AAACN/AMSN
Care Transition Hand-Off Tool Task Force
EVIDENCE TABLE

Author	Level of Evidence	Sample/ Facility	Strategies	Overview	Outcomes
DISCHARGE INFORMATION STANDARDS					
Chan, B., Goldman, L., Sarkar, U., Schneidermann, M., Kessell, E., Guzman, D. Critchfield & J. Kushel, M. (2015). The effect of a care transition intervention on the patient experience of older multilingual adults in the safety net: Results of a randomized controlled trial. *Journal of General Internal Medicine, 30(12),* 1788-1794. doi: 10.1007/s11606-015-3362-y	II Randomized Controlled Trial	700 inpatients aged 55 and older at an academic urban safety-net hospital; Patients admitted to the internal medicine, family medicine, cardiology, or neurology services at San Francisco General Hospital and Trauma Center (SFGH) who were aged 55 and older and who spoke English, Spanish, or Chinese (Mandarin or Cantonese) were eligible for enrollment.	All study participants received usual care, including structured education, including information about follow-up appointments, and reviewed a discharge medication list, which was reconciled with pre-hospital meds, and patient instructions on what symptoms should prompt return to the hospital. The intervention group participants were visited by a study RN on the day of study enrollment and again within 24 h of discharge. The study RNs included native Spanish and Chinese speakers who were matched	Between intervention and usual care participants, CTM-3 scores (80.5 % vs 78.5 %; *p* = 0.18) and HCAHPS discharge communication domain scores (74.8 % vs 68.7 %; *p* = 0.11) did not differ, nor did HCAHPS scores in medication (44.5 % vs 53.1 %; *p* = 0.13) and nursing domains (67.9 % vs 64.9 %; *p* = 0.43). When stratified by language, no significant differences were seen.	An inpatient standalone transition-of-care intervention did not improve patient discharge experience. Older multi-lingual and cognitively impaired populations may require higher-intensity interventions post-hospitalization to improve discharge experience outcome

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			to study participants by language. The study RN notified the primary care provider by email to inform them that the patient had been admitted, along with contact information for the study RN and the primary medical team. Disease-specific patient education, including symptom recognition, medication reconciliation, and strategies for navigating the health system, were provided by the study RN in the participant's preferred language.		
Glance, L., Kellermann, A., Osler, T., Li, Y., Mukamel, D., Lustik, S., Eaton, M., & Dick, A. (2014). Hospital readmission after noncardiac surgery: The role of major complications. *JAMA Surgery,149(5),* 439-445.	IV Cohort Study	Retrospective cohort study; nearly 150,000 admissions captured within the <u>National Surgical Quality Improvement Program</u> (NSQIP) registry. Met the following criteria: (1) underwent general, vascular, or orthopedic surgery; (2) were discharged alive with a post-surgery length of stay (LOS) of 30 days or less; and (3) did not undergo a prior	Examined major surgical complications as a risk factor for readmission.	78% of patients with any post discharge complication, 12% of patients with only in-hospital complications, and 5% of patients without any in-hospital complication experienced an unplanned readmission; using a risk-prediction tool, patients at very high risk for major	Use of the NSQIP complication risk index may allow prospective identification of patients at high risk for unplanned readmission.

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doi:10.1001/jamasurg.2014.4		operation within 30 days		complications had 10-fold higher odds of readmission than those at very low risk for complications.	
Le, L. (2016). Patient: Transfer (intra-hospital) [Monograph]. *Evidence Summaries.* Retrieved from Joanna Briggs Institute Library Database.	I-III & VI Meta-analysis of RCT, RCTs, Non-randomized controlled trials and qualitative studies.	Review of recommended practices & evidence summary	Reviewed studies include phenomenological, qualitative, survey, and systematic review methods		Recommended best practice for communication includes: overview of HPI, reason for transfer, medical diagnosis, cognitive/functional abilities, medical orders, allergies, vital sign problems, and safety considerations.
Ong, M. & Coiera, E. (2011). A systematic review of failures in handoff communication during intra-hospital transfers, The Joint Commission Journal on Quality & Patient Safety, 37 (6), 274-284. Doi:org/10.1016/S1553-7250(11)37035-3	I Systematic review of RCTs	Literature between 1980 and February 2011. The initial search identified 516 individual articles. 24 satisfied the inclusion criteria. 19 were primary studies on handoff practices and deficiencies 5 were interventional studies Population characteristics, sample size, setting, intervention specifics, and relevant outcome measures were extracted.	Electronic citations, including available abstracts, were screened to select reports for full-text review. Selection criteria for inclusion were published primary studies that investigated handoff communication during intrahospital patient transfers. Studies relating to shift handoffs, outpatient handoffs, discharge of patients, interhospital transfers, transfers to long-term care or home settings,	Characterizes the nature of handoff failures during intra-hospital transfers. Handoffs at intrahospital transfer suffer from the same deficiencies as intershift handoff. Handoffs are typically unstructured and highly variable in content and process. Communication failures are often characterized by content omissions,	There is consistent evidence on the perceived impact of communication breakdown on patient safety during intra-hospital transfers. Exposure of handoffs at patient transfers presents challenges that are not experienced in inter-shift handoffs. The distinct needs of the specific clinical settings involved in the intra-hospital patient transfer must be considered when deciding on suitable interventions.

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			and communication with patients and their relatives were excluded. Only English-language articles that appeared in peer-reviewed journals were eligible. Studies that did not generate primary data on handoff or did not specify a method for data collection and sample size were also excluded. Data for study design, population characteristics, sample size, setting, intervention specifics (if appropriate), and relevant outcome measures were extracted. Results of the studies were summarized by the impact of communication breakdown during intrahospital transfer of patients and the current deficiencies in the process.	leading to uncertainty in decisions about patient care, which may in turn result in suboptimal care. Factors contributing to ineffective handoff include time constraints, hierarchy and social barriers, lack of training on handoff practices and communication skills, and lack of handoff protocols.	
Holland, D. Conlon, P, Rohlik, G, Gillard, K. Tomlinson, A., Raadt, D., Finseth, O., & Rhudy, L. (2014). Developing and testing a discharge planning decision support tool	IV Case control and cohort studies	Medical-surgical pediatric patients ages 1 month to 18 years (197 participants). One of three acute care medical-surgical units. Facility: Mayo Clinic (large upper Midwest tertiary care hospital with Magnet	Quasi-experimental: Predictive, correlational design. 12 independent variables found in the literature with evidence supporting their relationship to outcomes of interest with discharge	A screening tool utilized by nurses at a critical point in the discharge planning process has the potential to improve caregiver decisions and enhance communication. The Early Screen for	Supports substantial post-acute care needs as an indicator for early referral to discharge planning resources. Variation in decisions to refer patients with substantial post-acute care needs for early discharge planning (62% -

