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Clinicians, Consumers, Evidence
Centre for Clinical Effectiveness

Scoping Review

A Systematic Review about Patient Experience of Hospital Discharge

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Executive Summary

Background

The Centre for Clinical Effectiveness (CCE) was requested by the Patient Experience Team to identify evidence of interventions that improve patient experience of the discharge process from hospital to home. Interventions that improve patient readiness for discharge, home care instructions (how to care for oneself at home, patient information) and post-discharge arrangements for services needed (transport, meals, mobility aids etc.) were of specific interest.

Objective

To identify interventions that improve the patient experience of their discharge from hospital to home.

Methods

Peer reviewed studies and grey literature were searched using Medline, Google and relevant websites known to the authors. Full search details are available in Table 6 & 7 in Appendix 1.

The quality of the evidence of included studies was conducted using the CCE standard critical appraisal templates.

Results

Twenty-two papers were identified for inclusion [1-22]. In order to address the question, we looked for interventions that would report an impact on patient experience with a particular focus on patient readiness for discharge, satisfaction with home care instructions at discharge and post-discharge arrangements for services. This review of evidence also captured results for overall satisfaction with the discharge process.

Four categories of intervention groups were identified from the evidence and reported on patient experience of discharge processes. These categories included: Post-discharge phone calls [1-4, 6-10, 22]; Discharge nurse role [18-20]; Discharge plan/tool [5, 11-14, 16, 20]; and Patient/carer education [11, 16].

Post-discharge phone calls

Post discharge phone calls improved patients' readiness for discharge [1] and understanding of home care instructions on discharge [4]. However, three studies, did not show any significant improvement in overall patient satisfaction of the discharge process [6] or satisfaction with home care instructions [2, 3].

Discharge nurse role

A dedicated nurse leader responsible for discharge improved patients' readiness for discharge [18], satisfaction with home care instructions [18], post-discharge service arrangements [18] and overall patient satisfaction with the discharge process [19]. One study testing 24 hour nurse visits showed no improvement in overall satisfaction with the discharge process [20].

Discharge plan/tool

A systematic review [17] synthesised the evidence about interventions to improve the discharge planning process for patients. Among the studies included in this review six [23-28] evaluated the use of some type of discharge plan on improving overall satisfaction with the discharge process. All showed an improvement with the exception of one study which showed no difference [27]. A patient discharge instruction sheet reported an improvement in patient satisfaction with home care instructions and discharge service arrangements [5].

Patient/carer education

Patient/carer education was identified in two grey literature papers as an intervention used to improve understanding of home care instructions on discharge and satisfaction with arrangement of post discharge services [11, 16]. No evaluation of these cases was undertaken therefore we cannot infer whether this intervention improved the patient experience.

Table 1 summarises the categories of evidence by reference, the quality of the evidence, the outcome of interest reported and whether the results showed an improvement in outcome or no significant improvement. Additional information is provided in the summary of findings in the full report. The outcomes are colour coded according to Patients' readiness for discharge; Patient satisfaction with home care instructions at discharge; Patient satisfaction with discharge service arrangements; and Satisfaction with discharge process.

Table 1. Summary of results

Category of intervention	Ref	Quality of Evidence	Outcomes reported	Results	
				Improved outcome	No significant improvement
Post-discharge phone calls	[1]	Low	Patients' readiness for discharge	✓	
	[2]	SR: High Included study: Moderate	Patient satisfaction with home care instructions at discharge		✓
	[3]	Moderate	Patient satisfaction with home care instructions at discharge		✓
	[4]	Moderate	Patient satisfaction with home care instructions at discharge	✓	
	[6]	Moderate	Satisfaction with discharge process		✓
	[7]	N/A	Patient satisfaction with home care instructions at discharge	Grey literature not evaluated	
	[8]	N/A	Patient satisfaction with home care instructions at discharge	Grey literature not evaluated	
	[9]	N/A	Patient satisfaction with home care instructions at discharge	Grey literature not evaluated	
	[10]	N/A	Patient satisfaction with home care instructions at discharge	Grey literature not evaluated	
	[22]	N/A	Patient satisfaction with discharge service arrangements	Grey literature not evaluated	
Discharge nurse role (Physician led)	[18]	Low	Patients' readiness for discharge	✓	
			Patient satisfaction with home care instructions at discharge		
			Patient satisfaction with discharge service arrangements		
	[19]	SR: Moderate Included study: Moderate	Satisfaction with discharge process	✓	
	[20]	Low	Satisfaction with discharge process		✓
Discharge plan/tools	[5]	Moderate	Patient satisfaction with home care instructions at discharge	✓	
			Patient satisfaction with discharge service arrangements		

Category of intervention	Ref	Quality of Evidence	Outcomes reported	Results	
				Improved outcome	No significant improvement
	[12]	N/A	Patient satisfaction with home care instructions at discharge	Grey literature not evaluated	
	[13]	N/A	Patient satisfaction with home care instructions at discharge	Grey literature not evaluated	
	[14]	N/A	Patient satisfaction with home care instructions at discharge	Grey literature not evaluated	
	[15]	N/A	Patient satisfaction with home care instructions at discharge	Grey literature not evaluated	
	[17]	SR: High 5 x Included RCTs: 1- High, 3 Moderate, 1 - Low	Satisfaction with discharge process	✓	
		SR: High 1 x Included RCT: High	Satisfaction with discharge process		✓
	[21]	N/A	Satisfaction with discharge process	Grey literature not evaluated	
Patient/carer education	[11]	N/A	Patient satisfaction with home care instructions at discharge	Grey literature not evaluated	
	[16]	N/A	Patient satisfaction with home care instructions at discharge	Grey literature not evaluated	
			Patient satisfaction with discharge service arrangements		

