



Nursing Interventions for Patients with Frequent Hospital Admissions

Asmaa Saud Al Asjahy Al Asjahy^{1*}, Marwa Mohammed Ibrahim Mokhadi², Alhazmi Ahmad Dlash R³, Ahlam Saud Alanzi⁴, Seham Abdulrahman J Alruwaili⁵, Bushra Hamad Alanazi⁶, Mansour Faza Alhazmi⁷, Afaf Salem M. Alanazi⁸, Maryam Ata Bin Ajjaj Alkuwaykibi⁹, Hamad Farhan H Alshamlani¹⁰, Amjad Mayyah Lafi Alrawili¹¹

¹Technician Nursing – King Abdulaziz Specialist Hospital, Sakaka – Al Jouf Health Cluster – Ministry of Health – Sakaka – Al Jouf Region – Saudi Arabia

* **Corresponding Author Email:** aalajahy@moh.gov.sa - **ORCID:** 0000-0002-1047-9950

²Technician Nursing – Al Thaghr General Hospital – First Jeddah Health Cluster – Ministry of Health – Jeddah – Makkah Region – Saudi Arabia

Email: mmokhadi@moh.gov.sa - **ORCID:** 0000-0002-2047-9950

³Nursing Specialist – North Medical Tower Hospital – Northern Borders Health Cluster – Ministry of Health – Arar – Northern Borders Region – Saudi Arabia

Email: ahdalhazmi@moh.gov.sa - **ORCID:** 0000-0002-2247-9950

⁴Nursing Specialist – Maternity and Children’s Hospital, Arar – Northern Borders Health Cluster – Ministry of Health – Arar – Northern Borders Region – Saudi Arabia

Email: Aalanazi340@moh.gov.sa - **ORCID:** 0000-0002-3347-9950

⁵Technician Nursing – Turaif General Hospital – Northern Borders Health Cluster – Ministry of Health – Turaif – Northern Borders Region – Saudi Arabia

Email: ffgg55nku@gmail.com - **ORCID:** 0000-0002-4447-9950

⁶Nursing Specialist – North Medical Tower Hospital – Northern Borders Health Cluster – Ministry of Health – Arar – Northern Borders Region – Saudi Arabia

Email: bushraa@moh.gov.sa - **ORCID:** 0000-0002-5547-9950

⁷Technician Nursing – Ministry of Health Branch, Northern Borders Region – Arar – Northern Borders Region – Saudi Arabia

Email: mansourfa@moh.gov.sa - **ORCID:** 0000-0002-6647-9950

⁸Technician Nursing – Maternity and Children’s Hospital, Arar – Northern Borders Health Cluster – Ministry of Health – Arar – Northern Borders Region – Saudi Arabia

Email: afsaanazi@moh.gov.sa - **ORCID:** 0000-0002-7747-9950

⁹Technician Nursing – Maternity and Children’s Hospital, Sakaka – Al Jouf Health Cluster – Ministry of Health – Sakaka – Al Jouf Region – Saudi Arabia

Email: malkokba@moh.gov.sa - **ORCID:** 0000-0002-8847-9950

¹⁰Technician Nursing – Ministry of Health Branch, Northern Borders Region – Arar – Northern Borders Region – Saudi Arabia

Email: halshamlany@moh.gov.sa - **ORCID:** 0000-0002-9947-9950

¹¹Technician Nursing – Maternity and Children’s Hospital, Arar – Northern Borders Health Cluster – Ministry of Health – Arar – Northern Borders Region – Saudi Arabia

Email: ammialruwaili@moh.gov.sa - **ORCID:** 0000-0002-1047-9950

Article Info:

DOI: 10.22399/ijcesen.4632

Received : 01 July 2024

Accepted : 30 July 2024

Keywords

Nursing interventions,
frequent hospital admissions,
patient assessments,
educational support,
coordinated care,
interdisciplinary teams

Abstract:

