

Multifactorial falls prevention

Summary

Background: Approximately one in three to four older adults experiences a fall each year. The most common consequences of falls are injuries (including fractures), which lead to a decline in quality of life and an increased risk of mortality. As the elderly population continues to grow, the number of falls and their associated consequences—including injuries and deaths—is expected to rise in the future.

Objective: To analyze the effectiveness and cost-effectiveness (CE) of multifactorial falls prevention (MFP) in older adults compared to standard practice, and to assess the optimal organization and budget impact of such an intervention in Estonia.

Methods: A systematic literature search was conducted in PubMed to identify studies on the effectiveness and CE of MFP. A meta-analysis on the effectiveness, and a systematic review on the cost-effectiveness, was conducted to compare MFP with standard practice among adults aged 65 years and older. To assess CE, a Markov model was developed using Estonia-specific data. A five-year budget impact analysis was conducted.

Results: A review of 16 studies, along with the results of the meta-analysis, showed that MFP significantly reduced the proportion of fall-related injuries (RR = 0.92; 95% CI 0.90–0.95). However, there were no significant differences in the proportion of fallers or in mortality rates between intervention and control groups. Evidence on MFP's effectiveness in reducing the number of falls, hospitalizations, fear of falling, and in improving quality of life was inconsistent. Based on nine studies, the cost-effectiveness of MFP varied—four out of nine studies concluded that MFP was cost-effective.

In Estonia, the need for MFP could be determined based on opportunistic brief assessments conducted regularly for individuals aged 65 and older, or in cases of significant changes in the person's health status. MFP is implemented for older adults at high risk of falling, with prevention activities tailored to individual risk profiles.

The incremental cost-effectiveness ratio (ICER) for MFP compared to standard practice was approximately €28,400 per quality-adjusted life year gained. The results of CE analysis were most sensitive to assumptions about the duration of MFP's effect. The analysis was conducted from the perspective of the Estonian Health Insurance Fund (EHIF), considering only direct healthcare costs related to falls.

The budget impact analysis, based on an estimated target population of 74,000 older adults, indicated that the additional cost of implementing MFP would be approximately €13.2–13.9 million per year. Potential savings from reduced costs of treating injuries were estimated at €1.4–2.1 million per year. Overall, funding MFP would result in an annual net cost to EHIF of approximately €11.4–11.8 million.

Conclusions: MFP is effective in reducing fall-related injuries and may be considered cost-effective from the perspective of the national health insurance system. Considering the broader societal impact of falls—such as costs associated with nursing home admissions due to fall-related injuries and the burden on informal caregivers—the ICER of MFP would likely be even more favorable.

Citation: Põld M, Alloja J, Kilgi J, Kolk H, Pallasma E, Koitudaru K, Jürisson M. Kukkumiste multifaktoriaalne ennetus: tervisetehnoloogia hindamise raport TTH71. Tartu: Tartu Ülikooli peremeditsiini ja rahvatervishoiu instituut; 2025.