Evidence Scan: Interventions to Reduce Hospital Readmissions

Question	Answer
What interventions have been demonstrated to reduce hospital readmissions?	Evidence-based interventions to reduce 30-day hospital readmission include several common elements, such as discharge planning and education; transitional care management and continuity of care; and medication support. Multicomponent interventions that bridge care before and after discharge are most effective, and single-component interventions are generally ineffective. In addition, there is strong evidence for several interventions specific to patients with heart failure.

Recommendations

A program to reduce 30-day hospital readmissions is most likely to succeed if it includes multiple intervention components and bridges care before and after discharge. Components of effective interventions include discharge planning and education; transitional care management and care continuity; and medication support. Even comprehensive interventions had limited impact. Because KPWA has a low baseline readmission rate, it would likely be challenging to achieve a large reduction in readmissions even with a comprehensive program.

As a next step, we recommend that KPWA leaders review all current interventions intended to reduce rehospitalization to see if there is fidelity to the evidence-based interventions in the literature. Kansagara and colleagues' Transitional Care Map (Appendix, pg. 5) and/or the Medicaid/Medicare definition of transitional care management (pg. 2, footer) would be useful frameworks to measure comprehensiveness.

Supporting evidence

This evidence snapshot is based on 11 systematic reviews of interventions to reduce hospital readmissions,[1–11] including three reviews of interventions tailored to patients with heart failure.[12–14] In addition, we reviewed three narrative or scoping reviews[15–17] and two primary studies of interventions focused on patients' social needs.[18,19]

Studies generally selected patients for intervention based on their age, comorbidity, and/or prior utilization rather than a risk prediction score. Many interventions in the literature were limited to older adults or patients with heart failure, chronic obstructive pulmonary disease (COPD), or lung disease.

Discharge planning and education interventions

A Cochrane review of **discharge planning** (i.e., the development of an individualized discharge plan), found a relative reduction in hospital readmission over an average of three months follow-

up (RR 0.89, 95% CI 0.81 to 0.97, moderate-strength evidence). In the 17 included studies, discharge planning was often performed by a nurse and/or pharmacist and included education and/or medication review.[5] Another review reported discharge planning was most effective when it was part of a multicomponent intervention.[10]

A systematic review by Becker et. al. found **communication interventions performed shortly before or at hospital discharge** were significantly associated with lower readmission rates in intervention groups (RR 0.69, 95% CI 0.56 to 0.84). These communication interventions generally involved one-on-one counselling regarding medication use and/or disease management.[1]

A meta-analysis of three trials of **discharge education with teach-back** performed by nurse educators within 24 hours of discharge found a summary effect size for reduction in 30-day readmissions of 0.55 (95% CI 0.34 to 0.91).[2]

Transitional care management and continuity of care

Robust interventions aimed at providing **transitional care management** have been shown to reduce readmissions. Studies that employed fully reimbursable Medicare/Medicaid transitional care management services[1] demonstrated a decrease in 30-day readmissions ranging from 1.8% to 20%.[9] A review of systematic reviews found that across 7 reviews in specific populations, transitional care management interventions reduced readmission in patients with congestive heart failure and in general medical populations, but not in patients with COPD.[10] Transitional care management interventions are heterogenous, but in general, the most effective interventions **address multiple aspects of the care transition, extend beyond the hospital stay, and have the flexibility to accommodate individual patient needs**.[10] For example, a robust transitional care management intervention may include pre-discharge medication education and reconciliation, post-discharge telephone follow-up, home-visits for high-risk patients, a timely follow-up visit in primary care, and communication between hospital staff and outpatient care.

