

Improving Care Transitions And Reducing Hospital Readmissions:

Establishing The Evidence For Community-Based Implementation Strategies Through The Care Transitions Theme

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Background

The problem of hospital readmissions has become the cornerstone of discussion in seemingly any forum addressing health-care improvement or reform. Reformers are targeting hospital readmissions as a quality problem, a safety problem and the most immediately-actionable driver of excessive costs.

The Centers for Medicare & Medicaid Services (CMS) is an early investor in the push towards understanding and modifying current care patterns that appear unduly dependent on hospital services. And rightfully so – although there is notable regional variation in readmission rates, nationally nearly one in five discharges paid for through Fee for Service Medicare is followed by another admission to a hospital within 30 days. Additionally, CMS is ideally positioned to lead change towards reducing readmissions both through being the largest payer of hospital services, and through having the nationally coordinated resources to understand the impact of substantial geographic variation.

What Is The Care Transitions Theme?

The Care Transitions Theme is a CMS-funded initiative for Medicare Quality Improvement Organizations (QIOs) to measurably improve the quality of care for Medicare Beneficiaries who transition among care settings through a comprehensive community effort. Fourteen QIOs began working with target communities within their respective States on August 1st, 2008, and the project will be completed by August 2011.

Each QIO selected a specific geographic area and a Medicare beneficiary population (as defined by beneficiary zip code of residence) where they are now working with the medical services providers, other community health support agencies, unpaid caregivers and patients to identify drivers of poor transitional care and to reduce their influence on patient outcomes. In other words, this work seeks to improve care quality by promoting seamless transitions among care settings, and thereby reduce readmissions to hospitals within 30 days of discharge.

The Care Transitions project does not stipulate what specific intervention strategies QIOs and their communities should or should not use, but allows each team to work within the existing community structure. This flexibility allows each QIO and Community to develop local solutions and strategies for the unique set of circumstances each community faces. This community-wide approach also seeks to yield sustainable and replicable strategies that achieve high-value health care for Medicare beneficiaries.

Why Target Communities?

The premise for targeting communities as the best unit for intervention, instead of isolating efforts to hospitals, is based in two observations:

- Many evidence-based protocols demonstrated to reduce readmissions depend on coordinated actions of more than one provider, and on effective incorporation of patients, families, and community healthcare stakeholders.
- Local areas vary substantially in healthcare utilization and the infrastructure available to reduce reliance on hospital services, necessitating a customized approach to improving processes of care.

Supporting Evidence

Given the new and developmental nature of the work, the multi-stakeholder orientation, and the desire to retain optimal flexibility for teams, a comprehensive guide to the evidence base for interventions is a priority for project success. Without such guidance, fledgling efforts risk false starts, wasted resources and unnecessary challenges to team cohesiveness. CMS leadership began aggregating a compendium of interventions in framing the Theme, and local project experience is contributing to its further development. As the work progresses we are gaining a more nu-

(more on page 30)