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for hospitalized pediatric patients. *Journal for Specialists in Pediatric Nursing,* 19. 149-161.		designation with 85 beds; 43 general care beds, 28 neonatal intensive care beds, and 14 pediatric care beds)	planning were identified and measured within 24 hours of admission using data collected (interviews/record review) by the study coordinator from parent interview and record review. Expert consensus determined referral to discharge planning.	Discharge Planning–Child version (ESDP-C) identifies pediatric patients early in their hospital stay who will benefit from early engagement of a discharge planner.	96%) by study experts and staff nurses.\n\nStudy represents a beginning of a standardized tool for decision support that can be used across health settings to establish a care transition point between inpatient to outpatient settings.
Hansen, L., Greenwald, J., Budnitz, T., Hopwell, E., Halasyamani, L., Maynard, G., Vidyarthi, A., Coleman, E., & Williams, M. (2013). Project BOOST: Effectiveness of a Multihospital Effort to Reduce Hospitalizations. *Journal of Hospital Medicine,* 8. 421-427.	III Controlled trials without randomization	Volunteer sample of 11 hospitals varying in geography, size, and academic affiliation	Hospitals implemented Project BOOST-recommended tools supported by an external quality improvement physician mentor. BOOST=Better Outcomes for Older adults through Safe Transitions	BOOST intervention consisted of 2 major sequential processes, planning and implementation facilitated by external site physician mentors that were expert in QI and care transitions. Planning included institutional self-assessment, team development, enlistment of stakeholder support, and process mapping to prioritize the list of evidenced based tools in BOOST that would address the individual institution's needs. Mentors encouraged sites to use tools sequentially according	Project BOOST appeared to be associated with a decrease in readmission rates. Average rate of 30-day rehospitalization in BOOST units was 14.7% prior to implementation and 12.7% 12 months later (P = 0.010), reflecting an absolute reduction of 2% and a relative reduction of 13.6%. Rehospitalization rates for matched control units were 14.0% in the pre-intervention period and 14.1% in the post-intervention period (P = 0.831).

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				to the content analysis with the goal of complete implementation according to the BOOST tool-kit.	
Hvalvik, S., & Reierson, I. (2015). Striving to maintain a dignified life for the patient in transition: Next of kin's experience during the transition from hospital to home. *International Journal of Qualitative Studies of Health and Well-Being,* 10: 26554- http://dx.doi.org/10.3402/qhw,v10.26554.	VI Single descriptive or qualitative study	Sample: 11 participants. Next of kin meeting the following criteria: next of kin to a patient 67 years or older who has made a transition from hospital to home in the previous 2-8 weeks and requires Family member to the patient; spouse, sons or daughters. Facility: located in Norway	One hour interview that was audiotaped and transcribed verbatim by the researchers. Data analysis used a method to reveal the lived experience first developed by Lindseth and Norberg in 2004, inspired by the theory of Ricoeur to reveal lived experience.	Common themes were balancing vulnerability and strength. Incomplete communication among health care providers and across the health care sectors made the next of kin uncertain and worried.	Findings suggest that lack of involvement in the transition process strongly influenced next of kin's lived experiences and made them vulnerable. Including the support person in care transitions is imperative for successful discharge planning from home to any other setting
Benzer, J.K., Cramer, I.E., Burgess, J.F. Jr., Mohr, D.C., Sullivan, J.L., Charns, M.P. (2015). How personal and standardized coordination impact implementation of integrated care.	VI Single descriptive and qualitative study	Purpose: to identify how organizational factors impacted coordination, and how to facilitate implementation of integrated care. Department of Veteran Affairs: 16 primary care and mental health clinics across 8 VA medical centers. Semi structured interviews	Interviews were conducted in August 2009 to study the impact of a mandated transition from consultation to collaborative models of mental health care in the primary care setting that began in 2008. The intervention dimension relevant to the study is that all hospital based and large	A key finding was that personal coordination between primary care and mental health leaders and between frontline staff is important for resolving barriers related to integrated care implementation. Limitations: This study	While the setting was in the VA, the authors assert that standardized procedures may create implementation barriers during organizational coordination interventions in all types of health care facilities. They recommend: 1. Promoting interactions among staff from specialized

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BMC Health Services Research 15 (448). doi:10.1186/s12913-015-1079-6		were conducted in August 2009 with 30 clinic leaders, and 35 frontline staff who were recruited from a convenience sample of 16 primary care and mental health clinics across 8 medical centers.	outpatient clinics (more than 10,000 unique patients per year) were required to staff co-located mental health providers in primary care in order to provide collaborative care for patients with short term mental health needs.	should be viewed as hypothesis generative rather than providing definitive answers as to what leaders should do to implement integrated care.	units to increase familiarity and develop a shared history of positive interactions. 2. Promoting interactions among leaders of specialized units to develop a shared mission and values regarding integrated care. Personal coordination can facilitate tailoring of standardized coordination procedures. 3. Coordination processes should be standardized as much as possible.

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Coleman, E.A., Parry, C., Chalmers, S., & Min, S. (2006). The care transitions intervention: Results of a randomized controlled trial. *Archives Internal Medicine,* 166, 1822-1828.	II Randomized controlled trial	Setting: A large integrated health system in Colorado Sample: 60,000 people over 65 yrs	Purpose: To ensure all health needs are met during care transitions to reduce rehospitalization. The care transitions intervention Randomized Control Intervention: 1. Tools to promote cross-site communication 2. Encouragement to take a more active role in their care 3. Continuity across settings and guidance from a "transition coach"	Findings: 1. Patients were able to achieve sustained benefit with new skills and tools they acquired while recovering from acute illness 2. The intervention led to improved self-management knowledge and skills for patients in the areas of medication management, condition management and patient confidence about what was required of them during the transition and beyond. 3. The coaching relationship fostered a sense of caring, safety and predictability. Limitations: Conducted in one setting.	Conclusion: Coaching chronically ill older patients and their caregivers to ensure that their needs are met during care transitions may reduce rehospitalization. Estimated cost savings = $295,594 (conservative)
Jack, B.W., et. al (2009). A reengineered hospital discharge program to decrease rehospitalization. *Annals of Internal*	II Randomized Controlled Trial	Sample: 749 English-speaking hospitalized adults (mean age 49.9) Setting: A large urban hospital in Boston that cares for an ethnically-diverse population.	A nurse discharge advocate worked with patients during hospitalization to arrange follow-up appointments, confirm medication reconciliation, and conduct patient education with	Purpose: To test the effects of an intervention designed to minimize utilization after discharge. RED Intervention 3	Findings: The RED Intervention decreased hospital utilization (ER and readmissions) within 30 days by 30%. More participants reported seeing their PCP within 30 days and more

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Medicine, 150(3), 178-187.			individualized instruction. Intervention includes patient-centered education, comprehensive discharge planning, and post-discharge reinforcement.	components: Discharge Advocate (DA), After-hospital plan (ACCP) and Pharmacist follow-up call. 1.5 hours nursing time 30 min pharmacist time	reported prepared for discharge. Intervention includes patient-centered education, comprehensive discharge planning, and post-discharge reinforcement.
Brooke, B.S. et al. (2014*). Early primary care provider follow-up and readmission after high-risk surgery. JAMA Surg,* 149(8), 821-828.	IV Cohort Study	Early primary care provider follow-up and readmission after high risk surgery Sample: Medicare beneficiaries discharged to home after TAA repair (n= 12,679) and VHR (n=52807)	Intervention: Follow-up appointment (2 weeks) with PCP after high-risk surgery.	Findings: Follow-up with a PCP after high risk surgery, especially with patients who have a complicated hospital course, is associated with a lower risk of admission.	Conclusions: Routine follow-up with PCP after high risk surgery was associated with lower likelihood of 30 day readmission, particularly among patients with complicated postoperative course. Low risk surgical patients may not receive a benefit from this routine practice.
Renneke, S., & Ranji, S.R. (2015). Transitional care strategies from hospital to home: A review for the neurohospitalist. *The Neurohospitalist,* 5(1), 35-42. doi: 10.1177/194187 4414540683	I Review of Tools based on RCT	No sample as this was a review of tools.	This review focused on a description of transitional care strategies, summarized the effectiveness of several published transitional care programs, and outlined specific recommendations for the neurohospitalist.	Care Transition Intervention o Facilitate patient/family engagement o Four pillars 1. Medication management 2. Personal health record – site-to-site 3. Close follow-up with PCP ● Identification of "Red flags" 4. "Transition Coach"	Conclusions: There is no "one size fits all" strategy in transitional care. Organizational culture, community and geography needs to be considered. The basic elements of a successful transitional care strategy include: ● Patient engagement ● Use of dedicated transitions provider ● Medication management ● Facilitation of

