Transitional Care Workflow Redesign

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Abstract

Background and Purpose: Readmission rates for those with chronic conditions are exceeding benchmarks and driving up healthcare spending; there is a need to improve care coordination and outcomes. This project was done to evaluate and offer evidence-based suggestions for improvement to a multidisciplinary care coordination team in an Accountable Care Organization (ACO). Internal data suggests the team is underutilized within the ACO and that the ACO is underperforming. Conscious workflow design has been shown to improve the efficiency of existing work processes.

Methods: The care coordination team (*N*=6), licensed practical nurses and social workers, were the project participants. Following Institutional Review Board approval, a presentation was given on current ACO performance data and project goals. Team members were invited to participate by filling out a survey. The 31-item Team Development Measure (Cronbach's α□□□□) assessed team functioning to identify where gaps exist in the team's processes. Further knowledge about workflow was gained via quality improvement methods of direct observation and informal conversational interviews with team members, the ACO team manager, and various providers within the ACO and their staff. Field notes were analyzed and confirmed with the ACO team manager. Rasch analysis was performed on survey data to convert ordinal numeric results from the Likert scale into an interval score from 0 to 100, which correlates with elements of team development.

Results: Rasch analysis revealed a mean score of 54.17 (SD=8.06). Based on this score, the team has cohesiveness and communication in place but has not yet established role and goal clarity. Analysis of notes and impressions revealed a lack of adherence to date deadlines, inconsistent processes among team members, and use of non-evidence based patient care interventions such

as minimal to no home visits and a lack of standardized patient education. Team analysis results, workflow observations, and current evidence on transitional care were integrated into an executive report containing realistic prioritized changes that maximize team member's skill sets and clarify roles and goals of the team which was provided to the ACO administration along with recommendations for evidence-based process improvements.

Conclusion: This project can serve as a model for analyzing team functioning and workflow to inform agencies where gaps in their processes are affecting performance. The analysis can then be used to recommend evidence based practice changes. Implementation of the suggested workflow should improve existing efforts in trying to meet benchmark quality measures for the ACO as well as improve team functioning.

Keywords: transitional care, care coordination, team workflow

Transitional Care Workflow Redesign

As the population ages, more people are living longer with chronic conditions putting a strain on the health care system. With healthcare reform and goals of the Triple Aim, members of a shared savings program, such as accountable care organizations (ACOs), will have to develop strategies to decrease healthcare utilization and improve outcomes within this population.

Problem Statement

Within the United States (U.S.) Medicare fee-for-service program, 25% of beneficiaries account for 82% of all spending (Medicare Payment Advisory Commission [MEDPAC], 2016). Fourteen percent of Medicare beneficiaries have six or more chronic conditions and account for almost half of all Medicare spending and 70% of hospital readmissions (MEDPAC, 2016). These high-need high-cost (HNHC) patients compose a small proportion of the population but account for a majority of healthcare spending. Despite high costs, these patients, who often have several chronic conditions, do not receive optimal comprehensive care that addresses their complex needs. There are several terms commonly given to this population including “high-utilizers,” and “super-users” as well as the most recent term, “high-need, high-cost patients” (Hayes et al., 2016). The Centers for Medicare and Medicaid Services (CMS) qualitatively defines this group as those having “complex, unaddressed health issues and a history of frequent encounters with health care providers” (Mann, 2013, p. 1).

The complex medical, social, as well as functional needs of HNHC patients present challenges to the current health-care system in addition to opportunities for improvement. Certain chronic conditions, such as kidney disease, congestive heart failure, lung diseases, anxiety, depression, and cancer are well-established risk factors for hospital readmission (Donzé, Lipsitz, Bates, & Schnipper, 2013). Additional patient factors common within the HNHC

population are increasing age, cognitive impairment, and those with conditions severe enough to impact daily functioning (Cavillo-King et al., 2013). Many social determinants of health also affect healthcare utilization including low health literacy, low income, belonging to a minority population, lacking self-management skills, poor social support, and dissatisfaction with one's primary care provider (Cavillo-King et al., 2013). The notion that a small portion of the population can account for such a large amount of health care costs has received increased attention as health care reform focuses on the Triple Aim of improved population heath with better quality and service at a lower cost (Institute for Healthcare Improvement, 2017).

Reducing readmissions for chronic conditions, such as heart failure (HF), has become a national healthcare priority. Since 2012, CMS has been decreasing reimbursements to hospitals with excessive readmission rates (CMS, 2016a). This has incentivized hospitals to develop various strategies and programs to reduce readmissions. Some of these strategies include core measure checklists, in-patient education on disease management, medication reconciliation efforts, and making follow up appointments for patients before discharge (Al-Khazaali, Arora, & Helu, 2016). Unfortunately, there has not been much improvement in readmission rates and efforts are being directed to involve a more multidisciplinary team across the care continuum.

The Institute of Medicine's 2001 report, *Crossing the Quality Chasm* describes the US system of healthcare as decentralized, unorganized, and complicated composed of care processes that are, "often overly complex, requiring steps and handoffs that slow down the care process and decrease rather than improve safety" (IOM, 2001, p. 28). The transitional period or handoff from one care setting to another is a vulnerable time. Lapses in communication, medication discrepancies, and unmet patient needs can lead to unnecessarily high healthcare service use and spending and expose the chronically ill to slips in quality and safety (Naylor, Aiken, Kurtzman,

Olds, & Hirschman, 2011). Transitional care is defined as a range of services that are time-limited and designed to ensure continuity, prevent poor outcomes, and provide for a safe and timely transfer of patients from one level of care to another (Naylor et al., 2011).

Data speaks to the opportunity for improvement; of Medicare beneficiaries that are readmitted, only half of them have seen a clinician for a follow up visit (CMS, 2016a). In 2014, 46% of all original Medicare patients were discharged from an acute care hospital to home, without any organized post-acute care (MEDPAC, 2016). The affordable care act has also changed financing to incentivize change in the outpatient setting. Accountable Care Organizations (ACOs) allow for shared savings between health-care organizations and Medicare. While hospitals can be penalized for failing to stop readmissions, outpatient clinics can gain additional revenue for coordinating care for vulnerable patients. The Transitional Care Management and Chronic Care Management billing codes offer new opportunities for adoption of evidence-based care coordination services (CMS, 2016b; CMS, 2016c).

Purpose and Rationale

There is a large body of evidence demonstrating the benefits that can be obtained through transitional care. It is estimated 13 to 20% of hospitalizations of chronically ill older adults could be prevented (Bentler, Morgan, Virnig, & Wolinsky, 2014). This paper will review the effectiveness of transitional care interventions and impacts for future development and refinement of a program to reduce readmissions and unnecessary healthcare utilization among high-risk groups of Medicare beneficiaries in a medical home.

Background and Significance

As heart failure (HF) is the diagnosis associated with the highest rate of readmissions, much of the research on transitional care has focused on this population (Donzé et al., 2013).

However, transitional care services have been shown to benefit other populations as well, especially older adults with multiple chronic conditions (Hirschman, Shaid, McCauley, Pauly, & Naylor, 2015). A systematic review identified eight common themes of existing transition of care models (Albert, 2016). Components include planning for discharge from the time of admission, multiprofessional collaboration, and providing clear timely and organized information as well as addressing medication reconciliation and adherence. Encouraging engagement with social and community supports, monitoring and managing signs and symptoms after discharge, delivering patient education and outpatient follow-up, and incorporating advanced care and end of life planning are also important (Albert, 2016). Cost savings, improved quality of life and symptom control can be obtained when involving palliative care with those in end stage HF (Brännström & Boman, 2014; Yee et al., 2016).

The three most common transitional care avenues are in-home interventions, tele-health or monitoring, and telephone interactions. Older meta-analyses as well as more recent randomized control trials (RCTs) such as BEAT-HF have failed to prove telemonitoring or telephone only interventions as effective strategies to preventing HF readmissions (Ong et al., 2016). A systematic review and meta-analysis by Feltner et al. (2014) had similar findings adding primarily educational interventions to the list of ineffective care. They reported home visiting programs and multidisciplinary clinics as most effective. Interventions that were most successful in decreasing readmissions used home visits alone or in combination with telephone calls (Slyer, Concert, Eusebio, Rogers, & Singleton, 2011; Stamp, Machado, & Allen, 2014).

Kansagara et al. (2014) found that successful transitional care programs extend beyond the hospital stay, involve multiple aspects of the care transition, and are flexible enough to accommodate patient's individual needs. Others echo the need for individualized care and

suggest that incorporating patient preferences and desired health goals can increase engagement leading to better outcomes (Naylor, Hirschman, O'Connor, Barg, & Pauly, 2013). No single intervention has been able to be isolated as effective, rather the effectiveness of many programs has been due to a bundle of interventions (Driscoll et al., 2016). The more components a program involved or the more complex it was, the better the outcomes. Driscoll et al. (2016) also emphasized early outpatient follow-up and nurse led management as key to reducing readmissions. Vedel & Khanassov (2015) also found that high intensity interventions, defined as a combination of home visits plus additional follow-up, resulted in the best outcomes, but also noted that moderate intensity interventions, such as home visits only or telephone encounters followed up with periodic clinic visits, over a longer period of time also had impactful results.

Besides variance in the components or delivery mode of interventions, transitional care programs have also used various staffing models and interdisciplinary team members. The original Transitional Care Model proposed in the 1980s by researchers and clinicians, including Mary Naylor at the University of Pennsylvania, has been extensively tested and refined over the last two decades and had tremendous success with various populations (Hirschman et al., 2015). It utilizes advance practice nurses (APRNs) in an intensive transitional care program that starts in the acute period of hospitalization and follows patients for an extended period in the home utilizing a multimodal approach. The work of Ballard-Hernandez (2010) also advocates for involving APRNs to manage the complexities of this patient population.

