

## Chapter 9

# Apps and Their Applications: Novel Uses of Technology in the Clinical Setting

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### ABSTRACT

*In a society dominated by the use of technology as a primary method of communication and education, it should come as no surprise that medical professionals rely heavily on its use as well. The new dominance of smartphones over cell phones and pagers in medicine is largely influenced by convenience and efficiency, and over 70% of healthcare professionals have reported using a mobile device in their workplaces. This chapter aims to highlight the transition to mobile devices in the medical realm and the benefits for both clinicians and patients. For clinicians, mobile devices and apps may serve as diagnostic aids, med calculators, and clinical references. They can also be used for medical education purposes and access of electronic medical records. For patients, mobile devices and apps are often utilized to find resources and information about diseases, to help with disease management, and to promote lifestyle modification and fitness. Nevertheless, despite the numerous benefits of mobile devices in practice, potential risks and drawbacks must also be considered.*

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## **INTRODUCTION**

In a society dominated by the use of technology as one of the main and most accessible ways of communication and education, it should come as no surprise that medical professionals rely heavily on its use as well. The transition from textbooks to mobile devices and their applications (apps) has revolutionized the practice of clinical medicine.

The gradual infiltration of technology into medicine began with the general concept of smartphones alone. Many hospitals analyzed the use of smartphones for clinical communication in the internal medicine wards. These studies found improved communication, efficiency, and accountability among clinicians and nurses with the use of smartphones. Specific advantages included quicker communication between nurses and physicians and fewer interruptions for non-urgent issues throughout the day (Ozdalga, Ozdalga, & Ahuja, 2012). To take matters a step further, smartphones are also integrated with electronic medical records (EMR). For example, Epic, one of the most popular EMR systems, is accessible via mobile applications on the leading platforms (Ozdalga et al.).

The new dominance of smartphones over cell phones and pagers in medicine is largely influenced by convenience and efficiency. The applications that smartphones and tablets offer provide the most important resources used by medical professionals in the most accessible and time-friendly manner. Several studies indicate that usage of medical apps have a positive impact on communication among healthcare professionals, as well as on patient management (Ozdalga, et al., 2012; Ventola, 2014). In fact, 70% of medical school healthcare professionals and students reported using at least one medical app regularly, with 50% using their favorite app daily (Ventola, 2014).

This chapter will explore and explain different categories of apps used to aid clinicians as well as patients. It includes general education tools for healthcare providers, and apps for patient education, diagnosis, treatment, and preventative health. It is not meant to include an exhaustive list of mobile apps for use in the clinical setting, but as an exposure to the possible benefits of technology on patient outcomes, patient education, and diagnosis. Nevertheless, the use of more technology in the clinical setting does not come without its drawbacks and concerns, which this chapter will address as well.

## **HISTORY OF TECHNOLOGY IN MEDICINE**

As healthcare facilities began to include a variety of unrelated locations, such as outpatient clinics, inpatient services, emergency departments, radiology departments,

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