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					communication with outpatient providers • Patient outreach
Ruggiero, J., Smith, J., Copeland, J., & Boxer, B. (2015). Discharge time out: An innovative nurse-driven protocol for medication reconciliation. *MEDSURG Nursing,* 24 (3), 165-172.	VII Quality Improvement Project	University of Pennsylvania Health System – Medical-Surgical Unit 86 discharge documents	Intervention: At discharge time out, nurses complete nurse-to-nurse check of all medications on the discharge document and compare to admission reconciliation and current medication in the acute care setting.	Limitations: 1. Charts demonstrating completion of this process of averaging 56% 2. Research is needed to determine whether the decrease is due to awareness or the use of nurses in validating medication accuracy.	The data indicate a 75% reduction in discharge medication discrepancies following implementation of the discharge time-out process.
Jackson, C.T., Trygstad, T.K., DeWalt, D.A., & DuBard, A. (2013). Transitional care cut hospital readmissions for North Carolina Medicaid patients with complex chronic conditions. *Health Affairs, 32*(8), 1407-1415.	IV Observa-tional Cohort Study	Sample: North Carolina Medicaid beneficiaries. Transitional care n=13,476 Usual care n=7,899 Total 21,375 Medicaid recipients Setting: Community Care of North Carolina	Intervention: Implementation of transitional care which includes: comprehensive medication management, face-to-face self-management education, education for patients and families, and timely outpatient follow-up with a medical home that has been fully informed about the hospitalization and clinical or social issues that complicate the patient's care.	Findings: readmissions were 20% lower for those receiving transitional care. Limitations: This was an observational study and results may be affected by selection bias.	Targeted care coordination interventions can effectively reduce hospitalizations for high risk populations.
HAND-OFF COMMUNICATION					
Riesenberg, L. A. Leitzsch, J., &	V Systematic	The review included dates between Jan, 1987 – Aug 4,	A systematic review of nursing handoff	The review was for all nursing handoffs in the	Twenty articles involved research on nursing handoffs.

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Cunningham, J. M. (2010) Nursing handoffs: A systematic review of the literature. *American Journal of Nursing, 110*(4), 24-34.	Review of Descriptive and Qualitative Studies	2008 that focused on nursing handoffs in the United States, the inclusion criteria were published between Jan 2006-Aug 4, 2008. The initial search yielded 2,649 articles, of which 460 were reviewed further by abstractors, resulting in 95 final articles under review. Databases included Medline, CINAHL, HealthSTAR, and PubMed. Quality Scoring System was used (Downs & Black scale). The Quality Scoring System yields scores from 1 to 16, with 16 being the highest score. There was high interrater reliability (97.5%) and .95 9 studies scored between 2 and 5, 8 studies received scores between 7 and 8, and 3 studies scored 10.5, 11, and 12 respectively. Ten studied measures of handoff effectiveness.	communication practices. The purpose of the review was to conduct a review that focused on nursing handoffs, conduct a review of barriers to and strategies for effective handoffs, and identify features of structured handoffs that have been effective. Handoffs were studied in a variety of health care environments.	USA, regardless of setting or age groups. There is little empirical evidence for what constitutes best nursing handoff practices. The authors point to the need for further research in the content domains related to nursing handoffs: Knowledge; Attitudes; Skills; Process outcomes; and Clinical outcomes. Information about barriers to and strategies for effective handoffs might not apply to every handoff situation (e.g., a strategy that's effective on a medical-surgical unit might not serve in the faster-paced, chaotic ED setting.	33 articles (35%) included the use of a handoff mnemonic Situation, Background, Assessment, & recommendation (SBAR) was the most frequently used mnemonic There were 8 major categories of barriers identified: Communication; Problems with standardization; Equipment issues; Environmental issues; Lack of or misuse of time; Difficulties related to complexity of cases of high caseloads; Lack of training or education; and Human factors There were 7 major categories for strategies for effective handoffs: Communication skills; Standardization strategies; Technologic solutions; Environmental strategies; Training and education; Staff involvement; and Leadership.
Hess, D. et al (2010). The value of adding a verbal report to written handoffs on early readmission	IV Observa-tional study with Control Group	Observational study with control group. The setting was a respiratory unit of an acute care hospital. The study included 362 patients.	The purpose of the study was to examine the effect of supplementing the usual written report with a verbal report when discharging a patient following a prolonged	There was no method to check if the written reports were received in the original control group.	The cost per patient was reduced as a result of the intervention. The readmission rate within 72 hours was reduced significantly.

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following prolonged respiratory failure. *Chest, 138*(6), 1475-1479.		The control group was Nov 2003 –Oct 2007.	hospitalization with respiratory failure. The intervention of the additional verbal report was conducted by a physician, an NP, and RN, or a respiratory therapist.		There were no extra costs incurred as a result of this Intervention. During the reports, questions by the receiving clinicians were encouraged, reinforcing the need for two-way communication.
LaMantia et al (2010). Interventions to improve transitional care between nursing homes and hospitals: A systematic review. *Journal of the American Geriatrics Society, 58*(4), 777-782.	V Systematic Review of RCT and Descriptive Studies	A systematic review. The purpose of the review was to identify and evaluate interventions to improve communication of accurate and appropriate medication lists and advance directives for elderly patients who transition between nursing homes and hospitals.	One randomized trial, and one pre-post intervention study of pharmacist medication review. One pre-post intervention study and one descriptive study of the use of standardized transfer documents. One descriptive study of the use of portable medical orders for the scope of treatment.	Only 5 studies met inclusion criteria. 2 studies addressed interventions that improved the communication of advance directives, 2 addressed improved communication of appropriate medication lists, and one study included both.	This review did not identify any single intervention that clearly improved communication of accurate and appropriate medication list. Accurate and appropriate medication lists and advance directives are two crucial components of medication information for care of frail older patients as they transition between healthcare settings.
Foster & Manser (2012). The effects of patient handoff characteristics on subsequent care: A systematic review and areas for future research. *Academic Medicine, 87*(8), 1105-1124.	V Systematic Review of RCTs, Case Control, Cohort, etc.	A systematic review of research studies of patient handoffs in hospital settings. The purpose of the systematic review was to examine the evidence about patient handoff characteristics and the subsequent impact on patient care in hospitals. The review dates of articles were all articles up to	There were 18 that reported 37 statistical associations between a handoff characteristic and outcome. 4 of 18 studies used RCTs. 1 study used case-control design. 1 was a cohort study. 11 used pre-test/post-test design. 1 used a cross-sectional study.	The only handoff characteristic investigated in more than one study was the use of a standardized handoff sheet.	7 of 12 studies using a handoff sheet reported significant improvements after introduction of the handoff sheet. One study showed a significantly lower length of stay (LOS) after handoff sheet. Statistically significantly more diagnosis information was correctly retained after standardization.

