

## Advancements in Mobile Health Technology

Mobile devices are playing a key role in transforming the efficiency, delivery, and access to the healthcare system. The number of mobile device users who have downloaded mobile healthcare applications nearly doubled, from 127 million in 2011 to 247 million in 2012.<sup>1</sup> According to the Deloitte Center for Health Solutions, technological innovations are changing the face of healthcare from “brick-and-mortar” hospital transactions and face-to-face doctor-patient visits to mobile, virtual experiences around the globe.<sup>2</sup>

Remote monitoring devices have been utilized in several ways, from allowing physicians to remotely access patient medical records and diagnostic test results, to tools used to address substance abuse, smoking cessation, and prevention of chronic diseases in underserved areas.<sup>3</sup> For example, glucose monitors and pedometers allow patients to be monitored real time by physicians and puts patients in charge of their own test taking, effectively reducing the need for potentially costly and time consuming office visits.

In addition to potential cost savings, a 2009 meta-analysis published in the Journal of the American Medical Association found that mobile devices improved physician response time, accuracy, data management, and record-keeping practices.<sup>4</sup> Other potential benefits of mobile health technology include tools to: overcome language barriers; increase patient appointment attendance rates by providing virtual appointment reminders; and, shorten patient emergency room wait time.<sup>5</sup> Further studies have shown that mobile healthcare technology has the ability to improve access to medical care in rural areas by allowing physicians to remotely monitor patients.<sup>6</sup>

Despite the potential benefits that mobile technology advancements appear to exhibit in the medical and public health arenas, the rapid growth and adoption of mobile health technology is not without certain challenges. Many consumers are concerned about confidentiality, privacy and security of medical information that is being transmitted via handheld devices. Further, regulatory changes regarding physician reimbursement and health insurance coverage for the utilization of mobile technology have not kept pace with the adoption of mobile health technology. Additionally, while the Food and Drug Administration (FDA) is responsible for medical device safety and monitoring, it is unclear as to the FDA’s role in the

regulation of these new medical screening and diagnostic tools.<sup>7</sup>

Mobile technology is a growing industry, and is set to become a \$23 billion dollar worldwide industry by 2017.<sup>8</sup> As the opportunities for mobile health applications increase, so does the need for oversight and research into mobile health safety and security, as well as modifications to regulatory and reimbursement policy for healthcare providers utilizing mobile health technology. For example, a recent meta-analysis of studies regarding the effects of mobile technology on patient care, determined that further research is needed to definitively show improvement in sustainable clinical outcomes with use of mobile health technology.<sup>9</sup> Accordingly, the challenges and barriers associated with this new innovation will need to expand and be addressed in order to better align regulatory, reimbursement, and policy updates with the utilization of mobile health technology in this emerging area of healthcare reform.

- 1 “mHealth in an mWorld: How Mobile Technology is Transforming Health Care,” By Harry Greenspun and Sheryl Coughlin, Deloitte Center for Health Solutions, 2012, p. 12-13.
- 2 *Ibid*, p. 5, 14.
- 3 “How Mobile Devices are Transforming Healthcare,” By Darrell West, Issues in Technology Innovation, No. 18, May 2012, p. 3-4, 7-8.
- 4 “The Impact of Mobile Handheld Technology on Hospital Physicians’ Work Practices and Patient Care,” By Mirela Prgomet, Andrew Georgiou and Johanna Westbrook, Journal of the American Medical Informatics Association, Volume 16, No. 6, November/December 2009, p. 799.
- 5 Darrell West, May 2012, p. 5-6.
- 6 *Ibid*.
- 7 West, May 2012, p. 8-9.
- 8 “The Effectiveness of Mobile-Health Technologies to Improve Health Care Service Delivery Processes: A Systematic Review and Meta-Analysis,” By Caroline Free et al., PLoS Medicine, Vol. 10, Issue 1, January 2013, p. 23; West, May 2012, p. 5, 6.
- 9 *Ibid*, p. 8.



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