

Application Fields and Innovative Technologies

GUIDE-13 rapid review framework: assessing the effectiveness of hybrid and digital care processes in long-term care. A case study into technologies for fall prevention. T.R.C. van Hoesel, R.T.E. Rinzema, I.L.G. Dantuma, H.H. Nap. *Gerontechnology* 25(s)

Purpose Long-term care (LTC) faces growing pressure due to ageing populations, rising life expectancy and shortages of care personnel [1,2]. Digital and hybrid care processes are increasingly introduced to alleviate this pressure. For an informed decision, decision-makers need timely and reliable evidence on the added value of these innovations [3]. Traditional assessment methods, such as Health Technology Assessment (HTA) and systematic reviews, are often unsuitable for LTC [4]. They are time-intensive, focus mainly on scientific literature, and can exclude valuable practice-based knowledge. Moreover, in many care processes it is unclear which innovations could add value, making early evaluation difficult. In addition, innovations in LTC evolve rapidly, and end-user groups such as frail seniors change, resulting in limited scientific studies and publications that are more time-intensive than applied studies with grey literature publications. HTAs often misalign with LTC contexts because these settings involve different types of innovations, more heterogeneous environments, and greater variability in technology deployment compared to hospitals [5,6,7]. This study aimed to combine and alter existing rapid review methods, developing the GUIDE-13 rapid review framework based on rapid review best-practices, and test the GUIDE-13 within a project to assess the value of innovations within the Dutch national chain approach to fall prevention. In the Netherlands, every year over 1 million people over the age of 65 experience a fall. In 2024, 119,000 of them were sent to emergency care after a fall, with the proportion of people getting seriously injured increasing every year. Consequences are an increase in healthcare costs and a reduced independence of older adults [8]. Therefore, actors within the national chain approach to fall prevention asked the question: based on existing evidence, are there any innovations that can contribute to fall prevention? **Method** To answer this question in a systematic and thorough manner, GUIDE-13 was developed containing 13 steps structured into 5 phases: Goal setting and scoping, Uncovering and prioritizing innovations, Identifying evidence, Deriving insights and quality, and Evaluating and synthesizing. Two steps that are not part of traditional rapid literature reviews were added: 1) creating an inventory of relevant innovations before the literature search, and 2) integrating practice-based knowledge through interviews with users. Five different fall prevention innovations were analyzed using this framework: a smart sensor floor to detect whether people have a high fall-risk, a wearable that monitors gait patterns and provides the user with a fall risk score and exercises, an interactive treadmill training with VR elements to simulate real-world perturbations, interactive exercise videos to be used in group settings and a gamified exercise system. **Results and Discussion** GUIDE-13 was applied to a case study on the Dutch national chain approach to fall prevention. The method enabled systematic and timely evaluation of five different innovations. We provided a comprehensive overview of their potential contribution to fall prevention: most of the innovations turned out to be of added value within the national chain approach through different pathways. For example, making elderly aware of their fall risk and motivating them to exercise, but also alleviating pressure on healthcare workers because the innovations can be used by the elderly without the need for guidance or supervision. The GUIDE-13 framework addresses limitations of traditional methods, like exclusion of grey literature, and reliance on clearly defined care pathways. In addition, an inventory and practice-based knowledge step are added to enable high-quality, and more contextually relevant value assessments to support decisions on innovation adoption in LTC, as shown in this research on fall prevention technologies.

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