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		December 31, 2010. Due to lack of homogeneity, a meta-analysis could not be done.	Studies that did not address an outcome were not included in this systematic review.		
Thomas et al., (2013). Failures in transition: Learning from incidents relating to clinical handover in acute care. *Journal for Healthcare Quality, 35*(3), 49-56.	VI Single Descriptive Study	Australia. Single descriptive study. The purpose of the study was to examine data from incidents relating to clinical handover in acute care settings in order to design a preventive and corrective strategy.	The four dimensions of failure type were: Actions/tasks – core activities that were not undertaken during or after handover, resulting in a handover that was incomplete or incorrect; Omissions at handover – different types of information that were absent from the handover resulting in ineffective handover; Errors in handover – incorrect information that was effectively transferred resulting in ineffective handover; and Transfers and discharge – indicating the absence of any handover at all, or the absence of a handover acceptable to colleagues resulting in incomplete and ineffective handover.	459 incidents relating to clinical handover were extracted from an incident reporting system. The incidents occurred during handovers in the acute care setting, presentation to the ED, or to discharge to the community. The most prevalent failure types associated with clinical handover were those relating to the transfer of patients without adequate handover, omissions of critical information about the patient's condition, and omissions of critical information about the patient's care plan Findings point to the need for minimum standards in a handoff process The study found that a lack of handover during patient transfer was the	The findings suggest the need for a structured approach to handover with a recording of standardized sets of information to ensure that critical components are not omitted. These findings point to the vulnerability in handoff from a patient safety perspective. The development of a clinical practice guideline or standard may be a first step in addressing the inconsistencies in practice.

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				most commonly occurring failure type, associated with 28.8% of incidents.	
Lamb et al., (2011). Avoidability of hospital transfers of nursing home residents: Perspectives of frontline staff. *Journal of the American Geriatrics Society, 59*(9), 1665-1672.	VI Mixed Methods Qualitative and Quantitative Analysis	USA. The purpose of the study was to describe nursing home staff perceptions of avoidability of hospital transfers of nursing home residents. 26 nursing homes in 3 states participated in the Interventions to Reduce Acute Care Transfers (INTERACT II) QI Project. The participants were site coordinators and staff who participated in project orientation and conference calls and completed quality improvement tools.	The control time frame was July-Dec 2008. The intervention period was for the same 6 month period of July to December 2009.A mixed methods qualitative and quantitative analysis of 1,347 quality improvement review tools and transcripts of conference calls.	The study was funded by the Commonwealth fund. The INTERACT provided 30 nursing homes in 3 states with training, tools, and resources to promote early recognition of changes in resident status, communication of information between NH staff, PCPs and acute care facilities, safe management of selected conditions in the nursing home, and discussion of advance directives with residents and families before a critical event occurs.	Staff in the nursing homes rated 76% of transfers of nursing home residents to the hospital as unavoidable. Nursing homes that were more actively engaged in the INTERACT II interventions rate more transfers as avoidable. The percentage of transfers rated as avoidable was not correlated with change in hospitalization rates. Hospitalization rates were measured and there was a 17% reduction in hospital admissions during the implementation of INTERACT II compared to the previous year. Communication gaps between nursing staff, families, PCPs specialists, and outside facilities accounted for 13% of reasons for avoidable transfers. Advance directives and end-of life care not in place or not followed accounted for 11.1% of avoidable admissions.

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Joint Commission Center for Transforming Healthcare (2010). *Improving transitions of care: Hand-off Communications.*	VII Report from Expert Committee	Study conducted in 2009. Hand-off communications project used both internal and external handoffs. Three hospitals conducted a handoff to long term care setting. Study included the sender and receiver perceptions. Setting was acute care hospitals in CO, MN, UT, MD, OR, MN, NY, MA, & CA. Hospital sizes ranged from 167 to 1,265 beds	The purpose of the guideline is to ensure the continuity and safety of the patient's care by defining the roles and responsibilities of the senders and receivers of patient data when transitions of care occur.	The sender is to be able to communicate the critical information to the receiver in a timely manner. The receiver is to get the critical information needed in order to safely care for the patient. The sender should use a standardized methodology. The sender should provide details of patient history and status and stress key information. Allow opportunity to ask questions.	80% of serious medical errors involve miscommunication between medical providers. The majority of avoidable adverse events are due to the lack of effective communication. Study found that senders perceived that handoffs were 21% unsuccessful. Study found that receivers perceived that handoffs were 37% unsuccessful. Solutions were created to address the validated root causes for transition of care hand-off communications failures. A 56% reduction in defective hand-offs occurred after the implementation of solutions.
Gruneir, A, Dhalla, I, van Walraven, C, Fischer, H, Camacho, X, Rochon, P, Anderson, G., 2011 Unplanned readmissions after hospital discharge among patients identified as being at high risk for readmission using a	IV Case-control or Cohort Study	Population based administrative date used to identify adult medical patients discharged alive from 6 hospitals in Toronto, Canada during 2007. Included all adults 18-195 who were discharged alive after a hospital stay for a medical indication. Total: 26,045 patient sample.	A LACE index score of 10 or higher was used to identify patients at high risk for readmission. They described patient and hospitalization characteristics among both the high risk and low risk groups as well as the 30-day readmission rates. High risk patients defined as those who scored 10 or higher on the LACE index based on	Median age of patients was 65, The most commonly reported case mix groups (CMG's) were heart failure, pneumonia, and gastrointestinal disorders. High risk patient median age was 71. 51.7% of all readmissions occurred among patients identified as being high	The LACE index enabled the researchers to identify a subset of patients who clearly had different needs than other medical inpatients. Despite the ability of the LACE index to identify a group with greater post-discharge complications, they identified only half of all discharged patients who were readmitted within 30 days, likely due to the index cut off score of 10.

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validated predictive algorithm., *Open Medicine; 5(2): E104-111.*			the distribution of patient scores and predicted and observed probabilities reported in the original derivation and validation study.	risk, and accounted for the majority of index hospitalizations and readmissions. They also accounted for the majority of deaths during readmission (67.5%).,34% of all discharged medical patients would be identified as being at high risk of admission using the LACE index. Among these, 19% were readmitted within 30 days, and 32% were readmitted within 90 days.	Lowering the score parameters would identify a larger at risk group. This could have important implications for any discharge planning program or post-acute care interventions using the LACE index or similar algorithms. Using the LACE index, they identified a high risk group of medical patients who had twice the occurrence of readmissions and more resource intensive hospital stays. It was felt that the LACE index was a useful tool to aid in identification of appropriate candidates for post-discharge interventions.
Spiva, L., Hand, M., VanBruckle, L., McVey, F. (2015). Validation of a Predictive Model to Identify Patients at High Risk for Hospital Readmission. *Journal for Healthcare Quality.* 38 (1). 34-41.	II RCT	Retrospective study was conducted on a randomized sample of 598 patients discharged from a Southeast community hospital. Data collected from the organization's database and manually abstracted from the electronic health record using a structured tool. The first model used the LACE index as the predictor variable, and the second used the LACE index with additional risk factors. The two models were compared to determine if	Of 3,670 patients discharged from a Southeastern hospital during 2011, 2,498 were excluded from the study based on diagnosis, procedures, surgery, or non-residents of the State. Of the 1,172 patient pool, 598 were randomly selected. Patients with LACE index above the cutoff (10) were classified as high risk and predicted to be readmitted within 30 days of discharge. Patients with LACE index below the cutoff were	Analysis indicated that using a LACE score of 8 instead of 10 as the cutoff value to predict readmission status of each patient would optimize the model's predictive ability. Including additional patient level risk factors such as age, living situation at time of discharge, PCP, discharge status, admission via the ED, health insurance status,	Findings indicated a slightly better predictability of readmissions with the LACE index with additional patient level risk factors model. Most interesting: having a PCP was identified as a significant predictor. The PCP may detect early warning signs of acute clinical deterioration, respond, and intervene with appropriate actions. The researchers felt that to ensure best outcomes for patients, healthcare organizations need to integrate a simple, practical