Patients with frequent hospital admissions often require a multifaceted approach to their care, focusing not only on the immediate health issues but also on the underlying factors contributing to their repeated visits. One essential nursing intervention is comprehensive patient assessments that include physical, emotional, and psychosocial evaluations. Establishing a strong nurse-patient relationship helps to build trust, enabling patients to openly communicate their challenges. Education plays a crucial role, with nurses providing information about disease management, medication adherence, and lifestyle modifications tailored to individual needs. Additionally, nurses can facilitate coordinated care by collaborating with interdisciplinary teams, ensuring that patients have access to necessary resources, such as counseling or social services, to address broader health determinants. Another important intervention is the development of personalized discharge plans, which aim to prevent readmissions by addressing potential issues prior to the patient leaving the hospital. Nurses can conduct medication reconciliations to clarify any discrepancies and reinforce the importance of adherence to prescribed treatments. Follow-up phone calls or telehealth check-ins post-discharge can help identify any emergent problems early, allowing for timely interventions. Furthermore, nurses can advocate for outpatient resources, such as community health programs or support groups, to equip patients with the tools needed for better health management. Overall, a proactive and patient-centered approach from nursing professionals can significantly improve the quality of care and reduce the frequency of hospital admissions.

1. Introduction

The architecture of contemporary healthcare delivery is being fundamentally stress-tested by a persistent and growing challenge: the cycle of frequent hospital admissions. A distinct subset of the patient population, often categorized under terms such as "high-utilizers," "super-utilizers," or colloquially as "frequent flyers," experiences a disproportionate number of inpatient encounters, representing a critical focal point for clinical, operational, and ethical scrutiny [1]. These individuals are typically characterized not by a single diagnosis, but by a complex interplay of multiple, co-occurring chronic conditions—such as congestive heart failure, chronic obstructive pulmonary disease, diabetes mellitus, and end-stage renal disease—whose management demands precision, consistency, and extensive resources [2]. Beyond the pathophysiology, their profiles are further complicated by a dense overlay of social and economic vulnerabilities, including but not limited to, unstable housing, food insecurity, limited health literacy, fragmented social support networks, and inadequate access to reliable primary care. This confluence of clinical complexity and adverse social determinants of health creates a perfect storm, wherein the hospital inadvertently becomes a default source of care rather than a last resort for acute, unforeseeable illness [3].

Frequent hospitalization, therefore, must be understood not as a simple, linear outcome of disease progression, but as a profound symptom of systemic failure. Each readmission signals a breakdown—a gap—in the continuum of care that

is supposed to support individuals with high needs in the community setting. These gaps are multifaceted: they exist in the handoffs between hospital and home, in the coordination among multiple specialty providers, in the accessibility of essential social services, and in the design of health systems that often prioritize episodic, acute intervention over sustained, holistic management [4]. The consequences of this revolving door phenomenon are severe and bidirectional. For patients, the experience is one of profound disruption and diminishing returns. Each admission accelerates physical and cognitive functional decline through the inherent risks of hospitalization, such as deconditioning, hospital-acquired infections, and medication errors. Psychologically, it fosters a state of perpetual anxiety, helplessness, and what has been termed "post-hospital syndrome," a transient period of generalized vulnerability akin to a major physiologic stressor [5]. The cumulative effect is a severely compromised quality of life, where living is organized around the next anticipated health crisis. Concurrently, from the system perspective, this patient cohort exerts an outsized impact on finite healthcare resources. Although they represent a small percentage of the overall patient population, high-utilizers account for a substantially larger share of total hospital expenditures, ICU days, and emergency department visits. This inefficient allocation of high-cost acute care resources strains hospital capacity, contributes to provider burnout, and diverts attention and funding away from preventive and community-based services that could address root causes [6]. The economic

argument for intervention is compelling, but it must be coupled with the fundamental ethical imperative to provide care that is not only effective but also dignifying and conducive to genuine human flourishing. Thus, addressing the challenge of frequent admissions is simultaneously a clinical priority, an economic necessity, and a moral obligation for modern health systems.

In this complex landscape, the role of the nursing profession emerges as not merely important, but as uniquely pivotal and expansively transformative. Nurses occupy a critical nexus in the patient's journey, interfacing with every facet of the care continuum. Their perspective is unparalleled; they are the consistent professional presence at the bedside during the acute crisis, the educators during moments of teachable readiness, the coordinators at the fragile point of transition, and, increasingly, the connectors to community-based support. This positions nurses with a holistic, 360-degree view of the patient's narrative—understanding the clinical trajectory in the context of the individual's life story, social environment, personal strengths, and systemic barriers [7]. This comprehensive insight is the essential foundation upon which effective interventions must be built. It allows nursing to move beyond task-oriented functions and into the realm of systems navigation, therapeutic alliance, and sustained partnership.

