



Principal Investigator (PI) Georgia Narsavage (right), with Research Nurse Trisha Petite and Study Coordinator Chuck Coole during an NIH National Cancer Institute study teleconference in April, 2013. Phone participants (not pictured) include CO-PI Kathy (Yea-Jyh) Chen (Kent State) and Health Economist Kevin Frick (Johns Hopkins).

# HOME TELEMONTITORING

## Empowering patients to self-manage symptoms

by Danielle Conaway

**A** recent WVU School of Nursing study indicates that a home telemonitoring system may help lung cancer patients manage their health, decrease hospital admissions, and remain at home.

When an elderly, lung cancer patient's oxygen levels began to fall when he got out of bed, he became limited to only moving around in his bedroom. His wife became very concerned that even using the bathroom was too strenuous. An in-home telemonitor device collected his heart rate, blood pressure, and oxygen levels daily, and his shortness of breath was documented as getting worse.

He and his wife discussed what they could do and were coached by the study's research nurses, Trisha Petite and Michelle Ryan, who used the telemonitor information about his problems to help guide the discussion. Should they call the doctor or change his medications? Should they call the oxygen company to check the oxygen concentrator and tubing? His wife decided she would call the oxygen company first, and when the company checked the machine, they found a problem with the tubing and fixed it. The patient was then able to walk farther with the oxygen, and a trip to the Emergency Room was avoided.

"Most other uses of telemonitors involve the clinicians telling the patients how to change their medicines or other

therapy – our study helped the patients make their own decisions,” said WVU School of Nursing researcher Georgia Narsavage, PhD, RN. “Then, once the monitor was removed, the patients had been helped to develop their own knowledge of how to contact their doctor or nurse or obtain other help, hopefully without the need to visit an emergency room.”



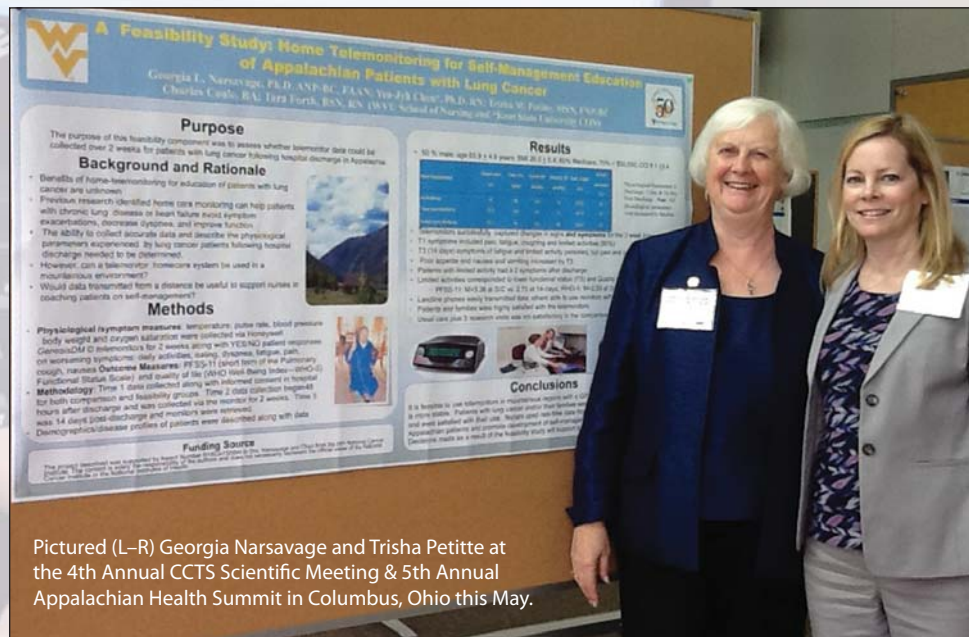
Georgia Narsavage (right) and Chuck Coole view a patient's vital signs data transmitted from home, using Honeywell HomeMed LifeStream View. The browser-based interface allows health care providers to interact with patients to make informed decisions on patient care.

Fifty-seven patients between the ages of 45-90 who were hospitalized or treated in the WVU Mary Babb Randolph Cancer Center with problems related to lung cancer, participated in the study. For two weeks, on a daily basis, an FDA approved, hospital-grade telemonitoring device collected patient data, including heart rate, body temperature, weight, blood pressure, and oxygen level, and asked the patient to respond “yes” or “no” to ten pre-programmed questions about difficulty breathing, fatigue, limited activities, difficulty taking meds, and increased pain. Results from the telemonitor were transmitted via satellite to the WVU School of Nursing research office for analysis. Clinical research nurses then called the patients to discuss the telemonitor information and allowed the patients to decide what to do about the information.

Following rural patients via telemonitoring was originally successful only in homes with landline-phones; the mobile GPRS radio system was only able to transmit data from urban/suburban settings, but not from remote rural homes. The new system has the ability to transmit from many remote areas. Despite challenges of telemonitoring in remote areas, participants and their families expressed satisfaction with the use of the technology as a means to learn self-management; they felt supported—even at a distance.

The study was implemented in 2011 by Dr. Narsavage, WVU School of Nursing professor, and co-principal investigator, Yea-Jyh Chen, PhD, RN. The project was funded by a National Cancer Institute grant of \$366,000.

WVU School of Nursing researchers completed data collection of the telemonitoring study this spring, and they are continuing to analyze the data. “We did find that telemonitoring is feasible in rural West Virginia, but not all patients are located in areas where data transfer is supported,” Dr. Narsavage said.



Pictured (L-R) Georgia Narsavage and Trisha Petitte at the 4th Annual CCTS Scientific Meeting & 5th Annual Appalachian Health Summit in Columbus, Ohio this May.