



The "Super-Utilizer" Inpatient: A Team-Based Care Plan for Frequent Admitters

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Abstract

Background: A small subset of patients with complex medical, behavioral, and social needs—often termed "super-utilizers"—account for a disproportionately high volume of hospital admissions, readmissions, and healthcare expenditures. These individuals frequently cycle through acute care systems due to fragmented management of multimorbidity, polypharmacy, substance use, mental illness, and profound social determinants of health. Traditional, episodic hospital care fails to address the root causes of its utilization, leading to high costs, poor outcomes, and staff frustration. **Aim:** This narrative review synthesizes evidence from 2010-2024 on interdisciplinary, team-based inpatient care models specifically designed for super-utilizer patients. **Methods:** A comprehensive search of PubMed, CINAHL, Scopus, and health services research databases was conducted. **Results:** Evidence indicates that successful models hinge on early identification via health informatics flags, the co-creation of a unified care plan by residents and nurses, consistent relational care from health assistant nurses, and early physical therapy to combat deconditioning. These interventions, when bundled, demonstrate consistent reductions in 30-day readmission rates (15-40%) and length of stay for the target population by addressing clinical and psychosocial needs simultaneously. **Conclusion:** Managing super-utilizer inpatients requires a paradigm shift from reactive, disease-focused care to proactive, team-based stewardship of the whole patient. Investment in structured interdisciplinary protocols, supported by informatics and dedicated support roles, is essential to break the cycle of recurrent hospitalization and improve outcomes for this vulnerable population.

Keywords: high-utilizer patients, care coordination, interdisciplinary teams, hospital readmissions, complex care management

Introduction

Within the labyrinth of modern healthcare systems exists a distinct and challenging patient cohort: the "super-utilizer." These individuals, who may represent just 1-5% of a patient population, are estimated to account for 20-50% of total healthcare expenditures, primarily driven by recurrent, often preventable, hospital admissions and emergency department (ED) visits (Figueroa & Jha, 2018; Zador

et al., 2019). Super-utilizers are not defined by a single diagnosis but by a confluence of factors: multiple chronic conditions (e.g., heart failure, COPD, diabetes with complications), severe mental health and substance use disorders, significant functional limitations, and entrenched social vulnerabilities such as homelessness, food insecurity, and social isolation (Moe et al., 2017; Berkowitz et al., 2018). Their hospitalizations are frequently

precipitated by a breakdown in this fragile equilibrium—a missed medication, an eviction, a bout of depression—rather than a purely new biomedical event.

The traditional acute care model is spectacularly ill-equipped for these patients. Hospitalization is typically structured around diagnosing and treating the primary admitting diagnosis (e.g., COPD exacerbation) within a compressed timeline (Jackevicius et al., 2015). The underlying drivers of utilization—polypharmacy mismanagement, untreated behavioral health conditions, profound deconditioning, and lack of social support—are often documented but rarely addressed in a coordinated, definitive manner during the stay. Consequently, discharge becomes a precarious transition back into the same void that precipitated admission, virtually guaranteeing a rapid return (Bellon et al., 2019). This cyclical pattern, termed "revolving door" utilization, represents a profound systems failure. It generates immense financial cost, contributes to emergency department overcrowding and hospital capacity strain, and subjects vulnerable individuals to repeated iatrogenic risks, all while failing to improve their health or quality of life (Finkelstein et al., 2020).

This narrative review synthesizes the contemporary evidence (2010-2024) to argue that breaking this cycle requires a fundamental re-engineering of the *inpatient experience itself* for identified super-utilizers. Moving beyond post-discharge disease management programs, we posit that the hospitalization must be leveraged as a critical window of opportunity to implement a comprehensive, interdisciplinary intervention. This review analyzes the essential, integrated roles of five key actors within the hospital: Resident Physicians and Attending Hospitalists, who must transition from episodic treaters to architects of a longitudinal care plan; Registered Nurses, who provide the continuous clinical surveillance and therapeutic rapport; Health Assistant Nurses (HANs) or Nursing Assistants, who deliver the consistent, relational care that builds trust and observes subtle declines; Physical Therapists, who combat the debilitating deconditioning that is both a cause and consequence of frequent admissions; and Health Informatics, which provides the crucial infrastructure for identification, communication, and protocol adherence. The central thesis is that for the super-utilizer, the primary "diagnosis" is system fragmentation, and the required "treatment" is a unified, anticipatory, and team-executed care plan that begins at admission and extends seamlessly beyond discharge. This review will delineate the components of this team-based approach, evaluate its impact on key utilization metrics, and explore the implementation challenges and necessary paradigm shifts.