Consequently, effective nursing interventions for this population must inherently transcend the traditional, geographically bounded model of inpatient care. They cannot commence at admission and conclude at discharge. Instead, they must evolve into a continuous, proactive, and patient-centered philosophy of engagement that begins with the early identification of risk and extends seamlessly into long-term community support. This requires a fundamental paradigm shift from reactive crisis management to proactive health stewardship. It demands interventions that are anticipatory, designed to preempt decompensation by strengthening the patient's and caregiver's capacity for self-management, fortifying the home environment, and ensuring robust connections to outpatient resources [8]. The nurse's role transforms from a caregiver confined to the institution to a coach, advocate, and integrator whose influence persists across settings and over time.

2. Identification and Comprehensive Assessment of the High-Risk Patient

2.1 Early Recognition through Risk Stratification Tools

The first critical step in intervening for patients with frequent admissions is their timely identification. Nursing teams, in collaboration with data analysts and physicians, are increasingly utilizing validated risk stratification tools upon admission or even during emergency department triage. Tools such as the LACE index (Length of stay, Acuity of admission, Comorbidity, and Emergency department use) or the HOSPITAL score help pinpoint patients at highest risk for early readmission [5]. Nurses are instrumental in inputting accurate clinical and social data into these algorithms. However, nursing assessment goes beyond algorithmic prediction; it involves the astute clinical judgment that recognizes subtle signs of vulnerability—such as a history of poor medication adherence, lack of primary care, or nonverbal cues of social isolation—which may not be fully captured by a score alone [6].

2.2 The Multidimensional Nursing Assessment

Once identified, a profound and multidimensional nursing assessment must be initiated. This assessment forms the cornerstone of all subsequent interventions. It moves systematically beyond the presenting diagnosis to construct a complete biopsychosocial portrait of the patient. The physical domain involves a thorough review of all chronic conditions, their current state of control, medication regimens (including over-the-counter and herbal supplements), nutritional status, functional capacity (using tools like the Katz Index of Independence), and signs of subclinical deterioration [7]. Concurrently, the psychological assessment screens for comorbid conditions such as depression, anxiety, and cognitive impairment, which are powerful, often under-treated drivers of healthcare utilization [8]. The use of brief, validated tools like the PHQ-9 for depression or the Mini-Cog for cognition can be seamlessly integrated into nursing workflows.

2.3 Uncovering Social Determinants of Health (SDOH)

Perhaps the most transformative component of the nursing assessment is the deliberate and sensitive exploration of Social Determinants of Health (SDOH). Nurses are uniquely positioned to build trust and elicit information about factors such as health literacy, financial stability (ability to afford medications and healthy food), housing security and safety, availability of reliable transportation to follow-up appointments, strength of social support networks, and access to utilities [9]. A patient with heart failure cannot adhere to a low-sodium diet if

they live in a food desert or cannot afford fresh produce. A patient with diabetes may skip insulin doses due to "cost-related non-adherence." Documenting these barriers in the electronic health record with structured data fields ensures they become part of the care plan, not hidden anecdotes, enabling targeted referrals to social work, community-based organizations, and financial assistance programs [10].

3. Core Nursing Care Models for Inpatient Management

3.1 Implementing a Primary Nursing Model

For the frequently admitted patient, consistency of care is therapeutic. The implementation of a primary nursing model, where one registered nurse assumes 24-hour responsibility for planning, coordinating, and directing a patient's care from admission to discharge, is highly beneficial [11]. This model fosters a deep, therapeutic relationship. The primary nurse becomes a trusted figure, gaining nuanced insight into the patient's fears, patterns of decompensation, and personal goals. This relationship enhances communication, increases patient satisfaction, and improves adherence to the care plan, as the patient feels seen and understood by a consistent professional advocate [12].