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		additional risk factors increased the model's predictive ability.	classified as low risk and not predicted to be readmitted within 30 days. The predicted readmission status was checked against the patient's actual readmission status to evaluate the predictive ability of the mode.	physician consults, hospital complications, ADLs, functional status and new medications as predictor variables. Adding these factors is based on findings of their greater role in contributing to readmissions.	predictive readmission tool into daily clinical workflows. Using the LACE only model with a cutoff value of 10 is a simple and effective tool in predicting readmissions. Findings from this study may be useful for developing interventions to reduce readmission events.
CARE COORDINATION					
Camicia, M., Lutz, B.J. (2016). Nursing's Role in Successful Transitions Across Settings. *Stroke.* 47. e246-249. doi:10.116I/STROKE AHA.116.012095.	V Systematic review of descriptive and qualitative studies	Review of literature pertaining to Transition of Care with stroke patients and their rate of readmission	Approximately 60% of stroke patients require post-acute care services after acute inpatient discharges. This includes inpatient rehabilitation facilities, skilled nursing facilities, and community based services including outpatient and home health.	Nurses interact with patients/families at their most vulnerable times and play a key role in successful transitions by developing and evaluating the transition plan and identifying and communicating barriers to the plan. Determination of Probable Discharge to the Community model matches the discharge environment and support with patient's needs based on functional prognosis.	Safe, timely, and efficient transitions across care settings are promoted through effective information transfer that contributes to optimal collaboration, and coordination among the patient, family, and inter professional team. Nurses must engage patients and caregivers as active partners and advocates for their healthcare and community support needs. Nurses must extend their scope of influence on longer term outcomes by identifying and documenting transition issues early, implementing strategies to address concerns, and communicating the transition plan to the next

Author	Level of Evidence	Sample/ Facility	Strategies	Overview	Outcomes
					level of care.
Balaban, R.B., Wiessman, J.S., Samuel, P.A., Woolhandler, S. (2008). Redefining and Redesigning Hospital Discharge to Enhance Patient Care: A Randomized Controlled Study. *Journal of General Internal Medicine.* 23(8): 1228-33.	II RCT	To evaluate a low cost intervention designed to promptly reconnect patients to their "medical home" after hospital discharge. Inadequate communication between hospitalists and primary care providers can further compromise post discharge care. Redesigning the discharge process may improve the continuity and the quality of patient care Participants were a culturally and linguistically diverse group of patients admitted to a small community teaching hospital. 100 bed teaching hospital associated with Harvard Medical School.	Intervention: Patients received a "user friendly" Patient Discharge Form and upon arrival at home, a telephonic outreach from a nurse at their primary care site. 4 step intervention: 1. A comprehensive "user friendly Patient Discharge Form available in 3 languages given to the patient. 2. The electronic transfer of the Patient Discharge Form to the RNs at the patient's primary care site 3. Telephone contact by an RN at the primary care office 4. A primary care physician review and modification of the discharge-transfer plan.	The intervention appeared to have a greater impact on patients with the shortest hospital stays of 1-3 days and with patients 60 years and older. Limitations: an underlying clinical assumption that timely patient follow up after every hospitalization is desirable but there are no published guidelines as to when or whether a patient should have outpatient follow up. They chose 21 days to be able to see seriously ill patients sooner, and less seriously ill patients could safely wait a bit longer.	Gaps in care were reduced by improving patient preparation for discharge, formalizing inpatient to outpatient communication, and promptly reconnecting patients with their medical home. EMR's could have a significant impact on facilitating telephone contact with patients immediately upon discharge and deliver high quality medical care with a failsafe medical system of communication.
Shulman, K.M. (2015). Joint Statement: The Role of the Nurse Leader in Care Coordination and Transition Management Across	VII Opinions of authorities and reports of expert committees	The American Academy of Ambulatory Care Nursing (AAACN) and American Organization of Nurse Executives (AONE) convened for a "Day of Dialogue" to discuss the role	Through facilitated dialogue the group developed a joint statement that outlines the strategies needed to enhance care coordination and transition management of patients across the health	Both organizations collaborated to outline how nurse leaders should approach their roles to enhance development of care coordination through	The six strategies provide a basis for establishing an informed and collaborative care coordination process that includes all staff, key stakeholders, and nurse leaders.

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the Health Care Continuum. *Nursing Economics.* 33 (5).		of the nurse leader in Care Coordination and Transition of Care (CCTM) across the care continuum. Comprised of nurse leaders in acute care and ambulatory care/outpatient settings, and nurse researchers discussed needs for improving care coordination and transition management.	care continuum.	adoption and engagement in 6 strategies.	They include: 1. Know how care is coordinated in your setting. 2. Know who is providing care. 3. Establish relationships with multiple entities and individuals who can work together to improve care coordination and transition management systems. 4. Know the value of technology, its impact on workflow, and the roles of care coordination team members. 5. Engage the patient and family. 6. Engage all team members in care coordination.
Peikes, D., Chen, A., Schure, J., Brown, R. (2009). Effects of Care Coordination on Hospitalization, Quality of Care, and Health Care Expeditures Among Medicare Beneficiaries. *Journal of the American Medical Association,* 301 (6).	II RCT	To determine whether care coordination programs reduced hospitalizations and Medicare expenditures, and improved quality of care for chronically ill Medicare beneficiaries. Hospitalizations, costs and some quality of care outcomes were measured with claims data for 18,309 patients from April 2002 through June 2006. Patients	Differences in the proportion of patients who experienced undesirable outcomes were compared between the intervention and the historical controls and between the intervention group and the concurrent controls using chi-squared tests. April 2002 through June 2005. The 15 program hosts included 5 commercial	Results suggest that care coordination as practiced by the programs participating in the demonstration from 2002-2006 held little promise of reducing total Medicare expenditures for beneficiaries with chronic illnesses. The main limitation of the study is that the	Despite the underwhelming results for care coordination interventions in general, the favorable findings in two programs suggest the potential exists for care coordination interventions to be cost neutral and improve patients' well-being. The study felt the most effective intervention for care coordination would be a combination of an ongoing

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603-618.		were selected from 15 care coordination programs. Each were enrolled in fee for service Medicare and had 1 or more of the chronic conditions targeted including HF, COPD, CAD, and Diabetes	disease management companies, 3 community hospitals, 3 academic medical centers, 1 integrated delivery system, 1 hospice, 1 long term care facility, and 1 retirement community. Programs served patients in Maine (statewide), Baltimore, Maryland, Washington DC, eastern Virginia, southern Florida, east central Illinois, St Louis, Missouri, northwestern Iowa, and southeastern South Dakota, Phoenix, Arizona, New York City, eastern Pennsylvania, Houston Texas, and 2 counties in central California. Hospitalizations, monthly Medicare expenditures, patient reported, and care process indicators. Quality of care outcome measures included patient's knowledge and adherence, unmet needs, functional status, and health related quality of life. Quality of care measures from Medicare claims data consisted of 8 different types of general and disease specific hospitalizations that	large variance in Medicare expenditures and low program fees resulted in only 4 sites having adequate power to detect reductions in standard Medicare expenditures large enough t offset the program fees. Even if savings could be achieved they would be modest.	model such as that offered by the two successful programs with a proven transitional care model to prevent hospital readmissions starting with the enrollment of the patient in the hospital setting. The findings are relevant to the ongoing policy interest in medical homes as a way to improve care coordination, improve quality, and reduce costs