The Informatics-Enabled "Flag"

The first, critical step in any super-utilizer intervention is accurate and timely identification. In a busy hospital, these patients can easily be missed in the daily admission surge, receiving standard care by default. Health informatics systems are the essential tool for systematic case-finding.

Modern electronic health records (EHRs) and enterprise data warehouses hold the key to predicting high utilization. Informatics tools can be programmed to automatically flag patients meeting pre-defined criteria upon registration or admission (Spagnolo et al., 2021). These criteria often combine clinical and utilization data: e.g., ≥ 3 hospital admissions in the past 12 months, ≥ 2 ED visits in the past 30 days, specific high-risk diagnoses (e.g., heart failure, cirrhosis), or a high score on a predictive risk algorithm like the LACE+ index (Length of stay, Acuity, Comorbidities, ED visits) (van Walraven et al., 2010; Shams et al., 2015). This "super-utilizer flag" should generate a prominent alert in the EHR, visible to all care team members. Beyond identification, informatics plays a role in surfacing historical intelligence. The flag should link directly to a longitudinal care plan (if one exists from a previous admission) or a dedicated patient profile summarizing past hospitalizations, known psychosocial barriers, established care preferences, and key community contacts (Kapoor et al., 2017). This transforms the EHR from a repository of disjointed episodes into a narrative tool, ensuring the team does not start from scratch with each admission.

Co-Creating the Unified Care Plan

Once flagged, the patient must immediately enter a different care pathway, spearheaded by the physician and nursing dyad (Table 1).

Resident Physician and Attending Hospitalist: Architects of Anticipatory Care

For the resident or attending hospitalist, the management of a super-utilizer patient necessitates a fundamental shift in clinical mindset. The goal transcends the immediate treatment of the acute exacerbation to become the deliberate architect of a hospitalization designed to dismantle the pattern of recurrent admission. This requires a proactive, structured process, ideally initiated within the first 24 hours, that transitions from episodic intervention to longitudinal problem-solving. This architectonic role unfolds in three critical, sequential phases.

First, it begins with a comprehensive, holistic admission assessment that deliberately expands beyond the chief complaint. The physician must conduct a review that accords equal weight to medical, functional, behavioral, and social domains. This involves a rigorous medication reconciliation to untangle polypharmacy, formal screening for substance use and mental health disorders, and a direct inquiry into social determinants of health such as housing stability, food security, and access to transportation (Gentene et al., 2021; Moe et al., 2017). This foundational assessment reframes the

patient not as a case of “CHF exacerbation” but as a person with CHF whose exacerbation was triggered by a combination of medication non-adherence due to cost, untreated anxiety, and lack of reliable transportation to a clinic (Bailey et al., 2019).

Second, the physician must translate this assessment into a collaborative strategy by leading or actively participating in an early interdisciplinary team (IDT) care plan conference. This meeting, which includes nursing, social work, case management, and pharmacy, serves to synthesize disparate findings and establish shared, actionable goals. The vital output of this conference is a Unified Care Plan (UCP), a dynamic document intended to be accessible within the electronic health record (EHR) (McLaughlin et al., 2017). The UCP is the blueprint for anticipatory care; it outlines not only the treatment for the current admission but, more importantly, a preventive strategy for the future. It explicitly details Medical Goals (e.g., optimize diuretic regimen, schedule outpatient paracentesis), Behavioral Health Goals (e.g., initiate medication-assisted treatment for opioid use disorder), Functional/Social Goals (e.g., “Patient will be assessed by PT for home safety,” “Social work to apply for supportive housing”), and, where appropriate, Advanced Care Planning discussions. The physician’s critical responsibility is to ensure this plan is medically sound, clearly documented, and activated through specific orders (e.g., PT referrals, social work consults) that set its components in motion (Baldwin et al., 2018).