Most programs however, are nurse-led and involve either specialty HF nurses or nurse case managers to work with patients on health issues including medication reconciliation, involving multidisciplinary referrals as indicated and communication with a primary provider (Stamp, Machado, & Allen, 2014; Slyer et al., 2011; Driscoll et al., 2016). Those involving other

disciplines such as a pharmacist who does the medication reconciliation have also found success (Stranges et al., 2015). The PACT program and BRIDGE model both utilized social workers and took a more psychosocial approach, reducing readmissions and increasing attendance to post-discharge healthcare provider appointments (Basso Lipani, Holster, & Bussey, 2015; Alvarez, Ginsburg, Grabowski, Post, & Rosenberg, 2016)

Tailoring the intensity of the intervention to the risk status of the patient could be feasible and effective. Amarasingham et al. (2013) targeted just one quarter of admitted heart failure patients and significantly reduced the odds of readmission. Several evidence based models to predict unplanned hospital readmissions and mortality exist, though their reliability has been inconsistent. One such model is the LACE index, which uses the hospital record to attempt stratify patients into risk categories based on the four variables of length of stay, acuity of admission, comorbid conditions and frequency of emergency room usage (van Walraven, 2010). Identification of high-risk patient characteristics can help direct efforts toward those who would benefit most (Alkazaali et al., 2016).

Emergency room use, hospitalizations and readmissions can be prevented through use of a patient specific combination of transitional care interventions ideally beginning in the hospital and having nurses, APRNs or other trained disciplines following the patient in the home. Those in ACOs or acting as a patient centered medical home can integrate transitional care programs into their care delivery to improve outcomes and reduce cost (Hirschman et al., 2017). In a local ACO in the southwestern U.S., readmissions, and excessive urgent care and emergency department visits have been identified as a problem. Despite some providers utilizing reimbursement measures such as the TCM or CCM CPT code, efforts are not widespread and the data shows a potential to impact many patients as well as achieve cost savings. In the year 2016,

from a population of 16,415 Medicare patients, there were 3,086 hospitalizations and 463 readmissions. This subset population had 4,088 ED visits and many individual patients had multiple ED visits, some as many as 16. A pilot transitional care management program was completed within a practice in this ACO, which successfully utilized an advanced practice provider and in-home visits to reduce rehospitalizations and emergency visits in a HNHC population of Medicare beneficiaries with HF. However, this model was not sustainable and the ACO needs to utilize its existing resources to provide transitional care services to a broader population, all high need high cost patients. The ACO has an underutilized care coordination team who currently makes calls to all Medicare patients within 48 hours after a hospital discharge. Currently, no single practice within the ACO has a greater than 50% billing rate for TCM. The ACO is interested in improving the workflow of this program to improve their TCM billing, reduce readmissions, and better assist the providers within the ACO in caring for these patients. This inquiry has lead to the clinically relevant PICOT question; for high-need high-cost patients (P) how does a medical home model workflow utilizing TCM (I) compared to standard care (C) affect ED utilization, hospital admissions and 30 day readmission rates (O)?

Search Process

Databases searched for the literature review included the Cumulative Index of Nursing and Allied Health (CINHAL) (Appendix A), PubMed (Appendix B), Medline (Appendix C), and Cochrane database (Appendix D). Keywords used included; *transitional care, transitional care management, multidisciplinary care team, readmission, emergency department, emergency room, utilization, cost, chronic conditions, high risk, Medicare, medical home,* and *primary care*. Results were constrained to last 10 years and English language. Searches yielded 3,549 results, terms were combined and limits applied to narrow the yield. Results were then hand searched

based on title/abstract for any form of transitional care intervention that continued in the outpatient setting versus only inpatient, hospital, or SNF interventions. All adult populations were considered; disease specific as well as more general chronic conditions or age-based populations were included. Solely psychiatric focused and pediatric populations were omitted, as not the intended population of study. After screening for relevance and removing duplicates, 52 studies remained for further review. 14 of these were from CINHAL (Appendix A), 23 from PubMed (Appendix B), 11 from Medline (Appendix C), and eight from Cochrane database (Appendix D). These reference lists were searched for additional applicable studies. After critical appraisal, 10 studies were selected for in depth evaluation. Those included evaluate some component of an outpatient transitional care intervention and measured either readmission rates and or ED use. Three of the four systematic reviews included, have some crossover of studies contained; however, after accounting for duplicates, a majority of the remaining studies within each review was unique. Results of older landmark studies such as those of Coleman and Naylor, while not included independently, are found within the systematic reviews.

Critical Appraisal and Synthesis of Evidence

The ten studies retained for this review include three systematic reviews (SR) with meta-analysis, two randomized control trials (RCTs), and a variety of quasi-experimental and cohort studies with and without controls (appendix E). Based on Melnyk and Fineout-Overholt's (2015) hierarchy of evidence, levels of evidence ranged from 1 to 4. The systematic reviews were composed of all RCTs, and described measures to ensure quality and minimize bias. The meta-analysis models and methods to test for heterogeneity, including Chi square, I^2 and Cochran's Q, varied but were all appropriately utilized. Course matching for comparison between groups in studies that were not randomized involved L1, Wald statistic, and Mahalanobis distance. Most

studies reported confidence intervals and level of significance with some studies also including a number needed to treat. Most of the studies were conducted in the US, though the SRs included studies from numerous countries. Settings varied from large hospital settings to smaller medical homes. The population of all studies included patients at high risk for readmissions. Three studies focused on HF alone, while the rest of the studies targeted Medicare patients, older adults, or those with chronic illness (appendix F).

Independent variables or interventions utilized were heterogeneous but fell into several obvious categories (appendix F). Studies utilizing home visits were considered the most intense, while telephone support and telemonitoring were the next most commonly utilized intervention. Most studies utilized bundled interventions, rather than a single intervention, also including components such as patient education or care coordination along with the main intervention. SRs compared low intensity and high intensity interventions covering all types of interventions from telemonitoring to home visits. All study interventions lasted at least 30 days, several included prolonged interventions up to one year. Almost all home visits or telephone calls were done by a nurse. Additional workforce specialties utilized included social workers, nursing students, and pharmacists. All studies compared transitional care interventions to standard care or no special intervention.

Outcomes measured were homogeneous (appendix E). All studies, even those involving only heart failure patients, looked at all-cause readmission rates at 30 days. Additional outcomes measured included heart failure specific readmissions and all cause readmissions at other periods varying from three months to one year. Secondary outcomes cited included ED visits, costs of care, time to readmission, mortality rates, quality of life, self-efficacy and satisfaction.

Conclusions from the Evidence

The evidence suggests that transitional care interventions are effective to reduce 30-day readmissions. Home visits are the most likely to result in success but other high intensity interventions without home visits have also seen success. Lower intensity interventions are beneficial but results are not seen straightaway. Ideally, a multidisciplinary team involving a nurse and or social worker carries out interventions though other staffing models have been effective as well. While studies have mainly focused on hospital-implemented interventions, newer studies have shown promise within a medical home setting and positive results when the TCM CPT requirements are met (Jackson et al., 2016; Roper et al., 2017; Stranges et al., 2015). Additionally, using a multidisciplinary model with an effective workflow pattern can streamline efforts to target those at greatest risk. Patients at high risk should be prioritized and receive the highest feasible level of intervention to reduce 30 day readmission rates.

Conceptual Model and EBP Model

The Chronic Care Model (Wagner, 1998; appendix G) was chosen to guide the design of this EBP change. The target population of HNHC patients is mainly composed of those with one or more chronic conditions. This model guides high quality care of these patients. It is multifaceted and involves productive interactions with an active informed patient, provision of evidence-based care, support of self-management, timely data via clinical information systems and a coordinated proactive care team. A practice that is providing effective transitional care would need to integrate all of these areas to achieve better outcomes.

The Rosswurm and Larabee (1999) model (appendix H) was chosen to assist in guiding this evidence into a sustainable practice change. It follows the EBP process, involves a team, and incorporates elements of change theory. The six components include assessing the need for a

practice change, locating and critically analyzing the best evidence, designing the practice change, implementing and evaluating the outcomes of the change, then incorporating it into standard practice for sustainable change (Melnyk & Fineout-Overholt, 2015). The internal evidence of the ACOs high readmission rates and desire to achieve cost savings by lowering this as well as external evidence of historically poor transitional care and emphasis on reducing hospital readmissions was step one. Key stakeholders were involved from the start. The literature was reviewed and evidence synthesized showing that the transitional care interventions do work and can be feasible within the PICOT practice setting. Practices changes were designed and provided to the ACO to implement. Outcomes will be analyzed over time through data already collected by the ACO. These changes are necessary to continue to demonstrate value as an ACO and justify employing a care coordination team to assist practices with high-risk patients.

Project Methods

Several initial meetings occurred with ACO administrators to get internal data and discuss current problems they were experiencing and understand their staffing structure and current processes. After determining approach, the project idea and aims were presented to garner site approval. As the ACO's care coordination team is central to the ACO's transitional care efforts, they were chosen as the target project population. After receiving Institutional Review Board approval an initial meeting was established in September 2017 with the care coordination staff for introductions, presentation of current ACO performance data, provision of a brief review of transitional care evidence, and project aims. A cover letter was included and the team was invited to participate by completing a demographic and team analysis questionnaire. All care coordination staff present at this meeting agreed to participate.

Team functioning was measured using The Team Development Measure (TDM), (Stock, Mahoney, & Carney, 2013). Permission was obtained from the primary author to use this instrument. The TDM is a 31-item questionnaire that utilizes a 4-point Likert-like scale response format. The measure was designed for use in the healthcare setting to study how team functioning affects clinical outcomes and as a tool to improve team functioning. It has strong psychometric properties with a Rasch person reliability of 0.95 and overall Cronbach's alpha of 0.97 (Stock et al., 2013). The developers specifically tested four subdomains or constructs of team building including cohesion, communication, roles and goals, and team primacy. Scoring ranges correlate with stages of team development and indicate what subdomains are present in the team. This was done to determine where gaps in team functioning may be impacting patient care.

Workflow analysis happened over several months using quality improvement methods of direct observations and informal interviews. Through attending bimonthly care coordination staff meetings, attending provider meetings where transitional care patients were discussed, reviewing charting and patient call templates, insight was gained into where improvements were needed. Observations were discussed with both the care coordination team supervisor as well as care coordination team members themselves. Feedback was sought from practice managers and providers as to how the care coordination team could better assist them and what barriers they were having in billing for TCM.

Team analysis results, workflow observations, and current evidence on transitional care were integrated into an executive report (appendix I) containing realistic prioritized changes that maximize team member's skill sets and clarify roles and goals of the team which was provided to the ACO administration along with recommendations for evidence-based process improvements.

