Exploring the use of technology to detect and prevent falls in care homes: a round table discussion

Health Innovation Network South London

The Health Innovation Network South London recently brought together representatives from social care (care providers/care homes), Integrated Care Boards, and local authorities to share learning and discuss implementation experiences of technology designed to improve detection and reduce incidence of falls in care homes.

Following presentations from care providers currently trialling falls technologies, the Round Table discussion explored **three questions** focused on the perceived benefits of adoption of the technologies, the opportunities going forward, and potential future funding sources and business models.

The Health Innovation Network would like to thank all participants in this roundtable, particularly the presenters who shared their implementation experiences. This report is a synthesis of the overall presentations and the Round Table discussion, and a list of participants can be found in the **Appendix.**

Background

The problem

Older adults make up the majority of care home residents and are at increased risk of falls due to factors such as frailty, mobility, dementia, medication side effects, and chronic health conditions. Each year around one third of people aged over 65 experience one or more falls, rising to 50% in those over 80. People living in care homes are three times more likely to experience a fall than people living in the community[1]. These incidents can result in injuries that require hospital treatment, distress, loss of confidence, reduced independence, and overall deterioration in health and wellbeing.

The financial impact is also significant: falls are estimated to cost the NHS more than £2 billion annually.[2] This includes costs associated with ambulance callouts, hospital admissions, and extended waiting times for emergency care.

For care homes, falls can trigger safety investigations by the Care Quality Commission (CQC), potentially reputational damage, and increased pressure on staff and resources. Preventing falls is part of the Enhanced Health in Care Homes framework and a priority for both health and social care.

[1] NHS England. (2023, 29 November). Providing proactive care for people living in care homes – Enhanced health in care homes framework (Version 3). Retrieved from NHS England website.https://www.england.nhs.uk/long-read/providing-proactive-care-for-people-living-in-care-homes-enhanced-health-in-care-homes-framework/

[2] National Institute for Health and Care Excellence. (2013, 12 June). Falls in older people: Assessing risk and prevention (Clinical Guideline CG161). Retrieved from NICE website. https://www.nice.org.uk/guidance/cg161

The context

Over the past couple of years, a number of London Integrated Care Boards (ICBs) have secured funding to pilot the use of digital falls detection and prevention technologies in care homes. The aim of these pilots is to test the technologies to see if they reduce falls, improve resident wellbeing, and support staff. In addition, some care homes are independently investing in these technologies outside of ICB funding.

There are a range of falls detection and prevention technologies available, and they are typically installed in a resident's room with the ability to detect sound and movement.

Some of the technologies being trialled include:

- **AllyCares**: A resident monitoring system that detects changes in sound and movement, and uses AI to detect "unusual" movements or sounds.
- **Arquella Sense**: A 3D sensor-based system. The system is battery-operated and Wi-Fi enabled, making it suitable for older buildings without extensive rewiring.
- **2iC-Care "Andi" hub**: A device that is placed in resident's rooms that uses sensors to monitor resident activity (e.g. door openings, light usage, bathroom visits).
- **CLB (Adaptive Care)**: Offers acoustic monitoring with optional camera functionality. Cameras can operate in privacy mode or full view, depending on resident consent.

What are the benefits of adoption of these technologies?

Key points discussed by the roundtable attendees were:

Falls detection and prevention

- There was a consensus across the attendees that these tools are effective in 1) detecting falls and 2) preventing future falls by helping staff to understand residents' behaviour patterns, which then enables them to support changes to their environments and behaviours. The data reported is mostly anecdotal as many homes have been piloting the technology for a relatively short period. However:
    - One care provider reported that in the 20 months since implementation there had been ***zero*** night-time falls from amongst their residents.
    - Another shared a case study of a resident who had 17 falls in a single month. After attaching a sensor device to the resident's walker and being encouraged to use the walker, the falls reduced to zero. It was noted that this may have been due to increased awareness from staff or a "placebo effect" for the resident from being monitored.
- Care providers who were using technologies that were able to record and review video data of resident behaviour before and after a fall described the benefit in reducing the number of ***unwitnessed*** falls which are more likely to lead to an ambulance conveyance to hospital for assessment, which is costly to the system and stressful for the resident themselves.

- Some providers reported that the technologies allow them to reduce to avoid the need for intrusive night-time checks of residents by staff, with the result of improving sleep quality for residents, increasing their attentiveness during the day and reducing the likelihood of falls related to fatigue or disorientation.