Table 1a. Formal Multidimensional Programs to Improve Care Transitions

Program / Toolkit	Supporting Evidence
<p align="center">Care Transitions Intervention (CTI)</p> <p>Description: Care transitions coaches support patients by providing specific tools and teaching self-management skills to ensure their needs are met during the transition from the acute care setting to home.</p> <p>Aim: Support patients and families; increase skills among healthcare providers; enhance the ability of health information technology to promote health information exchange across care settings; implement system level interventions to improve quality and safety; develop performance measures and public reporting mechanisms; influence health policy at the national level.</p> <p>Resource: http://www.caretransitions.org</p>	<p>RCT</p> <ul style="list-style-type: none"> • <i>Coleman et al. (2006)</i>: Lower 30-day readmission; lower readmission at 90 days and 180 days. <p>Other support</p> <ul style="list-style-type: none"> • <i>Coleman et al. (2004)</i>: Lower readmission for same diagnosis at 90 days and 180 days.
<p align="center">Bridging Nursing Support / Transitional Care Model</p> <p>Description: Multidisciplinary, comprehensive in-hospital planning and home follow-up. Transitional Care Nurses follow patients from the hospital into the home to provide services designed to streamline plans of care, interrupt patterns of frequent acute hospital and emergency department use and prevent health status decline.</p> <p>Aim: Improve coordination and continuity of care; engage and activate patients, family members and caregivers.</p> <p>Resource: http://www.transitionalcare.info/index.html</p>	<p>RCTs</p> <ul style="list-style-type: none"> • <i>Naylor et al. (1999)</i>: 45% reduction in readmission rate. • <i>Naylor et al. (2004)</i>: Increased time to readmission/death; reduced readmission rate.
<p align="center">Better Outcomes for Older Adults through Safe Transitions (BOOST)</p> <p>Description: Toolkit for improving hospital discharge, including screening/assessment tools, discharge checklist, transition record, teach-back process, risk-specific Interventions and written discharge Instructions.</p> <p>Aim: Reduce 30-day readmissions; improve patient satisfaction; improve information flow between hospital and outpatient physicians; ensure that high-risk patients are identified and specific interventions are offered to mitigate their risk; improve patient and family education practices to encourage use of the teach-back process around risk specific issues.</p> <p>Resource: http://www.hospitalmedicine.org/ResourceRoomRedesign/RR_CareTransitions/CT_Home.cfm</p>	<p>RCT</p> <ul style="list-style-type: none"> • <i>Preen et al. (2005)</i>: Improved QOL, involvement and satisfaction with discharge care. <p>Systematic review</p> <ul style="list-style-type: none"> • <i>Kripalani, Jackson et al. (2007)</i>: Approaches to promoting effective transitions of care include "...improvements in communication between inpatient and outpatient physicians, effective reconciliation of prescribed medication regimens, adequate education of patients about medication use, closer medical follow-up, engagement with social support systems, and greater clarity in physician-patient communication." • <i>Kripalani, LeFevre et al. (2007)</i>: Deficient communication between hospital-based physicians and PCPs; need for improvements to discharge summaries and health information technology. <p>Other support</p> <ul style="list-style-type: none"> • <i>Simon et al. (1998)</i>: PCP involvement in hospitalization associated with reduced problems with diagnostic tests, post-discharge activity and health habits. • <i>van Walraven et al. (2004)</i>: Follow-up care with hospitalization physician associated with lower readmission rate, versus community physician or specialist.
<p align="center">Best Practices Intervention Package (BPIP): Transitional Care Coordination</p> <p>Description: Comprehensive manual for home health agency leadership and staff to identify tools and processes to improve patient transitions; focus on the four pillars, or conceptual domains, of patient transition; includes tools and resources for patients and staff, guidelines and podcasts</p> <p>Aim: Reduce avoidable acute care hospitalizations.</p> <p>Resource: http://www.homehealthquality.org/hh/ed_resources/interventionpackages/default.aspx</p>	<p>Health Quality Improvement National Campaign</p> <p><i>Esslinger (2008)</i>: Preliminary data demonstrate modest improvements in hospitalization rate among participating HHAs and worsening among non-participating HHAs.</p> <p><i>Schade et al. (2009)</i>: Agencies w/ improvement more likely to report activities consistent with campaign and use of campaign interventions, regardless of participation status.</p>
<p align="center">Interventions to Reduce Acute Care Transfers (INTERACT)</p> <p>Description: Toolkit for SNF personnel to reduce avoidable hospital admission. Three types of tools: 1) communication; 2) clinical care paths; and 3) advance care planning. Utilization specified for selected members of the care team.</p> <p>Aim: Reduce transfers to acute care setting.</p> <p>Resource: http://interact.geri.u.org/</p>	<p>CMS Nursing Home Special Study</p> <ul style="list-style-type: none"> • <i>Ouslander (2008)</i>: Higher hospitalization rates associated with larger facilities, more Medicaid and Medicare skilled care residents, lower percentage of Caucasian residents and higher percentage of residents with impaired decision making: 68% of hospitalizations were avoidable, per expert panel record review.

