

Virtual Mentor

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MEDICAL EDUCATION

The George Washington University Emergency Medicine Telemedicine and Digital Health Fellowship

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The American Telemedicine Association defines telemedicine as the use of medical information exchanged between sites via electronic communications to improve a patient's health [1]. A growing variety of technologies are involved: two-way video, e-mail, smartphones and their apps, wireless tools, and others.

Some patients and physicians regard technology, especially in conjunction with appropriate in-person visits, as beneficial. It can reduce the challenges of appointment scheduling, travel, specialist access, follow-up care, and routine monitoring of chronic diseases. Patients express higher levels of satisfaction with telehealth delivery models than clinicians, who lack reimbursement and monetary incentives—and thus experience with these technologies—and are concerned about relying on health IT [2, 3].

Not surprisingly, medical education programs have failed to prepare students adequately to understand and apply advances in health IT. In a survey of psychiatry residents and fellows across the country, Glover et al. found that there is a “practice gap between resident interest and resident exposure to telepsychiatry”: those with exposure to telepsychiatry reported a higher interest level and were more likely to report future plans to use it [4].

Medical residencies have recently incorporated the effective implementation and effective use of electronic health records (EHRs) into the milestones that residents must achieve [5]. But limiting technology-related milestones to effective use of EHRs is far too narrow. Health technology is much broader than EHRs, and implementing telehealth technologies is an important skill for physicians to master. Now is the perfect time for medical schools to broadly adopt formal curricula addressing health IT and biomedical informatics [6].

The Current State of Telehealth in Academic Medical Centers

About 50 percent of academic hospitals use telemedicine in at least one department—most commonly cardiology, neurology, emergency medicine, and radiology [7]. To increase trainees' exposure to health IT, academic medical centers must demonstrate leadership in adopting new technologies.

One barrier to realization of this goal is that health IT is often the domain of the clinical enterprise, which may be completely separate, both organizationally and

culturally, from the medical education mission [8]. Academic medical centers can foment change by developing teams—of hospital administrators, medical school and finance leaders, practicing clinicians, and IT specialists—to evaluate new technologies and explore how they can add value for patients and clinicians, be implemented within the existing infrastructure, and fit into payment models. These teams can also develop research protocols to help determine health IT usability, implementation, effectiveness, and outcomes.

Integrating Telehealth Education into Medical Education

Medical trainees should learn not only how to use health IT in a practice, but also about the barriers to its adoption, the risks of use, relevant policy, quality management protocols, and privacy and security concerns.

Telehealth education should be integrated into medical training early in the undergraduate medical curriculum. Given that current trainees are millennials and considered “digital natives,” it can be beneficial to relate their use of technology outside of health care to their future role in caring for patients. Approaches for students just entering medical school can focus on their personal experiences with technology. For example, students can be asked about their favorite health apps. Who recommended them? How frequently do they use them? Do they find a benefit? How might these features relate to patient usability and patient engagement?

Senior medical students and junior residents should observe mentors and patients using telehealth technologies in clinical practice. Mentors must model the skills needed to effectively communicate with patients through video, text, chat, and e-mail. Trainees must understand how to communicate effectively at the patient’s educational level, manage risk, use diverse technologies, monitor patients’ progress remotely, and effectively process large streams of incoming patient-generated health data. At this stage the “see one, do one, teach one” model could be effective.

As trainees at the senior resident and fellow level get ready to enter independent practice, they must start to better understand the telemedicine landscape. Current topics of importance include interstate physician licensure, reimbursement, the regulation of medical devices, privacy and security, and workflow integration. At this stage, trainees must start to become familiar with practice guidelines, where available.

A New Fellowship Training Opportunity

The George Washington University Emergency Medicine Telemedicine and Digital Health Fellowship takes a novel approach to training in telemedicine [9]. It is designed to allow postresidency emergency physicians to get hands-on training in telemedicine, remote monitoring, and mobile health applications and to mold future telemedicine leaders. The fellowship consists of four main endeavors.

Study. Fellows have the opportunity to obtain a master’s degree at The George Washington University during the fellowship. Options include an MBA or master’s

degree in information systems technology from the School of Business, an MPH (master of public health) from the Milken Institute School of Public Health, or a master's degree in systems engineering and management in the School of Engineering and Applied Science.

Clinical work. Fellows care for patients in the department's Maritime Medical Access and Global Health Services programs, longstanding telemedicine services for the maritime and aviation industries and for corporate and adventure travelers. Fellows will participate in all the department's telemedicine services under the supervision of the fellowship director and the faculty of the Innovative Practice and Telehealth Section.

Research. Each fellow is expected to conduct two IRB-approved research projects during the fellowship. The first will develop and evaluate a new telemedicine program, study telemedicine's effectiveness compared to that of in-person care, or apply quality improvement methods to one of the department's extant telemedicine services. The second project will use a secondary data source, simulation model, innovative technology, or collaborative partnership from industry to assess a topic specific to telemedicine delivery, quality, or technology.

Departmental involvement. Fellows will be adjunct faculty members at The George Washington University School of Medicine and at an affiliated hospital, where they will work roughly a 50 percent clinical load in the emergency department and assist in the clinical training of medical students and emergency medicine residents.

Upon completion of the fellowship, fellows will be able to:

1. Effectively lead—conceptualize, plan, implement, sustain, champion, obtain funding for, and administer—telemedicine programs
2. Display an in-depth knowledge of the issues related to telemedicine delivery and technology
3. Conduct remote medical consultations using telephone, store-and-forward technologies, and real-time videoconferencing technologies
4. Conduct research related to telemedicine and apply for grant funding in this area
5. Use leadership techniques applicable to implementing collaborative telemedicine programs among physician groups, hospitals, and organizations

As the use of telemedicine and other innovative technologies continues to expand, there is a need for medical institutions likewise to expand their medical curricula and training programs to best prepare the doctors of the future. We hope to educate and train future telemedicine leaders who can bring together innovative technologies, effective business models, and novel applications to enhance the delivery of medical care.

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