

# Research & Reviews: Journal of Nursing & Health Sciences

## Blending Education and Emerging Technologies to Reduce Hospital Readmission and Improve Self-Care for Individuals Living With Heart Failure

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### Editorial

Received date: 05/05/2015

Accepted date: 10/05/2015

Published date: 17/05/2015

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## INTRODUCTION

The global burden of chronic heart failure (HF) continues to grow, affecting more than 5 million people in the United States and an estimated 23 million worldwide <sup>[1]</sup>. About half of people diagnosed with HF will face mortality within 5 years of initial diagnosis <sup>[2]</sup>. Individuals with HF often will be hospitalized several times within a year, leading to more than \$39 million in annual health care costs in the United States <sup>[1]</sup>.

A recent guideline published by the American Association of Heart Failure Nurses (AAHFN) “Ten Principles of Integrated Palliative and Supportive Care in Heart Failure” affirms there should be more emphasis placed on patient-centered education programs to assist individuals and families living with heart failure. AAHFN principles highlight the importance of providing supportive care and education for individuals in all phases of the HF trajectory <sup>[3]</sup>. The AAHFN promotes the focus on symptom management, use of health services research to develop innovative models of care, education and clinical practice <sup>[3]</sup>.

Poor self-care has been identified as a major contributing factor to increased hospital readmissions and poor health outcomes for individuals living with HF <sup>[2]</sup>. For patients with HF, maintaining self-care can be a complex task, as they must engage in daily activities involving self-monitoring of symptoms <sup>[4]</sup>. HF patients often are challenged with achieving self-care as a result of decreased functional status, fatigue, limited caregiver support and resources. Nurse-led patient education programs that use home-based follow-up have been found to make significant differences in the lives of those living with HF, in relation to improved self-care, improved symptom management, and reduced recurrent hospitalizations <sup>[5]</sup>. For these reasons, it is imperative that individuals with HF receive adequate education and home-based follow-up.

Nurses that provide patient education and home-based follow-up for HF patients should acknowledge the following considerations:

- Individuals with severe HF symptoms face greater challenges with self-care.
- HF education can be delivered in a variety of settings, that include hospital and community, and home-based settings.
- Patient-centered interventions targeted to improve self-care require that patients engage in self-monitoring activities.
- Hospitals and health care providers are using new technologies to track symptoms, reinforce self-care and promote self-monitoring.

Although significant progress has been made in the development of education programs for individuals living with HF, it is

important that nurses remain up to date with the state of the science, emerging technologies and innovative practices that are changing how we provide care, education, and follow-up.

With advances in technology, there lies a plethora of opportunities to improve the care for patients suffering from HF. In recent years, health care providers have increased the use of technology for home-based follow-up by monitoring patients remotely from their homes using portable cardiac monitors, Wi-Fi® enabled scales and blood pressure machines, or web-based video conferencing [6]. More recently, health care providers are guiding patients to use more advanced technologies such as apps for mobile phones and fitness watches that are interconnected via Wi-Fi or Bluetooth® transferring data about their weight, symptoms, blood pressure or physical activity to electronic health records [6]. Moving forward with the launching of smart watches, researchers are testing these devices by extrapolating patient data using global positioning system (GPS) software that tracks movements, walking distance, and tests activity tolerance associated with variability in heart rate. Nurses will play an integral role in cultivating more complex home-based follow-up programs, interpreting patient-generated data, triaging patient problems, and ensuring that patients are using these technologies appropriately.

Research studies serve as evidence that patient education programs with home-based follow-up improve outcomes. With the prevalence of HF expected to increase 25% by 2030, it is imperative that health care providers continue exploring innovative ways to promote improved health outcomes for individuals living with HF [1, 6]. Furthermore, patient-centered education integrated with the use of home-based follow-up has proven to be a cost-effective method for reinforcing patient education, promoting self-monitoring, improving self-care, and reducing hospital readmissions [5, 6].

As HF is projected to be a relentless problem, nurses must recognize they are keenly positioned with an opportunity to deliver care and education using innovative technology to promote optimal health outcomes. Managing one's HF is critical to improving quality of life as well as extending life. Nurses must be ready to seek out and explore technological advances that relate to disease management. Nurses must be open and flexible to embrace and incorporate technology into patient-education programs. It is encouraged that nurses network to join research teams committed to trialing innovation with patients. With the power of emerging technology and education supported by research, nurses have extraordinary possibilities to enhance and positively impact individuals affected with HF by improving one's ability to self-care.

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