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Models for delivery and co-ordination of primary or secondary healthcare (or both) to older adults living in aged care facilities

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Cochrane Review Summary

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Review question

This review aimed to assess whether delivering the same care to residents of aged care facilities (ACFs) through alternative models, rather than traditional methods, leads to improved outcomes. Specifically, it examined the impact on emergency department visits, unplanned hospital admissions, adverse events, and adherence to clinical guideline-recommended care, health-related quality of life, mortality, and costs.

Relevance to primary care and nursing

Primary care nursing plays a crucial role in meeting the complex health needs of frail, elderly individuals in ACFs by delivering holistic, patient-centred care that prioritizes both prevention and the management of chronic conditions. With the global ageing population projected to reach 1.4 billion individuals aged 60 or older by 2030 and the number of people over 80 expected to triple by 2050 (World Health Organization, 2021), the demand for effective primary care interventions is more pressing than ever. Nurses in primary care settings are integral to the early identification of health deterioration, medication management, chronic disease monitoring, and ensuring continuity of care. Martins *et al.* (Martins *et al.*, 2020) highlight that older adults require more frequent medical consultations due to the higher prevalence of chronic conditions, polypharmacy, and age-related physiological changes that increase their vulnerability to acute health issues which require ongoing management and regular monitoring.

This increased demand for medical consultations underscores the critical role of robust primary care models that offer proactive and preventative approaches to healthcare. Rather than relying solely on reactive, hospital-based interventions, enhanced primary care frameworks ensure that older adults receive timely assessments, medication reviews, chronic disease management, and preventative screenings to mitigate health deterioration and reduce unnecessary hospital admissions. Moreover, comprehensive primary care models facilitate better care co-ordination between general practitioners (GPs), nurses, allied health professionals, and specialist services, ensuring that older adults receive integrated and patient-centred care tailored to their evolving needs. By embedding nurse-led clinics, home-based assessments, and telehealth consultations within alternative care models, primary care can become more accessible and responsive, easing pressure on acute healthcare services while enhancing health-related quality of life for older adults in ACFs. These models take a preventative approach, enabling primary care nurses to reduce traumatic hospital transfers, minimize adverse events, and lower unplanned admissions through timely, co-ordinated interventions. By drawing on nursing expertise, they also ensure adherence to clinical guidelines and optimize symptom management, ultimately promoting better health outcomes and supporting a more sustainable healthcare system within ACF settings.

While initial costs may be higher, these models ultimately provide long-term financial benefits by decreasing emergency department visits and hospital admissions. By fostering a multidisciplinary approach, primary care nurses help to integrate services effectively, ensuring older adults receive individualized, evidence-based care that supports their independence and overall well-being.

Incorporating primary care nursing into alternative healthcare delivery models not only aligns with best practices in older adult care but also strengthens the sustainability of healthcare systems facing an ageing global population.

Characteristics of the evidence

This Cochrane review includes 40 qualitative syntheses involving a total of 21,787 participants. Of the studies, 14 were randomized controlled trials, and 26 were cluster-randomized trials, of which 8 used a stepped-wedge design. Most studies were conducted in Australia (n = 13), followed by the USA (n = 8), the Netherlands (n = 6), Taiwan (n = 3), Canada (n = 3), New

Zealand (n = 2), Turkey (n = 1), Norway (n = 1), Italy (n = 1), and South Korea (n = 1). Additionally, one study was conducted across seven European countries: Belgium, England, Finland, Italy, the Netherlands, Poland, and Switzerland. All studies were published in English. The key interventions in the Cochrane review focused primarily on alternative models of care delivery, with 31 studies addressing 'Coordination of care'. Of these, 16 explored 'Teams', two examined 'Discharge planning', four investigated 'Case management', six focused on 'Care pathways', two explored 'Comprehensive geriatric assessment', and one addressed 'Continuity of care'. Additionally, three interventions focused on 'Who provides care', including one study on 'Staffing models' (GP co-located in aged care facilities) and two on 'Role expansion or task shifting' (nurse practitioner-led care). Two studies examined 'Where care is provided', comparing care within aged care facilities to external locations, while four studies investigated the effects of telemedicine on residents in aged care facilities. Most studies compared these interventions against usual care, although details on usual care were often limited or not provided.

Summary of key evidence

Follow-up ranged from one month to 32 months. Pooled evidence ranged from very low-certainty to moderate-certainty judged using GRADE (The Grading of Recommendations Assessment, Development and Evaluation). The basis for the assumed risk (e.g., the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval [CI]) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI). CI: confidence interval; ED: emergency department; MD: mean difference; RR: risk ratio

Primary outcome: To assess the effectiveness and safety of alternative models of delivering primary or secondary health care (or both) to older adults living in ACFs.