Registered Nursing: The Orchestrator and Clinical Anchor

While the physician architects the plan, the registered nurse serves as its essential orchestrator and clinical anchor at the bedside, translating the UCP from document into daily reality. This role is multidimensional and foundational to success.

Central to this is building a therapeutic rapport through consistent, non-judgmental communication. For super-utilizers, who are often wary of a system they perceive as having failed them repeatedly, this trusting relationship is itself a therapeutic intervention and a prerequisite for engagement (Palimbo et al., 2021). Concurrently, the nurse engages in continuous clinical and psychosocial surveillance, monitoring not only for signs of physiological deterioration but also for the early warning signs of psychosocial triggers outlined in the UCP, such as increasing anxiety or refusal of medications. Acting as the “eyes and ears” of the team, the nurse is positioned to activate contingency plans within the UCP before a minor issue escalates into a crisis (Chakurian & Popejoy, 2021).

Furthermore, the nurse is pivotal in patient and family engagement, translating the complexities of the UCP into understandable terms and enlisting the patient and their support network as active partners in its execution. This involves education on

self-management, recognition of warning signs, and navigation of the healthcare system (Weaver et al., 2017). Finally, the nurse acts as the central hub for team coordination, ensuring the physical therapist assesses the patient, the social worker receives pertinent updates, and the resident physician is informed of subtle clinical changes that, while not meeting rapid response criteria, are critical to the patient’s longitudinal stability. In this way, nursing practice ensures the UCP is a living, responsive guide rather than a static document, providing the continuity and vigilance necessary to disrupt the cycle of admission (Naylor et al., 2022).

The Relational and Functional Scaffolding: HAN and PT Roles

The UCP requires consistent execution and attention to the fundamentals of daily living and mobility, which is where dedicated support staff and therapists are invaluable.

For super-utilizers, whose lives are often marked by instability and fractured relationships, the consistent presence of a HAN can be transformative. Their role extends beyond task completion to relational care and observational vigilance. By performing daily baths, assisting with meals, and providing companionship, the HAN develops a unique trust with the patient. They are positioned to observe nuanced changes—a loss of appetite, increased confusion, expressions of hopelessness—that may precede a clinical crisis (Kalisch et al., 2014). They are also crucial for reinforcing education and routines established by the RN and PT. This relational continuity, often missing in these patients’ lives, is a low-tech but high-impact component of the intervention, promoting engagement and providing early warning.

Deconditioning is a silent accelerator of the readmission cycle. Muscle weakness, poor balance, and functional decline increase fall risk, reduce capacity for self-care, and contribute to the frailty that makes minor illnesses catastrophic. For the super-utilizer, PT is not a discretionary service but a mandatory component of the UCP. Early PT assessment (within 24-48 hours of admission, if medically appropriate) establishes a functional baseline and initiates a tailored program of therapeutic exercises, mobility training, and endurance building (Hoyer et al., 2016). PTs also assess for home safety needs and recommend durable medical equipment (e.g., shower chair, grab bars). By focusing on functional restoration during admission, PT helps ensure the patient is discharged with a higher level of independence, reducing their risk of a fall-related readmission or inability to manage at home (Kitzman et al., 2021). Figure 1 depicts a structured inpatient care pathway for super-utilizer patients, beginning with informatics-based identification at admission and progressing through interdisciplinary team engagement.