Quality appraisal criteria

Quality of Study	Explanation [17]
High	This research provides a very good indication of the likely effect. The likelihood that the effect will be substantially different (e.g. large enough to affect a decision) is low.
Moderate	This research provides a good indication of the likely effect. The likelihood that the effect will be substantially different is moderate.
Low	This research provides some indication of the likely effect. However the likelihood that it will be substantially different is high.
Very Low	This research does not provide a reliable indication of the likely effect. The likelihood that the effect will be substantially different is very high

Conclusion

This review identified interventions that improved patients' readiness for discharge, satisfaction/understanding of home care instructions, satisfaction with post-discharge service arrangements and overall satisfaction with the discharge process.

The body of literature included systematic reviews, randomised controlled trials (RCTs) and observational cohort studies. The quality of the systematic reviews were high, however the RCTs included in them ranged in quality from high to low. The individual RCTs and observational cohort studies ranged from low to moderate quality indicating that the results should be interpreted with caution.

Interventions showing an improvement in outcomes of interest included: post-discharge phone calls (based on only one study), specific discharge nurse role (based on only one study) and plans or tools to follow for discharge (based on a set of studies).

Barriers and facilitators to the discharge process should be considers for potential implementation of interventions to improve patient preparedness for the discharge process.

Implication for practice at Monash Health

Varying quality of evidence suggests that there is some improvement in patients' experience of the discharge process. Specifically, evidence of variable quality indicated that discharge plan/tools improved patient satisfaction with the discharge process. Evidence from studies evaluating the discharge nurse role was moderate to low quality and indicated improvements with readiness for discharge and satisfaction with discharge process; however feasibility in non-research or real-world settings would need to be considered. Evaluations of the post-discharge phone calls were also of variable quality and indicated improvements with readiness for discharge and satisfaction with home care instructions at discharge.

Further research or testing of these interventions is needed to evaluate the real-world feasibility and effectiveness. It would be of interest to evaluate the effectiveness, as a combined intervention in a busy hospital setting, a dedicated nurse or physician role who would be responsible for the discharge process, following a set of specific discharge instructions/information for patients/carers to discuss prior to discharge (in addition to or as a separate task), and responsible for a post-discharge phone call to follow up on patient understanding of home care instructions and any additional needs for service arrangements.

Background

The Centre for Clinical Effectiveness (CCE) was requested by the Patient Experience Team to identify evidence of interventions that improve patient experience of the discharge process from hospital to home. Interventions that improve patient readiness for discharge, home care instructions (how to care for oneself at home, patient information) and post-discharge arrangements for services needed (transport, meals, mobility aids etc.) were of specific interest.

Objectives

To identify interventions that improve the patient experience relevant to their discharge from hospital to home.

Methods

Inclusion/Exclusion Criteria

Following an *adhoc* search to scope the literature in the area, a more systematic searching framework was developed and used to identify the evidence. (Table 2).

Table 2. Inclusion/Exclusion criteria

Population	**Include:** medical (non-surgical) adult inpatients being discharged from hospital to community setting. **Exclude**: Surgical patients, Rehabilitation patients, ED patients, Maternity.
Interventions	**Include:** Interventions used to improve patient experience of the discharge process that involved patient readiness for discharge, post-discharge care instructions and information, and post-discharge care service arrangements. **Exclude:** Interventions involving surgical patients, patients being discharged from one inpatient ward to another inpatient ward.
Outcomes	Discharge readiness. Patient satisfaction with home care instructions at discharge. Patient satisfaction with discharge service arrangements.
Context	**Include:** In-patient, hospital setting. **Exclude:** Non-inpatient settings or other healthcare settings e.g. GP or community.
Types of evidence	**Include:** All types of evidence including original research, reviews, editorials, commentaries, and grey literature.
Limits	**Date**: 2010 – onwards. **Language:** Publications in English.

Search strategy

Once the inclusion and exclusion criteria were clearly defined, a systematic search was conducted. A search of the Medline database, Google and relevant websites known to the authors was undertaken. Full search details are available in Tables 6 & 7 in Appendix 1.

Study Selection

Titles and abstracts identified were exported to EndNote X7 (Thompson, Reuters, Carlsbad, California, USA). Papers identified were screened using inclusion and exclusion criteria established *a priori.* Searches of Medline, the internet (using Google) and organisational websites were screened by one reviewer in consultation with colleagues as necessary. Literature was included based on the above criteria.

Quality Appraisal

An informal approach to appraising the quality of the included literature was undertaken using the GRADE system for quality appraisal as noted in the included 2016 Cochrane Systematic Review [17] (Table 3).