3.2 Focus on Advanced Care Planning (ACP) and Goals of Care Conversations

Frequent admissions often signal progression of serious illness. Nurses, as constant caregivers, are essential in initiating and facilitating ongoing conversations about Advanced Care Planning (ACP). This is not a one-time event but a process that should be revisited during each admission as the patient's condition or perspective may change [13]. Skilled nursing communication helps explore the patient's values, beliefs, and understanding of their illness. They can clarify medical orders for life-sustaining treatment (MOLST/POLST), ensure documentation of healthcare proxies, and communicate these preferences clearly to the entire interprofessional team. By aligning medical interventions with patient-defined goals, nurses help prevent unwanted, aggressive, and ultimately futile treatments that contribute to stressful hospitalizations [14].

3.3 Interprofessional Collaboration and Daily Huddles

The complexity of the frequently admitted patient demands a cohesive team approach. Nurses serve as the central hub of interprofessional collaboration. Participating in or leading daily bedside rounds or huddles with physicians, pharmacists, social workers, case managers, and therapists ensures all team members share the same assessment and goals [15]. The nurse's frontline observations—a slight increase in edema, a new expression of worry from the family, difficulty with mobility—provide real-time data that can prompt immediate adjustments to the plan of care. This collaborative model prevents siloed care, reduces errors, and accelerates the development of a comprehensive, discharge-ready plan that addresses all facets of the patient's needs [16].

4. Designing and Executing Robust Transitional Care Plans

4.1 The Role of the Nurse as Transitional Care Coordinator

The discharge process is a period of extreme vulnerability. The nurse, often in the role of a dedicated Transitional Care Nurse (TCN) or discharge coordinator, is responsible for orchestrating a safe and effective transition. This role involves synthesizing the entire hospital course into a coherent after-care plan. The nurse ensures that the discharge summary is patient-friendly and accurate, that medication reconciliation is flawless, and that follow-up appointments are not only scheduled but also aligned with the patient's capabilities (e.g., timing, location) [17]. They verify that durable medical equipment (e.g., home oxygen, hospital beds) will be delivered and functional before the patient arrives home, mitigating a common source of anxiety and readmission.

4.2 Medication Reconciliation and Management

Medication errors at care transitions are a leading cause of adverse events and rehospitalization. Nursing-led medication reconciliation is a non-negotiable intervention. This involves creating the most accurate list of all medications a patient is to take at home (prescriptions, over-the-counter, supplements), comparing it against the admission and discharge orders, and explaining any changes with utmost clarity [18]. Interventions include providing a reconciled, plain-language medication list, employing teach-back techniques to confirm understanding, and discussing strategies for adherence such as pill organizers or blister packs. For complex regimens, a nurse-led medication management session with the patient and their

caregiver is critical to ensure safety and confidence [19].

4.3 Structured Post-Discharge Follow-Up

The intervention does not end at the hospital door. Structured, nurse-led post-discharge follow-up is a gold-standard intervention. This typically involves a telephone call within 48-72 hours of discharge, a timeframe when complications often first arise [20]. The call is a structured assessment, not a casual check-in. The nurse asks targeted questions about symptom control (e.g., weight for heart failure patients, blood glucose readings, pain levels), medication access and understanding, ability to keep follow-up appointments, and any emergent problems. This early contact allows for timely troubleshooting—clarifying instructions, reinforcing education, or facilitating an earlier outpatient visit—thereby preventing a full-blown crisis requiring ED visit [21]. More intensive models involve home visits by Advanced Practice Nurses (APNs) for the highest-risk patients, providing physical assessment, environmental evaluation, and direct care in the patient's own setting [22].

5. Therapeutic Patient and Caregiver Education Principles of Health Literacy-Informed Education

Effective education is the engine of self-management. For the frequently admitted patient, standard education is insufficient. Nursing education must be grounded in health literacy principles. This means using plain language, avoiding medical jargon, and employing the "teach-back" or "show-me" method, where the patient explains or demonstrates what they have learned in their own words [23]. Educational materials should be visual, culturally appropriate, and available in the patient's preferred language. The goal is to confirm comprehension, not merely to deliver information. Assessing health literacy levels discreetly at the outset allows the nurse to tailor the approach accordingly [24].