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Table 1: The Interdisciplinary Super-Utilizer Care Team: Roles and Functions

Team Member	Primary Role in Intervention	Key Contributions	Interaction with Other Members
Health Informatics	Identifier & Enabler	Automatically flags high-risk patients on admission; Surfaces historical care plans & data; Tracks team compliance with protocols.	Provides the "alert" that triggers the specialized pathway for the RN, MD, and team.
Resident Physician / Hospitalist	Medical Architect & Lead	Conducts holistic admission assessment; Leads creation of Unified Care Plan (UCP); Coordinates medical & behavioral health interventions; Manages transitions.	Relies on informatics flag; Co-creates UCP with RN & SW; Writes orders activating PT, consults.
Registered Nurse (RN)	Bedside Orchestrator & Clinical Anchor	Builds therapeutic rapport; Implements & monitors UCP at bedside; Provides patient/family education; Serves as communication hub for the team.	Executes the medical plan from MD; Directs HAN on observational priorities; Communicates PT progress/barriers to MD.
Health Assistant Nurse (HAN/CNA)	Relational Constant & Vigilant Observer	Provides consistent, task-focused care; Builds trust through routine; Observes & reports subtle behavioral/functional changes.	Takes direction from RN; Reports observations to RN; Assists patient with PT-prescribed exercises/mobility.
Physical Therapist (PT)	Functional Restorer	Conducts early functional assessment; Prescribes therapeutic exercise & mobility plan; Assesses for home safety & DME needs.	Receives referral per UCP; Provides progress updates to RN/MD; Trains HAN/patient on safe mobility techniques.
Social Work / Case Management	Systems Navigator	Addresses social determinants (housing, benefits); Facilitates complex discharges; Links to community resources.	Integral to UCP creation with MD/RN; Informs team of social barriers & solutions.

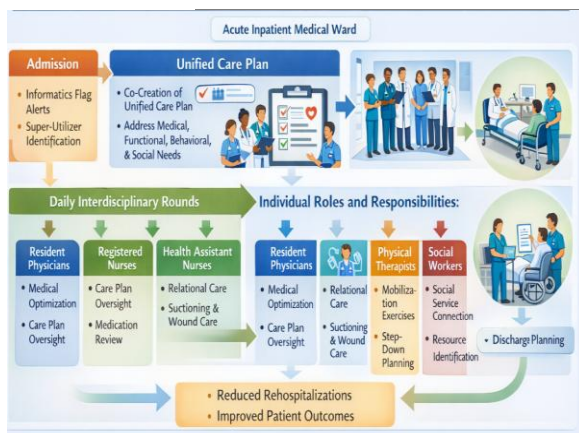


Figure 1. Inpatient Team-Based Care Pathway for the Super-Utilizer Patient

Synthesis of Evidence and Impact on Outcomes

The collective evidence for coordinated, inpatient-focused interventions for super-utilizer patients, while still evolving within a rapidly

advancing field, presents a compelling and promising picture of efficacy (Carter et al., 2015). Although intervention models vary in their specific structure and staffing, they universally share a foundational triad of core components: proactive data-driven identification, structured interdisciplinary collaboration, and the development of a personalized, holistic care plan (Hoyer et al., 2018). The efficacy of these models is demonstrated across several prominent approaches.

Specific intervention frameworks have been rigorously studied. Complex Care Management (CCM) Inpatient Teams, which embed dedicated nurses or clinicians to work alongside primary teams on flagged patients, focus on developing unified care plans and coordinating post-discharge services. Randomized controlled trials of analogous intensive outpatient management programs have demonstrated significant reductions in hospital admissions and associated costs, underscoring the value of sustained,

coordinated engagement (Finkelstein et al., 2020). Another critical model involves structuring Interdisciplinary Rounds (IDR) to prioritize high-utilizer patients, ensuring all care team members are aligned on goals and responsibilities. Research indicates that such structured IDRs significantly improve adherence to care plans and enhance the quality of interdisciplinary communication—factors paramount for managing complex patients (O’Leary et al., 2012). Furthermore, "Hot-Spotting" Interventions, pioneered by entities like the Camden Coalition, utilize data analytics to identify super-utilizers and deploy interdisciplinary teams to engage them during and after hospitalization. Evaluations of these programs show mixed but frequently positive impacts on readmission rates, with success heavily contingent on highly tailored, relationship-based interventions that address individual social and medical complexities (Berkowitz et al., 2016).

