Telemonitoring does not miss a beat: The use of telehealth to manage HF

Marie Mathurin, BSN, RN
Salem State University
Salem, MA

INTRODUCTION

The aim is to determine telehealth monitoring efficacy in the following aspects in managing HF:

- ✓ Telehealth monitoring improves access and quality of life by early detection of symptoms thus prevent exacerbation.
- ✓ Improve medication adherence
- ✓ Promotes/improves self-management skills
- ✓ TH links patients to providers via a variety of communication tools including telephone, smartphones, mobile devices, audio or video connections access.
- ✓ TM helps patients overcome barriers such has limited assess to medical offices and long wait time.
- ✓ TM care delivery is more amenable and convenient specially for those who have limited mobility.
- ✓ TM improves system care delivery, nurse-patient rapport and patient's confidence. (Chaudhry, S., Barton, B., Matera, J., et al. (2007)

Figure: 1

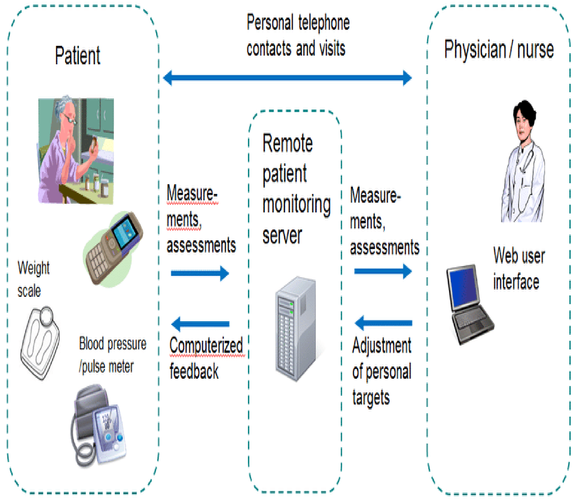


Figure: 2

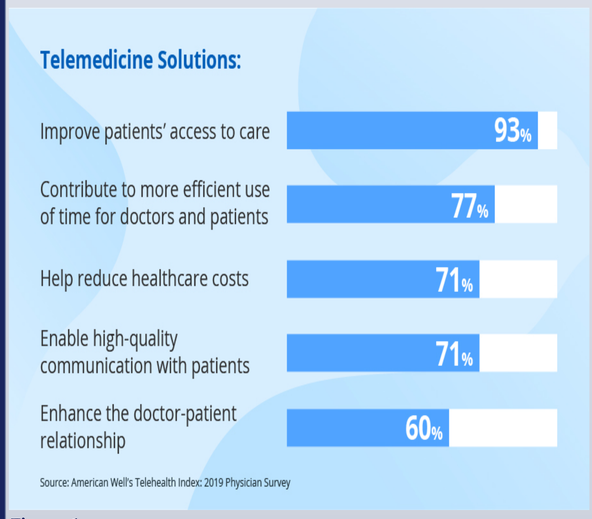


Figure: 1

EPIDEMIOLOGY

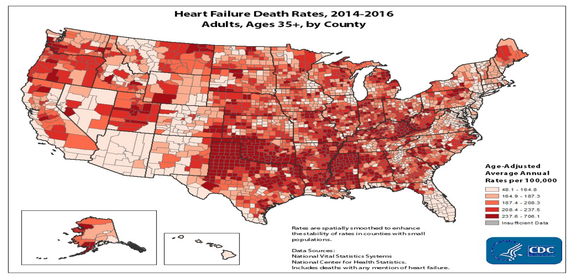


Figure: 3

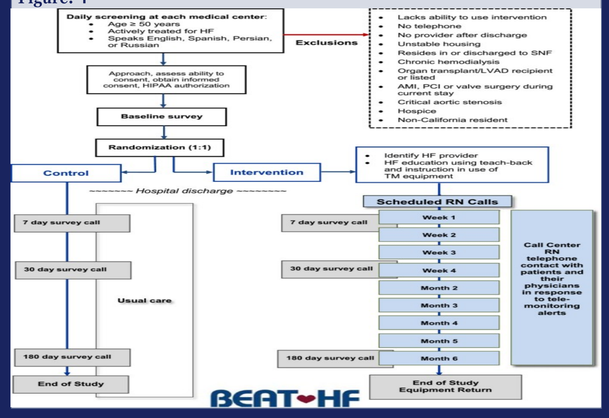
The research studies evaluated targeted older adults with heart failure, a major health problem affecting more than 6.2 million Americans. According to the CDC (2020), heart failure is the primary cause of mortality and hospitalization in the elderly. In the United States, the total cost of care for a patient with heart failure in 2020 is estimated to be $43.6 billion. "More than 70% of these costs are attributed to costs associated with a lack of improvement in outcomes. Those costs are projected to increase to $69.7 billion by 2030" (CDC, 2020)

METHODS

- ❖ A remote and telephone nurse coaching intervention to reduce readmissions among patients with heart failure: Study protocol for the better effectiveness after transition-heart failure (BEAT-HF) randomized controlled trial. Black, J. T., Romano, P. S., & Ong, M. K. (2014)
- ❖ A comparison of in-person home care, home care with telephone contact and home care with telemonitoring for disease management. Bowles, K. H., Holland, D. E., & Horowitz, D. A. (2010)
- ❖ Randomized trial of telemonitoring to improve heart failure outcomes (Tele-HF): study design. Chaudhry, S., Barton, B., Matera, J., et al. (2007)
- ❖ Telehealth in the elderly with chronic heart failure: What is the evidence? Study in health technology and informatics. Clark, R. A. (2018)
- ❖ Telemedical interventional monitoring in heart failure (TIM-HF): a randomized, controlled intervention trial investigating the impact of telemedicine on mortality in ambulatory patients with heart failure: study design. Koehler, F., Winkler, S., Schieber, M., et al. (2014)
- ❖ Efficacy of telemedical interventional management in patients with heart failure (TIM-HF2): a randomized, controlled, parallel-group, unmasked trial. Koehler, F., Koehler, K., Deckward, O., Preacher, S., et al. (2018)
- ❖ The efficacy of telehealth for heart failure management. Mercer, L. (2020).