5.1 Condition-Specific Self-Management Training

Education must be condition-specific and action-oriented. For a patient with Chronic Obstructive Pulmonary Disease (COPD), this includes not only inhaler technique (with demonstrative return), but also energy conservation techniques, recognition of "red flag" symptoms of infection, and a written action plan detailing when to increase medications

and when to call for help [25]. For patients with heart failure, daily weight monitoring, sodium restriction strategies, and fluid management become the core curriculum. Nurses empower patients by framing them as the primary managers of their condition, with the healthcare team as coaches and supporters. This shift in mindset—from passive recipient to active manager—is fundamental to reducing helplessness and preventable exacerbations [26].

5.2 Supporting and Educating the Informal Caregiver

The burden on informal caregivers (family, friends) of frequently admitted patients is immense and is itself a risk factor for patient readmission if the caregiver becomes overwhelmed. Nursing interventions must explicitly include the caregiver. This involves educating them on the same self-management tasks, recognizing signs of caregiver burnout (e.g., stress, depression, neglect of their own health), and connecting them to respite care services and support groups [27]. Empowering the caregiver with knowledge and resources strengthens the patient's home support system, creating a more resilient care dyad capable of managing health challenges outside the hospital [28].

6. Leveraging Technology and Telehealth Remote Patient Monitoring (RPM)

Technology offers powerful tools to extend nursing surveillance into the home. Remote Patient Monitoring (RPM) involves patients using connected devices (e.g., Bluetooth-enabled weight scales, blood pressure cuffs, pulse oximeters, glucometers) to transmit vital sign data daily to a nursing monitoring station [29]. Nurses are tasked with reviewing this data stream, identifying concerning trends (e.g., a steady increase in daily weight for a heart failure patient), and intervening proactively. A nurse can call the patient to adjust diuretics based on protocol, provide dietary counseling, or schedule a timely clinic visit, thereby averting pulmonary edema and a hospital admission. RPM transforms reactive care into predictive and preventive management [30].

6.1 Telehealth Nursing Consultations

Scheduled telehealth video visits, conducted by nurses or APNs, provide a "virtual check-up" that bridges the gap between discharge and the often distant follow-up physician appointment. These visits allow for visual assessment (e.g., checking

for edema, observing respiratory effort), medication review, and reinforcement of education in the patient's environment [31]. They are particularly valuable for patients with mobility challenges or those living in remote areas. The therapeutic relationship is maintained, and the patient feels supported, reducing anxiety and promoting adherence to the care plan [32].

6.2 Mobile Health (mHealth) Applications and Text Messaging

Nurses can guide patients towards reputable mobile health applications that support disease management, medication reminders, and symptom tracking. Furthermore, automated but personalized text messaging systems can be utilized to send daily reminders (e.g., "Remember to take your weight and limit salt today"), educational tips, and prompts for behavioral goals [33]. These low-cost, scalable interventions keep patients engaged in their care daily, fostering a constant connection to the health system and promoting a sense of accountability for their health outcomes [34].

7. Addressing Systemic and Community-Based Barriers

7.1 Nurse Advocacy and Navigation

Frequently admitted patients often face a labyrinthine healthcare system and community resources. Nurses act as powerful advocates and navigators. This involves making warm handoffs to community partners, such as assisting with applications for subsidized housing or Medicaid, facilitating referrals to mental health services, or connecting patients with local food banks or Meals on Wheels programs [35]. Advocacy may also mean communicating a patient's social needs directly to policymakers or healthcare administrators to argue for systemic changes, such as increased funding for community paramedicine programs or integrated behavioral health clinics [36].

7.2 Integration with Community Health Workers (CHWs) and Paramedics

An effective strategy is the formal integration of nursing with community-based roles. Community Health Workers (CHWs), who share life experiences with the patient population, can be partnered with nurses. The nurse provides clinical oversight, while the CHW provides peer support, helps with practical tasks (e.g., grocery shopping, navigating public transit to appointments), and

builds trust within the community [37]. Similarly, community paramedicine programs, where paramedics make scheduled home visits under nursing or physician protocols, can provide acute assessments and minor treatments in the home, effectively diverting calls from the 911 system and the ED [38]. The nurse serves as the clinical coordinator for these extended teams.

7.3 Promoting Access to Primary Care and Specialty Services

A fundamental barrier is lack of access to timely outpatient care. Nursing interventions include not only scheduling appointments but also performing motivational interviewing to address ambivalence or fear about attending them. For complex cases, nurses may accompany patients to their first post-discharge visit to ensure clear communication between the inpatient and outpatient teams [39]. Furthermore, nurses in outpatient settings play a key role in managing patient panels, identifying those beginning to show signs of decline through regular check-ins, and intensifying outpatient management to prevent hospitalization.

