

Preventing falls with Connected Care

Cascade3d Connected Care helps identify risk factors for falls and enables early proactive intervention.



Every year there are around 255,000 emergency hospital admissions in England for patients aged 65+ due to falls. Hip fractures caused by falls are estimated to cost the NHS more than £2.3bn a year and, following a hip fracture, 50% of older people can no longer live independently. It's a growing issue - it is estimated that half of people aged 80+ fall at least once a year.*

Falls are not an inevitable part of ageing, there are many measures such as exercise and mobility programmes that can help but, often, the small clues that could help families and carers to prevent a fall are missed. The Cascade3d Connected Care platform builds up an individual profile of behaviour and movement so that it's easy to spot when things aren't right.

Part of the falls prevention solution

Changes in behaviour may be triggered by feeling unwell or reveal an underlying anxiety. Cascade3d helps identify behaviour anomalies and allows family and carers to intervene quickly and sensitively.

One elderly lady living with dementia had fallen at home three times in the previous 24 months and each incident led to a hospital admission. Once the Cascade3d Connected Care System was installed, it identified changes in her daily routine, such as not going to the local community centre to have a hot meal. This allowed carers to call in with a meal later and to check everything was OK. There have not been any falls since the family took this proactive approach based on the alerts from Cascade3d.

How does it work?

Tiny unobtrusive sensors monitor a wide range of indicators such as bed rest during the night, medication adherence and levels of physical activity. The system checks daily activity and sleep patterns, eating and drinking, fridge, kettle and cooker usage as well as key vital signs. Hydration levels and rapid changes in body weight can be measured using a smart weigh scale. Blood pressure can be monitored for patients with hypertension, along with blood glucose for diabetics and blood oxygen saturation levels.

*Figures taken from the 2017 AHSN North East and North Cumbria report.

Why is this important?

- Sedentary patients are at greater risk of falling and of sustaining a more severe injury if they do fall due to muscle weakness and poor balance.
- Not eating and drinking regularly can cause fatigue in the short term and confusion, muscle weakness and a lack of co-ordination in the longer term. All of which increase the risk of falling.



Staying safe and well

The **Cascade3d Connected Care** platform links data from smart home sensors and Bluetooth LE-enabled medical devices to provide near real-time insights to those who care. Now that's reassuring.

Falls prevention

Wireless smart sensors can be installed in minutes to turn on lighting automatically when a person gets out of bed for a night time visit to the toilet. Track LED lighting provides an illuminated pathway when the sensor mats and motion detectors are activated.

Environmental checks made easy

Smart home sensors continually monitor the environment and record changes in the Cascade3d platform. Automatic sensing reduces the need for staff to spend time filling in forms. The system checks and records open windows, locked doors, the temperature of fridges, freezers, rooms, hot water tanks and pipes, and monitors humidity and light levels. The Connected Care platform can alert maintenance teams and occupational therapists about

environmental issues that may affect a person's wellbeing. For example, light levels are important in the management of Alzheimer's disease and related dementias and for reducing falls in areas that are poorly lit.

Smoke and carbon monoxide can be a real concern for vulnerable people especially those with complications such as limited mobility, hearing or sight. Smart sensors continually monitor the temperature and send detection alerts to call centres, family, neighbours and support workers.

Our Connected Care platform uses IoT to support independent living. Our aim is to enable elderly and vulnerable people to stay at home in safe and familiar surroundings, with the reassurance that family, friends, professional caregivers and clinicians are always well informed and ready to help.



The **Cascade3d Connected Care** platform is designed to be open, secure and scalable. From the edge IoT gateway to the backend servers, Cascade3d IoT analytics platform has been built using industry standard products and protocols and embedded with the reliability of Intel.

