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MEDIA RELEASE

Vital signs and fall detection: The sensors driving an aged care revolution

Sensors are helping older Australians with their desire to age in their homes for as long as they wish.

These devices can measure multiple variables such as body position, movement and activity, sleep quality, blood pressure, blood oxygen saturation, body temperature, heart rhythm and rate, blood oxygen, fatigue levels, and respiration rate.

Now a NSW Smart Sensing Network Grand Challenge Fund project is hoping to transform the provision of care in the home by describing which data collected by sensors provides the most meaningful improvements in care.

This includes sensor measurements which best detect and predict deterioration or an adverse event.

The insights can inform personalised care models, enabling proactive interventions by clinicians and carers to prevent events such as falls and subsequent hospital admission, and can help maintain a client's independence and quality of life.

The *Meaningful Measures in the Home* project is being led by Professor Paul Egglestone, Director of FASTlab at the University of Newcastle.

"Our goal is to identify a universally clinically agreed set of 'meaningful measures' that can unlock the potential of IoT devices for home care," says Professor Paul Egglestone. "This will help healthcare providers move from reactive to proactive care, reducing hospital admissions and enhancing the independence of older Australians."

Innovative models of home-based care using sensor devices such as wearables can track physiological measurements such as vital signs, activity and movement tracking, diet and nutrition.

These technologies have been proven to build personal profiles of norms and habits from sensor data, detect risks indicated by thresholds and trends, and send messages and alarms to healthcare providers, carers and families.

The project team will conduct a meta-analysis of existing studies to identify a subset of meaningful measurements that provide a comprehensive understanding of older people's wellbeing at home.

The project is a partnership with co-investigator Professor Jason Prior, Professor of Planning, Health and Environment at the UTS Institute of Sustainable Futures, and industry partners InteliCare, My Medic Watch, Hills Health, Hospital in your Home, Vlepis and United for Care.

"This project will identify a draft suite of meaningful measures and validate these using existing data collected by our industry partners," Professor Prior says. "This will produce a validated set of meaningful measures, providing personalised information and actionable insights. These insights will facilitate sensor-assisted support for our ageing population and their caregivers, ultimately improving independence, health outcomes and enhancing the quality of life."

The project was developed by members of the Healthy@Home consortium, a joint initiative led by the University of Newcastle's FASTlab in collaboration with the Central Coast Research Institute and NSW Smart Sensing Network member organisations. The transdisciplinary university members share a vision for data-driven aged care in the home.

"Our ultimate goal is to help people stay safely at home and that depends on us establishing a set of parameters that helps carers responsibly respond to the needs of ageing citizens appropriately," NSW Smart Sensing Network Human Health Lead Catherine Oates Smith says. "These measures are vital for this ultimate outcome of keeping people in their homes for as long as possible. Australia, with its robust health system, could lead the way in establishing this set of parameters for every nation in the world."

The project received an NSW Smart Sensing Network Grand Challenges Fund grant earlier this year.

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Media contact: Diane Nazaroff, NSSN Media Manager, 0424 479 199, diane.nazaroff@nssn.org.au.

Declaration

The NSW Smart Sensing Network, a consortium of nine leading universities across NSW and the ACT, is a not-for-profit innovation network that brings together universities, industry and government to translate world-class research into innovative smart sensing solutions that create value for NSW and beyond.