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			are thought to be preventable with good quality primary care.		
Enderlin, McLeskey, Rooker, Steinhauser, D/Avolio, Gusewelle, & Ennen (2013). Review of current conceptual models and frameworks to guide transitions of care in older adults. *Geriatric Nursing, 34*(1), 47-52.	VI Descriptive or Qualitative Studies	Purpose was to review six of the most common transition of care models or frameworks to help gerontological nurses integrate the model that works best in their care setting and promote an improved understanding of practitioners' roles and responsibilities across the continuum of care.	Review of the Model, the Setting, the Tools/Components, and Key Findings.	Gerontological is the basis, but some components of the models/frameworks can be universal. Used in a variety of settings: Hospital to home, outpatient clinic to home, and nursing home to hospital. All models contain helpful tools for health professionals, they promote patient-centered care and all report reduced hospital readmissions and reduced overall health-care costs.	Models were: Transitional Care Model (TCM), Care Transitions Intervention (CTI), Better Outcomes by Optimizing Safe Transitions (BOOST), Project Re-Engineered Discharge (RED), Chronic Care Model (CCM), and Interventions to Reduce Acute Care Transfers (INTERACT). A second table lists the commonalities of the various models. An additional table lists health literacy resources for the nursing care of older adults.
Jack, B.W, Chetty, V.K., Anthony, D. et al. (2009). A reengineered hospital discharge program to decrease rehospitalization: A randomized trial. *Annals of Internal Medicine 150*(3), 178-187.	II RCT	A randomized controlled trial. The intervention period was from Jan 6, 2006-Oct 18, 2007. A nurse discharge advocate worked with patients during hospital stay to arrange follow-up appointments, confirm medication reconciliation, and conduct patient education.	The purpose was to decrease emergency department visits and hospitalizations within 30 days of discharge. Secondary outcomes were self-reported preparedness for discharge and frequency of primary care providers' follow-up within 30 days of discharge.	Only included general medical patients aged 18 and over with a mean age of 49.9 years. No special provisions for patients being discharged to a nursing home. Not all potential subjects could be	The participants in the intervention group had a lower rate of hospital utilization than those receiving usual care. The intervention has the most effective impact on participants with hospital utilization in the 6 months preceding the index admissions as compared to the subjects receiving usual care. The study requires a bundle of

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		A clinical pharmacist called patients 2-4 days after discharge to reinforce medications and education. The number of patients enrolled at any given time was limited due to the availability of research staff. Patients were not enrolled if they were admitted from a SNF or other hospital.	N = 370 Setting was a general medical service at an urban, academic hospital. The mean age of participants was 49.9 years. The subjects only included English speaking patients (race and culture were not addressed).	enrolled in the study. Research staff doing follow up were blinded to study group assignment.	services to produce efficacy.
Advisory Board Company (2011). *Nurse-led strategies for preventing avoidable readmissions: Coordinating care for complex patients across the continuum.* Washington, DC: The Advisory Board Company, 1-120.	VII Report from Expert Committee	The practice assessment used an effective means of hardwiring communication and cross-facility nurse collaboration during transfers of hospital patients to post-acute care facilities.	The purpose of the guidelines are to build a readmission prevention strategy, leverage the inpatient stay to equip patients for long-term self-management, and to facilitate seamless transfers of patients to the post-acute care setting. The Advisory Board Company provides partnerships with healthcare organizations in order to provide strategic planning and improve outcomes.	Patients that transition to a nursing are a high risk population. Patients that transition to a nursing are a high risk population. .	A standardized handoff protocol may address the three part strategy for reducing readmissions. Universal transfer forms are helpful, but they do not often capture needed information. Data suggest hospitals fail to send critical information about patients to post acute setting, with over half of SNFs indicating room to improve communication
AMDA (2010). *Transitions of Care in the Long-Term Care Continuum: Practice Guideline.* Columbia, MD:	VII Evidence from Expert Committee	The methods used for the collection and selection of the evidence in the development of the guideline were hand searches of published literature of primary and	USA Practice Guideline. The purpose of the guideline is to improve the quality of care delivered to patients in long-term care settings. The focus of the guideline is	This is a clinical practice guideline which has interventions and practices. The methods used to formulate the	The guideline addresses the outcomes of hospital readmissions, medication errors following transition, adverse events related to transitions, and successful

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American Medical Directors Association, 1-71.		secondary sources. Searches were also conducted in electronic databases. Studies included in the evidence were valid, consistent, applicable, and clinically relevant and studies where the recommendations were supported by fair evidence. Medline, PubMed, and geriatric-specific peer-reviewed journals were used from May 2009 through February 2011.	the transitions of care between settings within the long-term care continuum, between the long-term care continuum and the acute-care settings, and between the long-term care setting and the patient's community home.	recommendation were by interdisciplinary expert consensus using evidence.	transfer of patient information.
National Transitions of Care Coalition (2008). *Transitions of care measures: Paper by the NTOCC Measures Work Group, 2008.*	VII Report from Expert Committee	The NTOCC is multidisciplinary, including Case Managers and Social Workers. One of the objectives of the work group is to develop recommendations on how to fill gaps in measures.	The purpose of the paper was to give recommendations by the National Transitions of Care Coalition (NTOCC) work group for improving care transitions.	The transfer of information and communication between providers and care settings is applicable to a handoff protocol.	Information transfer and communication between providers and care settings is addressed: 1. Timeliness, completeness, and accuracy of transferred information. 2. Protocol of shared accountability in effective transfer of information. Two key terms are care coordination and transitions of care. Transfers of information have to be as complete, accurate, and timely as possible.

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Berkowitz, R., et al (2013). Project ReEngineered Discharge (RED) lowers hospital readmissions of patients discharged from a skilled nursing facility. *Journal of the American Medical Directors Association, 14*, 736-740.	VI Single Descriptive Study	The study was conducted in Boston, MA. The comprehensive approach to transitions of care that includes creating and teaching a personalized care plan to patients and their families. Software facilitating these activities was integrated into the electronic medical record of the SNF. Intervention activities were delivered by existing staff.	The purpose of the project was to implement Project RED in a SNF to increase patient preparedness for care transitions and lower rehospitalization rates in the 30 days after discharge from the SNF.	Project RED has application to SNF patients who are discharged to home	There was a statistically significant reduction in 30 day readmissions. More patients attended an outpatient appointment within 30 days of discharge. Intervention participants reported a higher level of preparedness for care transitions.
Ouslander, Bonner, Herndon, & Shutes (2014). The Interventions to Reduce Acute Care Transfers (INTERACT) quality improvement program: An overview for medical directors and primary care clinicians in long term care. *Journal of the American Medical Directors Association, 15*(3), 162-170.	VI Single Descriptive Study	Review of a quality improvement program Adopted by many nursing homes in the US, UK, Canada, and Singapore.	Overview of the program, resources, tools, care paths, keys to successful implementation, Quality Assurance & Performance Improvement (QAPI) elements.	Nursing homes and acute care hospitals 5 Fundamental strategies: 1. Principles of quality improvement, including implementation by a team facilitated by a designated champion and strong leadership support; measurement, tracking, and benchmarking of clearly defined outcomes with feedback to all staff; and root cause analyses of hospitalizations with continuous learning and improvement based on	Associated with reductions in all-cause hospitalizations of nursing home residents.