Results

Demographic and TDM survey was obtained from seven of the eight total care coordination members. One participant's responses were removed due to a high number of unanswered questions affecting analysis. The remaining surveys had no missing responses on the demographics component. The participants were mainly female (83.3%). Average age was 41.6 years (SD=13.7) with ages ranging from 27 to 60. Half of the team was Caucasian (50%), other races represented included Asian and Hispanic. Team was comprised of four licensed practical nurses, and two social workers which correlated with level of education with two participants having master's degrees and the rest with certificate/training program or associates degrees. The group has an average of 17.5 years of experience (SD=8.9) with experience ranging from 6 to 30 years per participant. Each has been in their current position for at least six months. Most of the respondents had been in their current position for one year, average 1.3 years. They all work full time, or 40 hours per week.

Rasch analysis was done using the Winsteps application to convert ordinal numeric results from the likert scale TDM survey into an interval score from 0 to 100, which correlates with stages of team development. The six TDM surveys that were analyzed had a total of six missing responses. Rasch analysis revealed a mean score of 54.17 (SD=8.06). Based on this score, the team has cohesiveness and communication in place but has not yet established role and goal clarity. The score placed them in development stage 2, of 10 total stages, where the earlier stages represent components *in place* and later stages represent components *firmly in place*. For example, a team in stage 4 has all elements *in place* but a team in stage 8 has all elements *firmly in place*. As defined by Stock et al. (2013), cohesiveness is "a sense of 'oneness' or working well together"; communication is defined as "including participation, problem-solving, and decision-

making"; role clarity is "understanding the roles of each team member"; and goal-mean clarity is "agreement on the team's goals and the strategies to achieve them." Descriptive statistics were used to examine frequencies of responses to questions of particular interest to the team. For the question, "I am allowed to use my unique personal skills and abilities for the benefit of the team" 3 people, or 50%, responded, disagree.

Analysis of notes and impressions taken during meetings and interviews revealed a lack of adherence to date deadlines, inconsistent processes among team members, and use of non-evidence based patient care interventions such as minimal to no home visits and a lack of standardized patient education. Minimal steps were being taken by the ACO team to reduce the time burden for the primary care providers at the first face-to-face patient visit. Social workers were not being used in a way that maximized their skills and the licensed practical nurses were not working to top of their scope of practice. A review of documentation by the care coordinators revealed an outdated system with excess information making important information such as the discharge and initial encounter date difficult to identify; Providers noted having to search for this information to include in documentation for billing purposes. Each staff member conducted meetings with providers to review current transitional care patients differently though overall there was a little mention of key dates or whether the patient had completed their face-to-face visit. The flow of these meetings was difficult to follow and several providers mentioned they did not see value in these meetings.

In the report provided to the ACO, findings were addressed. Focusing on feasibility for the practice as well as what is proven in the research several key changes were suggested. Team leadership can redesign the social work role to be more of a consultant when complex social issues arise. The addition of supplementary skills for the licensed practical nurses could address

the most important transitional care components such as medication reconciliation, also easing the time burden on providers. Standardizing provider meetings to address important dates and necessary provider actions should bring the focus back to meeting evidence based billing requirements. There is a need to increase evidence-based services, mainly home visits. The suggestion of dividing practices geographically to increase feasibility of more home visits was given, especially for those patients at highest risk. Audits can be conducted of patient calls to ensure consistency and more resources should be provided for patient education with an included requirement to discuss self-care measures. The team can work to increase their visibility in ACO practices. This could be done with more frequent meetings with providers to review patients and with care coordinators working from offices part time versus solely from home.

Discussion and Conclusion

While initially the goal was to implement the practice changes, analyzing the current workflow took longer than anticipated. The ACO was undergoing other changes at the time of this project including trying to add a chronic care management program, which affected the time they had to devote to the transitional care practice analysis and improvement. The care coordination team also underwent several staffing changes including new hires and a maternity leave during this time. The team is doing much of what is mentioned in the research already but needed an outside thorough evaluation to determine where there were gaps in the processes, as they were not attaining the results they needed. Through analysis of team functioning and workflow, prioritized process changes were able to be tailored to their individual team. This project can serve as a model for analyzing team functioning and workflow to inform agencies where gaps in their processes are affecting performance. The analysis can then be used to recommend evidence based practice changes. The intended outcome of these changes will be

improved patient outcomes evidenced by reduction of readmission rates and ED utilization within the practice, reduced healthcare costs, higher quality of service, and improved communication with each other and with providers in the ACO. Providing timely and effective transitional care to high-risk patients can reduce readmissions and result in cost savings for medical homes. Having an organized workflow will improve existing efforts in trying to meet benchmark quality measures for the ACO as well as increase the number of patients receiving quality transitional care.

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Appendix A

CINHAL

Search ID#	Search Terms	Search Options	Actions
S9	transitional care management AND (primary care OR medical home)	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (8) | View Details | Edit
S8	(multidisciplinary care team OR multidisciplinary) AND transitional care	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (44) | View Details | Edit
S7	transitional care AND (utilization OR cost)	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (112) | View Details | Edit
S6	(medical home OR primary care) AND transitional care	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (71) | View Details | Edit
S5	(medical home OR patient centered medical home) AND transitional care	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (15) | View Details | Edit
S4	medicare AND transitional care AND readmission	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (24) | View Details | Edit
S3	(high risk OR high utilizers) AND transitional care AND readmission	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (17) | View Details | Edit
S2	(chronic conditions OR high risk) AND transitional care AND readmission	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (18) | View Details | Edit
S1	transitional care AND readmission	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (144) | View Details | Edit

Select / deselect all | Search with AND | Search with OR | Delete Searches | Refresh Search Results

	Search ID#	Search Terms	Search Options	Actions
☐	S2	transitional care AND (Emergency department OR emergency room)	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (41) | View Details | Edit
☐	S1	transitional care AND emergency	**Limiters** - Published Date: 20070101-20171231 **Search modes** - Boolean/Phrase	View Results (50) | View Details | Edit

Appendix B

PubMed

History Download history Clear history

Search	Add to builder	Query	Items found	Time
#12	Add	Search **((multidisciplinary care team OR multidisciplinary)) AND transitional care[Title/Abstract]** Filters: **published in the last 10 years**	48	12:05:09
#11	Add	Search **((transitional care[Title/Abstract]) AND (utilization OR cost)) AND readmission** Filters: **published in the last 10 years**	71	12:04:24
#10	Add	Search **(transitional care) AND (utilization OR cost)** Filters: **published in the last 10 years**	312	12:03:37
#9	Add	Search **(((medical home OR primary care)) AND transitional care[Title/Abstract]) AND readmission[Title/Abstract]** Filters: **published in the last 10 years**	109	12:03:02
#8	Add	Search **((medical home OR primary care)) AND transitional care[Title/Abstract]** Filters: **published in the last 10 years**	454	12:02:04
#7	Add	Search **((medical home OR patient centered medical home)) AND transitional care[Title/Abstract]** Filters: **published in the last 10 years**	132	12:01:31
#6	Add	Search **((medical home OR patient centered medical home)) AND transitional care** Filters: **published in the last 10 years**	200	12:00:27
#5	Add	Search **((medicare) AND transitional care) AND readmission** Filters: **published in the last 10 years**	41	11:59:54
#4	Add	Search **(((high risk OR high utilizers)) AND transitional care) AND readmission** Filters: **published in the last 10 years**	58	11:59:21
#3	Add	Search **(((chronic conditions OR high risk)) AND transitional care) AND readmission** Filters: **published in the last 10 years**	68	11:58:27
#2	Add	Search **(transitional care) AND readmission** Filters: **published in the last 10 years**	227	11:57:31
#1	Add	Search **(transitional care) AND readmission**	257	11:57:25

Appendix C

MEDLINE

Set	Search	Databases	Results	Actions
S9	ab(transitional care) AND (multidisciplinary care team OR multidisciplinary) ✓ Limits applied	MEDLINE®	23*	Actions
S8	ab(transitional care) AND (utilization OR cost) ✓ Limits applied	MEDLINE®	108*	Actions
S7	ab(transitional care) AND (medical home OR primary care) ✓ Limits applied	MEDLINE®	132*	Actions
S6	(transitional care) AND (medical home OR primary care) ✓ Limits applied	MEDLINE®	210*	Actions
S5	(transitional care) AND (medical home OR patient centered medical home) ✓ Limits applied	MEDLINE®	9*	Actions
S4	(transitional care) AND readmission AND medicare ✓ Limits applied	MEDLINE®	23*	Actions
S3	(transitional care) AND readmission AND (high utilizers OR high risk) ✓ Limits applied	MEDLINE®	43*	Actions
S2	(transitional care) AND readmission AND (chronic conditions OR high risk) ✓ Limits applied	MEDLINE®	47*	Actions
S1	(transitional care) AND readmission ✓ Limits applied	MEDLINE®	120*	Actions

Appendix D

COCHRANE

#1	transitional care:ti,ab,kw Publication Year from 2007 to 2017 (Word variations have been searched)	S	204
#2	transitional care and readmission Publication Year from 2007 to 2017 (Word variations have been searched)	S	85
#3	high risk or high utilizers and transitional care and readmission Publication Year from 2007 to 2017 (Word variations have been searched)	S	45
#4	medicare and transitional care and readmission Publication Year from 2007 to 2017 (Word variations have been searched)	S	7
#5	medical home or patient centered medical home and transtional care Publication Year from 2007 to 2017 (Word variations have been searched)	S	0
#6	medical home or primary care and transitional care and readmission Publication Year from 2007 to 2017 (Word variations have been searched)	S	64
#7	transitional care or care continuity and readmission Publication Year from 2007 to 2017 (Word variations have been searched)	S	192
#8	transitional care:ti,ab,kw and utilization or cost Publication Year from 2007 to 2017 (Word variations have been searched)	S	58
#9	multidisciplinary care team or multidisciplinary and transitional care:ti,ab,kw Publication Year from 2007 to 2017 (Word variations have been searched)	S	6
#10	transitional care managment:ti,ab,kw and primary care (Word variations have been searched)	S	0

