

# Health-monitoring technology helps seniors live at home longer

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Many older adults want to remain active and independent for as long as possible. Seniors want to age in their own homes and avoid moving to institutions or nursing homes. University of Missouri researchers are using sensors, computers and communication systems, along with supportive health care services to monitor the health of older adults who are living at home. According to the researchers, motion sensor networks installed in seniors' homes can detect changes in behavior and physical activity, including walking and sleeping patterns. Early identification of these changes can prompt health care interventions that can delay or prevent serious health events.

As part of the "aging in place" research at MU, integrated sensor networks were installed in apartments of residents at TigerPlace, a retirement community that helps senior residents stay healthy and active to avoid hospitalization and relocation. MU researchers collected data from motion and bed sensors that continuously logged information for more than two years. The researchers identified patterns in the sensor data that can provide clues to predict adverse health events, including falls, emergency room visits and hospitalizations.

"The 'aging in place' concept allows older adults to remain in the environment of their choice and receive supportive health services as needed. With this type of care, most people wouldn't need to relocate to a nursing home," said Marilyn Rantz, professor in the MU Sinclair School of Nursing. "Monitoring sensor patterns is an effective and discreet way to ensure the health and privacy of older adults."

In recent evaluations, the sensor networks detected changes in residents' conditions that were not recognized by traditional health care assessments. MU researchers are perfecting the technology infrastructure at TigerPlace as a model, so these technologies and supportive health care services can be made available to seniors throughout the country.

"Our goal is to generate automatic alerts that notify caregivers of changes in residents' conditions that would allow them to intervene and prevent adverse health events," Rantz said. "Additional work is underway to establish these health alerts, improve the reliability and accuracy of the sensor network, implement a video sensor network, and refine a Web-based interface to make it even more user friendly and meaningful to health care providers."

Tiger II, a 22-unit addition to TigerPlace, opened on Jan. 1. TigerPlace community residents receive health and wellness services through TigerCare, a service of the Sinclair School of Nursing. Residents receive care and services when they need them and where they want them - in the privacy of their apartments.

Through its university affiliation, residents can participate in a number of educational, cultural and research projects both on site and on campus that are conducted by the College of Engineering, School of Nursing, Health Professions, and Medicine at MU.

Source: University of Missouri-Columbia

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