For the past two years we have been working with Oxehealth, a company that has developed software that turns an optical sensor into a device that can observe movement in a room and provide data on patient activity, restlessness and vital signs. If a patient moves to the edge of their bed an alert sounds on a central monitor, giving staff critical time to intervene to reduce the risk of a fall or injury.

We used research funding to put the system into six rooms on each ward in 2017. The study, run by Coventry and Warwickshire Partnership NHS Trust, was given ethical approval and patient consent was obtained from family members where appropriate.

Manor Hospital in Nuneaton is a dementia assessment and treatment unit. It has two 12-room wards, Stanley ward for men and Pembleton ward for women. Most of our patients have advanced dementia and their physical conditions, mental impairment and polypharmacy put them at a high risk of falls.

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Is sensor technology the next step in falls prevention?

Motion sensors are helping one dementia unit to prevent falls, reduce injuries and cut costs

By Linda Fitzpatrick
The early indications are that the number of falls in bedrooms has been reduced significantly. Comparing March-October 2018 with the same period a year earlier we have seen the monthly average for bedroom falls at night drop from nine to 5.9, a reduction of a third.

At the same time, staff perceptions of the system have become increasingly positive. In a questionnaire conducted in July 2018, 79% agreed or strongly agreed that ‘the system has enabled me to prevent a fall’. By October 2018 the number who agreed with that statement had risen to 92%.

Benefits and savings
The technology has been embraced by the team because it helps us to respond quickly when a patient is in a situation in which they could harm themselves, so it increases the time we can spend on therapeutic care.

Early intervention to prevent a fall avoids pain and suffering for the patient. But there is also a significant financial saving. For example, the cost for a patient to receive treatment, surgery and aftercare for a fractured neck or femur is in the region of £70,000.

Avoiding a fall also saves time for staff. Our trust’s falls prevention policy says that if an unwitnessed fall occurs we must assume that the patient has hit their head. Physical observations must be increased and the Glasgow Coma Scale used to assess the patient’s level of consciousness.

With the Oxehealth system, staff can instead use the ‘replay alert’ facility to view the incident. The nurse in charge can then assess the fall – turning an unwitnessed fall into a witnessed fall.

If the patient has not sustained an injury it is unnecessary for a nurse to disturb them every 15 minutes to conduct additional observations.

The effect of this is far from trivial. Observations in themselves can be tiring for the patient, causing more confusion, anxiety and distress, which can lead to irritability, further increasing the risk of falls or the need for one-to-one observations.

The system has developed significantly since we began working with it. From the outset it has enabled us to help determine patient movements and resting patterns. More recently, Oxehealth has received European Medical Device certification for the system, so it can be used to monitor pulse and breathing rate remotely.

We began using this version of the system, the Digital Care Assistant, in February 2019. It promotes sleep quality, because it reduces the need for a nurse to monitor these vital signs by disturbing patients throughout the night. In addition, the data can be seen in multidisciplinary ward rounds.

Coventry and Warwickshire Partnership NHS Trust is investing heavily in innovative technology that can improve care for patients. It has already extended the use of this system to its Caludon Centre, where it is in use on acute wards and in a psychiatric intensive care unit.

It is hoped that the technology will support these services in reducing incidents that put patients and staff at high risk. This is a focus for the government, which last year appointed a minister for suicide prevention. It should look at how technology such as the Digital Care Assistant could be used to improve safety for patients.

We are still in the research phase of our project. Both wards have maintained the safe staffing levels they had prior to the start of the project, which is five staff for the 12 patients on each ward at night.

We have continued to use existing trust observation and engagement policies. What has changed is that the system has helped to reduce falls and to increase the time that we can spend on providing hands-on and psychological care.

Technology will never take away personal contact or hands-on care – the ‘come on, let’s sit down and have a cup of tea and talk about how you are doing’ side of nursing. However, it can support it and provide more time to do the job we all came into nursing to do. Whenever technology does that, I am all for it.

Linda Fitzpatrick is Stanley ward manager at Manor Hospital, Coventry and Warwickshire Partnership NHS Trust

Find out more
Oxehealth sensor www.oxehealth.com