

# Distance Education in Telemedicine and M-Health Initiatives in Therapeutic Patient Education

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## INTRODUCTION

Patient education is a critical component of 21<sup>st</sup> century health care. On a policy level, initiatives such as the United States government's Healthy People 2000, 2010 and 2020 programs encourage all citizens to participate in health promotion and disease prevention, regardless of whether they are health care professionals, patients being treated for a condition or disease, or individuals who consider themselves in perfect health (U.S. Department of Health and Human Services, 2013). Practically, patients' participation in health care assessments has been associated with improved outcomes. Involvement in treatment decisions increases patient motivation, adherence and satisfaction (Dreeben, 2009). Individuals' ability to contribute to the conversation about their treatment is increased by their own knowledge of and comfort with discussing their condition or just the state of their health.

The increased role that the internet plays in our lives, and the prevalence of mobile technology in society, has increased the viability of distance education in general, and the health care industry is seeking to apply distance learning methodology and technology to the challenge of providing improved patient education. There has long been a recognition that patient care extended beyond the hospital or doctor's office, and while the health care industry is notoriously slow in adopting and integrating information technologies (due to a variety of factors, but most understandably concerns about the privacy and security of patient data), efforts to include computing and communication advancements into the field date back decades (White, Krousel-Wood & Mather, 2001). The Institute of Medicine, for instance, introduced the term "telemedicine" in 1996, defining it as the "use of electronic information and communication technologies to provide and support health care when distance separates the participants" (White et al., 2001, p. 22). In tandem with an integration of communication technology to the field, health care should also be utilizing the knowledge and experience of education and instructional design professionals to their efforts at patient education. This paper will analyze where past programs have achieved their goals or struggled as evidence that the best practices of distance education being employed in other industries are also key to success in health and medicine. It will also provide three recent examples of telemedicine and mHealth applications that are applying the lessons learned from previous efforts and examine their prospects for success based on current research in educational design.

## A Brief History of Distance Education, Technology, and Health Care

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Initial telemedicine efforts focused on professional education for providers and increasing accessibility of health information for the public. Using the internet to make vast amounts of information available to anyone with a networked device greatly increased the number of people with access to medical literature, but not all websites have policies in place to ensure the credibility and validity of information the way that government, academic and other institutions with accountability do (Codyre, 2014). In fact, considerable cost and effort has been required to counter anecdotal concerns of private citizens, such as the movement to discourage parents from vaccinating their children because of beliefs that the vaccines increase the risk of autism (Bruni, 2014). While increasing the amount of information that the public has access to is beneficial, there are challenges and the industry has learned that a website does not equal education. Health care is information intensive, not just for education flowing from providers to patients, but for data from individuals to doctors and nurses on how they are feeling, how treatments and medicines are affecting them and their concerns about their conditions and suggested courses of action. This is another reason why the initial wave of websites full of articles, however informative, was not a successful application of distance learning for health care. A meaningful patient education program requires a component whereby the user can provide feedback to their treatment professionals.

Much subsequent development in telemedicine focused on monitoring patients' conditions, gathering diagnostic information and ensuring compliance with treatment guidelines. While initially beneficial to researchers and those directing treatment, these applications provided little incentive for continued patient participation and demonstrated diminishing returns the longer the program continued (Seto et al., 2012).

Despite the lack of initial success in implementing technology to create patient distance education programs, the need for and benefit of patient education continues to be driven by a number of factors, and results in continued and varied attempts to create distance education applications for patients. Early education efforts on chronic conditions such as diabetes and asthma have been shown to improve morbidity and mortality rates, reduce patient anxiety and decrease cost of treatment (Golper, 2001). Cost and increased demand is also a driver of rapid discharge from health care facilities, which results in more patients being responsible for managing their own health earlier in the recovery process (Dreeben, 2009). This also reduces the time where patients would interact face-to-face with the providers who would have in the past been educating them on their condition and treatment, necessitating effective means of facilitating that learning at a distance.

## Lessons Learned from Previous Telemedicine and M-Health Applications

This increased need combined with the rise in the availability of communication technology has led to a number of applications and programs designed to provide patient education at a distance. In the rush to provide services to patients, providers and organizations, the health care industry would benefit from increased input from the field of education and instructional design in determining how to maximize the effectiveness of their distance learning programs. An analysis of where distance applications of patient education have succeeded or experienced challenges is useful in tailoring that input. The health care and education fields have learned many of the same lessons simultaneously with regards to what works and what doesn't.

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