Wider benefits for residents

There was also a consensus amongst attendees that these technologies offer far more than just falls prevention/detection, and several unanticipated benefits were described:

- ***Sleep:*** Several attendees described greater understanding of resident's sleep habits, and improvements in resident sleep quality due to reduced night-time disturbances. One care provider used acoustic and environmental data to identify light sleepers and adjust medication regimes accordingly. Another described that physical night-time checks were reduced for tracheostomy patients, leading to more restful sleep.
- ***Monitoring resident's health and behaviour:*** The technologies enabled early detection of health issues such as urinary tract infections, changes in sleep patterns and early signs of deterioration. Monitoring residents' behaviours such as frequency of light or door usage allowed for meaningful conversations with residents and helped staff better understand individual habits and needs.
- ***Managing complex health conditions:*** One provider described how data collected from sensors had help to identify a resident with petit mal seizures, which enabled staff to alter medication regimes, and potentially avoided hospital admissions. Another described how the technology had enabled them to identify hunger-related sleep disturbances in a resident with Huntington's disease.
- ***Managing increasing resident complexity:*** Local authority colleagues and care providers commented that residents are presenting with increasingly complex health needs post-COVID, and the technologies described are helpful in this climate both in terms of freeing up staff time and identifying emerging health needs early.
- ***Data-driven improvements to care:*** The tools provide a great deal of data about resident's behaviour. The information provided by the technology allowed providers to identify resident patterns and build business cases to justify a needed change (e.g. installing sensor lights in bathrooms and communal spaces) or change the way care is provided (e.g. moving to caffeine-free drinks). This data also allows ICBs to develop and support business cases and make more informed system-level decisions.

Benefits for staff

Care providers, local authority colleagues and ICB colleagues suggested that, for staff, use of the technologies results in:

- Reduced time spent on routine tasks and 1:1 monitoring which frees time to enable staff to focus more on building meaningful relationships with residents.
- Empowering staff to make informed clinical decisions, as more data is available to support their decision making.
- Improved staff wellbeing, which potentially support retention.

What is the potential for the growth in use of these technologies in care homes?

- There was a consensus amongst the attendees that the widespread adoption of these types of technologies is inevitable and will likely become standard practice.
- Residents and their relatives - as well as staff - are starting to expect use of this type of technology.
    - Attendees agreed that care settings who have implemented technology will become increasingly attractive to the care workforce, stating that most staff are open to digital tools and AI where it improves their workflow. One care provider suggested that adoption of technology was one of the factors that had led to their home having 96% staff retention, with only 4% loss due to natural turnover.
    - Care providers suggested that future residents and relatives will come to expect technology-enabled environments as business-as-usual; one provider stated that some relatives of privately-funded residents are already willing to fund these technologies.
- Since these technologies offer wider benefits beyond falls detection and prevention, it is anticipated that there will be a growth in use, aligning with the broader health and social care agenda e.g. ageing well, frailty, and the shift from 'acute' to 'community' health services.
- It was recognised that in order to become sustainable, the technologies must be embedded within the wider strategic frameworks, and that growth in use could stall without flexible commissioning and shared investment models.

Other challenges and barriers that may ***limit*** the growth of these technologies in care homes:

- ***Infrastructure challenges:*** Many care settings do not have digital infrastructure in place (i.e. poor Wi-Fi, older or rural buildings) and this can hinder implementation as there is a cost to upgrading the infrastructure. It was also noted that there is a cost to scaling digital technologies, including the growth of data centres and the energy demands of digital systems. This could conflict with net zero targets.
- ***Integration challenges:*** Compatibility with existing digital social care records and systems is essential, as many care providers do not want to work with systems which require separate logins and do not "speak" to each other. It was also raised that some care settings are still paper-based, and there is a concern about asking these settings to implement technology when the "basics" are not yet in place.
- ***Implementation requires clear leadership:*** Several attendees noted that successful adoption of the technologies requires clear leadership, usually from the care home manager. Without this, the technology might be underused or abandoned and examples of this were shared. Staff engagement is also key, as any concerns about surveillance or risk to their jobs should be addressed early in the process.

In the medium term, who would fund these technologies and what additional evidence would be required for this?

Key themes emerging from this discussion:

Funding to date

- Generally, the piloting of these technologies in care homes has been funded to date through the public sector Digitising Social Care (DiSC) Programme or other grant/sponsorship funds. DiSC funding is now coming to an end and care providers will likely be expected to self-fund going forward.
- One care provider reported that they had already elected to trial and self-fund a specific technology because the option product offered with ICB funding required hardwiring into the home, and they did not want to make that commitment without knowing the device would work. It was noted that even where ICB funding was allocated for technologies, many care providers invested in supporting infrastructure (e.g. improved Wi-Fi) or the purchase of devices.
- One ICB colleague reported that the transition to self-funding after the pilot stage had already led to a high drop off rate in use of the technologies due to prohibitive running costs.
- Care providers reported that for many digital technologies the business model is to increase running costs by a fairly significant set amount per year (i.e. 6%) and this may be unaffordable for smaller homes.
- Care providers suggested that they should be selecting their own pilots and making their own choices on what technology they are using. Since providers will bear ongoing running costs after pilot funding ends, they must be included in early decision-making.