8. Ethical Considerations and Promoting Patient Autonomy

8.1 Avoiding Stigmatization and "Frequent Flyer" Labeling

An ethical imperative for nurses is to consciously avoid the stigmatizing label of "frequent flyer." This term, often used colloquially, can lead to implicit bias, judgmental attitudes, and substandard care from healthcare teams who may view admissions as inevitable or the patient's fault [40]. Nurses must champion a trauma-informed, non-judgmental perspective that recognizes frequent admissions as a failure of the system to adequately support a vulnerable individual. This ethical stance fosters compassion, curiosity, and a more determined effort to address root causes.

8.2 Balancing Safety with Self-Determination

A core tension in caring for this population is balancing patient safety with respect for autonomy. Patients have the right to make what healthcare professionals may perceive as "poor choices," such as refusing a referral to a nursing home or continuing to live independently despite risks. Nursing interventions in these scenarios shift from coercion to supported decision-making. This involves ensuring the patient has full, comprehensible information about the risks and

benefits of their choices, exploring their values and reasons, and working creatively to maximize safety within their chosen path (e.g., increasing home care hours, installing safety technology) [41]. The goal is to empower, not override, the patient's right to self-determination, even when it involves a degree of risk.

9. Conclusion

The challenge of reducing frequent hospital admissions is formidable, yet it represents a critical frontier for improving patient-centered outcomes and healthcare system sustainability. As this paper has detailed, the nursing profession is not merely a participant in addressing this challenge but is, in many ways, the essential catalyst for change. Effective intervention requires a multifaceted, longitudinal approach that begins with astute identification and holistic assessment and extends far beyond the acute episode into the fabric of the patient's daily life. Through robust transitional care models, therapeutic education, strategic use of technology, unwavering advocacy to address social determinants, and ethical partnership with patients and families, nurses can break the costly and debilitating cycle of rehospitalization.

The evidence-based interventions outlined—from primary nursing and advanced care planning to remote monitoring and community collaboration—form a cohesive framework for action. Their successful implementation hinges on healthcare systems valuing and investing in nursing roles, from the bedside to the community, and providing the time, resources, and interprofessional support necessary for these complex interventions to flourish. Ultimately, by embracing this comprehensive, nurse-driven model of care, we can move towards a future where hospital doors remain open for true emergencies but are no longer a revolving gateway for those failed by fragmented care. The outcome will be a healthcare system that is not only more efficient but, more importantly, more humane, fostering resilience, autonomy, and well-being for its most vulnerable patients.

Author Statements:

- **Ethical approval:** The conducted research is not related to either human or animal use.
- **Conflict of interest:** The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

- **Acknowledgement:** The authors declare that they have nobody or no-company to acknowledge.
- **Author contributions:** The authors declare that they have equal right on this paper.
- **Funding information:** The authors declare that there is no funding to be acknowledged.
- **Data availability statement:** The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

References

1. Hancock HC, Close H, Mason JM, et al. Feasibility of evidence-based diagnosis and management of heart failure in older people in care: a pilot randomised controlled trial. *BMC Geriatr* 2012;12:70. DOI: 10.1186/1471-2318-12-70.
2. Bone AE, Evans CJ, Etkind SN, et al. Factors associated with older people's emergency department attendance towards the end of life: a systematic review. *Eur J Public Health* 2019;29:67–74. DOI: 10.1093/eurpub/cky241.
3. Gravenstein S, Davidson HE, Han LF, et al. Feasibility of a cluster-randomized influenza vaccination trial in U.S. nursing homes: lessons learned. *Hum Vaccin Immunother* 2018;14:736–43. DOI: 10.1080/21645515.2017.1398872.
4. Gulla C, Flo E, Kjome RL, et al. Deprescribing antihypertensive treatment in nursing home patients and the effect on blood pressure. *J Geriatr Cardiol* 2018;15:275–83. DOI: 10.11909/j.issn.1671-5411.2018.04.011.
5. Potter K, Flicker L, Page A, et al. Deprescribing in frail older people: a randomised controlled trial. *PLOS ONE* 2016;11:e0149984. DOI: 10.1371/journal.pone.0149984.
6. Higginson IJ, Daveson BA, Morrison RS, et al. Social and clinical determinants of preferences and their achievement at the end of life: prospective cohort study of older adults receiving palliative care in three countries. *BMC Geriatr* 2017;17:271. DOI: 10.1186/s12877-017-0648-4.
7. National institute for Health and Care Excellence . NICE guideline 86: people's experience in adult social care services: improving the experience of care and support for people using adult social care services.
8. Temkin-Greener H, Zheng NT, Xing J, et al. Site of death among nursing home residents in the united states: changing patterns, 2003-2007. *J Am Med Dir Assoc* 2013;14:741–8. DOI: 10.1016/j.jamda.2013.03.009.
9. Dwyer R, Gabbe B, Stoelwinder JU, et al. A systematic review of outcomes following emergency transfer to hospital for residents of aged care facilities. *Age Ageing* 2014;43:759–66. DOI: 10.1093/ageing/afu117.