Abbreviations: AMI (acute myocardial infarction), CHF (congestive heart failure), HHA (home health agency), ICU (intensive care unit), PCP (primary care physician or similar provider); PNE (pneumonia); RCT (randomized controlled trial); QOL (quality of life), SNF (skilled nursing facility)

Table 1a. Formal Multidimensional Programs to Improve Care Transitions (continued)

Program/Toolkit	Supporting Evidence
<p>Transforming Care at the Bedside (TCAB)</p> <p>Description: Hospital interventions built around four themes: 1) safety and reliability, 2) care team vitality, 3) patient-centeredness and 4) increased value. Four core elements of the intervention: 1) enhanced admission assessment for post-discharge needs; 2) enhanced teaching and learning; 3) patient and family-centered handoff communication; and 4) early post-acute care follow-up.</p> <p>Aim: Transform the care experience of patients in hospital medical/surgical units, as well as the experience of health care professionals who care for them.</p> <p>Resource: http://www.ihl.org/IHI/Programs/StrategicInitiatives/TransformingCareAtTheBedside.htm</p>	<p>Program evaluation</p> <ul style="list-style-type: none"> • <i>Lorenz et al. (2008)</i>: Reductions in patient wait times; increase in patient and staff satisfaction by 30 percentiles; shortened turnaround for laboratory results; improvement of visitors' first impressions through new signage and a concierge program.
<p>Re-engineered Discharge (RED)</p> <p>Description: Standardized discharge intervention; includes patient education, comprehensive discharge planning, post-discharge telephone reinforcement.</p> <p>Aim: Minimize post-discharge hospital utilization.</p> <p>Resource: http://www.bu.edu/fammed/projectred/index.html</p>	<p>RCT</p> <ul style="list-style-type: none"> • <i>Jack et al. (2009)</i>: Nurse discharge advocate support (follow-up appointments, medication reconciliation, patient education, individualized instruction booklet sent to PCP); telephone follow-up by clinical pharmacist (reinforce the discharge plan, review medications) associated with lower rate of post-discharge utilization overall; non-significant reduction in readmission rate.

Table 1b. Intervention Strategies to Improve Care Transitions

Intervention Strategy	Supporting Evidence
CROSS-SETTING CARE STANDARDIZATION	
<p>Enhanced information transfer at discharge</p> <p>Description: Improvements in timely transfer of medical information from the acute care setting to post-discharge healthcare providers.</p> <p>Aim: Ensure that current, accurate health information is accessible to receiving providers.</p> <p>Targeted drivers of readmission: Unreliable handover processes; poor information transfer.</p> <p>Basis for recommendation: An element of formal multidimensional programs with strong evidence base; evidence linking deficient information transfer processes and adverse events.</p>	<p>Systematic review</p> <ul style="list-style-type: none"> • <i>Kripalani, LeFevre et al. (2007)</i>: Deficient communication between hospital-based physicians and PCPs; need for improvements to discharge summaries and health information technology. <p>Cohort study</p> <ul style="list-style-type: none"> • <i>Forster et al. (2003)</i>: 19% with adverse event following hospital discharge (of which 6% preventable, 6% ameliorable); primarily medication-related (66%) and procedure-related (17%); attributed to ineffective communication and inadequate information transfer; suggestions for improved discharge planning, drug therapy education, follow-up visit with hospitalist within a week of discharge and telephone follow-up with 5 days of discharge. <p>Other support</p> <ul style="list-style-type: none"> • <i>Payne et al. (2002)</i>: Liaison between hospital and community personnel ("key worker") improved communication and satisfaction; little evidence to support reduced readmission rates per se. • <i>van Walraven et al. (2002)</i>: Non-significant association between discharge summary received by follow-up physician and lower readmission rate.
<p>Follow-up care established at discharge</p> <p>Description: Arrangements – made prior to leaving the acute care setting – for the patient to receive appropriate follow-up care.</p> <p>Aim: Ensure that patients receive proper post-acute follow-up care.</p> <p>Targeted drivers of readmission: Unreliable handover process.</p> <p>Basis for recommendation: An element of formal multidimensional programs with strong evidence base.</p>	<p>RCTs</p> <ul style="list-style-type: none"> • <i>Naylor et al. (1999)</i>: 45% reduction in readmission rate. • <i>Naylor et al. (2004)</i>: Increased time to readmission/death; reduced readmission rate.

