REMOTE MONITORING TESTED

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Study Reveals Positive Feedback From Residents, Staff

Understanding seniors' attitudes toward technology—and, in particular, their willingness to adopt technological solutions that can help them remain independent longer—presents a significant challenge to the aging services industry.

Until recently, limited information regarding the practical impact of remote monitoring systems on the elderly has been available. A recent study, however, has yielded new data about this technology.

Conducted by an independent research consulting firm at four Philadelphia-based NewCourtland Elder Services communities, the April 2008 study measured the effectiveness of sensor technology and captured the perceptions of residents, family members, and staff employing it.

Rapid Response

The remote monitoring system was installed in residences at NewCourtland's Germantown, Pa., campus in July 2006 as part of a pilot program. Today, the system operates at four NewCourtland congregate independent living properties, a memory care unit, and in the residences of a number of elderly individuals participating in NewCourtland's Living Independently For Elders program for seniors who are nursing facility-eligible, but prefer to remain in the community.

Results of the study indicate that users had a very positive attitude toward the remote monitoring technology. The two greatest advantages of the system, according to the residents' responses, were the assistance it provided to get help quickly in the event of an emergency, such as a fall or sudden illness, and the added benefit of enabling them to live independently for a longer period of time.

In both cases, 100 percent of the survey respondents either "strongly agreed" or "agreed" with the two statements.

Among those surveyed, only one elderly resident reported a concern about intrusiveness.

The staff study indicated similar sentiments about the system's ability to provide better care to their residents. Among these respondents, 75 percent "strongly agreed" that remote monitoring allows them to better assess the appropriate level of care needed by residents and therefore aids in improving the overall quality of care residents receive.

"We thought at first that adapting to the technology would be a major issue for our residents, but clearly it was not," says Kim Brooks, NewCourtland's vice president of housing and community-based services. "The results of the survey demonstrate that even seniors with little or no prior exposure to this technology can readily adapt to it."

A remote monitoring system, typically consisting of small wireless elec-

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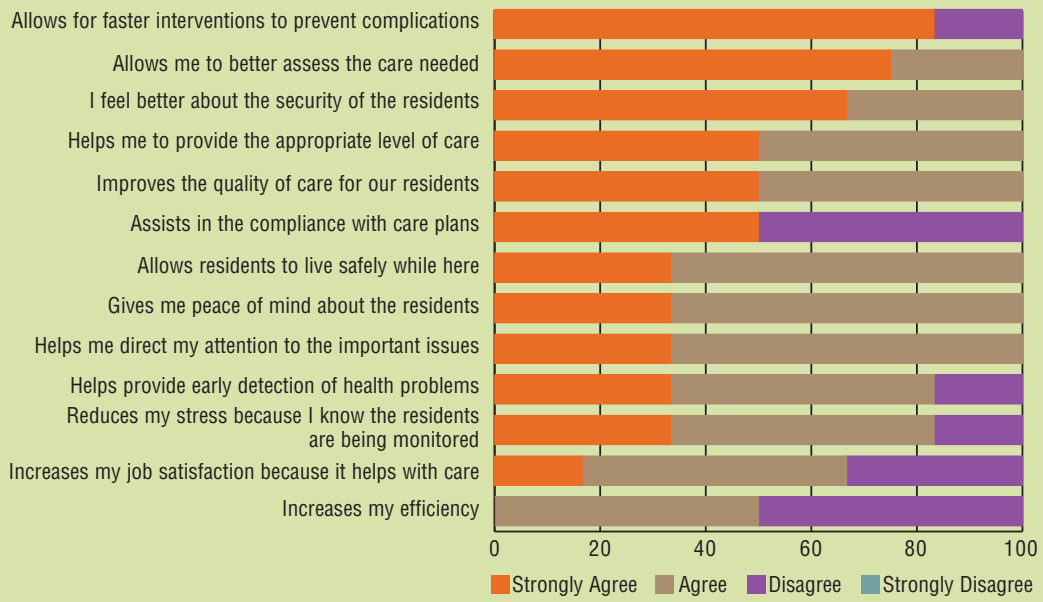
tronic sensors, monitors daily living activities. The sensors are placed in strategic areas of residences, including walls, to detect movement within rooms; on kitchen cupboards and refrigerator doors, to monitor whether the resident is eating regularly; and tilt sensors on medicine boxes to monitor medication usage.