Table 3. Quality appraisal criteria

Quality of Study	Explanation [17]
High	This research provides a very good indication of the likely effect. The likelihood that the effect will be substantially different (e.g. large enough to affect a decision) is low.
Moderate	This research provides a good indication of the likely effect. The likelihood that the effect will be substantially different is moderate.
Low	This research provides some indication of the likely effect. However the likelihood that it will be substantially different is high.
Very Low	This research does not provide a reliable indication of the likely effect. The likelihood that the effect will be substantially different is very high

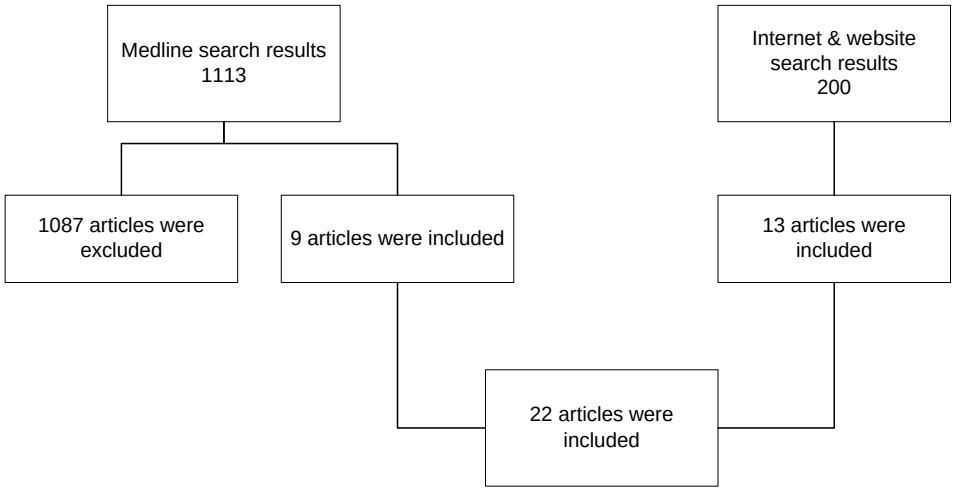
Results

Summary of Findings

A search of the Medline database identified 1113 results after duplicates were removed. A total of 1087 articles were excluded based on review of title, abstract and full text. Nine articles [1-6, 17-19] were identified from the Medline search (five [1-5] specifically met the outcomes of interest and four [6, 18-20] reported on patient satisfaction overall).

A search of the internet using Google retrieved 200 results and two organisations websites (The Beryl Institute and The Health Foundation) known to the authors were searched. Thirteen documents [7-17, 21, 22] were identified in a search of the internet. One of these was a 2016 Cochrane Systematic review [17], and 12 were grey literature reports [7-16, 21, 22] which had not been formally evaluated therefore, determining if they lead to improved patient satisfaction was not possible.

This diagram indicates the flow of identified and included articles from the different sources searched.



Twenty-two papers were identified for final inclusion [1-22]. All interventions were undertaken on inpatient general medicine wards [1-22].

Table 5 provides a summary of the included literature. Where cells are filled green this indicates that the intervention showed an improvement in outcomes, cells filled or highlighted red indicate no significant improvement was reported.

Each intervention reported on one or more of the following outcomes:

- Patients' readiness for discharge [1, 18]
- Patient satisfaction/understanding of home care instructions [2-5, 7-16, 18]
- Patient satisfaction of post discharge service arrangements [5, 16, 18, 22] and;
- Overall patient satisfaction of the discharge process [6, 8, 19-21]

The following intervention categories were derived from the literature for improving the outcomes of interest:

Post-discharge phone calls

Post discharge phone calls along with patient centered care trained physicians improved patients' readiness for discharge [1]. Pharmacist counselling of medications with the patients followed by a post discharge phone call was compared with usual care and found to improve patients understanding of home care instructions on discharge [4]. Two studies did not show a significant improvement in overall patient satisfaction [6] or satisfaction with home care instructions [3] when comparing post-discharge follow-up phone calls with no follow-up phone call. Satisfaction with home care instruction also did not improve significantly in a study that compared nurse care and a follow-up post discharge phone call with usual nurse discharge care [2].

Discharge nurse role

A dedicated nurse leader responsible for discharge improved patients' readiness for discharge [18], satisfaction with home care instructions [18], post-discharge service arrangements [18] and overall patient satisfaction with the discharge process [19] when compared with usual care consisting of discharge by a team resident. One study observed 24 hour nurse visits and showed this did not significantly improve patients overall satisfaction with the discharge process [20].

Discharge plan/tool

A systematic review [17] synthesised the evidence about interventions to improve the discharge planning process for patients. Among the studies included in this review six [23-28] evaluated the use of some type of discharge plan on improving overall satisfaction with the discharge process. All showed an improvement with the exception of one study which showed no difference [27]. A patient discharge instruction sheet reported an improvement in patient satisfaction with home care instructions and discharge service arrangements [5].

Patient/carer education

Patient/carer education was identified in two grey literature papers as an intervention used to improve understanding of home care instructions on discharge and satisfaction with arrangement of post discharge services [11, 16]. No evaluation of these cases was undertaken therefore we cannot infer whether this intervention improved the patient experience.

Quality of included papers

Ten of the 22 included papers were appraised using GRADE [17] levels of quality of study design. The body of literature included systematic reviews [2, 17, 19], randomised controlled trials (RCTs) [3, 6, 18, 20] and observational cohort studies [1, 4, 5]. The quality of the systematic reviews were high, however the RCTs included in them ranged in quality from high to low. The individual RCTs and observational cohort studies ranged from low to moderate quality indicating that the results should be interpreted with caution.