Compared to usual care, alternative care models may have little to no impact on the proportion of residents in ACFs. Results highlighted the following areas: emergency department visits, unplanned hospital admissions, adverse events in particular falls, adherence to guideline-recommended care, health-related quality of life, and mortality rates.

Alternative care models may have little to no impact on the proportion of residents with at least one emergency department visit (risk ratio [RR] 1.01, 95% CI 0.84 to 1.20; 7 trials, 1276 participants; low-certainty evidence). Nonetheless, these models may reduce the proportion of residents experiencing at least one unplanned hospital admission (RR 0.74, 95% CI 0.56 to 0.99; $I^2 = 53\%$; 8 trials, 1263 participants; low-certainty evidence). The effect on adverse events, such as falls, remains uncertain (RR 1.15, 95% CI 0.83 to 1.60; $I^2 = 74\%$; 3 trials, 1061 participants; very low-certainty evidence), as does their influence on adherence to guideline-recommended care, including the proportion of residents receiving appropriate antidepressant medication (RR 5.29, 95% CI 1.08 to 26.00; 1 study, 65 participants; very low-certainty evidence). Furthermore, alternative care models may have little or no effect on the health-related quality of life of residents in aged care facilities (mean difference [MD] -0.016, 95% CI -0.036 to 0.004; $I^2 = 23\%$; 12 studies, 4016 participants; low-certainty evidence) and are unlikely to significantly affect mortality rates (RR 1.03, 95% CI 0.92 to 1.16; 24 trials, 3881 participants; moderate-certainty evidence).

Secondary outcome: To assess the cost-effectiveness of the alternative models. Eleven studies assessed the costs of care, cost-effectiveness evaluations, or both. However, due to the heterogeneity of interventions, settings, and study timeframes, pooling cost estimates was not feasible. Based on five economic evaluations focused on co-ordination of care, the cost-effectiveness of alternative care models compared to usual care remains uncertain, as the certainty of the evidence is very low.

Implications for practice

Compared to usual care, alternative models of care appear to have little or no impact on the number of emergency department visits but may reduce unplanned hospital admissions by 27% (ranging from 158 to 7 fewer in the intervention group). The effect of these models on adverse events such as falls, pressure ulcers, and infections, as well as adherence to guideline-recommended care, remains uncertain due to very low-certainty of evidence. Similarly, alternative models may have minimal or no effect on health-related quality of life and are unlikely to impact mortality among ACF residents. The cost-effectiveness of these models is also unclear, given the limited and inconsistent data available. ACFs may benefit from efforts to improve care co-ordination, re-evaluate care delivery settings and providers, and explore the use of information technologies. However, it remains unknown whether alternative models of care can deliver the same or better outcomes at a reduced cost (Putrik *et al*, 2024).

Implications for research

A significant body of evidence has emerged on the effects of alternative care models for residents in ACFs across various countries, with more than half of the studies conducted in the last decade. This growing interest reflects the challenges posed by an ageing population and the increasing number of elderly individuals requiring institutional care. Despite this, existing studies often lack comprehensive resource use outcomes and full economic evaluations, making it difficult to assess the cost-effectiveness of these models. Putrik *et al.*, (2024) highlights gaps in research regarding resident, family, and staff satisfaction, as well as the impact of alternative care models on workload and burnout. While the review focuses on clinical outcomes, existing evidence suggests that staff shortages, increased care demands, and emotional strain contribute to burnout and reduced job satisfaction in aged care settings (Dwyer *et al.*, 2021; Schlak *et al.*, 2021). However, these factors have been minimally studied in the context of alternative care models. Future research should assess satisfaction levels, workload distribution, and staff well-being, ensuring that new care models are both patient-centred and sustainable. Conducting qualitative studies and developing validated tools will provide deeper insights into the real-world effectiveness of these models, improving both clinical and workforce outcomes.

Among 14 ongoing studies, 10 plan to conduct economic evaluations, five will assess patient and family satisfaction, and only three will examine staff-related outcomes, showing some progress compared to older studies. However, better alignment of study scopes with the needs of healthcare decision-making is necessary. To improve the reliability of findings, future studies should provide detailed descriptions of both interventions and usual care within their settings. This would help address the heterogeneity of healthcare environments, which has hindered previous analyses, and ensure more meaningful insights for policymakers and practitioners.

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