

Chapter 21

Digital Health

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ABSTRACT

This chapter presents an assessment of the rapidly evolving state of health-related technology and its developing impact on health care, medical education, patient care, and care delivery. This is collectively referred to as the digital health movement in medicine. This chapter provides a broader understanding of how digital health is changing not only the practice of medicine, but the consumer market that pertains to health care and medicine at large. The authors discuss the current state of digital health in medicine, the challenges of conventionally assessing digital health-related competencies, and the relative difficulty of adapting contemporary medical education to include digital health modalities into traditional undergraduate medical education. This chapter also showcases three unique case studies of early-adopting medical institutions that have created digital health learning opportunities for their undergraduate medical student population.

INTRODUCTION

The field of digital health has seen rapid innovation and evolution over the last decade and shows no indication of slowing down in the future. Digital health empowers patients to take an active role in their health care through facilitated technologic changes. Likewise, it empowers physicians and other health care team members to transform care delivery with innovative tools and technology. Such transforma-

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tion requires new and unique skill sets, and the willingness of academic centers to adapt curriculum and redesign training to support these needs. This chapter aims to discuss the transformational impact of digital health in medicine and the concurrent need for response in undergraduate medical education. Additionally, the chapter will address specific objectives pertaining to the current background of digital health, the growth and future of digital health, as well as integrated contemporary case studies that highlight successful undergraduate medical student curricular initiatives in digital health.

BACKGROUND

In its most simple form, digital health is the application of any digital technology to the practice or delivery of healthcare. In 2019, digital health refers to the use of any hardware or software solution which aids healthcare professionals and patients in the promotion of health and wellness, or in the optimization of disease management. Digital health is not a new concept, however with its constant evolution, it is a highly formative factor that contributes to shaping how healthcare is sought and delivered. The advent of the internet, the electronic health record, digital imaging, and countless other innovations have transformed not only patient care but medicine as a whole. Digital health is vast and encompasses a variety of subsections that include clinical informatics, telehealth, telemedicine, genomics, mobile apps, wearable technology, data analytics, behavioral change technologies, artificial intelligence, and much more.

One of the most ubiquitous digital health products is seen with patient portals. Typically accessed by patients in the comfort of their own home on either a computer or a mobile device, patient portals offer a secured digital link for patients to access their personal medical records, diagnoses, laboratory results, as well as the ability to contact their health care practitioners with questions or medication refill requests. Based on a recent data brief by the Office of the National Coordinator, 52% of patients have access to their medical records through an electronic portal either from their health system or insurer (Patel & Johnson, 2018). This represents 28% of individuals nationwide currently using a patient portal, with one third of these individuals using an electronic device for monitoring their health which is connected to their portal. More frequently seen are digital health-based interfaces that include apps and programs that allow patients the opportunity for home-monitoring of chronic conditions such as continuous blood glucose monitoring for diabetes mellitus or constant blood pressure monitoring for hypertension.

Digital health holds the potential to supplement and enhance the delivery and management of traditional health care, such as through expansion of telehealth and telemedicine. For example, the Veterans Health Administration administered over 2.3 million telehealth encounters across the country in 2018 alone; 45% of those Veterans Health Administration telemedicine encounters in 2018 were performed for veterans in rural areas or for veterans with transportation difficulties (U.S. Department of Veterans Affairs, 2019). Despite these kinds of digital health modalities being widely used in similarly innovative ways in many health systems, there persists a significant lack of healthcare professionals with the training, competency, and experience necessary to utilize and advance digital health. This is in addition to those challenges that are all too frequently faced by modern healthcare providers, with an overwhelming amount of physician burnout as well as skyrocketing numbers of underserved and unreached patient populations. Digital health interfaces exist at the forefront of innovation to confront these issues and hold the potential to improve medicine by making physician independence and physician access more feasible, promoting patient involvement and autonomy, enriching the patient-provider experience, and lowering the cost of healthcare.

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