Twelve of the included studies were not able to be appraised because they were grey literature reports that did not evaluate outcomes; or they were narrative reviews, descriptive correlational design, observational interviews and quantitative survey study designs.

Barriers and facilitators to patient-centred care in the hospital discharge process

In searching the literature we identified a qualitative study that explored the barriers and facilitators to patient-centred care in the hospital discharge process [29]. The paper noted that "patients, despite the recently increased focus on patient-centredness, often leave the hospital unprepared for postdischarge demands." Understanding the factors that facilitate or create barriers to patient-centred care at hospital discharge may help in the design of effective solutions for improving the discharge process.

Table 4 summarises barriers and facilitators by themes and categories that can help or compromise patient preparedness for the discharge process [29]. This may be useful to the requestors when considering potential interventions to implement.

Table 4. Barriers and Facilitators to patient preparedness for discharge

Theme	Categories of Barriers and Facilitators
Health provider prioritisation of discharge consultations	• Lack of time • Giving priority to delivering medical or nursing care • Lack of a standard discharge consultation
Decision-making within the discharge process	• Involving patients in decisions regarding their follow-up • Dealing with competing interests

Care provider anticipation of patient-specific needs and preferences	• Estimating patient's resources, capabilities and skills • Patient emotions and emotional support • Patient readiness for discharge • Quality of information provided at discharge to patients and family members • Exchange of patient-specific information between hospital and community care providers • Community care providers role in monitoring patients after discharge
Organisational factors	• Shift work structures of the hospital care providers • Accessibility of hospital care providers to patients • Pressure on available hospital beds and discharges on weekends

Table 5. Summary of results

Ref	Quality	Setting/Population	Intervention	Result
Post-discharge phone calls				
[1]	Observational, cohort study Quality: Moderate	Organisation: Johns Hopkins Bayview Medical Center, USA 4 Inpatient General Medicine teaching teams, where interns make post-discharge telephone calls to patients, contact outpatient providers, perform medication adherence reviews, and engage in patient-centered discharge planning.	On the intervention team utilizing the Patient-Centered Care (PCC) curriculum, interns learned and had primary responsibility for the practice of effective post-discharge telephone calls to patients, contact with outpatient providers, medication adherence reviews, and patient-centered discharge planning. The post-discharge calls followed the SCOTCH structure: 1. **S**et up (ask whether the patient is ready to talk); 2. **C**heck the patient's understanding of the hospitalization; 3. Ask about **O**pportunities for the medical team to improve; 4. Ask how the **T**ransition home went; 5. **C**heck the patient's understanding of recommendations for ongoing care; and 6. Offer to **H**elp as needed While rotating on standard teams, interns were not explicitly asked to perform any of the specific PCC-related activities, although some had been previously exposed to the PCC curriculum. Within 30 days post discharge a 3-Item Care Transitions Measure (CTM-3) telephone survey was conducted which assesses the degree to which patients agree that the hospital staff considered their preferences, clarified responsibilities in self-management, and explained the purpose for taking each medication.	Patients who reported receiving post-discharge calls had significantly higher CTM-3 scores. *3-Item Care Transitions Measure (CTM-3) telephone survey scores are reported on a 100-point scale; with higher scores representing higher ratings of transitional care.* • Surveys were completed for a total of 139 (9.7%) patients: 18 (7.5%) discharged from the PCC team and 121 (10.2%) from the 3 standard teams. • Regardless of team assignment, patients who reported receiving post-discharge calls had significantly higher CTM-3 scores: 84.7 ±16.0 versus 78.2±17.
[2]	Systematic Review Quality of Review: High Quality of Included paper:	Organisation: Safety net hospital, San Francisco, California, USA All studies that employed experimental designs to improve hospital patient satisfaction as measured by the HCAHPS survey. As this is a large domain	One relevant study: Chan 2015. Interventions that addressed HCAHPS item "Discharge Information" Usual Care The patient's bedside registered nurse (RN) provided structured education, including information about follow-up appointments, and reviewed a discharge medication list, which was reconciled with pre-hospital medications. The RN gave the patient instructions on what symptoms should	• Intervention did not improve HCAHPS discharge information item. • From a review which identified few high-quality studies that tested the efficacy of interventions to improve patient satisfaction scores as assessed by the HCAHPS survey

Ref	Quality	Setting/Population	Intervention	Result
	Moderate	of possible interventions and practices, we focused specifically on hospital inpatients, receiving interventions to improve patient satisfaction, compared with pre-intervention or control group(s), with a goal of improving HCAHPS scores.	prompt return to the hospital. Social workers were available to assist with discharge needs. The inpatient team was responsible for transmitting the discharge summary to the patient's primary care provider within 3 days of discharge, and attempted to make post-hospitalization primary care visits within 2 weeks of discharge. <u>Intervention</u> In addition to receiving usual care, intervention group participants were visited by a study RN on the day of study enrollment and again within 24 h of discharge. 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. Study RNs also organized post-discharge services for participants, confirming patients' understanding of services and reviewing time, location, and transportation plans for scheduled appointments, including instructions for arranging follow-up services, if necessary. Study RNs reconciled discharge medication regimens and explained medication instructions, emphasizing any changes, proper administration of medications, and potential side effects. They also reviewed with participants the appropriate steps to take if problems arose, and provided contact numbers and instructions for contacting primary care providers or emergency services. The study RNs used motivational interviewing techniques to foster positive self-care and health behaviors, and used Krames Patient Education language-concordant written educational materials to supplement verbal instructions. They reinforced their teaching using the “teach-back” method to ensure patient comprehension. In order to improve intervention participants’ ability to receive the intervention, study RNs worked with caregivers (both family and non-family) to include them in the education and training activities. After hospital discharge, nurse practitioners (NPs) from the study team contacted intervention participants via telephone once on post-discharge days 1–3 and again on days 6–10.	