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				them. 2. Early identification and evaluation of changes in condition before they become severe enough to require hospital transfer 3. Management of common changes in condition when safe and feasible without hospital transfer. 4. Improved advance care planning and use of palliative or hospice care when appropriate and the choice of the resident (or their health care proxy) as an alternative to hospitalization. 5. Improved communication and documentation-both within the nursing home, between nursing home staff and families, and between the nursing home and the hospital.	
American Medical Directors Association (2010). *Policy Resolution H*	VII Report from Expert	USA. White paper.	The purpose of the white paper is to (1) recognize and emphasize the importance of efficient processes for	The paper aims to highlight critical factors in the care transition process and to specify	Key elements to ensure a safe care transition process should focus on (1) Patient-centered care,

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10. Subject: Improving care transitions between the nursing facility and the acute-care hospital settings.	Committee		transferring patients from the acute-care hospital (ACH) to skilled nursing facility/nursing facility (SNF/NF) and from the SNF/NF to ACH, including the emergency department (ED). (2) highlight key elements in the care transition process; and (3) to specify key features of a successful care transition process.	key features of a successful care transition process.	(2) Communication, (3) Safety *The key to a successful transfer of care is communication. Barriers and solutions are highlighted. Summary of available tools listed.
Williams, Li, Hansen, Forth, Budnitz, Greenwald, Howell, Halasyamani, Vidyarthi, and Coleman (2014). Project BOOST Implementation: Lessons Learned. *Southern Medical Journal, 107*(7), 455-465.	VI Evidence from a Qualitative Study	Performed a qualitative evaluation of Project BOOST (Better Outcomes by Optimizing Safe Transitions) implementation by examining the successes and failures experienced by six pilot sites. Also evaluated the unique physician mentoring component of this program. Examined the impact of intensification of the physician mentoring model on adoption of BOOST interventions in two later Illinois cohorts (27 hospitals).	Qualitative analysis of six pilot hospitals used a process of methodological triangulation and analysis of the BOOST enrollment applications, the listserv, and content from telephone interviews.	Barriers included inadequate understanding of the current discharge process, insufficient administrative support, lack of protected time or dedicated resources, and lack of frontline staff buy-in. Key elements of the project included comprehensive intervention (toolkit of interventions), implementation guide, individual physician mentoring, and the BOOST collaborative.	By continuously refining the improving the implementation model, the implementation of BOOST interventions/tools showed promising results.

Author	Level of Evidence	Sample/ Facility	Strategies	Overview	Outcomes
USE OF TECHNOLOGY					
Samal, L., Dykes, P. C., Greenberg, J. O., Hasan, O., Venkatesh, A. K., Volk, L. A., Bates, D. W. (2016). Care coordination gaps due to lack of interoperability in the United States: a qualitative study and literature review. *BMC Health Services Research,* 16 (143). doi: 10.1186/s12913-016-1373-y	V Systematic review of descriptive or qualitative study	A qualitative study with clinicians and information technology professionals from six regions of the U.S. which were chosen as national leaders in HIT. We analyzed data through a two person consensus approach, assigning responses to each of nine care coordination activities. They also conducted a literature review of MEDLINE®, CINAHL®, and Embase, analyzing results of studies that examined interventions to improve information transfer during transitions of care.	Results: Enrolled 29 respondents from 17 organizations and conducted six focus groups. Respondents reported how HIT is currently used for care coordination activities. HIT is currently used to monitor patients and to align systems-level resources with population needs. However, we identified multiple areas where the lack of interoperability leads to inefficient processes and missing data. Additionally, the literature review identified ten intervention studies that address information transfer, seven of which employed HIT and three of which utilized other communication methods such as telephone calls, faxed records, and nurse case management.	Purpose: Health information technology (HIT) could improve care coordination by providing clinicians remote access to information, improving legibility, and allowing asynchronous communication, among other mechanisms. We sought to determine, from a clinician perspective, how care is coordinated and to what extent HIT is involved when transitioning patients between emergency departments, acute care hospitals, skilled nursing facilities, and home health agencies in settings across the United States.	Conclusion: Significant care coordination gaps exist due to the lack of interoperability across the United States. We must design, evaluate, and incentivize the use of HIT for care coordination. We should focus on the domains where we found the largest gaps: information transfer, systems to monitor patients, tools to support patients' self-management goals, and tools to link patients and their caregivers with community resources.
Garg, S.K., Lyles, C.R., Ackerman, S., Handley, M.A., Schillinger, D., Gourley, G., Aulakh,	VI Single descriptive study	Conducted telephone interviews with various stakeholders who volunteered from each of the eight California-based safety	Results: Performed eight interviews (one interview per pilot site). Five sites had no prior texting experience. Sites applied texting for	Purpose: Text messaging is an affordable, ubiquitous, and expanding mobile communication	Conclusion: Despite enthusiasm for the texting programs from the involved individuals and organizations, inadequate data management

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V., Sarkar, U. (2016). Qualitative analysis of programmatic initiatives to text patients with mobile devices in resource-limited health systems. *BMC Medical Informatics & Decision Making.* 16 (16). doi:10.1186/s12911-016-0258-7		net systems that received external funding to pilot a texting-based program of their choosing to serve a primary care need. We developed a semi-structured interview guide based partly on the Consolidated Framework for Implementation Research (CFIR), which encompasses several domains: the intervention, individuals involved, contextual factors, and implementation process. We inductively and deductively (using CFIR) coded transcripts, and categorized themes into facilitators and barriers.	programs related to medication adherence and monitoring, appointment reminders, care coordination, and health education and promotion. No site texted patient-identifying health information, and most sites manually obtained informed consent from each participating patient. Facilitators of implementation included perceived enthusiasm from patients, staff and management belief that texting is patient-centered, and the early identification of potential barriers through peer collaboration among grantees. Navigating government regulations that protect patient privacy and guide the handling of protected health information emerged as a crucial barrier. A related technical challenge in five sites was the labor-intensive tracking and documenting of texting communications due to an inability to integrate texting platforms with electronic health records.	technology. However, safety net health systems in the United States that provide more care to uninsured and low-income patients may face additional financial and infrastructural challenges in utilizing this technology. Formative evaluations of texting implementation experiences are limited. We interviewed safety net health systems piloting texting initiatives to study facilitators and barriers to real-world implementation.	capabilities and unclear privacy and security regulations for mobile health technology slowed the initial implementation and limited the clinical use of texting in the safety net and scope of pilots. Future implementation work and research should investigate how different texting platform and intervention designs affect efficacy, as well as explore issues that may affect sustainability and the scalability.