Appendix E

Table 1
Evaluation Table

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Feltner et al. (2014). Transitional care interventions to prevent readmissions for persons with heart failure: A systematic review and meta-analysis. Country: 26 US, 21 from other developed countries Funding: Agency for Healthcare Research and Quality (AHRQ) Conflicts/Bias: Studies rated high/unclear risk of bias not in main analyses	AHRQ Methods Guide for Comparative Effectiveness Reviews	Systematic Review and Meta-analysis of RCTs Purpose: To assess efficacy/comparative effectiveness/harms of TCIs to reduce RE/mortality rates for adults hospitalized with HF	N=47 n=8613 Mean age: 70 IC: Pts hospitalized with dx of HF, involved some TCI to reduce RE for pts dc to home with length of at least 30 D, reporting of RE/mortality rates Setting: wide range (Veterans, academic centers and community hospitals) Wide variety of intervention types: HV, TM, TS, MDS HF-C, EDU only, and cognitive training	IV1: HV IV2: TM IV3: TS IV4: MDS HF-C IV5: EDU IV6: Other DV1: HF-RE 30 D DV2: HF-RE 3-6 mo. DV3: AC-RE 30 D DV4: AC-RE 3 – 6 mo. DV5: death 30 D DV6: death 3-6 mo.	1 reviewer extracted data, a second checked accuracy. 2 reviewers assessed risk of bias and graded strength of evidence	DerSimonian –Laird random-effects models for metaanalysis of outcomes Statistical heterogeneity assessed with I2 statistic and Chi square	IV1/DV3 0.34 (0.19-0.62) NNT 6 IV1/DV4 0.75 (0.68-0.86) NNT 9 IV4/DV4 0.70 (0.55-0.89) NNT 8 IV2/DV4 1.11 (0.87-1.42) IV3/DV4 0.92 (0.77-1.10)	LOE: I Many well designed RCTs included in variety of settings Including HV as part of a TCI appears to reduce AC-RE especially over a longer period. TS did not improve AC-RE though did reduce mortality. A TCI with only TM or EDU is not effective.

Key: **AA** – African American; **AC**– all cause; **C –** clinic; **ARR –** absolute risk reduction**; CC** – care coordination; **CG** – control group; **D** – days; **dc** – discharged; **DV**-dependent variable; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **F** – female; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **IC** – inclusion criteria; **IG** – intervention group; **IV** – independent variable; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **N** – number of studies; **n** – number of participants; **NNT**- number needed to treat; **NR** – not reported; **OR** – odds ratio; **PCP** – primary care provider; **pts** – patients; **QOL** – quality of life; **RCT** – randomized controlled trial; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Hamar et al. (2016). Impact of a scalable care transitions program for readmission avoidance Country: US Funding: Healthways, Inc Conflicts/Bias: Most of the authors are employees/stock holders of Healthways, Inc, which is the vendor of the Care Transitions Solution	Chronic Care Model	Quasi-experimental retrospective cohort study Purpose: Evaluate impact of the Care Transition Solution on pts dc with a CMS penalty dx (HF, MI, COPD, PNA) Intervention: Identification of high RE–risk pts, assessment of individual needs, MEDR, dc planning, CC, TS (4 calls over 4 wks)	n=3900 IG=560 CG= 3340 Mean age = 59.3 Setting: 14 acute care hospitals in Texas	IV: TCI (MEDR, CC, TS) DV1: AC-RE 30 D DV2: AC-RE 6 Mo	To determine readmissions, hospital admission records were assessed from each subjects index admission to the study end date	Zero-inflated Poisson multivariate models used to estimate intervention effects Coarsened exact matching used for IG/CG comparison: L1 and Wald statistics	AC-RE 30 D: IRR (incidence rate ratio) 0.75, P =0.01 AC RE 6 Mo: IRR 0.78, P <0.01 IG: 0.47 (0.35-0.65) CG: 0.56 (0.41-0.77) IG risk of RE 22% lower over 6 mo. period and 25% lower over 30 D period	LOE: III TCI may be scalable, individualized to pt needs and risk level, relatively low intensity TCI utilizing TS and other CC services Limitation: Was a hospital implemented intervention with possible bias

Key: **AA** – African American; **AC**– all cause; **C –** clinic; **ARR –** absolute risk reduction**; CC** – care coordination; **CG** – control group; **D** – days; **dc** – discharged; **DV**-dependent variable; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **F** – female; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **IC** – inclusion criteria; **IG** – intervention group; **IV** – independent variable; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **N** – number of studies; **n** – number of participants; **NNT**- number needed to treat; **NR** – not reported; **OR** – odds ratio; **PCP** – primary care provider; **pts** – patients; **QOL** – quality of life; **RCT** – randomized controlled trial; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Jackson et al. (2016). Incremental benefit of a home visit following discharge for patients with multiple chronic conditions receiving transitional care. Country: US Funding: North Carolina Healthcare Quality Alliance and the NC Department of Health and Human Services Conflicts/Bias: 2 authors are employees of Community Care of North Carolina (the medical home setting of study)	Chronic Care Model	Retrospective cohort study Purpose: Examined whether home visits reduced the odds of 30-day RE compared to less intensive TCIs Intervention: All pts received some degree of TC management support (early coordinated f/u with PCP, MEDR, and pt/caregiver EDU); IG also had HV with a nurse care manager	n= 27,706 IG=7,468 Mean age=38 F= 60% AA= 43% IC: Non-dual Medicaid recipients with multiple chronic conditions enrolled in medical home in North Carolina	IV: TCIs (plus HV) DV1: AC-RE 30 D DV2: Total inpatient admissions DV3: Total Medicaid costs per member per mo. over the 6 mo. period following dc	Readmission and admission identified through claims analysis during period of study For comparison, patients stratified based on RE risk using Clinical Risk Group	Multiple logistic regression analysis	AC RE 30 D: 0.52 (0.48–0.57) P<0.001 Avg. monthly cost difference $970, chi-square = 14.94, P < 0.001 HV sig. reduced the odds of RE within 30 D; At 6 mos, HV associated with lower total costs and reduced total admissions for highest risk pts	LOE: III Considering including HV in a TCI as adding HV markedly reduce RE Limitation: Medicaid, not Medicare patients

Key: **AA** – African American; **AC**– all cause; **C –** clinic; **ARR –** absolute risk reduction**; CC** – care coordination; **CG** – control group; **D** – days; **dc** – discharged; **DV**-dependent variable; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **F** – female; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **IC** – inclusion criteria; **IG** – intervention group; **IV** – independent variable; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **N** – number of studies; **n** – number of participants; **NNT**- number needed to treat; **NR** – not reported; **OR** – odds ratio; **PCP** – primary care provider; **pts** – patients; **QOL** – quality of life; **RCT** – randomized controlled trial; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Ong et al. (2016). Effectiveness of remote patient monitoring after discharge of hospitalized patients with heart failure: The better effectiveness after transition - heart failure (BEAT-HF) randomized clinical trial. Country: US Funding: American Recovery and Reinvestment Act Conflicts/Bias: 2 authors consultants for several large medical technology companies	Chronic Care Model	Prospective, 2-arm RCT Purpose: evaluate effectiveness of a TCI using remote TM in reducing 180 D AC-RE among a population of older adults hospitalized with HF Design: 1:1 Block randomization Intervention: Nurse conducted predischarge HF EDU, regularly scheduled TS (9 calls over 6 mo), daily home TM of weight, BP, HR, and symptoms.	n=1437 IG= 715 Mean age= 73 46.2% F 22% AA Setting: 6 academic medical centers in California IC: >50 years old, receiving active treatment for decompensated HF, dc to home	IV: TCI (TM + TS) Primary DV1: AC-RE 180 D Secondary: DV2: AC-RE 30 D DV3: AC mortality 30 D DV4: AC mortality 180 D DV5: QOL 30 D DV6: QOL180 D	REs were identified from participating sites' hospitalization data, plus California's inpatient discharge data. Mortality was assessed using the Social Security and National Death Index, hospital data systems, contact with family members, and searches of obituaries. QOL was measured using the Minnesota Living With Heart Failure Questionnaire conducted via computer assisted telephone interview.	Multivariable analyses	Adjusted hazard ratio, 1.03 (0.88-1.20) $P = .74$ TS and TM did not reduce RE	LOE: II Strong RCT, did not show benefits with TS/TM, when planning TCI, these interventions alone without other components are not effective Limitation: HF pts only

Key: **AA** – African American; **AC**– all cause; **C –** clinic; **ARR –** absolute risk reduction**; CC** – care coordination; **CG** – control group; **D** – days; **dc** – discharged; **DV**-dependent variable; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **F** – female; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **IC** – inclusion criteria; **IG** – intervention group; **IV** – independent variable; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **N** – number of studies; **n** – number of participants; **NNT**- number needed to treat; **NR** – not reported; **OR** – odds ratio; **PCP** – primary care provider; **pts** – patients; **QOL** – quality of life; **RCT** – randomized controlled trial; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Roper et al. (2017). Systematic review of ambulatory transitional care management (TCM) visits on hospital 30-day readmission rates. Country: US Funding: None Conflicts/Bias: None	PICOTS (populations, interventions, comparators, outcomes, timing, settings) framework	Systematic review Purpose: Evaluate evidence for establishing effectiveness of Medicare TCM bundle on RE of adults in the US health care system	N=3 (1 observational quality improvement with cohorts; 1 observational retrospective analysis; 1observational nonrandomized quasi experiment) IC: Incorporated all required elements for TCM service Setting: 2 large hospital systems, 1 smaller university practice	IV: Intervention involving all TCM requirements DV: AC-RE 30 D TCM requirements: Pt communication within 2 D, face to face provider visit in 7-14 D, MEDR, other services such as EDU, referrals, and community services	Utilized IOM's Standards for Systematic Reviews; 3 stages of review to identify studies that utilized a fully reimbursable TCM approach	Rate of change in 30D RE	Study 1: hazard ratio 0.78 (TCM) versus 1.0 (no-TCM) $p<$ .001; 8.87% reduction in 30 D RE (16% reduction for highest risk group) Study 2: 20% reduction in RE Study 3: 19.9% reduction in RE, P= 0.02	LOE: IV (SR of level III-IV studies) TCM (as directed by CMS) approach has been studied (though not widely) and has shown promising reductions in RE rates Limitations: Study 1- Medicaid pts; study 3- mean age 43; 2 of 3 in large hospital settings, not primary care setting

