaching. Many of these clinicians plunged so deeply into research to answer clinical questions that their scientific work became their dominant focus. Appreciating the value of physician-scientists, academic institutions created MD-PhD programs beginning in the 1950s, as well as “hemi-doc” residency programs that allowed physician-scientists to pursue both career tracks simultaneously.²

Physician-scientists helped facilitate remarkable progress in expanding medical knowledge and translating research into evidence-based care. But the challenge of pursuing essentially three careers in one was often untenable, leading to concerns about the commitment to clinical practice and the quality of care provided by physicians who spent more time in a lab or lecture hall than with patients. As a result, the early trend of MD-PhD “triple-threat physicians” has shifted, birthing such professions as the increasingly specialized clinician-scientist and clinician-educator, as well as the growing number of physicians with expertise in fields adjacent to clinical medicine, such as business and bioethics, through the formalization of other types of academic training.

Both the number and variety of dual-degree programs offered by medical schools in the United States have grown substantially in recent decades. An analysis of the Harvard Medical School database showing the number of students with graduation with a MD-PhD, MD-MBA or MD-JD, confirms this trend (Figure 1).

FIGURE 1

Percentage of Harvard Medical School graduates by year from 1970-2018 with either an MBA, JD or PhD



Source: The authors

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In recent years, the trend curve seems to have flattened. According to unpublished data our group received from the Association of American Medical Colleges (AAMC) in January 2020, enrollment in dual-degree programs on a national level has been stable at between 9% and 10% since 2005. It accounted for 8,096 students (9%) in the last academic year.

Currently, the most popular non-PhD dual-degree program for aspiring hybrid physicians is the Master in Public Health (MPH), followed by Master of Business Administration (MBA) and Master of Science (MS/MSci), which incorporates a range of disciplines from biostatistics to health care administration and management to different types of engineering. More recently, other hybrid programs have been added to the degree list, including the Master of Arts in Design in Health at Dell Medical School in Austin, whose development reflects a growing trend in using evidence-based design practices to enhance care environments (Table 1).

Hybrid Fellowships

One explanation for the flat rate of enrollment in dual-degree programs might be the recent expansion of hybrid fellowships for physicians in such fields as clinical informatics. The creation of these fellowships was spurred by the influential Institute of Medicine reports, *To Err is Human*

Table 1. Most Common Dual-Degree Programs Currently Being Offered by U.S. Medical Schools

Dual-degree programs	Description
MD-MPH – Master of Public Health	Prepares students to be leaders in public health and emphasizes population-based approaches to solving complex health issues. Offered by multiple universities.
MD-MBA – Master of Business Administration	Combines medical training and a business degree, creating opportunities in health care management and business administration. Offered by multiple universities.
MD-JD – Juris Doctor Programs	A dual degree in law and medicine, offered by multiple universities.
MD-PhD – Medical Scientist Training Programs (Doctor of Philosophy)	Provides an integrated program of graduate training in the biomedical sciences and clinical training through medical schools. Offered by multiple universities.
MD-MS – Master of Science	Designed for medical students with a specific research interest. A variety of programs and degrees are offered through medical schools or affiliated campuses.
MD-MPP – Master of Public Policy	Prepares students to assume leadership positions in government, international organizations, nonprofit institutions, service delivery organizations, or research centers. Offered by several universities.
MD-MHA – Master of Health Administration	Prepares individuals to take leadership roles in the delivery and financing of health services. Offered by several universities.
MD-MEng – Master of Engineering	Designed for those with strong interests in health care, engineering, and innovation and entrepreneurship. Offered by several universities.
MD-MDiv – Master of Divinity	A dual degree in medicine and theology, offered by several universities.
MD-MA – Master of Arts	A dual degree offered by various schools in such fields as health administration, medical humanities, bioethics, and health care design.

Source: Author created using information from AAMC

(1999) and *Crossing the Quality Chasm* (2001), which demonstrated the role of data-driven errors and safety challenges in health care (Table 2).

Today, formal training and board certifications through ACGME (Accreditation Council for Graduate Medical Education) are being offered across the U.S. in areas like informatics, health information technology, and clinical decision support. They complement informal opportunities for those obtaining certification after spending a certain amount of practice hours in a work field, a.k.a. the “practice pathway.”

Table 2. Examples of “Hybrid” Fellowships for Physicians in Nonmedical Fields

Fellowships	Description
Clinical Informatics Fellowships	Several universities offer one or two-year full-time programs in applied clinical informatics.
Healthcare Leadership/Health Administration Fellowships	A variety of leadership programs exist across the U.S. Some aim to prepare physicians and postdoctoral professionals for leadership roles. Others have a more specific focus, like nurturing leaders committed to solving problems in U.S. health care or addressing health disparities.
Data Science Health Innovation Fellowships	These fellowships focus on data-driven innovations.
Patient Safety Fellowships	Several universities and private institutions offer programs for those in quality and safety roles who want to strengthen their strategic, operational, and thought leadership skills.
Public Health Fellowships	These programs are designed for individuals seeking to learn about how public policy impacts public health through training in federal institutions, state/local health departments, or private organizations.
Global Health Fellowships	Several institutions and universities offer fellowships that provide education and training in global health issues.

