ConnectED Briefing #8 (updated 2025)

Technology-enabled care (TEC) for people living with dementia at home

The issue

Technology-enabled care (TEC), or 'Assistive technology and telecare' (ATT) for people living with dementia, comprises electronic or mechanical devices designed to support them to maintain independence. TEC is also used to improve quality of life by assisting people with daily living activities and managing risks to their safety. It can include devices that support leisure activity or communication.

What we wanted to find out

For people living in the community with dementia, how effective are the following, commonly used, types of TEC in delaying the need for new or enhanced packages of care and promoting quality of life: technology that monitors, reminds or prompts people to do things, and sensors designed to enhance safety, with or without links to remote support or surveillance?

What we did

Technologies change rapidly, so we searched for systematic reviews and studies published since 2018. In September 2025 we updated our searches to include additional reviews published since 2022. In each case we looked for studies that examined TEC's effectiveness in supporting people living with dementia, whether or not they lived with informal carers.

What we found

In the initial searches we found two scoping reviews, one systematic review and one randomised controlled trial (RCT). In the most recent search, we found an additional three scoping reviews, a systematic review, and one rapid systematic overview of systematic reviews.

Scoping reviews: One scoping review looked at digital technologies that support people living with dementia and carers at home and in care homes.[1] It included studies of technologies at all key stages of development, and we focused on those likely to be in use in social care at the time of writing. A second considered the effectiveness of smart home technologies for people living with dementia in the community.[2] The remaining three focused on the 'empowerment' of people living with dementia through intelligent assistive technology,[3] how people with dementia perceive and use assistive technology to support everyday activities in the home,[4] and the impact of these technologies on quality of life.[5]

Systematic reviews: These examined whether assistive technology improved people's safety at home,[6] and whether technologies designed to support people living with dementia and their family caregivers help them to age in place.[7] The overview of reviews examined the evidence that digital technologies can reduce falls or falls risk for people living with dementia.[8]

RCT The ATTILA trial[9] was conducted in England. It examined the effectiveness of a full package of ATT (provided after an assessment) in maintaining independent living at home for people with dementia. Those in the control group received ATT limited to one or more of the

following: a pendant alarm, non-monitored smoke and carbon monoxide detectors and key safes (basic ATT). Older people in both groups received comparable community services.

Most studies prior to 2018 focused on the impact of TEC on service user safety, with less attention paid to their wellbeing or quality of life. More recent research has explored the impact of TEC on both safety and quality of life in greater depth.

Some studies report findings on the impact of TEC on carers, but in the absence of a comprehensive review of the impact of TEC on carers, these must be treated with caution.

What the evidence suggests

There is <u>some evidence</u> that TEC can:

- provide a 'sense of security' for carers in relation to risk[1,2] and increase safety and security for people living with dementia both indoors and outdoors.[3]
- support people living with dementia to remain mobile.[3]
- have positive effects on the quality of life of people living with dementia through providing opportunities for communication, social interaction,[3,5] and through supporting people to participate in activities they find meaningful.[4]
- support positive interactions between a person living with dementia and their caregiver which may help address difficulties with important everyday issues such as continence and taking medication.[5,7]
- when used alongside other interventions, help reduce risks from falling or accidents, or other behaviours such as 'purposeful walking'.

Our update searches in 2025 suggest that evidence that environmental sensors on their own will reduce falls or falls risk remains unconvincing.[8]

There is currently <u>no clear evidence</u> to suggest that TEC will:

- delay the entry of people living with dementia to long-term residential care or reduce the demand for social care services over time for those remaining at home.
- necessarily improve the quality of life of people living with dementia.
- help carers to feel better able to provide care and support or relieve anxiety or depression, or that
- a full TEC (ATT) package (as in the ATTILA trial) is more effective than 'basic ATT' when provided in addition to community services

There are potential usability and ethical concerns with the technologies commonly used, and many studies note that the effective use of TEC may depend on the involvement of carers.

Some studies raise concerns around the potential for increased stigmatisation of people living with dementia that could result from technology being used to support them.[4] There is also evidence that people may experience increased anxiety, confusion and agitation when alarms or reminders go off,[3,5,8] and of increased isolation[3,5] or unmet needs[4] because of reduced contact with others when technology replaces regular interaction with a human caregiver.