Key: **AA** – African American; **AC**– all cause; **C –** clinic; **ARR –** absolute risk reduction**; CC** – care coordination; **CG** – control group; **D** – days; **dc** – discharged; **DV**-dependent variable; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **F** – female; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **IC** – inclusion criteria; **IG** – intervention group; **IV** – independent variable; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **N** – number of studies; **n** – number of participants; **NNT**- number needed to treat; **NR** – not reported; **OR** – odds ratio; **PCP** – primary care provider; **pts** – patients; **QOL** – quality of life; **RCT** – randomized controlled trial; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Stranges et al. (2015). A multidisciplinary intervention for reducing readmissions among older adults in a patient-centered medical home. Country: US Funding: None Conflicts/Bias: 1 author attended meetings and is on formulary committee for a large insurance company	Patient Centered Medical Home Model	Retrospective Cohort Study Purpose: Evaluate the effectiveness of MDS practice model with medical providers, pharmacists, and SW on reducing 30-D AC-RE Intervention: pharmacist call for MEDR in 2-4 D; clinic f/u in1 wk with PCP/SW then 3 mo. of HV and intensive f/u	n=1144 IG = 572 IC: Adults > 60 yrs old dc from a large academic medical center	IV: TCI (MEDR, early f/u with PCP/SW, HV) DV1: AC-RE 30 D DV2: time to RE	Identification of variables, outcomes, and TCP appointment status was completed using the health system's clinical data repository and systemwide scheduling system	DV1: Logistical regression DV2: Kaplan-Meier and log rank tests For statistical analysis CG and IG were matched using Mahalanobis distance based on criteria of age, sex, race, length of stay, number of medications at dc, and comorbidity index scores	Intention to treat 21% vs 17.3% (CG); P = .133 As treated 11.7% vs 17.3% (CG), *P* <.001 Time to RE: 8 ± 9 days compared with 12 ± 9 days with usual care; *P* = .015	LOE: III Setting similar to PICOT, fairly intensive TCI Limitations: Many of those scheduled to complete intervention, did not. Intention to treat analyses were not significant. RE rates were sig. reduced for those completing the intervention Consider how to retain recruited subjects

Key: **AA** – African American; **AC**– all cause; **C –** clinic; **ARR –** absolute risk reduction**; CC** – care coordination; **CG** – control group; **D** – days; **dc** – discharged; **DV**-dependent variable; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **F** – female; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **IC** – inclusion criteria; **IG** – intervention group; **IV** – independent variable; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **N** – number of studies; **n** – number of participants; **NNT**- number needed to treat; **NR** – not reported; **OR** – odds ratio; **PCP** – primary care provider; **pts** – patients; **QOL** – quality of life; **RCT** – randomized controlled trial; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Vedel & Khanassov (2015). Transitional care for patients with congestive heart failure: A systematic review and meta-analysis. Country: 19 US, 3 Canada, 1 Brazil, 14 Europe, 1 New Zealand, 1 Australia, 2 Asia Funding: Canadian Institutes of Health Research Conflicts/Bias: None identified (used Downs and Black scale and funnel plot)	Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Framework	Systematic review and Meta-analysis of RCTs Purpose: Determine impact of TCIs on ED use by pts with HF in primary care and identify most effective TCIs and optimal duration TCIs classified based on intensity: 13 studied low-intensity TCI (ex: TS only); 14 moderate-intensity TCI (HV only); and 16 high-intensity TCI (HV + other follow up)	N= 41 n=NR Mean age=57.9 to 81.0 IC: RCT design, involved some form of TCI for HF pts dc to home, measured RE and ED visits	IV1: Low-intensity TCI IV2: Moderate-intensity TCI IV3: High-intensity TCI IV4: Duration of <6 mo. IV5: Duration of >6 mo. DV1: AC-RE DV2: ED visits	2 reviewers independently examined the references based on the eligibility criteria. Then full texts of the selected references were retrieved, read, and selected based on the eligibility criteria. At each step, differences in coding were resolved by consensus.	Meta analysis I2 statistic for heterogeneity	IV1/AC-RE <6 mo: 1.121 (0.97-1.30); >6 mo: 0.949 (0.86-1.10) IV2/AC-RE <6 mo: 0.981 (0.86-1.30); >6 mo: 0.788 (0.70-0.90) IV3/AC-RE <6 mo: 0.804 (0.69-0.93); >6 mo: 0.885 (0.79-0.99) Any TCI on ED visits 0.71 (0.52-0.98)	LOE: I Intensity of TCI can direct length needed for impactful reduction in RE High intensity TCI reduced RE regardless of duration; Mod. Intensity TCI effective if at least 6 mo. in length; Low intensity TCI were not efficacious

Key: **AA** – African American; **AC**– all cause; **C –** clinic; **ARR –** absolute risk reduction**; CC** – care coordination; **CG** – control group; **D** – days; **dc** – discharged; **DV**-dependent variable; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **F** – female; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **IC** – inclusion criteria; **IG** – intervention group; **IV** – independent variable; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **N** – number of studies; **n** – number of participants; **NNT**- number needed to treat; **NR** – not reported; **OR** – odds ratio; **PCP** – primary care provider; **pts** – patients; **QOL** – quality of life; **RCT** – randomized controlled trial; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Verhaegh et al. (2014). Transitional care interventions prevent hospital readmissions for adults with chronic illnesses. Country: 11 US 3 Hong Kong 2 Australia, 1 each Germany, Spain, Canada, Sweden, UK, Ireland, Italy, China, Taiwan, Spain/Belgium Funding: None Conflicts/Bias: None	Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Framework	Systematic review and meta-analysis of RCTs Purpose: Examine if TCIs are associated with a reduction of RE rates in the short, intermediate, and long terms Intensity of TCIs scored low – high on a scale of 0-16 based on 11 measures of intervention intensity for subgroup analysis	N=26 n= 7,932 IC: Any interventions that addressed hospital RE for adults with chronic illness Duration of TCIs ranged from 30 D – 1 year with average of 3 HV and 2 TS calls	IV: TCI DV1: AC-RE 30 D DV2: AC-RE 31-180 D DV3: AC-RE 180-365 D	Two of the authors independently examined the study titles and abstracts from each article to determine relevance. Any disagreements were resolved by consensus between the two authors. Potentially relevant articles were acquired and full-text articles were independently assessed by both authors.	Random-effects meta-analysis, Mantel-Haenszel method Univariable meta-regression analyses Statistical heterogeneity by Cochrane Q test	<u>Any TCI</u> DV1: OR 0.76 (0.52, 1.10) NNT 33 DV2: ARR 5%, OR 0.77 (0.62, 0.96) NNT 20 DV3: ARR 13%, OR 0.58 (0.46, 0.75) NNT 8 <u>High intensity TCI</u> DV1: OR 0.59 (0.38, 0.92) NNT 20; DV2: OR 0.69 (0.51 0.92) NNT 14 DV3: OR 0.57 (0.35, 0.92) NNT 8 <u>Low intensity TCI</u> DV3: OR: 0.62 (0.46, 0.82)	LOE: 1 Higher intensity interventions are needed to reduce shorter term RE; any type of TCI can reduce longer term RE Short term RE were impacted most by care provided by a nurse, communication between hospital and PCP; and HV within 3 D

Key: **AA** – African American; **AC**– all cause; **C –** clinic; **ARR –** absolute risk reduction**; CC** – care coordination; **CG** – control group; **D** – days; **dc** – discharged; **DV**-dependent variable; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **F** – female; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **IC** – inclusion criteria; **IG** – intervention group; **IV** – independent variable; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **N** – number of studies; **n** – number of participants; **NNT**- number needed to treat; **NR** – not reported; **OR** – odds ratio; **PCP** – primary care provider; **pts** – patients; **QOL** – quality of life; **RCT** – randomized controlled trial; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Voss et al. (2011). The Care Transitions Intervention Translating From Efficacy to Effectiveness Country: US Funding: Centers for Medicare & Medicaid Services Conflict/Bias: None identified	Care Transitions Intervention Framework	Quasi-experimental prospective cohort study Purpose: Establish effectiveness of Care Transitions Intervention (CTI) approach in a real world setting Intervention: A coach (nurse or social worker with additional training) completing a hospital visit, 1 HV, and 2 TS calls	n=15,507 IG: 257 (92.6% completed HV and 1 TS call) External CG: 14,514 Internal CG: (hospital visit only): 736 F (IG) = 69% Setting: 6 Rhode Island Hospitals IC: Hospitalized fee for service Medicare beneficiaries dc to home	IV: CTI (HV + TS) DV: AC-RE 30 D	RE tracked by Medicare claims data, enrollment data, and a coaching database developed by the investigators to track the intervention	Conditional logistic regression model	OR 0.61 (0.42-0.88) RE was reduced 7.2% for those receiving intervention	LOE: III More real world application of an intervention previously studied, still showed reduced RE