Ref	Quality	Setting/Population	Intervention	Result
			These calls were made by language-concordant NPs or, if a language-concordant NP was not available, using a trained medical telephone interpreter. The NPs provided patient education on symptoms, assessed adherence to medications and treatment plans, helped patients resolve barriers to attending follow-up appointments, and discussed other issues identified in the participants' personalized discharge plans. They answered questions about and adjusted medications, worked with pharmacies to resolve prescription problems, and, if necessary, referred patients to their primary care provider, urgent health clinic, or emergency department. Study NPs contacted patients' primary care providers if there were any changes in clinical status, new reported symptoms, or medication adjustments. Participants had access to a phone support line staffed by an NP who returned phone calls within 24 h.	
[3]	Cluster randomised control trial Quality: Moderate	Organisation: Mount Sinai Hospital, Toronto, Canada General medical patients (Canadian Hospital) age 18 and older discharged home after hospitalization.	The discharge process involves each patient receiving a copy of the electronic discharge summary and patient-specific instructions. In addition, the provider must review written discharge instructions with the patient and/or caregiver. Recent audits on the General Internal Medicine (GIM) inpatient units indicated that this occurs at rates close to 100%. The intervention began as a pilot of post discharge phone calls on one of the GIM wards by a nurse practitioner (RR), then expanded to involve a member of the medical team (i.e., the patient navigators). This ensured continuity as well as provided best knowledge of details specific to each patient. The Patient Navigator (PN) called a patient or caregiver within 3 days following discharge from hospital. Attempts were made during different hours of the day and on different days of the week. A minimum of 5 attempts was conducted. If the PN was unable to reach the patient, a voice message was left whenever possible. A standardized intervention phone script (Appendix S1) was designed to solicit information on general health status post discharge, comprehension of discharge instructions, and to reinforce instructions provided. The phone script was pilot tested among interprofessional team members and changes incorporated to increase reliability. The caller utilized a modified teach-back method to educate the patient on	Statistically significant difference in CTM-3 scores between the two groups (1.87 points, 95% CI 0.47–3.27, p=0.01). The lack of a cluster effect was evident in the primary outcome as well as the secondary outcomes. Therefore the primary outcome was analysed with linear regression and secondary outcomes were analyzed with logistic regression. The sensitivity analysis revealed similar estimate of difference but the effect of the primary outcome was no longer statistically significant (2.64, 95% CI -2.51–7.78, P= 0.31). *3-Item Care Transitions Measure (CTM-3) telephone survey scores are reported on a 100-point scale; with higher scores representing higher ratings of transitional care.* A single post discharge phone call for patients returning home from hospital failed to produce a meaningful impact on the patient's discharge experience.

Ref	Quality	Setting/Population	Intervention	Result
			discharge instructions, medications and follow up recommendations. If a clinical concern arose during the phone call, the PN relayed the information to the patient's inpatient care team for attention. We administered a telephone survey 30 days following discharge from hospital to all patients. Patients were asked whether they understood the medications and follow up instructions. The responses generated a CTM-3 score ranging from 0 to 100 as an objective measure of discharge instruction comprehension, with higher scores indicating higher quality care transition.	
[4]	A single-center prospective interventional study (Cohort Study) Quality: Moderate	Organisation: The University of New Mexico Hospital, USA Adult >18years recruited from participating internal medicine teams at a 646-bed tertiary care teaching hospital.	Patients who were discharged from an intervention team received discharge counseling by a pharmacist in addition to the usual discharge care provided by the nursing staff. Intervention patients received discharge counseling from a pharmacist that included information about proper medication administration, side effects, and disease state education. Pharmacists also reviewed patients' medications and prescriptions by completing medication reconciliation; identifying duplicative, unnecessary, or incomplete therapy; checking for drug interactions; verifying patients' formulary drug coverage and availability of medications; and ensuring prescription completeness. To minimize interpharmacist variability during the discharge process, a standardized checklist was developed outlining the topics to be covered during a counseling session, and standardized patient education leaflets were used. Control patients received usual discharge care only. Patients in both the control and intervention groups were given an anonymous survey to assess satisfaction with the discharge process prior to leaving the hospital on the day of discharge. Intervention patients received a follow-up phone call from a pharmacist 36 to 72 hours post discharge to assess patient clinical status and identify and resolve further medication-related issues.	Patient Satisfaction Statistically higher satisfaction scores were found between each individual question in the survey favoring the intervention group. Primary Medication Adherence In all, 66 patients had primary medication adherence rates analyzed:27 and 39 patients in the control and intervention groups, respectively. Patients were prescribed 3.6 ± 1.8 (control) and 4.1 ± 2.4 (intervention) scheduled medications at discharge (P = 0.95). The rates of primary medication adherence were 58.5% and 75.7% in the control and intervention groups, respectively (P = 0.05).
[6]	Prospective RCT	Organisation: Good Samaritan Hospital in Baltimore, USA	The post-discharge phone call was placed by the medical resident who discharged the patient from the hospital. If that resident was unavailable to participate in the study, then a	• The primary and secondary endpoints did not reach statistical significance.