A review of randomized controlled trials found **continuity of care interventions were associated with reduced readmission rates** and were especially effective if interventions addressed three dimensions of continuity: relational, informational, and management.[4] For example, an effective intervention might involve a designated transitional care nurse who works with the patient during and after hospitalization and coordinates with other providers (relational continuity), bi-directional record sharing between inpatient and outpatient care (informational continuity), and ongoing monitoring and responsiveness to changes in patient health status and needs (management continuity).[4]

Moderate strength evidence from 61 trials found that **hospital-at-home interventions**, which are designed to substitute home visits and other in-home supports for part or all of a

[1] Transitional Care Management involves 1. Communication with the patient or caregiver within 2 business days of discharge 2. Medical decision making of at least moderate complexity 3. A face-to-face visit within 7-14 days (depending on complexity) 4. Medication reconciliation and management 5. Certain non–face-to-face services (e.g., education, referrals)

hospitalization, were associated with reductions in 30-day readmissions. However, much of the observed benefit was found in studies published prior to 2003.[10]

Medication-focused interventions

There is mixed evidence on the effectiveness of medication-focused interventions, but there is general consensus that medication-focused interventions can reduce readmissions if combined with other interventions.

Medication review, which involves pharmacist or physician evaluation of a patient's medicines with the aim of optimizing medication use and improving health outcomes, **has low-certainty evidence supporting its use**. A recent Cochrane review found moderate-certainty evidence that medication reviews reduce readmissions, but notably in 19 of 25 included trials, medication review was delivered along with other interventions (e.g., discharge planning).[11] A review of pharmacist-led interventions (78% of which included medication review), found low certainty evidence that pharmacist-led interventions effectively reduced 30-day readmissions.[7]

Evidence shows **medication reconciliation**, which involves building a complete list of a person's medications, checking them for accuracy, reconciling and documenting any changes, **does not have a statistically significant effect on rehospitalization when used as a stand-alone intervention**, but has been included as an aspect of successful multi-component interventions.[6,10]

Interventions for patients with heart failure

Evidence-based strategies for reducing 30-day readmission for patients with heart failure include:

- Initiating and removing barriers to Guideline Directed Medical Therapy[12]
- CardioMEMS remote monitoring[13]
- Post-hospital care and motivational interviewing provided by specialty heart failure nurses[12]
- High-intensity home visiting programs[14]

Social health interventions

There was limited evidence regarding interventions focused on patients' social needs, but we found two articles with relevant information on this topic:

- A scoping review of the relationship between social support and readmission risk found the most common needs patients reported post-hospitalization were help with daily tasks and transportation. Identifying patient needs related to social support may be an important part of decreasing readmission risk. The authors recommend using the Readiness for Hospital Discharge Scale (a validated tool) to identify and address patient needs post-discharge.[17]

- A social worker-led intervention in the Chicago area had impressive results at low cost. Social workers served as transition "coaches" to support patients during their transition home with a focus on: (1) managing their health care; (2) communicating effectively with physicians; and (3) connecting to community resources. The program served 16,000 patients between July 2012 and November 2015 and reduced readmissions by nearly 17% at a cost of $364 per person served.[19] Note: The baseline 30-day readmission rate in this study was 23.2%.

Additional considerations

- Evidence suggests intervention effectiveness is related to the number of components implemented, and that single-component interventions are unlikely to be effective.[15]
- The effectiveness of telephone follow-up in reducing 30-day readmission is mixed; telephone follow-up is unlikely to make a difference as a stand-alone intervention.[8]
- One review identified health information exchange between hospitals and primary care providers as an important aspect of successful interventions to reduce rehospitalization.[3]
- The most cost-effective interventions may be ones that are low cost and broadly applicable, or higher cost but targeted.[16,20] Many of the studies included in this evidence snapshot used simple criteria to select patients for intervention rather than using risk prediction models. No studies compared differences in outcomes when using different patient selection methods.[10]
- In their 2016 report for the U.S. Department of Veterans Affairs, Kansagara et al. recommend mapping the care transition process from hospital to home and identifying system gaps to design an intervention that successfully bridges inpatient and outpatient care. Their full report includes a transitional care process map to help health system leaders think through the spectrum of care transition activities.[10,21]