10. McConeghy KW, Davidson HE, Canaday DH, et al. Cluster-randomized trial of adjuvanted versus nonadjuvanted trivalent influenza vaccine in 823 us nursing homes. *Clin Infect Dis* 2021;73:e4237–43. DOI: 10.1093/cid/ciaa1233.
11. Forbat L, Liu W-M, Koerner J, et al. Reducing time in acute hospitals: a stepped-wedge randomised control trial of a specialist palliative care intervention in residential care homes. *Palliat Med* 2020;34:571–9. DOI: 10.1177/0269216319891077.
12. Lamppu PJ, Pitkala KH. Staff training interventions to improve end-of-life care of nursing home residents: a systematic review. *J Am Med Dir Assoc* 2021;22:268–78. DOI: 10.1016/j.jamda.2020.09.011.
13. Boyd M, Armstrong D, Parker J, et al. Do gerontology nurse specialists make a difference in hospitalization of long-term care residents? results of a randomized comparison trial. *J Am Geriatr Soc* 2014;62:1962–7. DOI: 10.1111/jgs.13022.
14. Desborough JA, Clark A, Houghton J, et al. Clinical and cost effectiveness of a multi-professional medication reviews in care homes (CAREMED). *Int J Pharm Pract* 2020;28:626–34. DOI: 10.1111/ijpp.12656.
15. Hoffmann F, Strautmann A, Allers K. Hospitalization at the end of life among nursing home residents with dementia: a systematic review. *BMC Palliat Care* 2019;18:77. DOI: 10.1186/s12904-019-0462-1.
16. National Health Service . The NHS long term plan.
17. National Institute for Health and Care Excellence . NICE guideline 97: dementia: assessment, management and support for people living with dementia and their carers.
18. National Institute for Health and Care Excellence . NICE quality standard 13: end of life care for adults.
19. Fong TG, Tulebaev SR, Inouye SK. Delirium in elderly adults: diagnosis, prevention and treatment. *Nat Rev Neurol* 2009;5:210–20. DOI: 10.1038/nrneurol.2009.24.
20. Delos Reyes J, O’Keefe J, Cooney MT, et al. Multiple hospital admissions do not improve older nursing home residents’ survival: a trigger for advance care planning. Presentation to British Geriatrics Society Scientific Meeting May 2015;2015:56.
21. Wallerstedt SM, Kindblom JM, Nylén K, et al. Medication reviews for nursing home residents to reduce mortality and hospitalization: systematic review and meta-analysis. *Br J Clin Pharmacol* 2014;78:488–97. DOI: 10.1111/bcp.12351.
22. García-Gollarte F, Baleriola-Júlvez J, Ferrero-López I, et al. An educational intervention on drug use in nursing homes improves health outcomes resource utilization and reduces inappropriate drug prescription. *J Am Med Dir Assoc* 2014;15:885–91. DOI: 10.1016/j.jamda.2014.04.010.
23. Barker RO, Craig D, Spiers G, et al. Who should deliver primary care in long-term care facilities to optimize resident outcomes? A systematic review. *J Am Med Dir Assoc* 2018;19:1069–79. DOI: 10.1016/j.jamda.2018.07.006.
24. Gravenstein S, Davidson HE, Taljaard M, et al. Comparative effectiveness of high-dose versus standard-dose influenza vaccination on numbers of US nursing home residents admitted to hospital: a cluster-randomised trial. *Lancet Respir Med* 2017;5:738–46. DOI: 10.1016/S2213-2600(17)30235-7.
25. Graverholt B, Forsetlund L, Jamtvedt G. Reducing hospital admissions from nursing homes: a systematic review. *BMC Health Serv Res* 2014;14:36. DOI: 10.1186/1472-6963-14-36.