Ref	Quality	Setting/Population	Intervention	Result
	Quality: Moderate	patients aged ≥18 years on a medical resident service for ≥ 2 days and being discharged to home	supervisory senior medical resident made the follow-up phone call. The resident identified incorrect medications, doses, and/or frequencies in addition to medications that patients were unable to obtain. The resident then reemphasized the importance of following-up with the primary care provider and answered any other questions posed by the patient. At 30 days post-discharge, a blinded research assistant performed a follow-up survey with all patients to assess their level of satisfaction with the hospital stay, post-discharge emergency department utilization, hospital readmission, and adherence to follow-up with a primary care provider. The primary outcome measure was patient overall satisfaction with his or her hospital stay	• There was not a statistically significant difference (P = 0.31) in patient satisfaction between the 2 groups at the end of the study
[7]	Grey Literature	Organisation: North Carolina Children's Hospital Hospitalised patients	Toll free telephone number Prior to discharge, patients are provided with a free call back number. During transition patients were given the toll-free number, stratified for risk, provided with follow-up phone calls from day 1-4, provided with a follow up hospital visit if high risk, local or a care gap is identified, home health and hospital lab follow –up, as well as communication to the patients primary care physician. For community based care, primary care physicians can use a toll free number during a patient visit, ongoing academic generalist clinic support is provided, and a 30-day follow up call is given.	
[8]	Grey Literature	Hospitalised patients	Post-discharge follow-up phone call The system calls patients after they have been discharged from hospital. Patients interact using only their voice to respond to instructions on post discharge care, typically the same instructions they were given upon leaving the hospital. For example: 1) Did you receive written instructions before you left the hospital? 2) Were you prescribed new medications at discharge? 3) Did you make your follow-up appointment with your doctor?	
[9]	Grey Literature	Organisation: Birmingham Alabama Hospitalised patients	Post-discharge follow-up phone call Personalized, automated phone calls deliver and reinforce instructions, as well as collect data on patients' status to ensure recovery is progressing. Simple language and multimedia visuals accessible via computer or mobile device are used to make sense of complex medical information, and the programs and campaigns provide empathetic, understandable and actionable information to foster patient compliance and follow-through, as well as make care conversations more impactful.	
[10]	Grey literature	Organisation: Canada	Text message system	

Ref	Quality	Setting/Population	Intervention	Result
		Patients discharged from the ED	Through the use of text messaging, each discharged patient from the ED is contacted and a follow-up connection initiated. Patients are contacted soon after they leave the ED with a follow-up text message sent to their phone to check up on the patient the next day. By doing so, the patients are able to contact a medical provider, Physician Assistant, to answer and receive medical direction for any problems or situations that developed post discharge. Patients are also contacted 3-5 days later and receive a survey text requesting their rating of their care in the Emergency Department.	
[22]	Grey Literature	Organisation: Sonora Regional Medical Center, Florida Hospitalised patients	Post-discharge phone call manager The call manager receives a list of discharged patients each day and clinically reviews and researches each inpatient record. They then call the patient and ask them a series of questions in terms of how they are recovering, confirms medications were picked up, ensures follow-up appointments are scheduled, and makes certain all post discharge services have been arranged in order to successfully manage the transition of care to home.	
Discharge nurse role				
[18]	Randomized controlled trial Quality: Low	Organisation: Massachusetts General Hospital (MGH), Boston, Massachusetts This study was conducted on 2 of the 5 resident general medical teams on the inpatient teaching service at Massachusetts General Hospital (MGH), Boston, Massachusetts—a large, 907-bed, urban hospital. All patients discharged from both resident medical teams over a 5-month period were included in this study.	A nurse practitioner (intervention) was randomly assigned to 1 of the 5 resident teams to complete discharge paperwork, arrange follow-up appointments and prescriptions, communicate discharge plans with nursing and primary care physicians, and answer questions from discharged patients. The scheduling of follow-up appointments on the control team was the responsibility of the team resident as per usual care.	• Both patient groups reported similar rates of having questions about their hospital stay after discharge • The intervention group could better identify whom to call with questions • The intervention group reported: ○ better understanding of their follow-up plans ○ better understanding of their discharge medications ○ more patients were satisfied with the discharge process
[19]	Systematic Review Quality of Systematic Review: Moderate Quality of relevant included	Organisations: 1. Ohio State University Medical Centre 2. University Medical Center, New Jersey 3. South Carolina Hospitals Adult patients admitted to hospital	Nurse leader rounding and post discharge follow up telephone calls	Patient satisfaction of nursing and hospital services measured via online surveys or questionnaires: • 3 descriptive cross-sectional studies included:: 2 used the HCAHPS 1 used Press Ganeys survey Evidence Generated from the review was very weak. • Patient satisfaction increased with the