The documented outcomes from successfully implemented team-based approaches are significant and multifaceted. Most critically, these programs consistently achieve a substantial reduction in 30-day readmission rates, with studies reporting decreases ranging from 15% to over 40% for enrolled cohorts compared to usual care (Snyder et al., 2020; Shams et al., 2015). While the length of stay (LOS) may see a slight initial increase due to more comprehensive discharge planning, effective programs ultimately reduce avoidable days and prevent prolonged stays stemming from unresolved social needs by addressing these barriers earlier in the admission (Rostagno et al., 2016). Beyond quantitative metrics, these interventions improve the patient and provider experience; patients report feeling more heard and supported, while clinical staff experience reduced frustration and a greater sense of efficacy when operating within a clear, shared-care

framework (McLaughlin et al., 2017). Finally, from a systems perspective, these models demonstrate cost savings and a positive return on investment, as the upfront costs of the interdisciplinary team are typically offset by the reduction in high-cost acute care utilization (Chang et al., 2023).

Barriers and Future Directions

Despite robust evidence supporting their effectiveness, implementing these interdisciplinary models at scale confronts profound structural and cultural barriers (Table 2). Financial misalignment presents a primary obstacle, as hospitals typically bear the cost of staffing and maintaining interdisciplinary teams, while the resultant savings from fewer readmissions often accrue to insurers or Medicare, creating a "wrong-pocket" problem that disincentivizes investment (Hong et al., 2014). Concurrently, pervasive workforce constraints and high burnout rates limit the capacity for the intensive, relational work required to engage super-utilizer patients effectively. Siloed professional cultures and persistent hierarchical communication norms can stifle the open dialogue and mutual respect essential for true teamwork (Greenwood-Lee et al., 2018). Furthermore, health information technology (IT) systems are frequently ill-equipped to support this paradigm, as they are generally designed for episodic, task-oriented documentation rather than longitudinal care planning, making a Unified Care Plan (UCP) difficult to create, visualize, and share across disciplines (Maghsoud-Lou et al., 2017). Overcoming these hurdles will require deliberate policy reforms to align payment with outcomes, investment in team well-being and training, leadership committed to flattening hierarchies, and the intentional redesign of health IT to facilitate—rather than hinder—collaborative, patient-centered care (Wählberg et al., 2017).

Table 2: Barriers and Enablers for Implementing a Super-Utilizer Care Pathway

Domain	Critical Barriers	Essential Enablers & Solutions
Financial & Reimbursement	Fee-for-service discourages time-intensive care planning; Savings from reduced readmissions may not benefit the hospital directly.	Value-based payment contracts (e.g., ACOs, bundled payments) that reward outcomes; an internal business case demonstrating ROI from freed bed capacity and reduced penalty costs (HRRP).
Workflow & Culture	Lack of protected time for team huddles and care planning; Hierarchical structures that undervalue input from HANs/PT; "Task-oriented" vs. "plan-oriented" nursing culture.	Leadership mandate and dedicated time for interdisciplinary rounds; Training in team-based communication (e.g., TeamSTEPPS); Empowering all team members to contribute to the UCP.
Health Information Technology	EHRs designed for billing/episodic care, not longitudinal care planning; UCPs buried in PDFs or social work notes; Lack of alert specificity leading to flag fatigue.	Developing EHR modules for dynamic, shared care plans; Designing intelligent, risk-stratified alerts ; Ensuring UCP is a prominent, interactive part of the patient chart.
Workforce Training	High turnover of nursing/HAN staff disrupts relational continuity; Lack of training for residents in complex care	Investing in retention for support staff; Integrating complex care curricula into medical and nursing