Table 1b. Intervention Strategies to Improve Care Transitions (continued)

Intervention Strategy	Supporting Evidence
<p style="text-align: center;">Medication management</p> <p>Description: Activities to improve effectiveness of pharmacotherapy, including support of patient understanding of appropriate medication use and adverse events; adherence to medication regimens and detection of adverse events and over-/under-use.</p> <p>Aim: Reduce medication errors leading to adverse events and readmission.</p> <p>Targeted drivers of readmission: Insufficient support for patient and family self-management; unreliable handover process; poor information transfer.</p> <p>Basis for recommendation: Evidence linking adverse drug events and higher healthcare utilization; an element of formal multidimensional programs with strong evidence base.</p>	<p>RCTs</p> <ul style="list-style-type: none"> • Crotty et al. (2004): More appropriateness of prescribing, better pain and lower hospital utilization. • Schnipper et al. (2006): Reduction in preventable adverse drug events. • Koehler et al. (2009): Reduced readmission/ED visit rates. <p>Systematic review</p> <ul style="list-style-type: none"> • Pellegrino et al. (2009): Potential benefit, but numerous challenges; need for randomized controlled trials. <p>Cohort Study</p> <ul style="list-style-type: none"> • Boockvar et al. (2004): 86% with at least one drug alteration during hospitalization, primarily drug discontinuations; 20% incidence of alteration-attributed adverse drug events; 4.4% overall risk of adverse drug event per alteration; most adverse drug events occurred following return to SNF. <p>Other support</p> <ul style="list-style-type: none"> • Forster et al. (2003) above (<i>Enhanced information transfer at discharge</i>). • Lappe et al. (2004): Lower readmission rate after program implementation targeting discharge medications. • Coleman et al. (2005): 14% prevalence of ≥ 1 discrepancy; associated with multiple medications and CHF.
<p style="text-align: center;">Plan of care</p> <p>Description: Collaborative development of a complete, accurate strategy for post-discharge care including history, situation, likely progression, patient/family preferences for end-of-life issues.</p> <p>Aim: Consistent vision of medical and health support needs among caregivers, including the patient as self-caregivers.</p> <p>Targeted drivers of readmission: Insufficient support for patient and family self-management; poor information transfer.</p> <p>Basis for recommendation: An element of many formal multidimensional programs strong evidence base. AHRQ endorsement.</p>	<p>Government report</p> <ul style="list-style-type: none"> • AHRQ (2007): Plan of care is essential to care coordination. <p>Other support</p> <ul style="list-style-type: none"> • Per AHRQ (2007) report: Longest et al. (1994), Ziring et al. (1999), Kinsman et al. (2000), Wehr (2000), Gittel (2000, 2002), Cooley et al. (2003), Sprague et al. (2003), Safran et al. (2006).