Ref	Quality	Setting/Population	Intervention	Result
	studies: Moderate			interventions, therefore the effectiveness of nurse leader rounding and post-discharge telephone calls in enhancing patient satisfaction of nursing and hospital services is fair. However the evidence is too weak to recommend immediate implementation.
[20]	Quasi-experimental study with pseudo-randomised control group. Quality: Low	Organisation: Two university tertiary-level public hospitals in Spain and their related local primary healthcare centres. COPD patients	Intervention group got a nurse visit every 24 hours to: 1 Identify the family carer, if there was one, and educate the carer and patient about the disease. 2 Identify any problems and needs during the patient's stay and any that the patient/family thought might arise on arrival at home. 3 Put the patient, carer or healthcare team in contact with other professionals, such as social workers, whenever necessary. This programme of sessions lasted for 5 days and when the stay was longer extra daily sessions were organised. Control group received nothing.	Larger improvement in QOL at 12 & 24 weeks compared to control. Knowledge of disease improved compared to control at 2 & 24 weeks. No difference in satisfaction. Loss of sample and statistical power has led us to be cautious about interpreting the results.
Discharge plan/tool				
[5]	Prospective observational cohort study Quality: Moderate	Organisation: Yale-New Haven Hospital, USA Urban, academic medical center Patients 65 and older discharged home after hospitalization for acute coronary syndrome, heart failure or pneumonia.	Upon enrollment (within one week of discharge), patients or caregivers underwent a telephone interview by trained, non-clinical personnel. 50 questions, addressing diagnosis, discharge instructions, communication with primary physicians, arrangement of follow-up appointments, understanding of medications, and patient education. Comparisons were made with a nurse reviewing medical charts (included review of the signed copy of the discharge instructions given to patients prior to discharge)	• Patients rated their own understanding highly, with over 90% agreeing that they understood the reason for hospitalization and self-care, • Over 80% agreeing that they knew who to call with problems, and symptoms to look out for. • Half of patients reported receiving a scheduled follow-up appointment prior to discharge, (substantially higher than the 32.6% who had a documented follow-up appointment in the chart.) • Of the 123 patients with documented primary care or cardiology appointments, 54 (43.9%) could fully describe either appointment, 41 (33.3%) knew some details about at least one of them and 28 (22.8%) reported not having any appointment.

Ref	Quality	Setting/Population	Intervention	Result
				• Just over half of the 192 patients who were not given any appointments but were told to make their own appointment at a specified interval understood the instruction. • The mean CTM-3 score was 77.2 (SD 18.3). ○ *3-Item Care Transitions Measure (CTM-3) telephone survey scores are reported on a 100-point scale; with higher scores representing higher ratings of transitional care.* • 83.4% of patients agreed that hospital staff took their preferences and that of their family into account in determining post-hospitalization care needs. • After arriving home, 42 (10.9%) reported that they would have liked the hospital to provide additional services.
[12]	Grey Literature	Organisation: Canada Hospitalised patients	Electronic or paper discharge guide The patient-oriented discharge summary (PODS) is a simple tool that arms patients with 5 key pieces of information they need to know in order to effectively manage their health after a hospital discharge: Signs and symptoms to watch out for, medication instructions, appointments, routine and lifestyle changes, telephone numbers and info to have handy.	
[13]	Grey Literature	Organisation: Royal Melbourne Hospital, Victoria Hospitalised patients requiring allied health	Allied Health discharge information form Provided patient with a discharge information form to improve patient and carer anxiety and to improve information for therapy and services post-discharge.	
[14]	Grey Literature	Organisation: Cipher Health, New York Hospitalised patients	Discharge instruction recording A recording tool is used to allow healthcare providers to record discharge instructions for patients that they can access from home as frequently as they would like.	
[15]	Grey Literature	Organisation: Cullman Regional Medical Center	Discharge instruction recording & online platform *Good to Go* records "live" discharge instructions between the caregiver and patient using an application running on an iOS device and then shares the captured conversation with patients after discharge. Following the	

Ref	Quality	Setting/Population	Intervention	Result
		Hospitalised patients	discharge communication session, the nurse asks the patient to review their captured conversation and clarify any confusion. This dialogue in the patient's own words allows for spaced repetition and teach-back, which is "an essential 'safe practice' to improve outcomes," according to the National Quality Forum. In addition to recording audio instructions, caregivers use *Good to Go* to capture or link instructional care videos, pictures and other hospital resources to enhance patient education and understanding. After hospital discharge, the patient, a family member or another caregiver can securely access the multimedia information 24/7 using a landline, smartphone, laptop, tablet or computer. *Good to Go* also allows caregivers to set automatic text reminders, task lists and audio messages for patients to encourage compliance.	
[17]	Systematic Review Quality of Systematic Review: High Quality of relevant Studies: 3x High, 2x moderate, 1x low	<u>Organisations</u>: 1. Antrim Hospital, Northern Ireland 2. Academic medical centre, rural geographic areas of Vermont and upstate New York 3. Teaching Hospital, Baden Switzerland 4. Clinical teaching units, Ottawa, Canada 5. Acute and long stay hospitals, London, UK 6. Veterans Affairs Hospitals, USA 6 RCTs reported on Patient Satisfaction The settings and populations included medical patients in a hospital setting	All implemented some form of discharge plan	
[21]	Grey Literature	<u>Organisation</u>: Cleveland Clinic - South Pointe Hospital Hospitalised patients	<u>Discharge process of care</u> A multi-disciplinary group convened to improve the current discharge planning processes. The following interventions were successfully implemented: • Physician leaders championed efforts with physician peers to: o Eliminate consult related delays o Encourage discharge order entry prior to 5 p.m. o Encourage physicians to document anticipated discharge date at the time of admission	