Key: **AA** – African American; **AC**– all cause; **C –** clinic; **ARR –** absolute risk reduction**; CC** – care coordination; **CG** – control group; **D** – days; **dc** – discharged; **DV**-dependent variable; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **F** – female; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **IC** – inclusion criteria; **IG** – intervention group; **IV** – independent variable; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **N** – number of studies; **n** – number of participants; **NNT**- number needed to treat; **NR** – not reported; **OR** – odds ratio; **PCP** – primary care provider; **pts** – patients; **QOL** – quality of life; **RCT** – randomized controlled trial; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Wong et al. (2014). Comparison of effects between home visits with telephone calls and telephone calls only for transitional discharge support: A randomized controlled trial. Country: Hong Kong Funding: Grant from the Research Grants Council of the Hong Kong Special Administrative Region, China Conflicts/Bias: None	4 Cs model proposed by Wong	RCT Purpose: Examine the overall effects of a TC program among a group of dc pts with chronic diseases; included a TS only group to examine its differential effects Intervention: 3 arms Control (CG received placebo calls); HV (wk 1 and 3) + TS (wk 2 and 4); TS only (4 calls 1/wk) nurse case manager and trained nursing students conducted HV and TS calls Length: 4 weeks	n= 610 IG1 (HV+TS) = 196 IG2 (TS) = 204 Setting: Large acute care hospital in Hong Kong	IV1: HV+TS IV2: TS DV1: AC-RE 30 DDV2: QOL DV3: Self efficacy DV4: Satisfaction	RE data collected via hospital information system. *QOL* (MOS 36-item Short Form Health Survey), *Self-efficacy* (short version Chronic Disease Self-Efficacy Scale), Satisfaction (15-item questionnaire) Data on DV2-4 collected at time of dc, 4 wks, 12 wks Inter-rater reliability ranged from 0.930 to 0.982 for the different instruments.	Logistic regression model ANCOVA (for DV 2-4)	TS group OR = 0.624, *P* = 0.103 HV+TS group OR = 0.583, *P* = 0.028 at 4 weeks Either intervention improved QOL, self efficacy and satisfaction At 12 weeks there was no difference in CG and IG	LOE: II TS alone is not effective but when combined with HV can reduce 30 D RE among other measures RE reduction did not persist at 12 weeks, suggesting this TCI may not have lasting impact Limitations: conducted on Hong Kong may not be as applicable to US

Key: **AA** – African American; **AC**– all cause; **C –** clinic; **ARR –** absolute risk reduction**; CC** – care coordination; **CG** – control group; **D** – days; **dc** – discharged; **DV**-dependent variable; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **F** – female; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **IC** – inclusion criteria; **IG** – intervention group; **IV** – independent variable; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **N** – number of studies; **n** – number of participants; **NNT**- number needed to treat; **NR** – not reported; **OR** – odds ratio; **PCP** – primary care provider; **pts** – patients; **QOL** – quality of life; **RCT** – randomized controlled trial; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support

Appendix F

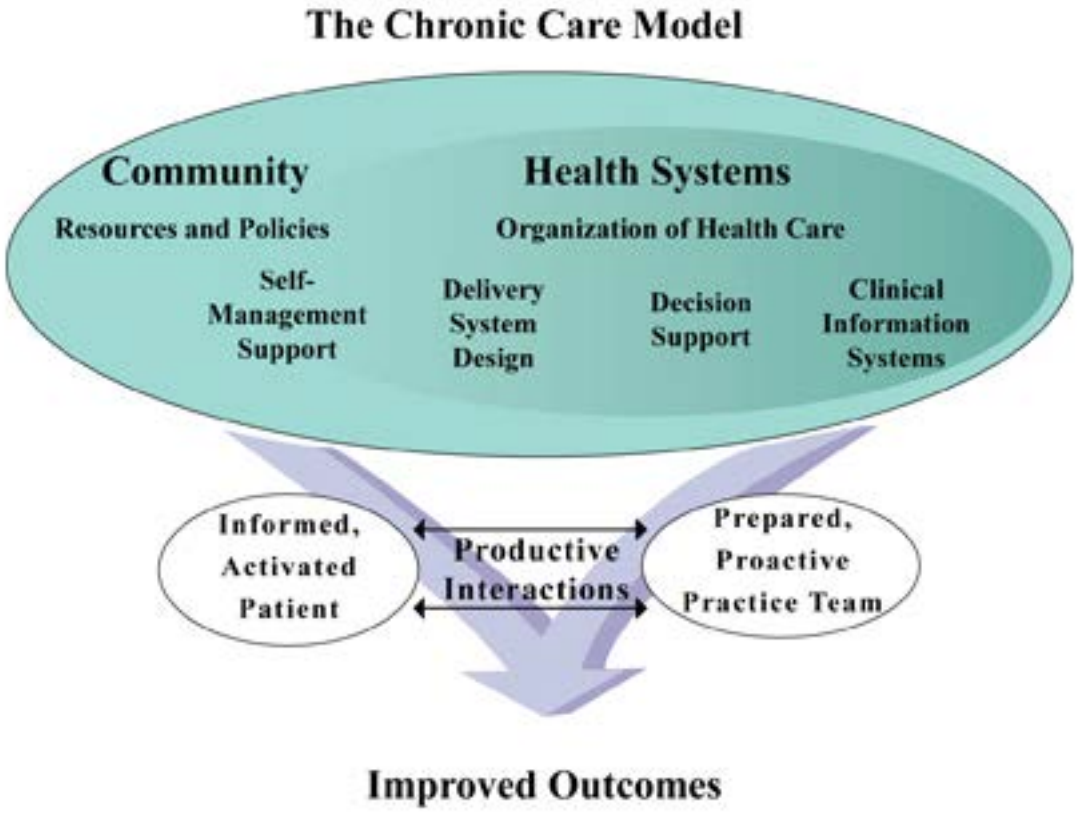
Synthesis Table

Author	Year	LOE	Patient type/dx	Discipline involved	Level of TCI	TCI components						Length	OUTCOMES	
						HV	TS	TM	MREC	CC	other		RE 30 D	RE >30D
Feltner	2014	I	HF	NR ("mainly nurses")	High Mod Mod Low Low	X	 X 	 X 	 	 	 X (HF-C) X (EDU)	Varied; 1 mo to 6 mo	↓ ≠ ≠ ≠ ≠	↓ ↓ ≠ ↓ (HF-RE only) ≠
Hamar	2016	III	HF, MI, COPD, PNA	Nurse CM			X		X	X		1 mo	↓	↓
Jackson	2016	III	Medicaid	Nurse CM		X			X	X	X (EDU)	1 mo	↓	NM
Ong	2016	II	HF	Nurse			X	X				6 mo	≠	≠
Roper	2017	IV	Medicare/Medicaid	Nurse (1/3); NR (2/3)			X		X	X	X (f/u)	1 mo	↓	NM
Stranges	2015	III	Older >60	SW Pharm		X			X		X (f/u)	3 mo	↓	NM
Vedel	2015	I	H	NR	High Mod Low	X X	X Or X X	 Or X	 	 	X(f/u) Or X(f/u)	1 mo-1yr	↓ ≠ ≠	↓ ↓ (if length >6mo) ≠
Verhaegh	2014	I	Chronic	Nurse	High* Low*							NR; varied	↓ ≠	↓ ↓
Voss	2011	III	Medicare	Nurse or SW		X	X					1 mo	↓	NM
Wong	2014	II	Chronic	Nurse + nursing students		X	X X					1 mo	↓ ≠	≠ ≠

Key: **AC**– all cause; **C –** clinic; **CC** – care coordination; **CM** – case manager; **D** – days; **dx** – diagnosis; **ED** – emergency department; **EDU** – education; **f/u** – follow up; **HF** – heart failure; **HV** – home visits; **LOE** – level of evidence; **MDS** – multidisciplinary; **MEDR** – medication reconciliation; **NM** – not measured; **NR** – not reported; **PCP** – primary care provider; **pharm** – pharmacist; **QOL** – quality of life; **RE** – readmissions; **SW** – social worker; **TC** – transitional care; **TCI** – transitional care interventions; **TM** – telemonitoring; **TS** – telephone support; ↓statistically significant reduction; ≠ non-statistically significant results; *see Appendix E for details regarding classification (specific TCIs); LOE based on Melnyk & Fineout-Overholt's (2015) hierarchy of evidence

Appendix G

Conceptual Framework

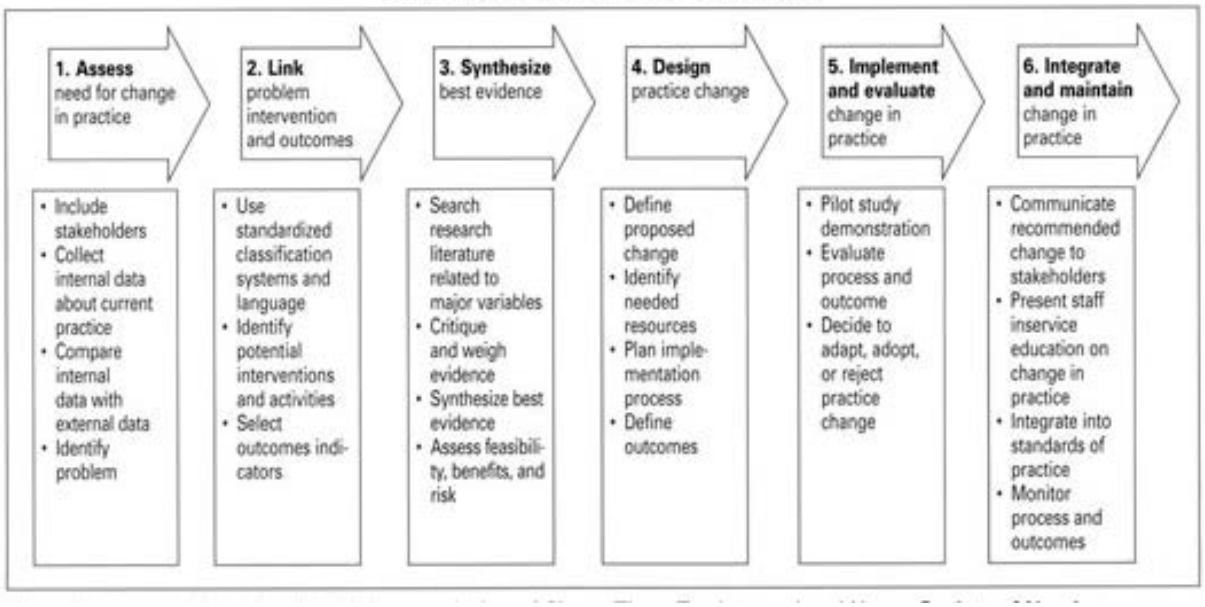


(Wagner, 1998)

Appendix H

EBP Model

Figure 1.
A Model for Evidence-Based Practice



(Rosswurm & Larabee, 1999)

Appendix I

Executive Summary and Report Provided to ACO

Transitional Care Workflow Redesign

Making adjustments to meet benchmarks and increase quality

Intro and background

This project was conducted to assist the ACO in improving their transitional care program. The ACO had high readmission rates, overuse of emergency and urgent care services, and poor billing rates for transitional care services. While a previous ASU student found success working individually with a practice in the ACO to provide transitional care visits in the home, this model was not sustainable. The ACO employs a care coordination team that is underutilized by the practices, thus the focus of this project was to analyze their team functioning and workflow and propose evidence-based changes for improvement. An ASU nurse practitioner student, Leigha Shilhanek BSN, RN, thoroughly reviewed the current research and best practices in transitional care before starting this work as her doctoral project. Research shows conscious workflow design has been shown to improve the efficiency of existing work processes.