Reasons for the lack of evidence of effectiveness

Overall, the evidence suggests that:

- The TEC provided to people living with dementia is not always appropriate. It may be unwanted, not sufficiently tailored to need (i.e. not person-centred), or too complex to use.
- TEC may be installed too early (before people feel they need it) or too late (when there is less chance it can make a difference): in both cases it is unlikely to be used or used as intended.

- Digital exclusion may mean that TEC is not accessible for those without digital awareness or skills, a stable and affordable internet connection, and because of cost.

Implications for practice and service users

The evidence highlights the importance of social care practitioners working in a person-centred way, taking the time to understand people's needs and how they live their lives, including both their home and social environments. Technology that is multifunctional can be more easily tailored, and therefore will be easier to tailor and implement in a person-centred way.

The processes used by social care providers should ensure that the recommended technology will actually meet a person's needs. Practitioners should follow up to ensure TEC is installed correctly and provide any ongoing support that service users and carers might need. Provision of TEC should be seen as a dynamic process, changing in line with the person's needs.[7] In the early stages of dementia, consider using it to support a person's *autonomy* – enabling them to continue taking part in meaningful social activity or to connect with family and friends, for example. In the later stages, the focus could change to the use of technology that supports a person's *dignity* – reminders about medication use, hydration, or continence, for example.

Practitioners and researchers should explore how technology can be used to support people's quality of life as well as address safety concerns. People living with dementia may be more likely to incorporate TEC into their lives if it means they can continue to carry out activities that are meaningful for them. Maintaining social relationships is key.

Although current evidence tells us what technology is effective, an ethnographic study and research around the *process* of needs assessment highlighted in the ATTILA trial raises important issues for practice. This, coupled with the perspectives of a family carer and adult social care practitioners, have informed a 'Practice Considerations' Appendix to this briefing.

Overall quality and completeness of the evidence

On balance we are moderately confident that we have included the current best evidence in relation to older people living with dementia.

Studies have examined different kinds of TEC, targeting different needs in different contexts. Much TEC is not yet sufficiently well developed, or in wide enough use, to support robust evaluation of its effectiveness, or to suggest what might work in what circumstances.

Further reading

- Research in Practice research summaries on technology (2020) and on delivering person-centred TEC (2018).
- Glasby, J. et al. (2023). *If I knew then what I know now: A short guide to introducing new technology in adult social care*.

Contacts for further information

Kath Leman (North Somerset Council Evidence Champion): kath.leman@n-somerset.gov.uk

Karen Gray (North Somerset Council Researcher in Residence): Karen.gray@bristol.ac.uk

References

1. Knapp, M., Shehaj, X., Wong, G., et al. (2022) Digital technology to support people living with dementia and carers. In: NIHR Older People and Frailty Policy Research Unit.

2. Moyle, W., Murfield, J., & Lion, K. (2021) The effectiveness of smart home technologies to support the health outcomes of community-dwelling older adults living with dementia: A scoping review, *International Journal of Medical Information,* 153: 104513.

3. Lobe, C., & AboJabel, H. (2022) Empowering people with dementia via using intelligent assistive technology: A scoping review, *Archives of Gerontology & Geriatrics,* 101:104699.

4. Martin, S., & Jones C.H. (2025) A scoping review of how people living with dementia perceive and use assistive technology to support everyday activities in their homes. *Cogent Gerontology,* 4(1): 2462293.

5. Schneider, C., Nissen, M., Kowatsch, T., & Vinay, R. (2024) Impact of digital assistive technologies on the quality of life for people with dementia: a scoping review. *BMJ Open,* 14(2): e080545.

6. Brims, L., & Oliver, K. (2019) Effectiveness of assistive technology in improving the safety of people with dementia: a systematic review and meta-analysis. *Aging and Mental Health,* 23(8): 942-951.

7. Moreno, J.A., Durce, H., Cifuentes, C., et al. (2024) Technology-assisted home support of community-dwelling older adults living with dementia and their family caregivers: A ten-year systematic review, *Gerontechnology,* 24(s):1-29.

8. Eost-Telling, C., Yang, Y., Norman, G., et al. (2024) Digital technologies to prevent falls in people living with dementia or mild cognitive impairment: a rapid systematic overview of systematic reviews. *Age & Ageing,* 53(1).

9. Gathercole, R., Bradley, R., Harper, E., et al. (2021) Assistive technology and telecare to maintain independent living at home for people with dementia: the ATTILA RCT, *Health Technology Assessment,* 25(19): 1-156.