26. Kua C-H, Yeo CYY, Tan PC, et al. Association of deprescribing with reduction in mortality and hospitalization: a pragmatic stepped-wedge cluster-randomized controlled trial. *J Am Med Dir Assoc* 2021;22:82–9. DOI: 10.1016/j.jamda.2020.03.012.
27. Sluggett JK, Hopkins RE, Chen EY, et al. Impact of medication regimen simplification on medication administration times and health outcomes in residential aged care: 12 month follow up of the simpler randomized controlled trial. *J Clin Med* 2020;9:1053. DOI: 10.3390/jcm9041053.
28. Honinx E, Smets T, Piers R, et al. Lack of effect of a multicomponent palliative care program for nursing home residents on hospital use in the last month of life and on place of death: a secondary analysis of a multicountry cluster randomized control trial. *J Am Med Dir Assoc* 2020;21:1973–8. DOI: 10.1016/j.jamda.2020.05.003.
29. Pedersen LH, Gregersen M, Barat I, et al. Early geriatric follow-up visits to nursing home residents reduce the number of readmissions: a quasi-randomised controlled trial. *Eur Geriatr Med* 2018;9:329–37. DOI: 10.1007/s41999-018-0045-3.
30. Weathers E, O’Caoimh R, Cornally N, et al. Advance care planning: a systematic review of randomised controlled trials conducted with older adults. *Maturitas* 2016;91:101–9. DOI: 10.1016/j.maturitas.2016.06.016.
31. Booy R, Lindley RI, Dwyer DE, et al. Treating and preventing influenza in aged care facilities: a cluster randomised controlled trial. *PLoS One* 2012;7:e46509. DOI: 10.1371/journal.pone.0046509.
32. Martin RS, Hayes B, Gregorevic K, et al. The effects of advance care planning interventions on nursing home residents: a systematic review. *J Am Med Dir Assoc* 2016;17:284–93. DOI: 10.1016/j.jamda.2015.12.017.
33. Curie M. Emergency admissions: data briefing.
34. British Geriatrics Society . Quest for quality: an inquiry into the quality of healthcare support for older people in care homes: A call for leadership, partnership and improvement.
35. Popay J, Roberts H, Sowden A, et al. Guidance on the conduct of narrative synthesis in systematic reviews: A product from the ESRC methods programme. 2006.
36. National Institute for Health and Care Excellence . NICE guideline 27: transition between inpatient

hospital settings and community or care home settings for adults with social care needs.

37. Xing J, Mukamel DB, Temkin-Greener H. Hospitalizations of nursing home residents in the last year of life: nursing home characteristics and variation in potentially avoidable hospitalizations. *J Am Geriatr Soc* 2013;61:1900–8. DOI: 10.1111/jgs.12517.
38. Schünemann H, Brożek J, Guyatt G, et al. GRADE handbook for grading quality of evidence and strength of recommendations. The GRADE Working Group, 2013.
39. Lavan AH, Gallagher PF, O’Mahony D. Methods to reduce prescribing errors in elderly patients with multimorbidity. *Clin Interv Aging* 2016;11:857–66. DOI: 10.2147/CIA.S80280.
40. Romøren M, Gjelstad S, Lindbæk M. A structured training program for health workers in intravenous treatment with fluids and antibiotics in nursing homes: a modified stepped-wedge cluster-randomised trial to reduce hospital admissions. *PLoS One* 2017;12:e0182619. DOI: 10.1371/journal.pone.0182619.
41. Campbell M, McKenzie JE, Sowden A, et al. Synthesis without meta-analysis (swim) in systematic reviews: reporting guideline. *BMJ* 2020;368:l6890. DOI: 10.1136/bmj.l6890.