

<b>Project Title:</b>	Home Heart Failure Care: Comparing Patient-Driven Technology Models
<b>Principal Investigator:</b>	Goldberg, Lee R., M.D., M.P.H.
<b>Organization:</b>	St. Vincent Healthcare
<b>Mechanism:</b>	RFA: HS04-012: Demonstrating the Value of Health Information Technology (THQIT)
<b>Grant Number:</b>	R01 HS 015459
<b>Project Period:</b>	09/04 – 09/08, Including No-Cost Extension
<b>AHRQ Funding Amount:</b>	\$1,454,568
<b>Summary Status as of:</b>	September 2008, Conclusion of Grant

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**Strategic Goal:** Develop and disseminate health IT evidence and evidence-based tools to support patient-centered care, the coordination of care across transitions in care settings, and the use of electronic exchange of health information to improve quality of care.

**Business Goal:** Synthesis and Dissemination

**Summary:** Increasing prevalence, hospitalizations, and deaths have made heart failure (HF) a major chronic condition in the United States. HF is the most common diagnosis in hospital patients age 65 years and older. Although mortality for HF is declining, the growing number of older adults who require HF treatment will have a substantial impact on national health care resources and expenditures. As a result of complex clinical management problems, elders with HF have high hospital readmission rates, ranging from 29 to 47 percent; with more effective management, an estimated one-third to one-half of these readmissions would be preventable.

The objective of this concluded grant was to assess the impact of health information technologies (ITs) on clinical and financial outcomes for patients with symptomatic (New York Heart Association Class II – IV) HF. The health IT in this study included remote monitoring (or telemonitoring) of vital signs and symptoms, an electronic health record system, and clinical decision support systems. This study tested a scalable, reproducible model for technology-supported HF management, which was intended to assist purchasers, payers, and policymakers in selecting health IT to improve clinical and financial outcomes.

Two different configurations of health IT were evaluated. One was Technology Supported Case Management, a combination of telemonitoring and telephone nurse case management. The other was Technology Supported Self Management, which combined telemonitoring with an expert clinical decision support system that assessed vital signs and symptoms and guided patients through an individually-tailored self-care algorithm. These two interventions had many features in common; for clarity, they will be referred to as Case Management and Self Management. Patients were recruited from geographically, socially, and ethnically diverse settings: rural areas of southern Montana and northern Wyoming, including a Native American population; urban and suburban Philadelphia, where the study included African American, Caucasian, and Hispanic patients; and a third site in Charleston, South Carolina, which was added to the project in 2005.

### Specific Aims

- Demonstrate improvements in access to care. **(Ongoing\*)**
- Demonstrate improvements in quality of care. **(Ongoing\*)**
- Reduce costs, particularly costs related to hospital readmission. **(Ongoing\*)**
- Improve patient involvement and satisfaction. **(Ongoing\*)**

*\* All aims of the grant were not completed prior to the scheduled conclusion of the grant (September 2008), yet, as other sources of funding have been secured, these aims are still targeted for completion.*

**2008 Activities:** Data collection concluded in July 2008. At the end of the grant period, analysis and dissemination efforts were ongoing.

**Impact and Findings:** The study was placed on hold under Institutional Review Board (IRB) direction and approval in late March 2005. A pilot study was developed by the researchers and implemented under IRB approval on 14 healthy subjects in April 2005, using the device and care protocols planned for the HF patient trials. As the research staff and the IRB wanted to be thorough in testing the technology, this pilot required pushing the timetable for the HF study out by at least 6 months. The first subject was voluntarily consented and enrolled in the study in June 2005. There were additional administrative challenges during the first year, and several of those challenges extended well into year two of the award. Changes among tribal leadership as well as the research team staff at the Montana/Wyoming site delayed implementation of the study there. Challenges related to participant enrollment at all sites necessitated an abbreviated data collection period of 9 months of active participation plus 3 months of followup monitoring. Patient enrollment concluded in May 2007; active study participation thus concluded in March 2008, with 3 months of additional data collection afterward. At the end of the grant period, data were not yet available to verify the project's research hypotheses.

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### **Selected Outputs**

Goldberg LR. Be Careful What You Wish For - Managing Devices and Data In Your Patient's Home. Presentation at the Annual Conference of the Agency for Healthcare Research and Quality; 2008 Sept 8; Bethesda, MD.

Farberow B, Hatton V, Leenknecht C, et al. Caveat emptor: the need for evidence, regulation, and certification of home telehealth systems for the management of chronic conditions. *Am J Med Qual*; 2008 May-Jun;23(3):208-14.

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**Grantee's Most Recent Self-Reported Quarterly Status (as of September 2008):** Grantee did not provide self-assessment for the most recent quarter.

**Milestones:** Grantee did not provide self-assessment.

**Budget:** Grantee did not provide self-assessment.