	management and social medicine.	education; Creating dedicated complex care roles (e.g., Clinical Nurse Care Coordinator).
Community Linkages	Discharge plans fail due to lack of available community mental health, housing, or outpatient addiction treatment.	Hospital investment in or formal partnerships with community-based organizations; Advocating for increased public funding of social services.
Conclusion	The super-utilizer inpatient represents the ultimate test of a health system's capacity for integrated, person-centered care. Their recurrent admissions are not a reflection of individual failing but a symptom of systemic fragmentation across medical, behavioral, and social domains. This review demonstrates that a reactive, siloed approach is destined to fail. Success requires a deliberate, team-based strategy initiated at the moment of admission. This strategy leverages informatics for intelligence, unites physicians and nurses in co-creating a living care plan, utilizes the consistent presence of health assistants to build trust and vigilance, and mandates physical therapy to preserve functional independence. It represents a shift from viewing the hospitalization as an isolated event to treating it as a pivotal chapter in a longitudinal story—a chapter that must be used to rewrite the narrative of perpetual crisis. Investing in such interdisciplinary inpatient models is not merely an act of financial stewardship or quality improvement; it is an ethical imperative. It acknowledges that for our most complex and vulnerable patients, dignity and better health will not be found in more advanced scanners or novel drugs alone, but in the coordinated, compassionate, and persistent efforts of a team committed to seeing and treating the whole person.	
References	1. Bailey, J. E., Surbhi, S., Wan, J. Y., Munshi, K. D., Waters, T. M., Binkley, B. L., ... & Graetz, I. (2019). Effect of intensive interdisciplinary transitional care for high-need, high-cost patients on quality, outcomes, and costs: a quasi-experimental study. <i>Journal of General Internal Medicine</i>, 34(9), 1815-1824. https://doi.org/10.1007/s11606-019-05082-8 2. Baldwin, S. M., Zook, S., & Sanford, J. (2018). Implementing posthospital interprofessional care team visits to improve care transitions and decrease hospital readmission rates. <i>Professional Case Management</i>, 23(5), 264-271. DOI: 10.1097/NCM.0000000000000284 3. Bellon, J. E., Bilderback, A., Ahuja-Yende, N. S., Wilson, C., Altieri Dunn, S. C., Brodine, D., & Boninger, M. L. (2019). University of Pittsburgh Medical Center home transitions multidisciplinary care coordination reduces readmissions for older adults. <i>Journal of the American Geriatrics Society</i>, 67(1), 156-163. https://doi.org/10.1111/jgs.15643 4. Berkowitz, S. A., Hulberg, A. C., Hong, C., Stowell, B. J., Tirozzi, K. J., Traore, C. Y., & Atlas, S. J. (2016). Addressing basic resource needs to improve primary care quality: a community collaboration programme. <i>BMJ quality & safety</i>, 25(3), 164-172. https://doi.org/10.1136/bmjqs-2015-004521 5. Berkowitz, S. A., Parashuram, S., Rowan, K., Andon, L., Bass, E. B., Bellantoni, M., ... & Brown, P. M. (2018). Association of a care coordination model with health care costs and utilization: the Johns Hopkins Community Health Partnership (J-CHiP). <i>JAMA network open</i>, 1(7), e184273-e184273. doi:10.1001/jamanetworkopen.2018.4273 6. Carter, J. A., Carr, L. S., Collins, J., Petrongolo, J. D., Hall, K., Murray, J., ... & Tata, L. A. (2015). STAAR: improving the reliability of care coordination and reducing hospital readmissions in an academic medical centre. <i>BMJ innovations</i>, 1(3). https://doi.org/10.1136/bmjinnov-2015-000048 7. Chakurian, D., & Popejoy, L. (2021). Utilizing the care coordination Atlas as a framework: an integrative review of transitional care models. <i>International Journal of Care Coordination</i>, 24(2), 57-71. https://doi.org/10.1177/20534345211001615 8. Chang, E., Ali, R., Seibert, J., & Berkman, N. D. (2023). Interventions to improve outcomes for high-need, high-cost patients: a systematic review and meta-analysis. <i>Journal of general internal medicine</i>, 38(1), 185-194. https://doi.org/10.1007/s11606-022-07809-6 9. Figueroa, J. F., & Jha, A. K. (2018). Approach for achieving effective care for high-need patients. <i>JAMA Internal Medicine</i>, 178(6), 845-846. doi:10.1001/jamainternmed.2018.0823 10. Finkelstein, A., Zhou, A., Taubman, S., & Doyle, J. (2020). Health care hotspotting—a randomized, controlled trial. <i>New England Journal of Medicine</i>, 382(2), 152-162. DOI: 10.1056/NEJMsa1906848	

