

Feasibility Study: Home Telemonitoring for Patients With Lung Cancer in a Mountainous Rural Area

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Lung cancer is second only to heart disease as a cause of death for men and women in West Virginia (WV), and lung cancer death rates (90.5 per 100,000) in WV are higher than all cancer type death rates in the United States as a whole (WV Cancer Registry, 2012). Smoking, social inequality, and environmental exposure (e.g., coal mining), all of which are prominent factors in the WV population, contribute to lung cancer prevalence and higher mortality (Hendryx, O'Donnell, & Horn, 2008). Costs of care are high because of the expense of cancer treatments compounded by long-term oxygen therapy, repeated hospital stays, and emergency care visits. Providing even short-term, daily, out-of-hospital surveillance of patients with lung cancer at home could better standard care by improving patient reports of signs and symptoms to clinicians, thereby delaying or avoiding rehospitalization. However, the use of home telemonitoring devices for patients with lung cancer is not well documented and may not be feasible in rural, mountainous areas in WV.

Background

Telemonitoring in Chronically Ill Patients

Although ambiguous outcomes have been reported, often related to underpowered studies and dissimilar outcome measures, researchers and clinicians have found the use of home telemonitoring can be a key factor in cost-effective health care, as evidenced by studies dating back to 2001 (Dellifrairie & Dansky, 2008). Examples of outcomes include a 50% reduction in admissions, with an 80% decrease in home visits for chronic obstructive pulmonary disease (COPD) (Cook, 2012) and improved patient responses such as better control of blood pressure management and increased activities of daily living (Finkelstein, Speedie, & Potthoff, 2006), and decreased healthcare visits and costs, including a 44% decrease in 30-day hospital readmissions of patients with heart failure

Purpose/Objectives: To explore the feasibility of rural home telemonitoring for patients with lung cancer.

Design: Exploratory, descriptive, observational.

Setting: Patient homes within a 75-mile radius of the study hospital in West Virginia.

Sample: 10 patients hospitalized with lung cancer as a primary or secondary-related diagnosis.

Methods: Data included referral and demographics, chart reviews, and clinical data collected using a HomMed telemonitor. Five patients received usual care after discharge; five had telemonitors set up at home for 14 days with daily phone calls for nurse coaching; mid- and end-study data were collected by phone and in homes through two months.

Main Research Variables: Enrollment and retention characteristics, physiologic (e.g., temperature, pulse, blood pressure, weight, O₂ saturation) and 10 symptom datapoints, patient and family telemonitor satisfaction.

Findings: Of 45 referred patients, only 10 consented; 1 of 5 usual care and 3 of 5 monitored patients completed the entire study. Telemonitored data transmission was feasible in rural areas with high satisfaction; symptom data and physiologic data were inconsistent but characteristic of lung cancer.

Conclusions: Challenges included environment, culture, technology, and overall enrollment and retention. Physiologic and symptom changes were important data for nurse coaching on risks, symptom management, and clinician contact.

Implications for Nursing: Enrollment and retention in cancer research warrants additional study. Daily monitoring is feasible and important in risk assessment, but length of time to monitor signs and symptoms, which changed rapidly, is unclear. Symptom changes were useful as proxy indicators for physiologic changes, so risk outcomes may be assessable by phone for patient self-management coaching by nurses.

Key Words: care of the medically underserved; community health/home care; lung cancer; patient education; quality of life

ONF, 41(2), 153–161. doi:10.1188/14.ONF.153-161

(Anderson, 2012; Cook, 2012). However, telehealth research has focused primarily on chronic disease populations, particularly those with chronic heart failure