Contact sensors on a bed can detect when a resident gets in or out of bed, toilet sensors monitor toilet usage, and home- or away-sensors have the capability of detecting when the resident leaves or returns to her residence.

A call pendant, which may be worn or carried, can be used as an emergency call button. In addition, if the sensors detect abnormal activity, or a lack of activity, the system calls for help and automatically alerts a caregiver via phone. A cancel button clears in-home alerts or emergency calls.

GRAPH 1: RESIDENTS' RESPONSES

GRAPH 2: STAFF RESPONSES



NewCourtland's monitoring system employs a base station—as a central computing component—that receives all information transmitted by the sensors.

Based on information that is received, the base station will determine if there is a need to call for help, for example. In such a case, the base station will first sound an "in-home alert." If the resident is okay, a cancel button can be pressed to discontinue the alert. If it is an emergency and the in-home alert is not cancelled, the system will automatically proceed through a user-defined call list, via the telephone line, until a responder accepts responsibility to check on the user.

If no contacts in the personal caregiver network can be reached, an automated call can be placed to facility security services.

Programmable Technology

The technology used by NewCourtland is programmed to sense unexplained periods of inactivity. For example, an individual resident's system can be programmed to allow him a predetermined number of minutes to go from the bedroom to the bathroom and back to bed again at certain hours of the night, when the resident may be at increased risk of falling. Working together, the combination of bed, bathroom, and toilet sensors will detect any failure to complete the bed-to-bathroom transfer and automatically send out an alarm.

Residents can also wear an emergency call pendant that allows them to signal for immediate help when needed.

"The results of the study…provided invaluable insight and direction for

future development," says Brooks. Derived from a census sample of NewCourtland residents, the study measured their perceptions on a 4 to 1 answer scale, where 4 equals "strongly agree," 3 equals "agree," 2 equals "disagree," and 1 equals "strongly disagree" (*see Graph 1, page 59*).

Forty-three of 54 residents were interviewed over a two-and-a-half-day period for a response rate of 84.3 percent.

The 11 residents who were not interviewed were unable to participate due to a variety of health reasons, including dementia and speech issues.

Seven staff members were selected to be interviewed, with a response rate of 100 percent.

Peace Of Mind

"The responses of the seniors who participated indicate that the peace of mind they obtain from knowing that they will receive help when they need it, combined with a perception that the technology helps them live independently longer, is a significant quality-of-life benefit to them," says Brooks.

The fact that only one of the residents interviewed commented on a perceived "big brother" effect due to the remote monitoring "reflects positively on the trust earned among residents by the NewCourtland staff members who work with the system and on the comparative unobtrusiveness of the technology," she adds.

Mitzi Boegly, a 97-year-old Germantown campus resident who was interviewed for the study, said she welcomed having the sensor technology in her apartment—especially after she used it to summon help after a fall. "It gives you a feeling of security knowing that if something happened to you, you can get help right away. I go to bed at night with peace of mind," she said.

The NewCourtland staff responses (*Graph 2, page 59*) indicate that they also feel the sensor technology has improved the residents' basic security and safety.

"The study shows our staff appreciate the system's ability to improve the efficacy of care delivery by directing it quickly to where it is most needed," says Brooks. At the same time, she adds, the staff's responses suggest a need for additional training, better reporting tools, and extensions into prognostics for chronic conditions.

Enhancements planned for the system based on NewCourtland's experience include developing a biometrics component that measures and transmits blood pressure or pulse oximetry and extending the technology to assist with management of chronic diseases.

The technology was developed with a grant from the National Institutes of Health. ■