Medical alert devices

Clinical Policy ID: CCP.1154

Recent review date: 2/2025

Next review date: 6/2026

Policy contains: Medical alert devices; and personal emergency response systems.

Coverage policy

In-home medical alert devices are investigational/not clinically proven and, therefore, not medically necessary.

Limitations

No limitations were identified during the writing of this policy.

Alternative covered services

Safety interventions for vulnerable people in their own homes, including:

- Occupational and physical therapy assessment of individual and home for fall risk.
- Fall risk assessment by a network physician or in the home by a network home health agency.

Background

Falls are the primary cause of injury related deaths in the elderly population. One in three elderly persons will fall at least once a year and many of the deaths occur after months of medical treatment. The three top chronic medical conditions that lead to falls are heart disease, diabetes, and arthritis (Bailey, 2022). As a natural consequence of aging, sensory impairments such as impaired hearing (presbycusis) and vision loss (cataracts, macular degeneration) are also risk factors for falls.

Falls with resulting injuries or death, as well as a fear of future falls represent a major concern to elderly persons. According to the Healthy Aging Falls database from National Council on Aging, 67% of falls prevention program participants reported having multiple chronic conditions, including 66% with arthritis, 27% with heart disease, and 24% with diabetes (Bailey, 2022). The inability to get up after a fall due to fracture or weakness and remaining on the ground for extended periods results in a condition called rhabdomyolysis, which poses an additional lethal threat to long-term health outcomes (Chaudhuri, 2014).

"Aging in place" is a term meaning remaining in one's own home as one ages (National Institute on Aging, 2023). It is generally considered more desirable, as 76% of Americans over age 50 hope to age in place (Binette, 2019). Because of the high incidence of falls in the senior population, safety concerns associated with aging in place include the risk of falling while alone and not being able to call for help (Bergen, 2016).

Wearable communication technologies, known as medical alert devices, and personal safety and alarm systems, have been developed to allow an injured user to push a single button to communicate with an answering service that will then contact emergency providers or personal contacts. The user pays a monthly fee for remaining connected to the communication service, and some devices include a fall detection function (Castiello, 2023).

Personal Emergency Response Systems are typically necklaces or bracelets; a button-shaped radio transmitter is pressed by the subscriber when in distress. Immediately, a communicator attached to the user's phone line acting as a speakerphone between the user and the emergency response center is activated. The center then dispatches an ambulance or contacts the responder identified by the user (McKenna, 2015).

Findings

Guidelines

No practice guidelines from professional medical societies supporting the use of medical alert devices for preventing falls exist as of this writing. A U.S. Preventive Services Task Force guideline that concluded there is adequate evidence that exercise has a moderate benefit in preventing falls among the elderly; the guideline does not include medical alerts or other emergency medical systems in its report (U.S. Preventive Services Task Force, 2024).

Evidence review

Personal Emergency Response Systems have traditionally been used as fall alert systems for the elderly (Agboola, 2017). Methods of alarm detection of falls and other adverse events in the elderly include devices worn by a person (e.g., a wristwatch or clothing attachment), and cameras, microphones, or pressure sensors (Chaudhuri, 2014). Intrinsic factors related to older adults' attitudes around control, independence, and perceived need/requirements for safety are important motivators to using these technologies, along with extrinsic factors such as usability, feedback gained, and costs (Hawley-Hague, 2014).

Personal Emergency Response Systems are not without their limitations. A survey of 244 elderly residents of Hawaii who were system users showed that 47% had fallen at home within the past 12 months. Authors conclude that the lack of broader fall prevention measures, such as medical alert adoption by older adults, presents a problem resulting in a greater number of preventable falls (Yamazaki, 2017).

A review of 57 articles on wearable devices for detection of falls found only 7.1% reported monitoring older adults in a real-world setting. Authors identified creation of highly accurate unobtrusive devices as a major challenge, even as progress is being made towards this goal (Chaudhuri, 2014). False positives and missed seizures for each device are additional concerns (Jory, 2016).

Early studies of Personal Emergency Response System users found mixed results. Positive outcomes included certainty of getting help, decreased hospital stays, and reduced fear of falling. Outcomes of concern included limited relief from anxiety or fear of falling, unexpected responder visits, and uncertainty about pushing the button (McKenna, 2015). A more recent review of 33 studies of Personal Emergency Response Systems noted improvements in safety and independent living for users, but also found changes in daily living and changes affecting user identities (Stokke, 2016).

A review (n = 2,643) assessed utilization trends in 2011-2015 among elderly Boston residents who were users of Personal Emergency Response Systems purchased through a home care service. There were 4,321 incident cases (average three years), of which falls accounted for 43.2%. The proportion of encounters that were hospital admissions rose from 3.5% to 5.7% (n = 1,427) from 2011 to 2015. Hospital readmission rates among users increased significantly at 90 days (27.7% to 34.5%, $P = .03$) and 180 days (38.3% to 43.9%, $P = .04$). Admissions with a principal diagnosis indicating a potentially avoidable admission rose from 34.1% to 39.8% (Agboola, 2017).

Elderly women (n = 265) with at least one stroke factor were randomized into groups using a medical alert device and controls. No significant difference in health-related quality of life was observed between the two groups (Morgenstern, 2015). Elderly adults (n = 197) presenting to an emergency department were randomized to a home alert system or telephone contact. Significant reductions in emergency visits and admissions in the first six months of the trial were observed, with no between-group difference. Medical alert participants with one or more admissions had a significantly lower median stay ($P = .045$) and a significantly higher health score ($P = .008$) (Ong, 2018).

Haase (2017) studied electronic alerts that provide an early warning of acute kidney injury (n = 32,842). In 13 of 15 studies, alarm activation was accompanied by concrete treatment recommendations. In controlled but non-randomized trials, the provision of concrete treatment recommendations when the alert was activated led to more frequent implementation of diagnostic or therapeutic measures, less loss of renal function, lower in-hospital mortality, and lower mortality after discharge compared with control groups without an electronic alert.

In 2025, we updated one guideline and found no newly published relevant literature to add to the policy.

References

On January 6, 2025, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were “personal emergency response system” and “medical alert device.” We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

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Policy updates

1/2015: initial review date and clinical policy effective date: 2/2015

12/2015: Policy references updated.

12/2016: Policy references updated.

12/2017: Policy references updated.

12/2018: Policy references updated. The policy ID changed from 17.021.02 to CCP.1154.

11/2019: Policy references updated.

2/2021: Policy references updated.

2/2022: Policy references updated.

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