11. Gentene, A. J., Guido, M. R., Woolf, B., Dalhover, A., Boesken, T. A., Mueller, E. W., & Zafar, M. A. (2021). Multidisciplinary team utilizing pharmacists in multimodal, bundled care reduce chronic obstructive pulmonary disease hospital readmission rates. *Journal of Pharmacy Practice*, 34(1), 110-116. <https://doi.org/10.1177/0897190019889440>
12. Greenwood-Lee, J., Jewett, L., Woodhouse, L., & Marshall, D. A. (2018). A categorisation of problems and solutions to improve patient referrals from primary to specialty care. *BMC health services research*, 18(1), 986. <https://doi.org/10.1186/s12913-018-3745-y>
13. Hong, C. S., Siegel, A. L., & Ferris, T. G. (2014). Caring for high-need, high-cost patients: what makes for a successful care management program?.
14. Hoyer, E. H., Brotman, D. J., Apfel, A., Leung, C., Boonyasai, R. T., Richardson, M., ... & Deuschendorf, A. (2018). Improving outcomes after hospitalization: a prospective observational multicenter evaluation of care coordination strategies for reducing 30-day readmissions to Maryland hospitals. *Journal of general internal medicine*, 33(5), 621-627. <https://doi.org/10.1007/s11606-017-4218-4>
15. Hoyer, E. H., Friedman, M., Lavezza, A., Wagner-Kosmakos, K., Lewis-Cherry, R., Skolnik, J. L., ... & Needham, D. M. (2016). Promoting mobility and reducing length of stay in hospitalized general medicine patients: a quality-improvement project. *Journal of hospital medicine*, 11(5), 341-347. <https://doi.org/10.1002/jhm.2546>
16. Jackevicius, C. A., de Leon, N. K., Lu, L., Chang, D. S., Warner, A. L., & Mody, F. V. (2015). Impact of a multidisciplinary heart failure post-hospitalization program on heart failure readmission rates. *Annals of Pharmacotherapy*, 49(11), 1189-1196. <https://doi.org/10.1177/1060028015599637>
17. Kalisch, B. J., Xie, B., & Dabney, B. W. (2014). Patient-reported missed nursing care correlated with adverse events. *American Journal of Medical Quality*, 29(5), 415-422. <https://doi.org/10.1177/1062860613501715>
18. Kapoor, R., Avendaño, L., Sandoval, M. A., Cruz, A. T., Sampayo, E. M., Soto, M. A., ... & Crouse, H. L. (2017). Initiating a standardized regional referral and counter-referral system in Guatemala: a mixed-methods study. *Global pediatric health*, 4, 2333794X17719205. <https://doi.org/10.1177/2333794X17719205>
19. Kitzman, D. W., Whellan, D. J., Duncan, P., Pastva, A. M., Mentz, R. J., Reeves, G. R., ... & O'Connor, C. M. (2021). Physical rehabilitation for older patients hospitalized for heart failure. *New England Journal of Medicine*, 385(3), 203-216. DOI: 10.1056/NEJMoa2026141
20. Maghsoud-Lou, E., Christie, S., Abidi, S. R., & Abidi, S. S. R. (2017). Protocol-driven decision support within e-Referral systems to streamline patient consultation, triaging and referrals from primary care to specialist clinics. *Journal of Medical Systems*, 41(9), 139. <https://doi.org/10.1007/s10916-017-0791-7>
21. McLaughlin, F., Henn, J., & Candelario, D. (2017). Reduce readmissions and improve transitional care services: An interdisciplinary team provides effective, high-quality discharge care. *American Nurse Today*, 12(12), 44-47. <https://link.gale.com/apps/doc/A523795449/HRCa?u=anon~425c7420&sid=googleScholar&xid=e0b8c2e4>
22. Moe, J., Kirkland, S. W., Rawe, E., Ospina, M. B., Vandermeer, B., Campbell, S., & Rowe, B. H. (2017). Effectiveness of interventions to decrease emergency department visits by adult frequent users: a systematic review. *Academic Emergency Medicine*, 24(1), 40-52. <https://doi.org/10.1111/acem.13060>
23. Naylor, M. D., Hirschman, K. B., McCauley, K., Shaid, E. C., Hanlon, A. L., Whitehouse, C. R., ... & Pauly, M. V. (2022). MIRROR-TCM: multisite replication of a randomized controlled trial-Transitional care model. *Contemporary clinical trials*, 112, 106620. <https://doi.org/10.1016/j.cct.2021.106620>
24. O'leary, K. J., Sehgal, N. L., Terrell, G., Williams, M. V., & High Performance Teams and the Hospital of the Future Project Team. (2012). Interdisciplinary teamwork in hospitals: a review and practical recommendations for improvement. *Journal of hospital medicine*, 7(1), 48-54. <https://doi.org/10.1002/jhm.970>
25. Palimbo, A., Salmah, A. U., Amiruddin, R., & Syam, A. (2021). An overview of the implementation of the continuity of care model in maternal health services: A literature review. *Gaceta sanitaria*, 35, S388-S392. <https://doi.org/10.1016/j.gaceta.2021.10.058>
26. Rostagno, C., Buzzi, R., Campanacci, D., Boccacini, A., Cartei, A., Virgili, G., ... & Marchionni, N. (2016). In hospital and 3-month mortality and functional recovery rate in patients treated for hip fracture by a multidisciplinary team. *PloS one*, 11(7), e0158607.

