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