Process

The project was conducted in the fall of 2017 after obtaining ACO management support and IRB approval through ASU. The Team Development Measure survey completed by the care coordination team was used to analyze team functioning and identify gaps. Direct observations at staff meetings, care coordinator-provider meetings, patient visits, as well as discussions with various stakeholders throughout ACO revealed where processes were poorly defined or incongruent with the research.

Findings

Team survey showed good communication and cohesion but poor role and goal clarity. Workflow evaluation revealed complex documentation, inconsistent non-evidence based care, and a lack of focus on billing criteria.

Recommendations

The proposed changes include a renewed focus on billing criteria with a modified patient activity list, tools for ensuring face to face follow up visits meet deadlines, and standardized provider meetings that occur more frequently. Social workers role should be in dealing with complex social issues and LPNs should acquire additional skill sets, such as medication reconciliation. Every effort should be made to increase home visits for highest risk patients as well as make the team more visible and integrated in provider's offices.

Conclusion

The intended outcome after integrating proposed changes will be a clear work process where all staff has clearly delineated roles and improved communication with providers. Utilizing existing care coordination staff to the top of their scope of practice to provide evidence based care, while ensuring requirements to bill for reimbursement are met can result in a more sustainable transitional care program. This should result in higher quality of service and improved patient outcomes evidenced by reduction of readmission rates and ED utilization. The ultimate goal being reduced healthcare costs and savings for the ACO.

Transitional Care Workflow Redesign: Executive Report

The full report that follows includes proposed workflow changes, detailed results of team analysis, as well as resources for implementing the proposed changes. Thank you for your continued support of ASU students and commitment to quality care.

Elements contained in this report:

Proposed changes

- Maximizing SW expertise
- Add additional skills
- Increase number of home visits
- Consistency in calls
- Meetings – structured/focused
- Increase visibility of team
- Simplify documentation
- Focus on billing criteria

Team Functioning Analysis

- TDM survey results
- Suggestions for application

Resources

- Restructured patient activity list
- Billing handout for providers
- Face to face date deadline tool
- Team component definitions

Summary of prioritized workflow

Proposed changes

Need to **utilize each team member's unique skills**. For example, having one of the two social worker's visiting and following patient's in a rehab facility is not ideal. Social work should be used as a 'consult' when identified that patient has unique social/ psychological needs.

Meetings with providers need to be kept short and focused on immediate patient needs and meeting the TCM billing criteria. Ideally, work off a restructured patient activity list (currently generated through all-scripts), but in mean time could add discharge date, initial encounter date and face-to-face date column (see **Addendum 1** for example). The dates are extremely important for **time sensitive** TCM billing. Following a **structured format** for 'presenting' or discussing current TCM patients would make it easier for providers to follow and for care coordinators to cover for each other. If can keep meetings more structured, providers more likely to agree to increase meeting frequency. Ideal to have more frequent meetings with providers to review care and health status of patients. Providers may have different resources or knowledge about billing process for TCM a simple handout can be a start to encouraging more billing (see **Addendum 2**).

Simplify the **documentation** of care coordinator visits especially the first face to face encounter (perhaps provide separate from the rest) as providers noted 'hunting' through E-vigils or paper documentation to find encounter date.

Need more frequent meetings with providers to review care and health status of patients. May be beneficial to be in the office more so that care coordinators are **more visible** and considered a part of the team. Could schedule a couple hours each week to 'work from office'; coordinate with office a workspace/phone to use. Using a phone from the provider's office when calling patients could increase buy-in and appearance of a cohesive integrated team.

Make initial call or visit worthwhile for provider by doing things that will save them time during the face-to-face encounter. The **medication reconciliation** is something that could feasibly be done by the care coordinators. This is a crucial element of transitional care and a major component of TCM billing criteria. Research shows **registered nurses** complete this task with less errors than LPNs. This could be rational for a staffing change. RN could review medications when care coordinators identify that there has been a change in regimen.

Length of call times and information discussed with patients varies widely. Template used for calls is not evidence based and it is used inconsistently. For best practice, need to **address certain elements every time**. The patient or caregiver must receive education on key self-management strategies. Need to assess treatment regimen adherence and available resources as well as ability to do activities of daily living. Identify needs and facilitate access to care and services, involving social work as necessary. Must ensure **appointment with provider** is made within the 7 (or 14) day window, using resources as needed (see **addendum 3** for helpful resource).

When assigning practices, ensure **geographically divided** so case managers can more easily be present in practices and more feasibly visit patient's homes. **Home visits** are proven one of the most effective components of transitional care programs. While the care coordinators may not be able to assess the physical patient, they can interact with them face to face and have a unique opportunity to identify and address issues. They can assess home safety and gain insight into the patient's resources to ensure patient's needs can be met. This would be especially useful in targeting those at highest risk for readmission. In fact, for complex chronic patients, home visits reduce the likelihood of a 30-day readmission by almost half compared to less intensive forms of transitional care support.

The Team Development Measure This questionnaire was used to measure team characteristics. It was collected from staff present at the staff meeting on 9/8/17. The results have been integrated into the recommended workflow changes. Individual questions have been highlighted in green to emphasis team strengths and yellow to indicate areas for improvement.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. There is confusion about what the work is that the team should be doing.	2	4		1
2. There is confusion about how to accomplish the work of the team.	3	3		1
3. Roles and responsibilities of individual team members are clearly understood by all members of the team.	2	1	4	
4. All team members place the accomplishments of the team ahead of their own individual accomplishments.	1		3	2
5. The goals of the team are clearly understood by all team members.		2	3	2
6. All team members define the goals of the team as more important than their own personal goals.	1		4	2
7. I am happy with the outcomes of the team's work so far.			4	2
8. I enjoy being in the company of the other members of the team.			2	4
9. This team is a personally meaningful experience for me.			3	4
10. I have a clear understanding of what other team members expect of me as a team member.			4	3
11. The work I do on this team is valued by the other team members.		1	4	2
12. I am allowed to use my unique personal skills and abilities for the benefit of the team.		3	2	2
13. Some members of this team resist being led.		3	3	
14. Information that is important for the team to have is openly shared by and with all team members.	1	1	3	2
15. All individuals on this team feel free to suggest ways to improve how the team functions.	1	1	4	1

	Strongly Disagree	Disagree	Agree	Strongly Agree
16. When team problems arise the team openly explores options to solve them.		2	3	2
17. On this team, the person who takes the lead differs depending on who is best suited for the task.		4	1	2
18. Team members say what they really mean.		2	4	1
19. Team members say what they really think.		1	5	1
20. Team members talk about other team members behind their back.	2	1	2	1
21. All team members participate in making decisions about the work of the team.		2	3	
22. All team members feel free to share their ideas with the team.	2	1	2	2
23. All team members feel free to express their feelings with the team.	1	3	1	2
24. The team practices tolerance, flexibility, and appreciation of the unique differences between team members.			4	1
25. The team handles conflicts in a calm, caring, and healing manner.	1		3	2
26. Regardless of the topic, communication between the people on this team is direct, truthful, respectful, and positive.	1	3	1	2
27. The team openly discusses decisions that affect the work of the team before they are made.	1	1	4	1
28. In this team, members support, nurture, and care for each other.		1	2	3
29. The team has agreed upon clear criteria for evaluating the outcomes of the team's effort.		2	2	2
30. As a team we come up with creative solutions to problems.			4	3
31. In the team there is more of a WE feeling than a ME feeling.		1	3	2

Summary of TDM results with application to care coordination team

Rasch analysis was done to convert ordinal numeric results from the Likert scale into an interval score from 0 to 100, which correlates with elements of team development. Rasch analysis revealed a mean score of **54.17** (SD=8.06). Based on this score, the team has cohesiveness and communication in place but has not yet established role and goal clarity.

Stages of Team Development

	Fully Developed	87 - 100	All Team Attributes Firmly in Place
	Stage 8	81 - 86	Goals-Means Clarity Established
	Stage 7	78 - 80	Roles Established
	Stage 6	70 - 77	Communication Established
Highest Score = 68	Stage 5	64 - 69	Cohesiveness Established
	Stage 4	58 - 63	Building Goals-Means Clarity
	Stage 3	55 - 57	Building Clarity of Roles
Team Average 54.17	Stage 2	47 - 54	Building Communication
Lowest Score = 46	Stage 1	37 - 46	Building Cohesiveness
	PreTeam	0 - 36	Any Team Attributes are Accidental

Your team really values the work they do (#7/#9). This is meaningful work and can be built on to get the team more invested in seeing it succeed. They are team oriented versus having an individual focus (#4/ #6/#31).

Getting their opinions on changes to the structure / flow of the TCM and CCM programs could really increase their feelings of worth and the openness of the team. They do not always feel comfortable sharing (#22/#23) so perhaps start with a suggestions box or have individual meetings to ‘touch-base’. Ensure communications are direct, respectful and positive (#26).

The team seems to know the work the team should be doing and how to accomplish that work (#1/#2). However, the roles and responsibilities of each member are not understood and goals of the team are not clear (#3/#5). Roles and responsibilities should be clearly laid out and reviewed frequently.

Team members should be held accountable to get their individual work done as well as challenged to meet certain quota/goals (such as home visits).

Creating a work group and allowing members to volunteer to lead (#17) a problem focused brainstorming session could help team members get motivated to solve problems. Perhaps encourage those that have done a good job on a particular aspect of their job, to share their strategies. This could be done to brainstorm methods in increase patient acceptance of home visits or to simplify documentation.

Investing in education for the care coordinators to take on new tasks such as medication reconciliation could help them feel as if they are working to their potential. Restructuring of the roles of certain staff (SW) could maximize their ability to use their unique skills and abilities (#12).