Ref	Quality	Setting/Population	Intervention	Result
			• Nurses committed to SBAR bedside hand-off report to improve communication • Pharmacy, Nutrition and Respiratory and Rehab Therapy dedicate one hour of staff time, including time to discuss preparation for discharge • A daily roundtable discussion facilitated by Care Manager, during which staff RN provides report following the SBAR template • Other disciplines contribute as appropriate to the patient's needs • Core Measure and Discharge Checklists are addressed as needed • On the day of discharge, the Discharge Checklist circulates around the table for final recommendations and sign off Staff RNs use the Discharge Checklist to further prepare patients for an efficient departure	
Patient/carer education				
[11]	Grey Literature	Organisation: Advisory Board Hospitalised heart failure patients	Teach-back method & mobile device Heart failure patients educated on how to monitor their health at home as soon as they are admitted to the hospital. In addition, throughout the hospital stay, providers teach patients how to record their weight and other vitals once they return home. They are also taught the signs that suggest they may require a physician's attention. Moreover, high-risk patients receive a Health Buddy device, which relays vital-sign data to hospital who contact patients about any abnormalities and can adjust medications or other instructions accordingly.	
[16]	Grey Literature	Organisation: Boston Children's Hospital Hospitalised patients	Mobile phone application Vocera Good to Go® Patient Discharge Communication is a smartphone application where nurses record live discharge instructions and teach back sessions at the patient's bedside, as well as attach pictures, videos and personalized educational materials that can be accessed by the patient, family members and other caregivers on any device, at anytime, anywhere. Vocera Good to Go also creates and sends appointment reminders, tasks and care messages to patients, ensuring they are informed, educated and empowered after they leave the hospital.	

Conclusion

This review identified interventions that improved patients' readiness for discharge, satisfaction/understanding of home care instructions, satisfaction with post-discharge service arrangements and overall satisfaction with the discharge process.

The body of literature included systematic reviews, randomised controlled trials (RCTs) and observational cohort studies. The quality of the systematic reviews were high, however the RCTs included in them ranged in quality from high to low. The individual RCTs and observational cohort studies ranged from low to moderate quality indicating that the results should be interpreted with caution.

Interventions showing an improvement in outcomes of interest included: post-discharge phone calls (based on only one study), specific discharge nurse role (based on only one study) and plans or tools to follow for discharge (based on a set of studies).

Barriers and facilitators to the discharge process should be considers for potential implementation of interventions to improve patient preparedness for the discharge process.

Implication for practice at Monash Health

Varying quality of evidence suggests that there is some improvement in patients' experience of the discharge process. Specifically, evidence of variable quality indicated that discharge plan/tools improved patient satisfaction with the discharge process. Evidence from studies evaluating the discharge nurse role was moderate to low quality and indicated improvements with readiness for discharge and satisfaction with discharge process; however feasibility in non-research or real-world settings would need to be considered. Evaluations of the post-discharge phone calls were also of variable quality and indicated improvements with readiness for discharge and satisfaction with home care instructions at discharge.

Further research or testing of these interventions is needed to evaluate the real-world feasibility and effectiveness. It would be of interest to evaluate the effectiveness, as a combined intervention in a busy hospital setting, a dedicated nurse or physician role who would be responsible for the discharge process, following a set of specific discharge instructions/information for patients/carers to discuss prior to discharge (in addition to or as a separate task), and responsible for a post-discharge phone call to follow up on patient understanding of home care instructions and any additional needs for service arrangements.

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Appendix 1

Table 6. Information sources and search terms

Information sources	Search terms
Medline	"patient experience" AND discharge "patient experience" AND discharge AND ready OR readiness "patient experience" AND discharge AND post-discharge OR "post discharge" "patient experience" AND discharge AND ready OR instructions
Google	
Beryl Institute	
The health foundation	

Table 7. Database Search Terms

Search terms in Medline	
1	(discharge and (plan* or service? or program* or intervention?)).ti.
2	*patient discharge/
3	(patient* adj2 discharge*).ti,ab.
4	(hospital adj2 discharge*).ti,ab.
5	(discharge adj2 plan*).ti,ab.
6	(discharge adj service?).ti,ab.
7	(discharge adj program*).ti,ab.
8	(discharge adj procedure*).ti,ab.
9	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10	((Patient* adj2 (perspective* or opinion* or experience* or perception* or view*)) or health care consumer*).mp.
11	(consumer* adj2 (perspective* or opinion* or experience* or perception* or view*)).mp.
12	(client* adj2 (perspective* or opinion* or experience* or perception* or view*)).mp.
13	patient participation/
14	patient preference/
15	patient satisfaction/
16	patient* involve*.mp.
17	patient* report*.mp.
18	exp Professional-Patient Relations/
19	Hospital patient relations/
20	10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19
21	9 and 20
22	limit 21 to (English language and humans and yr="2010 -Current")