<p style="text-align: center;">Telemedicine</p> <p>Description: Remote monitoring and care delivery via telemonitoring (electronic or telephonic transfer of physiological data from home to healthcare provider) or regular telephone-based medical management.</p> <p>Aim: Continued medical management following discharge.</p> <p>Targeted drivers of readmission: Poor information transfer due to insufficient availability of health information; discontinuous care after discharge.</p> <p>Basis for recommendation: Substantive positive evidence amid mixed results; promising strategy for patients living in remote locations.</p>	<p>Systematic reviews</p> <ul style="list-style-type: none"> • Chaudhry et al. (2007): Evidence base still developing; telephone-based interventions appear equally effective to more complex, and costly, interventions. • Clark et al. (2007): Reduced hospital admissions for CHF; reduced all-cause mortality; improved QOL. <p>Other support</p> <ul style="list-style-type: none"> • Jerant et al. (2001): Intervention of home telecare or nursing telephone calls resulted in non-significant reduction in hospital readmission charges. • Hersh et al. (2006): Significant gaps in the evidence base; need for well-designed and targeted research.
<p style="text-align: center;">Telephone follow-up</p> <p>Description: Telephone calls made to the patient shortly after discharge from acute care setting to provide information, health education, symptom management, early monitoring of complications, reassurance and quality post-discharge care.</p> <p>Aim: Address problems arising in the first few weeks following hospital discharge; address patients' post-discharge questions and care needs.</p> <p>Targeted drivers of readmission: Discontinuous care after discharge; insufficient support for patient and family self-management.</p> <p>Basis for recommendation: Ease of implementation; an element of many formal multidimensional programs with strong evidence base.</p>	<p>Systematic review</p> <ul style="list-style-type: none"> • Mistiaen & Poot (2006): Some effects favoring telephone follow-up; insufficient evidence to support/refute effectiveness. <p>RCTs</p> <ul style="list-style-type: none"> • Jerant et al. (2001) above (<i>Telemedicine</i>). • Schnipper et al. (2006) above (<i>Medication management</i>). • Jack et al. (2009): Nurse discharge advocate support (follow-up appointments, medication reconciliation, patient education, individualized instruction booklet sent to PCP); telephone follow-up by clinical pharmacist (reinforce the discharge plan, review medications) associated with lower rate of post-discharge utilization overall; non-significant reduction in readmission rate.
<p style="text-align: center;">Electronic health record / electronic medical record</p> <p>Description: Databases and data access/reporting systems to standardize patient information available to providers across care settings.</p> <p>Aim: Prevent medical errors by minimizing incomplete, inaccurate and conflicting information across care settings.</p> <p>Targeted drivers of readmission: Poor information transfer.</p> <p>Basis for recommendation: Evidence linking inadequate information transfer and complications that lead to unnecessary care; robust information exchange continues to be rare.</p>	<p>Congressional report</p> <ul style="list-style-type: none"> • MedPAC (2007): Efficiency and quality benefits of health information technology, especially electronic medical record (e.g., informed care decisions, real-time measures of quality). <p>Systematic reviews</p> <ul style="list-style-type: none"> • Chaudhry et al. (2006): Increased adherence to guidelines and protocols; decreased utilization. • Jha et al. (2006): Electronic health record used by 24% of physicians in ambulatory setting; computerized provider order entry used by 5% of hospitals.
<p>SYSTEMIC ENHANCEMENTS (WITHIN SETTING)</p>	