Appendix

Transitions of Care from Hospital to Home — Evidence-based Synthesis Program

FIGURE 2. TRANSITIONAL CARE MAP

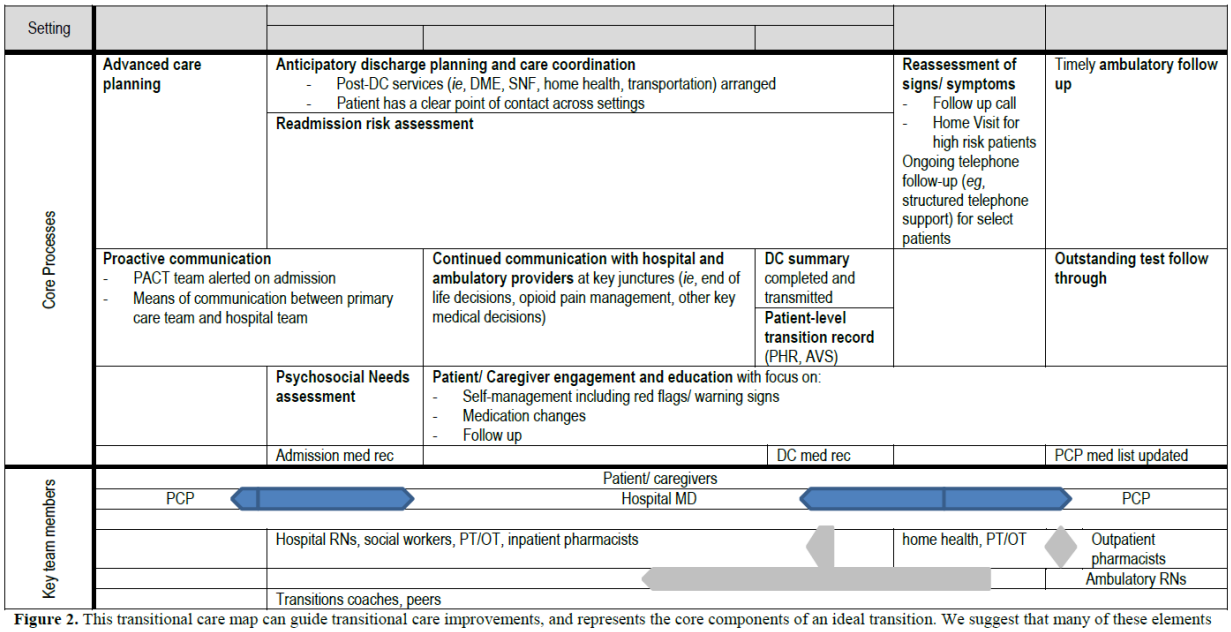

Figure 2. This transitional care map can guide transitional care improvements, and represents the core components of an ideal transition. We suggest that many of these elements be incorporated into best practice for all care transitions. For example, practices of proactive communication, anticipatory discharge planning, patient/ caregiver communication, and timely completion of a discharge summary ought to be standard work for all patients and in any system. However, other elements, such as use of a formal readmission risk tool, detailed pharmacist-guided medication reconciliation, or reassessment of signs and symptoms after discharge via a home visit may be more important in some settings and populations. The arrows at the points of transition indicate that, in some cases, the primary care team may be able to "reach-in" to the hospital as a means of care coordination. **Advanced care planning** around goals of care at the end of life can be an important part of transitional care from primary care to the hospital, and in particular among patients with terminal illness or geriatric patients, can be initiated in the primary care setting and help guide inpatient care decisions, or potentially avoid unwanted admission altogether. Similarly, if a change in functional status is anticipated after a planned hospitalization – for example, after planned hip replacement – decisions around choice of skilled nursing facilities and other post-discharge needs might be best coordinated prior to hospitalization.

Figure credit: Kansagara D, Chiovaro JC, Kagen D, Jencks S, Rhyne K, O'Neil M, et al. Transitions of care from hospital to home: A summary of systematic evidence reviews and recommendations for transitional care in the Veterans Health Administration. VA-ESP Project 2014;#05-225:

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