- <https://doi.org/10.1371/journal.pone.0158607>
27. Shams, I., Ajorlou, S., & Yang, K. (2015). A predictive analytics approach to reducing 30-day avoidable readmissions among patients with heart failure, acute myocardial infarction, pneumonia, or COPD. *Health care management science*, 18(1), 19-34. <https://doi.org/10.1007/s10729-014-9278-y>
 28. Spagnolo, J., Breton, M., Sasseville, M., Sauvé, C., Clément, J. F., Fleet, R., ... & Beauséjour, M. (2021). Exploring the implementation and underlying mechanisms of centralized referral systems to access specialized health services in Quebec. *BMC health services research*, 21(1), 1345. <https://doi.org/10.1186/s12913-021-07286-3>
 29. Snyder, M. E., Krekeler, C. E., Jaynes, H. A., Davis, H. B., Lantaff, W. M., Shan, M., ... & Zillich, A. J. (2020). Evaluating the effects of a multidisciplinary transition care management program on hospital readmissions. *American Journal of Health-System Pharmacy*, 77(12), 931-937. <https://doi.org/10.1093/ajhp/zxaa091>
 30. Van Walraven, C., Dhalla, I. A., Bell, C., Etchells, E., Stiell, I. G., Zarnke, K., ... & Forster, A. J. (2010). Derivation and validation of an index to predict early death or unplanned readmission after discharge from hospital to the community. *Cmaj*, 182(6), 551-557. <https://doi.org/10.1503/cmaj.091117>
 31. Wåhlberg, H., Valle, P. C., Malm, S., Hovde, Ø., & Broderstad, A. R. (2017). The effect of referral templates on out-patient quality of care in a hospital setting: a cluster randomized controlled trial. *BMC Health Services Research*, 17(1), 177. <https://doi.org/10.1186/s12913-017-2127-1>
 32. Weaver, N., Coffey, M., & Hewitt, J. (2017). Concepts, models and measurement of continuity of care in mental health services: a systematic appraisal of the literature. *Journal of Psychiatric and Mental Health Nursing*, 24(6), 431-450. <https://doi.org/10.1111/jpm.12387>
 33. Zador, Z., Landry, A., Cusimano, M. D., & Geifman, N. (2019). Multimorbidity states associated with higher mortality rates in organ dysfunction and sepsis: a data-driven analysis in critical care. *Critical Care*, 23(1), 247. <https://doi.org/10.1186/s13054-019-2486-6>.