Source: Authors

A similar trend exists in hospital administration, where senior management positions such as chief medical information officer (CMIO) and chief experience officer (CXO) have become common, reached through both formal degree programs and practical experience in hospital leadership. While CMIOs are responsible for complex decisions regarding health information technology, cybersecurity, and digital integration,³ CXOs focus on making care reliably patient-centered, empathic, and coordinated.⁴ Although these roles are not always filled by physicians, many organizations believe that doing so helps encourage their physicians to engage in “hybrid” work³; we describe its definition and value below.

The Value of Hybrid Physicians

Hybrid physicians do more than perform two jobs at the same time. As we argue, their true work is to create “social capital” – a social asset that offers distinct advantages for an individual or group. Originally attributed to French sociologist Pierre Bourdieu, the social capital concept was later expanded by such theorists as Ronald S. Burt and Robert Putnam to emphasize its collective aspects and highlight two main components: bonding and bridging.^{5,6}

“Bonding” refers to the value of relationships between people who share the same social identity; for example, two surgical departments placed in two different locations but sharing a core professional identity and social codes that both would easily recognize. “Bridging” refers to relations between heterogeneous groups, such as doctors and health technologists. Although differing in their training and internal work culture, these individuals can effectively and constructively interact across a shared “bridge,” such as an electronic medical record (EMR). Bonding and bridging are essential for addressing what Ronald Burt calls “social holes” in a system – gaps in the flow of information and knowledge or differences in beliefs that isolate groups from one another.

By preventing the flow of ideas and compromising the potential for collaboration that involves more than one type of professional, social holes can significantly lessen the effectiveness of a health care institution. For instance, health IT departments that fail to include clinicians in the design of EHR-based clinical decision support tools risk poor acceptance and uptake of these tools, as health IT staff typically are unfamiliar with the needs of end-users and nuances of clinical workflows. In contrast, clinicians who seek to understand health outcomes in their practice may gain a better picture by partnering with information technologists to build dashboards to analyze and display trends in their data.

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Physicians who are able to work across these social holes by leveraging their nonclinical expertise are considered “social brokers.” As social brokers, hybrid physicians can enhance team

performance and create new opportunities for the teams they serve, as well as for those who interact with them. For example, clinicians with experience in health care delivery science can not only help identify a health system's quality improvement (QI) needs, but also use their skills to frame, develop, and analyze rigorous QI initiatives to address these needs and teach colleagues how to lead these efforts themselves. This kind of knowledge sharing strengthens the entire health system and supports continued development and improvement. Similarly, physicians with expertise in research methods such as biostatistics or epidemiology can contribute quality research initiatives to clinical practices and may provide helpful financial support through grants and research prizes.

Health care systems that engage these hybrid professionals can increase their organizations' social capital through these means and, consequently, enhance their efficiency, quality, prestige, and revenue. Systems can, however, do even more. By elevating the role of the hybrid physician as a social broker, a hospital system signals trust in the relationships these clinicians build and the care redesign they lead. This formalization is considered a type of *closure* of a social hole to create a new and wider social network within or between organizations, adding value for all parties in the new network.

The Future of Hybrid Physicians

Most health systems already depend on hybrid physicians to help drive progress within their institutions. From the quality improvement officer who blends clinical work with system redesign efforts, to the clinician informaticist who helps troubleshoot a problematic EMR, hybrid physicians have been helping advance patient care, administration, research, and policy in modern health care. But until recently, the development of the hybrid physician role has been spurred largely by the efforts of passionate individuals or a few forward-thinking institutions. Although some systems fully acknowledge their critical role and have made arrangements for their success (like allowing them to conduct nonclinical work part- or full-time), many are still lagging behind.

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With the growing complexity of medicine and pressures to improve the value of care, the time has come for health care delivery organizations of any scale to actively cultivate, recruit, and support hybrid physicians. We argue that organizations, and the health care community in general, are more likely to realize the potential impact of hybrid physicians if they invest in their cultivation and formalize their roles throughout training and professional development. Residency programs that include hybrid-type degree options, or that comprehensively incorporate nonclinical training into their core curricula, should be expanded and made available to a greater proportion of trainees. Indeed, one could imagine every physician having a “major” in a medical specialty and a “minor”

in a hybrid field, without the additional cost or complexity of applying to these types of programs separately or pursuing them during trainees' "spare time."

At the professional level, organizations should increase their administrative support for hybrid physicians, offering protected time for nonclinical projects and providing flexibility that allows practicing clinicians to pursue their nonclinical work without implicitly being expected to hold more than one full-time job.

These are just a few examples of opportunities that health care institutions can embrace to acknowledge and foster the vital role that hybrid physicians play, and will continue to play, in the success of their systems. We expect that a diversified portfolio of hybrid physicians will give organizations a competitive advantage, enabling them to learn, adapt, and improve faster in the complex and challenging future of health care.

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