Author	Level of Evidence	Sample/ Facility	Strategies	Overview	Outcomes
Sherer, S. A., Meyerhoefer, C.D., Sheinberg, M., Levick, D. (2015). Integrating commercial ambulatory electronic health records with hospital systems: An evolutionary process. *International Journal of Medical Informatics*, 84(9): 683-693. http://dx.doi.org/10.1016/j.ijmedinf.2015.05.010	VI Single descriptive study	Longitudinal qualitative study using semi-structured interviews and archival documentation throughout a 5-year implementation and integration of obstetrical ambulatory and hospital records with a goal of achieving a perinatal continuum of care.	Results: As users implement and integrate electronic health records, there is an evolution in their focus from technology acceptance to structural adaptation to coordination. The users' perspective on standardization evolves from initial concern about the unintended consequences of standardization to recognition of its importance and then finally to more active acceptance. The system itself cannot drive all reengineering; the organization must impose specific work process changes and as the user's perspective evolves, more individually adapted and aligned change will occur. Computer integration alone does not result in coordination; users must value integrated information and incorporate this information within their workflows.	Purpose: The increase in electronic health record implementation in all treatment venues has led to greater demands for integration within and across practice settings with different work cultures. We study the evolution of coordination processes when integrating ambulatory-specific electronic health records with hospital systems;	Conclusions: Organizations implementing commercial electronic health records cannot simply assume that reciprocal coordination will immediately occur. It takes time for users to adjust, and enculturate coordination goals, during which time there are adaptive structuration's that require organizational response, and changes in mechanisms for achieving coordination.
Klein, D.M., Fix, G.M., Hogan, T.P., Simon, S.R., Nazi,	VI Single descriptive	Sample: Semistructured qualitative interviews were conducted with 34 VA	Results: Information sharing between VA and non-VA providers relied primarily on	Purpose: Information sharing between providers is critical for	Conclusions: Consumer-oriented technologies such as Blue Button can facilitate

Author	Level of Evidence	Sample/ Facility	Strategies	Overview	Outcomes
K.M., Turvey, C.L. (2015). Use of the Blue Button Online Tool for Sharing Health Information: Qualitative Interviews with Patients and Providers. *Journal of Medical Internet Research.* 17(8). e199. doi: 10.2196/jmir.4595.	study	patients, 10 VA providers, and 9 non-VA providers. Interviews focused on patients' use of Blue Button, information-sharing practices between VA and non-VA providers, and how patients and providers use a printed Blue Button report during a clinical visit. Qualitative themes were identified through iterative rounds of coding starting with an a priori schema based on technology adoption theory.	the patient. Patients most commonly used Blue Button to access and share VA laboratory results. Providers recognized the need for improved information sharing, valued the Blue Button printout, and expressed interest in a way to share information electronically across settings.	care coordination, especially in health systems such as the United States Department of Veterans Affairs (VA), where many patients also receive care from other health care organizations. Patients can facilitate this sharing by using the Blue Button, an online tool that promotes patients' ability to view, print, and download their health records. Objective: The aim of this study was to characterize (1) patients' use of Blue Button, an online information-sharing tool in VA's patient portal, My HealtheVet, (2) information-sharing practices between VA and non-VA providers, and (3) how providers and patients use a printed Blue Button report during a clinical visit.	patients sharing health information with providers in other health care systems; however, more education is needed to inform patients of this use to facilitate care coordination. Additional research is needed to explore how personal health record documents, such as Blue Button reports, can be easily shared and incorporated into the clinical workflow of providers.
Moy, et al, (2014).	VI	The purpose of the PI project	Retrospective chart reviews	Inpatient and outpatient	There was a significant

Author	Level of Evidence	Sample/ Facility	Strategies	Overview	Outcomes
Development and sustainability of an inpatient-to-outpatient discharge handoff tool: A quality improvement project. *The Joint Commission Journal on Quality and Patient Safety, 40(5), 219-227.*	Single Descriptive Study	was to develop a standardized succinct, and clinically relevant handoff tool within the Veterans Affairs EMR.	at 3 and 15 months after the handoff tool rollout was conducted to monitor handoff uptake and outcomes categorized as process, balance, and outcome measures.	provider stakeholder input was used	increase in handoff notes upon discharge. There was no difference in primary care follow up. Significantly more handoff notes were available in the EMR. There was no reduction in ED visits or readmission. The handoff had the advantages of concise timely, and clinically relevant communication over a discharge summary and less information tends to be more useful in this project. It was useful in filling a gap in an integrated EMR.
Holland, D.E., Knafl, G.J., & Bowles, K. H. (2012). Targeting hospitalized patients for early discharge planning intervention. *Journal of Clinical Nursing, 22(19/20), 2696-2703.*	VI Single Descriptive Study	Single descriptive study using a quality health outcomes framework to describe the ability of an evidence-based discharge planning (DP) decision support tool to identify and prioritize patients appropriate for early DP intervention. The study only included patients who were cognitively intact.	The authors determined whether patients with a high Early Screen for Discharge Planning (ESDP) score report more problems and continuing care needs in the first few weeks after discharge than patients with low ESDP scores. The ESDP was administered to 260 adults in an academic health center who returned home after discharge. Problems and continuing care needs were self-reported on the Problems	The use of an evidence-based discharge planning decision support tool minimizes biases inherent in decision-making, promotes efficient use of hospital discharge planning resources, and improves the opportunity for patients to access community resources needed to promote successful recovery after	Patients with high ESDP scores reported significantly more problems than those with low scores. Patients with high ESDP scores reported significantly more problems with personal care, household activities, mobility and physical difficulties than patients with low screen scores. Significantly more of the patients with a high ESDP score received consults to a discharge planner and referrals for post acute services than patients with low screen

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			After Discharge Questionnaire which was mailed 6-10 days after discharge.	hospitalization.	scores.
Yeaman, B., Ko, K.J., & Del Castillo, R. A. (2015). Care Transitions in Long-Term Care and Acute Care: Health information exchange and readmission rates. *The Online Journal of Issues in Nursing, 20*(3), 1-13.	VI Single Descriptive Study	Pilot PI study in the state of Oklahoma, USA. Five participating long term care facilities, (bedsize 69-136) and their staff. All facilities had existing transfer patterns with local acute care facilities and had access to a statewide health information exchange (HIE) known as Coordinated Care Oklahoma (CCO). This exchange allows flexibility for connecting with all existing certified EHR systems. These features allow CCO to connect with LTC facilities, helping providers coordinate care after discharge from acute care settings. All five LTC facilities implemented the electronic clinical documentation tool (CDT). Situation/Background/Assessment/Recommendation (SBAR) and Universal Transfer Form (UTF) were the 2 standardized	The objective was to use Health Information Technology in long term care (LTC) settings in order to facilitate electronic information exchange between LTC and acute care facilities during transitions.	Lack of experience, high employee turnover, limited funding, and appropriate software options can be a barrier. Cultural change can be the biggest barrier. Easy to use and convenient HIT is necessary.	A steady increase in use of the tools was observed in the study. 30-day hospital readmission rates gradually decreased following study initiation. ED visits decreased. The HIT they selected required little if any previous training or computer skills. Only 5 LTC facilities within a short distance from a large metropolitan acute care center. This process may not accurately reflect the challenges faced by other facilities lacking a pre-existing relationship with a receiving facility. Statistical analyses were descriptive only. Differences were not examined between the individual facilities. Chief complaints were used for the initial transfer and were not examined further for relationship to new or existing conditions.

Author	Level of Evidence	Sample/ Facility	Strategies	Overview	Outcomes
		documents used for consistent communication. A secure messaging system was also used. The study duration was 20 months.			

Levels of Evidence Rating System and Definitions

Levels of Evidence Rating System	Definition
Level I	Evidence from a systematic review or meta-analysis of all relevant RCTs
Level II	Evidence obtained from well-designed RCTs
Level III	Evidence obtained from well-designed controlled trials without randomization
Level IV	Evidence from well-designed case-control and cohort studies
Level V	Evidence from systematic reviews of descriptive and qualitative studies
Level VI	Evidence from single descriptive or qualitative studies
Level VII	Evidence from the opinion of authorities and/or reports of expert committees

(Table adapted from Melnyk & Fineout-Overholt, 2011, p. 12)

Melnyk, B. M. & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing & healthcare: A guide to best practice.* (2nd ed.). Philadelphia, PA: Wolters Kluwer Health/ Lippincott Williams & Wilkins.