Table 1b. Intervention Strategies to Improve Care Transitions (continued)

Intervention Strategy	Supporting Evidence
<p>Multidisciplinary team, multifaceted interventions</p> <p>Description: Collaboration among a multidisciplinary team, facilitating community treatment, collaborative care and shared primary specialty care</p> <p>Aim: Improve care coordination to reduce readmissions; integration of patients' medical, pharmaceutical, psychosocial and spiritual needs at the time of discharge.</p> <p>Targeted drivers of readmission: insufficient support for patient and family self-management; lack of standard, known processes.</p> <p>Basis for recommendation: Strong evidence base; an element of formal multidimensional programs with strong evidence base.</p> <p>See Table 1a: BOOST, INTERACT, RED, TCAB</p>	<p>Systematic review</p> <ul style="list-style-type: none"> • <i>McAlister et al. (2004)</i>: 27% reduction in CHF hospitalization rates; reduced all-cause mortality; enhanced self-care, follow-up monitoring (including telephone), access to CHF clinics were most efficacious; key elements of specially trained CHF nurses, patient education on CHF and ready access to CHF-trained clinicians. <p>RCTs</p> <ul style="list-style-type: none"> • <i>Rich et al. (1995)</i>: 56% reduction in readmissions for CHF; non-significant reduction in all-cause readmissions. • <i>Kasper et al. (2002)</i>: Fewer CHF hospitalizations and deaths among treatment group. <p>Meta-analysis</p> <ul style="list-style-type: none"> • <i>Holland et al. (2005)</i>: Reduced all-cause and CHF hospitalization, notably for home and telehealth; reduced all-cause mortality.
<p>Clinical protocols, best practices and regional guidelines</p> <p>Description: Establishment of congruence in practice standards within and across settings.</p> <p>Aim: Ensure that in-setting care will be consistent with care in other settings.</p> <p>Targeted drivers of readmission: Lack of standard, known processes.</p> <p>Basis for recommendation: Strong evidence base (esp. medication management). Consistent with AHRQ patient safety goals; MedPAC recommendations.</p> <p>See Table 1a: BPIP, TCAB</p>	<p>Congressional report</p> <ul style="list-style-type: none"> • <i>MedPAC (2007)</i>: Several recommendations in favor of empirically based guidelines in clinical practice. <p>Other support</p> <ul style="list-style-type: none"> • <i>Lappe et al. (2004)</i> above (<i>medication management</i>). • <i>Orrick et al. (2004)</i>: Antibacterial therapy per Infectious Diseases Society of America guidelines associated with shorter hospital stay, lower cost of hospitalization. • <i>Huffman (2005)</i>: Recommendations for implementation of best practices and linkage to patient outcome. • <i>Dean et al. (2006)</i>: Hospitals implementing PNE guidelines had lower readmission rate.
<p>Enhanced palliative care consultation/support</p> <p>Description: Improved assessment of palliative care needs and end-of-life preferences, including appropriate palliative and hospice care referrals. Support for advanced care planning.</p> <p>Aim: Ensure common understanding of preferred medical treatments to reduce reliance on acute care services; consistent vision of medical and health support needs among caregivers, including the patient as self-caregivers.</p> <p>Targeted drivers of readmission: Insufficient support for patient and family self-management; lack of standard, known processes; poor information transfer.</p> <p>Basis for recommendation: Strong evidence base.</p> <p>See Table 1a: INTERACT</p>	<p>RCT</p> <ul style="list-style-type: none"> • <i>Gade et al. (2008)</i>: Fewer ICU admissions on hospital readmission; longer hospice stays. <p>Observational study</p> <ul style="list-style-type: none"> • <i>Levy et al. (2008)</i>: Lower likelihood of in-hospital death after implementation; 100% prevalence of advanced directive among those who died after implementation; increased likelihood of palliative care referral. <p>Other support</p> <ul style="list-style-type: none"> • <i>Johnson et al. (2004)</i>: 68% use of guidelines, protocols or care pathways for symptom management (larger organizations reported greater use); lack of availability was top reason for non-use; medication management was most common resource. • <i>Penrod et al. (2006)</i>: Palliative care associated with smaller likelihood of ICU admission and lower direct, ancillary inpatient costs. • <i>Meier & Beresford (2008)</i>: Recognition of large overlap between palliative care and care transitions.
PATIENT, FAMILY & CAREGIVER SUPPORT	
<p>Education</p> <p>Description: Teachings and materials targeted toward patients, family members and other informal caregivers on topics of disease self-management, treatment options, expectations and available resources.</p> <p>Aim: Enable patients to avoid unnecessary utilization of health services though accurate understanding of health medical needs; improve quality of self-care and management.</p> <p>Targeted drivers of readmission: Insufficient support for patient and family self-management.</p> <p>Basis for recommendation: Strong evidence base; an element of formal multidimensional programs with strong evidence base.</p>	<p>RCTs</p> <ul style="list-style-type: none"> • <i>Rich et al. (1995)</i> above (<i>multidisciplinary team / multifaceted interventions</i>). • <i>Krumholz et al. (2002)</i>: Lower readmission rate; lower risk of readmission, controlling for demographics. • <i>Riegel et al. (2002)</i>: Lower CHF readmission rate at 3 and 6 months; fewer multiple readmissions. • <i>Kimmelstiel et al. (2004)</i>: Fewer hospitalizations for CHF; fewer cardiovascular hospitalizations. • <i>Koelling et al. (2005)</i>: Lower risk of readmission; lower cost of care. • <i>Coleman et al. (2006)</i>: Lower 30-day readmission; lower readmission at 90 days and 180 days. <p>Meta-analyses</p> <ul style="list-style-type: none"> • <i>Phillips et al. (2004)</i>: Lower readmission rate. • <i>Mistiaen et al. (2007)</i>: Some evidence that educational interventions at discharge lower the risk of readmission. <p>Other support</p> <ul style="list-style-type: none"> • <i>Coleman et al. (2004)</i>: Lower readmission for same diagnosis at 90 days and 180 days.

