



VIEWPOINT

Is It Time for a New Medical Specialty? The Medical Virtualist

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Medicine has seen a proliferation of specialties over the last 50 years, as scientific discovery and care delivery advanced. Diagnoses and treatments have become more complex, so the need for formal training for specialty competence in cognitive and surgical disciplines has become clear. There are currently 860 000 physicians with active certifications through the American Board of Medical Specialties and 34 000 through the American Osteopathic Association.¹

Drivers of Specialty Expansion

Specialty development has been driven by advances in technology and expansion of knowledge in care delivery. Physician-led teams leverage technology and new knowledge into a structured approach for a medical discipline, which gains a momentum of its own with adoption. For instance, critical care was not a unique specialty until 30 years ago. The refinement in ventilator techniques, cardiac monitoring and intervention, anesthesia, and surgical advancements drove the development of the specialty and certification, with subsequent subspecialization (eg, neurological intensive care). The development of laparoscopic and robotic surgical

ing an estimated value of \$12.1 billion.² Some recent market surveys show that more than 70% of consumers would consider a virtual health care service.³ A preponderance of higher income and privately insured consumers indicate a preference for telehealth, particularly when reassured of the quality of the care and the appropriate scope of the virtual visit.³ Telemedicine is being used to provide health care to some traditionally underserved and rural areas across the United States and increased shortages of primary care and specialty physicians are anticipated in those areas.⁴

A New Specialty

Digital advances within health care and patients acting more like consumers have resulted in more physicians and other clinicians delivering virtual care in almost every medical discipline. Second-opinion services, emergency department express care, virtual intensive care units (ICUs), telestroke with mobile stroke units, telepsychiatry, and remote services for postacute care are some examples.

In the traditional physician office, answering services and web-based portals focused on telephone and email communication. The advent of telehealth has resulted in incremental growth of video face-to-face communication with patients by mobile phone, tablet, or other computer devices.^{2,3,5} In larger enterprises or commercial ventures, the scale is sufficient to "make or buy" centralized telehealth command centers to service functions across broad geographic areas including international.

Early telehealth focused on minor ailments such as coughs, colds, and rashes, but now telehealth is being used in broader applications, such as communicating imaging and laboratory results, changing medication, and most significantly managing more complex chronic disease.

The coordination of virtual care with home visits, remote monitoring, and simultaneous family engagement is changing the perception and reality of virtual health care. Commercialization is well under way with numerous start-ups and more established companies. These services are provided by the companies alone or in collaboration with physician groups.

The Medical Virtualist

We propose the concept of a new specialty representing the *medical virtualist*. This term could be used to describe physicians who will spend the majority or all of their time caring for patients using a virtual medium. A professional consensus will be needed on a set of core competencies to be further developed over time.

Medical virtualists could be involved in a substantial proportion of health care delivery for the next generation.

equipment, with advanced imaging, spawned new specialty and subspecialty categories including colon and rectal surgery, general surgical oncology, interventional radiology, and electrophysiology.

In nonprocedural areas, unique certification was established for geriatrics and palliative care. Additional new specialties include hospitalists, laborists, and intensivists, to name a few. These clinical areas do not yet have formal training programs or certification but are specific disciplines with core competencies and measures of performance that might be likely recognized in the future.

Telemedicine and Medical Care

Telemedicine is the delivery of health care services remotely by the use of various telecommunications modalities. The expansion of web-based services, use of videoconferencing in daily communication, and social media coupled with the demand for convenience by consumers of health care are all factors driving exponential growth in telehealth.²

According to one estimate, the global telehealth market is projected to increase at an annual compounded rate of 30% between 2017 and 2022, achiev-

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Physicians now spend variable amounts of time delivering care through a virtual medium without formal training. Training should include techniques in achieving good *webside manner*.⁵ Some components of a physical examination can be conducted virtually via patient or caregiver. Some commercial insurance carriers and institutional groups have developed training courses.⁵ These are neither associated with a medical specialty board or society consensus or oversight nor with an associated certification.

Contemporary care is multidisciplinary, including nurses, medical students, nurse practitioners, physician assistants, pharmacists, social workers, nutritionists, counselors, and educators. All require formal training in virtual encounters to ensure a similar quality outcome as is expected for in-person care.

It is possible that there could be a need for physicians across multiple disciplines to become full-time medical virtualists with subspecialty differentiation. Examples could be urgent care virtualists, intensive care virtualists, neurological virtualists, and psychiatric or behavioral virtualists. This shift would not preclude virtual visits from becoming a totally integrated component of all practices to varying extents.

Based on early experience in primary care, one estimate suggests that 30% to 50% of visits could possibly be eligible for a virtual encounter.⁴ This could be amplified when coupled with home care and remote monitoring devices. There are varying data on the influence of telehealth on total health care services utilization and that will be determined with greater adoption. In addition, as the number of emergency department visits continues to increase nationally, health care systems must develop innovative ways to maximize efficiency and maintain high-quality standards.⁶

However, complete replacement of the traditional clinical encounter will not occur. "Bricks and clicks" will prevail for patients' convenience and value. Physicians will lead teams with both in-office and remote monitoring resources at their disposal to deliver care. This model could be enhanced in the future with digital assistants or avatars.

In the surgical specialties, remote surgery has been more focused on telementoring and guiding surgeons in remote locations. There have been examples of true virtual surgeons who have operated robotically on patients hundreds of miles away.⁷ This approach can be expected to develop further in the coming years.

Critical Success Factors

The success of technology-based services is not determined by hardware and software alone but by ease of use, perceived value, and workflow optimization.

Medical virtualists will need specific core competencies and curricula that are beginning to develop at some institutions. In addition to the medical training for a specific discipline, the curriculum for certification should include knowledge of legal and clinical limitations of virtual care, competencies in virtual examination using the patient or families, "virtual visit presence training," inclusion of on-site clinical measurements, as well as continuing education.

It will be necessary for early adopters, thought leaders, medical specialty societies, and medical trade associations to work with the certifying organizations to formalize curriculum, training, and certification for medical virtualists. If advances in technology continue and if rigorous evidence demonstrates that this technology improves care and outcomes and reduces cost, medical virtualists could be involved in a substantial proportion of health care delivery for the next generation.

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