Addendum 1:

Meetings ideally should work off a restructured patient activity list (currently generated through all-scripts). In the mean time, need to minimally add columns to include discharge date, initial contact date, date of face to face visit with provider, and whether billing criteria has been met (based on dates only) to allow for high or moderate TCM billing. The dates are extremely important for **time sensitive** TCM billing.

Example shows current Patient Activity List with suggested columns to be added in **bold**.

ID	NAME	DOB	CLASS	STATUS	**D/C DATE**	**INT. CONT.**	**FACE/FACE**	**BILL. CRIT.**
P11001	DOE, JOHN	1/1/50	TC	ACTIVE	10/3	10/5	10/10	<7 DAYS ✓
P22003	DOE, SARA	5/1/45	TC	ACTIVE	10/6	10/9	10/18	<14 DAYS ✓

Addendum 2:
Billing handout for providers

Required elements for billing TCM services:

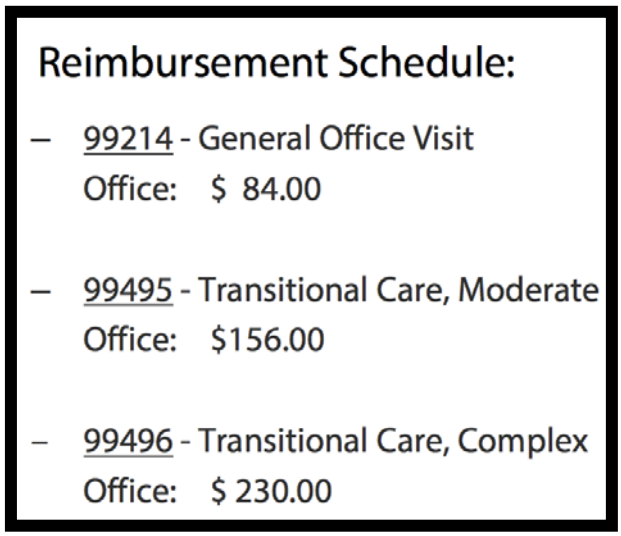
- Communication with patient/caregiver within 2 business days of discharge (can be direct, telephone or electronic) – this is being done by the CARE MANAGEMENT team for ALL Medicare patients. Documentation of this encounter must be in patient's chart.
- Face to face visit (at office) within 7 days for high complexity (99496) or 14 days for moderate complexity (99495)
- At or before face to face visit review hospital discharge info, perform med rec, as well as other services such as patient education, referrals to specialists/community services PRN (things you are likely already doing)

Important things to note:

- The first visit after hospitalization (the initial face to face) is bundled into the TCM payment, however if the patient needs subsequent provider visits in the 30 days following discharge these can be billed separately as E& M services
- The date of service reported should be date face to face visit is furnished
- You can submit the claim once the face to face visit is furnished and do NOT have to hold the claim until the end of the service period (30 day period from day of discharge)
- If patient is readmitted within 30 days you have 2 choices:
  - As long as met requirements, continue to provide services following second discharge up until initial 30 day period, and bill as normal
  - Bill initial visit as E&M service and start 30 day period over after second discharge
- Medicare will only pay one provider for TCM services per beneficiary per 30 days following a discharge. Other providers can continue to report services including E&M services to beneficiaries during those 30 days.
- Any Medicare patient discharged from an inpatient hospital, observation status in hospital, or SNF… TO … home or assisted living qualifies to receive these services.
- The 30 day TCM period begins on the date the beneficiary is discharged from the inpatient hospital setting and continues for the next 29 days.
- Physicians of any specialty, NPs and PAs may furnish the TCM services. The non-face to face services may be performed by licensed clinical personnel (LPNs, RNs) under 'general supervision.'
- If you report CPT codes 99495/99496 for Medicare payment, you cannot report certain other codes during the TCM service period (including: Care Plan Oversight services, HH or Hospice supervision, ESRD services, Chronic Care Management – cant overlap, etc.)

Documentation must include:

- Date of discharge
- Date of interactive contact with patient/caregiver (done by CM)
- Date of face-to-face visit
- Medication reconciliation
- Complexity of medical decision making (moderate or high)



Addendum 3:

Utilize a chart such as this to ensure appointments are made within the billing window (7 days for high complexity and 14 days for moderate complexity).

The TCM 30 day period begins on the date of discharge and continues for the next 29 calendar days.

Discharge Date (D/C) in Month with 31 days:

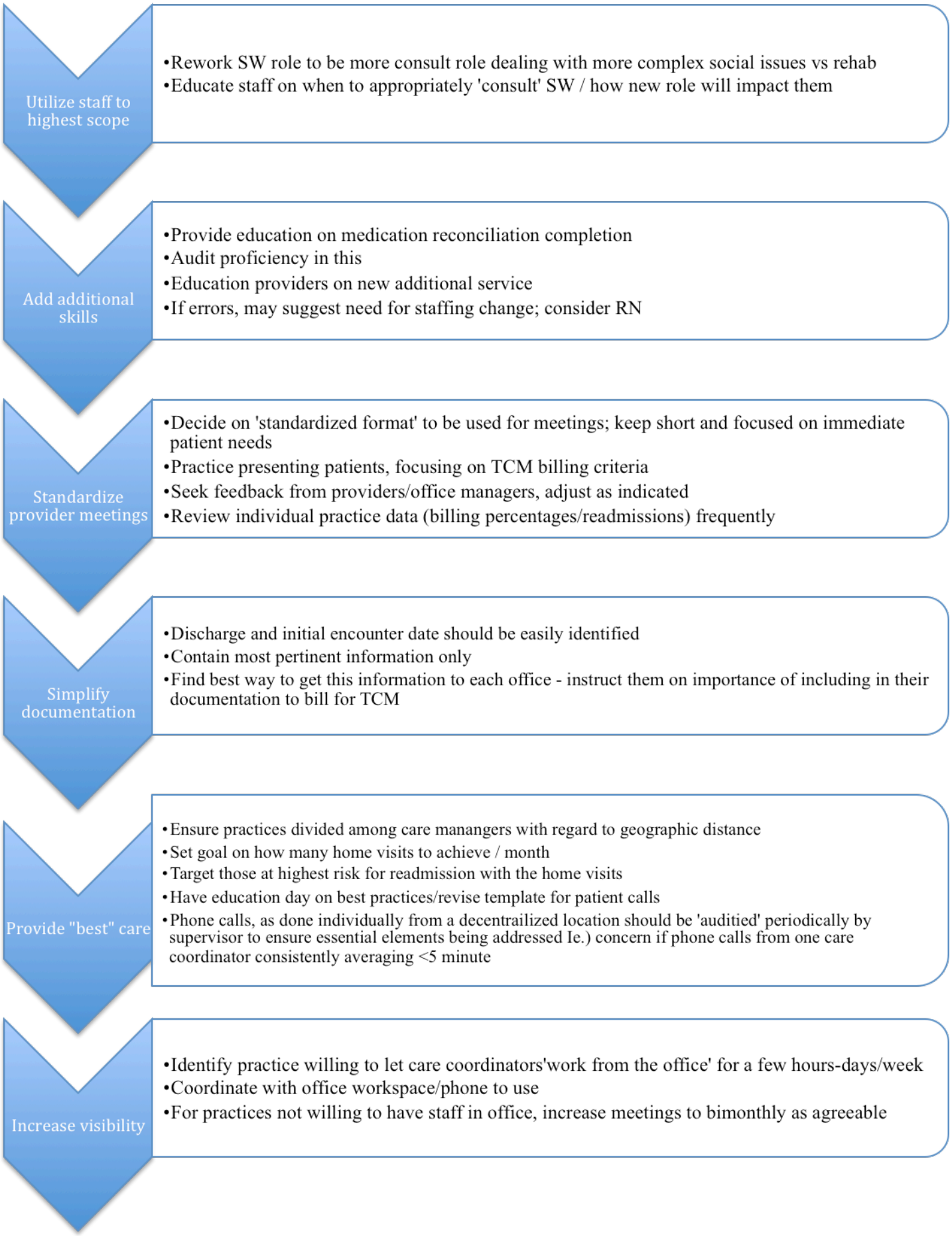
Discharge Date:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
OR Face to Face Visit by (within 7 days):	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7
Face to Face Visit by (within 14 days):	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14
TCM 30 day period ends:	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

Discharge Date (D/C) in Month with 30 days:

Discharge Date:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
OR Face to Face Visit by (within 7 days):	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7
Face to Face Visit by (within 14 days):	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14
TCM 30 day period ends:	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

Example using above date chart:

Discharge date (month with 30 days):	14	→ Patient discharged from hospital on September 14th
First face-to-face visit by (within 7 days):	21	→ First face-to-face visit must have occurred by September 21st
OR First face-to-face visit by (within 14 days):	28	→ First face-to-face visit must have occurred by September 28th
TCM 30 day period ends:	13	→ TCM period has ended and patient can be discharged if appropriate


Utilize staff to highest scope
•Rework SW role to be more consult role dealing with more complex social issues vs rehab
•Educate staff on when to appropriately 'consult' SW / how new role will impact them
Add additional skills
•Provide education on medication reconciliation completion
•Audit proficiency in this
•Education providers on new additional service
•If errors, may suggest need for staffing change; consider RN
Standardize provider meetings
•Decide on 'standardized format' to be used for meetings; keep short and focused on immediate patient needs
•Practice presenting patients, focusing on TCM billing criteria
•Seek feedback from providers/office managers, adjust as indicated
•Review individual practice data (billing percentages/readmissions) frequently
Simplify documentation
•Discharge and initial encounter date should be easily identified
•Contain most pertinent information only
•Find best way to get this information to each office - instruct them on importance of including in their documentation to bill for TCM
Provide "best" care
•Ensure practices divided among care manangers with regard to geographic distance
•Set goal on how many home visits to achieve / month
•Target those at highest risk for readmission with the home visits
•Have education day on best practices/revise template for patient calls
•Phone calls, as done individually from a decentrailized location should be 'auditied' periodically by supervisor to ensure essential elements being addressed Ie.) concern if phone calls from one care coordinator consistently averaging <5 minute
Increase visibility
•Identify practice willing to let care coordinators'work from the office' for a few hours-days/week
•Coordinate with office workspace/phone to use
•For practices not willing to have staff in office, increase meetings to bimonthly as agreeable