Table 1b. Intervention Strategies to Improve Care Transitions (continued)

Intervention Strategy	Supporting Evidence
<p style="text-align: center;">Coaching</p> <p>Description: Non-medical support for home-based self-management capability. Aim: Improve competence in achieving personal health goals. Avoid inappropriate and unwanted medical interventions. Targeted drivers of readmission: Insufficient support for patient and family self-management. Basis for recommendation: Strong evidence base; an element of formal multidimensional programs with strong evidence base. See Table 1a: CTI</p>	<p>RCT</p> <ul style="list-style-type: none"> • Coleman et al. (2006) above (<i>Education</i>). <p>Other support</p> <ul style="list-style-type: none"> • Coleman et al. (2004): above (<i>Education</i>)
<p style="text-align: center;">Personal health record (PHR)</p> <p>Description: Organizational tool for patients to track health care goals/concerns, medications, sign and symptom red flags, provider contact information and any other information relevant to healthcare self-management. Aim: Provide reliable resource for patients to document key medical information and track health support needs. Targeted drivers of readmission: Insufficient support for patient and family self-management; poor information transfer. Basis for recommendation: An element of formal multidimensional programs with strong evidence base; widespread acceptance as a promising and inexpensive intervention. See Table 1a: CTI, BPIP</p>	<p>RCT</p> <ul style="list-style-type: none"> • Coleman et al. (2006) above (<i>Education</i>). <p>Other support</p> <ul style="list-style-type: none"> • Coleman et al. (2004) above (<i>Education</i>). • Kaelber et al. (2008): Need for additional PHR research to increase likelihood of PHR deployment and demonstrate beneficial effects on healthcare costs, quality and efficiency.
<p style="text-align: center;">Community supports</p> <p>Description: Connecting patients and family members to non-medical community health support agencies and other entities (individuals, community groups, businesses); patient use of resources provided by community members. Aim: Eliminate everyday barriers to self-management (e.g., lack of transportation). Targeted drivers of readmission: Insufficient support for patient and family self-management. Basis for recommendation: Strong evidence base; AHRQ recommendation.</p>	<p>Systematic review</p> <ul style="list-style-type: none"> • Naylor & Keating (2008): Recommendations made for family support, esp. needs assessment. <p>Other support</p> <ul style="list-style-type: none"> • AHRQ (2007): Review of evidence and recommendations on care coordination improvement - "Providers should also consider establishing communication links with community services and maintaining an inventory of these services." (p.133)

anced understanding of typical drivers of poor quality transitional care which result in readmissions, and attractive leverage points for creating meaningful change. With many similar national, regional and individual provider rehospitalization reduction efforts emerging, our early table of interventions might serve as a starting point to help guide other wide scale implementation strategies. It is offered as a work in progress in the hope of engaging others in refining and defining this field.

We have separated what began as a single table into 2 separate tables: one for Multi-Dimensional Programs which are formal multiple component intervention protocols that have been developed and have demonstrated efficiency in reducing hospitalization or rehospitalization (**Table 1A, pages 26-27**), and one for promising intervention strategies based on their probable effect on a known driver of poor transitional care (**Table 1B, pages 27-30**). This distinction reflects the complex nature of a quality improvement initiative aimed at an entire community, as some providers are engaged by the desire to implement a known best practice (**Table 1A**), and some through targeting specific defective elements based on root cause analysis (**Table 1B**). All 14 projects include examination of readmissions, and the aggregated knowledge of the QIO projects is leading to generalizable understanding of common drivers for readmission, and over the next 2 years the aggregated results will link those drivers to the

most promising intervention strategies.

Although the primary aim of the Theme is to improve transitional care, the most common goal of transitional care improvement is reduction in readmissions, therefore ‘evidence’ as listed in **Table 1B** means evidence of intervention impact on that outcome. Many of the strategies listed have demonstrated effectiveness in remediating problems known to be associated with readmissions, but have not been formally studied with the specific outcome of reduced hospital readmissions. For example, there is robust evidence typing lack of proper information availability among medical services providers to unnecessary medical utilization that includes hospital readmission. Electronic medical records and exchangeable electronic healthcare information have been demonstrated to improve information availability. However there is no existing study demonstrating that healthcare information technology reduces hospital readmission rates. We have included electronic health information in our table of intervention strategies based on the strength of evidence tying it to remediation of a known barrier that results in readmissions.

Again, our tables are a work in progress, and are offered as such. They have changed significantly even in the first year of this work. We hope that these tables will not only help guide the efforts of similar initiatives, but benefit our project through providing a framework to which others could contribute. **RR**