Systematic review provide research and studies that address the benefits of telehealth monitoring.

Figure: 4



RESULTS

Black, J. T., Romano, P. S., & Ong, M. K. (2014)

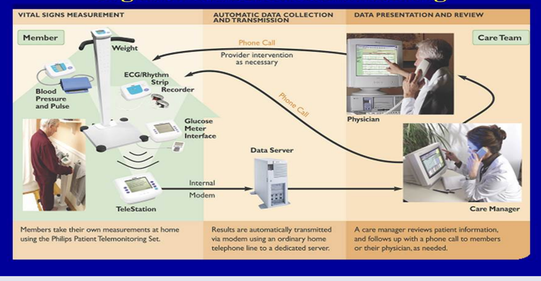
- ❖ A randomized controlled trial that utilized telemonitoring devices FDA approved that transmit physiologic data digitally or wirelessly using Bluetooth technology. Telemonitoring improve transition of care for patients in the heart failure Better effectiveness after transition-heart failure (BEAT-HF) prove to be effective as evidenced by a reduction in hospital readmission, symptoms reductions and nurse coaching skills improvement.

Bowles, K. H., Holland, D. E., & Horowitz, D. A. (2010)

- ❖ The study determines that the delivery of care using telemonitoring is rendered good results according to evidence-based disease management(HF) with better outcomes compare to in person visit. Rehospitalizations and ER visits in all group were lower than the national average.

Figure: 5

Figure 1: Basic Telemonitoring



Chaudhry, S., Barton, B., Matera, J., et al. (2007)

- ❖ The study suggests that telemonitoring healthcare outcomes
- ❖ Improves patients' self care confidence
- ❖ Reduces social isolation and depression

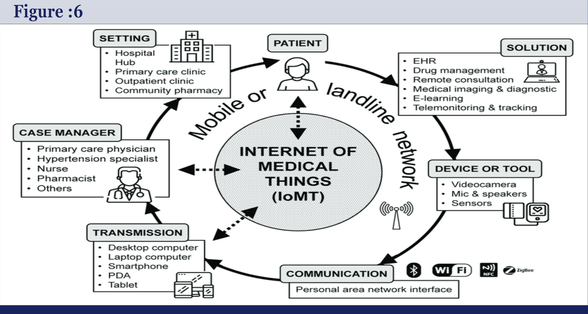
Clark, R. A. (2018)

- ❖ TM interventions prove to be effective by using structured telephone support in the management of HF. Increases self-care adherence
- ❖ Reduces mortality and rehospitalizations,
- ❖ Increases patients' satisfaction, overall health and social functioning

Koehler, F., Winkler, S., Schieber, M., et al. (2014), Koehler, F., Koehler, K., Deckward, O., Preacher, S., et al. (2018) & Mercer, L. (2020)

- ❖ The above studies measure the efficacy of remote patient management with HF compare to usual care.
- ❖ TM reduces mortality, hospitalizationa, and ER visits.
- ❖ Enable rapid treatment prior to full HF.
- ❖ TM helps detect early s/s of decompensation.

Figure :6



CONCLUSION

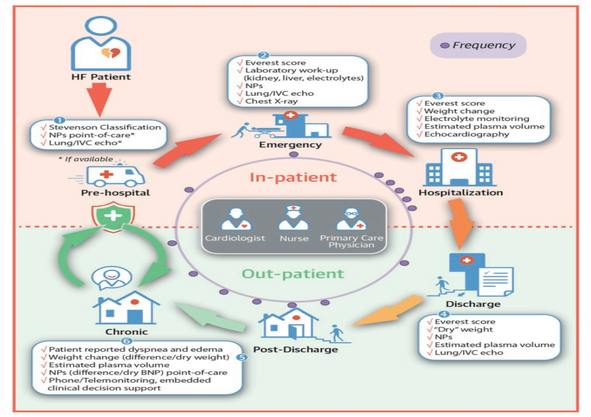
- ❑ Despite the implementation of different technologies, the study's findings were very promising and encouraging.
- ❑ Telemedicine management in patients with heart failure support the evidence presented in improving a patient's quality of life.
- ❑ Those studies lay the foundation for the algorithms of telehealth to transform and revolutionize the healthcare system in supporting one's ability to self-manage their chronic disease states
- ❑ Facilitating communication, promoting medication adherence, reducing hospitalizations, mortality, HF exacerbation, healthcare costs. Reduction of waiting times to initiate the implementation of interventions without delay.

RECOMMENDATION

All seven research studies provide sufficient evidence and rationale for integrating telemonitoring into the daily praxis to achieve optimal clinical outcomes in patients with HF. Doing so could provide patients with flexibly scheduled, remote, in-home health assessments that promote their well-being. It is a necessary component when caring for patients being monitored in-home and who are afflicted with HF. This is because structured telephone consultation and digital RMD's, such as ECG evaluations, BP monitoring, and weight scales can facilitate the early detection of cardiac decompensation, allowing providers to respond quicker and tailor interventions to each patient's need, reducing the risk of further hospitalization. More studies are warranted however, as we attempt to determine which electronic remote monitoring devices can best contribute to reducing rehospitalizations as well as a reduction of mortality in patients of all ages and with varying degree of heart failure.

Figure: 7

CENTRAL ILLUSTRATION: Congestion Assessment in HF Patient Journey



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