Future funding models

There were mixed views from care provider participants regarding who should be funding digital technologies going forward, with the following views put forward:

- ***Technology should be funded jointly between care providers and the health service:*** a partnership model between care providers and ICBs was suggested, with shared responsibility for digital transformation of the care sector.
    - To support this view, the success of the DiSC programme was noted, where NHS funded the first year and providers committed to two more.
    - It was suggested that to realise the NHS 10 Year Plan's intentions to shift from analogue to digital, and hospital to community infrastructure and funding frameworks need to be put in place, and implementation of technology in care homes is part of that process.
    - ICBs currently pay for a lot of technology/licenses, and they are sometimes under-utilised. ICBs could move away from a "one-size-fits-all" approach to procurement. i.e. approving 1-2 technologies, and then finding that they are not being taken up by providers. ICBs may be better off allowing care providers to choose from an

approved list, allowing more autonomy in decision making about what would work for their particular care setting.

- ***Care providers should fund the technology:*** One care provider felt that since care homes are private businesses it is their responsibility as the business owners to upgrade their infrastructure - including implementation of new technology - to improve care quality. The benefits to the organisation in terms of staff satisfaction and retention were expressed, and an argument made that ensuring longevity of residents leads to more consistent occupancy levels which stabilises income streams.
- ***Relatives and residents could self-fund the technology:*** For private care providers, the cost of the technology could be included in care fees or added as a "bolt-on". One provider suggested that discussions with families about the success of the pilots indicated there would be appetite for this.
    - This would not apply to ICB/local authority funded places.

Evidence generation

Currently, most funding is non-recurrent and supports pilot projects, and pilot evidence must now be used to inform scale-up decisions. However, much of the existing evidence is anecdotal, making it difficult to justify long-term investment. Attendees agreed more robust data is required. To support the investment in technologies going forward, participants felt that the following factors should be explored:

- Quantify and identify **where** any cost-savings from falls prevention, improved sleep etc. occur (e.g. acute sector, primary care consultations, care provider staffing costs etc).
    - Attendees suggested that there are savings to be made in reduction of 1:1 care, with one (approx. 30-bed) care provider estimating that reducing 1:1 night shifts due to an increase in remote monitoring could save £43,000 annually, which for them would almost cover the cost of the technology.
    - It is also expected that there will be savings in ambulance services and the acute sector i.e. reduced conveyances to A&E from unwitnessed falls, as well as from hospital admissions where deterioration is identified earlier and hospital admission is avoided.
- ICBs could also support providers in measuring the cost-benefit of the technologies during the pilot phase, helping them prepare for self-funded decisions in the long term.
- Care providers shared that there is a lack of information on the efficacy of the different fall technologies, and it would be helpful to have:
    - A framework of the available technologies, so decisions can be made about whether or not the technology will work in their specific context before making upgrades (i.e. Wi-Fi infrastructure).
    - Access to data stored by suppliers about their residents.
    - An external independent analysis of supplier claims to support decision making about which technologies to fund.
    - Contact with other care providers also trialling technologies, sharing outcomes, challenges and data quickly and widely with each other.

Summary

The round table discussion highlighted overall broad support for falls detection and prevention technologies in care homes, with early evidence showing benefits for residents, staff, and the wider system. Participants agreed these tools are likely to become standard practice, but challenges around infrastructure, integration, evidence, and sustainable funding remain. Future progress will depend on stronger data, shared learning, and investment models that balance responsibilities between care providers and health.

Appendix

The list of speakers and participants is provided below:

Name	Role	Area/Organisation
Julie Burton*	Head of Operations	Twinglobe Care Limited
Mike Armstrong*	Managing Director	Havering Care Homes Ltd
Natasha Leslie*	Registered Manager	Coloma Court Care Home
Paul Harper*	Project Manager	South West London ICB
Bill Jenks	Deputy Director of Digital Operations	North East London ICB
Dan Heller	Senior Programme Manager	NHS England
Helen Male	Digital Adult Social Care Project Manager	South East London ICB
Laura Williams	Head of Integrated Commissioning	Bexley Council and South East London ICB
Muyi Adekoya	Head of Market Development	North Central London ICB
Peter Turner	Senior Manager Unplanned Care	North East London ICB
Samantha Mason	Health & Care Programme Lead	South London Partnership
Saquib Khan	Operational Lead for Rapid Response Team	Waltham Forest Adults Community Health Services
Sharon Sheldon	Head of Digital Transformation (Primary Care)	South East London ICB

Toyin Ajidele	Senior Transformation Programme Lead	North East London ICB
Amy Jackson	Project Manager	Health Innovation Network South London
Andrea Carter	Programme Director	Health Innovation Network South London
Dr Carrie Chill	Clinical Director and South London GP	Health Innovation Network South London

Presented on implementation experience