

Interventions to improve patient safety in transitional care – a review of the evidence

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Abstract: When a patient's transition from the hospital to home is less than optimal, the repercussions can be far-reaching – hospital readmission, adverse medical events, and even mortality. Elderly, especially frail older patients with complex health care problems appear to be a group particularly at risk for adverse events in general, and during transitions across health providers in particular. We undertook a systematic review to identify interventions designed to improve patient safety during transitional care of the elderly, with a particular focus on discharge interventions. We searched the literature for qualitative and quantitative studies on the subject published over the past ten years. The review revealed a set of potential intervention types aimed at the improvement of communication that contribute to safe transitional care. Intervention types included profession-oriented interventions (e.g. education and training), organisational/culture interventions (e.g. transfer nurse, discharge protocol, discharge planning, medication reconciliation, standardized discharge letter, electronic tools), or patient and next of kin oriented interventions (e.g. patient awareness and empowerment, discharge support). Results strongly indicate that elderly discharged from hospital to the community will benefit from targeted interventions aimed to improve transfer across healthcare settings. Future interventions should take into account multi-component and multi-disciplinary interventions incorporating several single interventions combined.

Keywords: Transitional care, elderly, patient safety, adverse events, interventions

1. Introduction

Transitional care has been recognized as a high risk area for patients due to the growing evidence indicating a strong correlation between patient handovers and adverse events [1-3]. Transitional care has been defined as a set of actions designed to ensure the coordination and continuity of health care as patients transfer between different levels of care within the same or other locations [4]. The main goal of transitional care is optimal patient care and safety [5]. Elderly, especially frail older patients with complex health care problems appear to be a group particularly at risk for adverse events*

in general, and during transitions across health providers in particular [6-7]. Elderly typically receive care from many providers and move frequently within and across health care settings [4] and has been defined as a research priority [8]. The type and incidence of adverse events reported in the literature relate to adverse drug events, procedure related events, diagnostic test follow-up errors, nosocomial infections and falls. Ineffective care processes, poor communication and deficient documentation represent the major risk factors associated with these adverse events [9]. The physical and mental health of elderly may deteriorate after discharge. They may experience changes in the treatment regimen, and discontinuities during their transitions. In addition many elders often have a limited support system [10]. Combined with poor general health this leaves

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the elderly at high risk for rehospitalization, morbidity and mortality after discharge. The tendency in today's health care systems is that patients are often discharged "quicker and sicker" which in turn challenges the health care team to adequately prepare and complete the discharge process (i.e., planning, support and follow-up). It is vital that healthcare providers have the proper information to act as representatives for the elderly patient. The pursuit of patient safety interventions within transitional care of frail elderly should thus ideally be designed to address the current risk factors.

2. Aim

This paper focuses upon interventions designed to improve patient safety within transitional care of the elderly. We focus on the effects of discharge interventions on patient safety, e.g. adverse events confined to elderly patients (>65) who have been discharged either home or to a nursing home from tertiary care hospitals. The paper seeks to identify and evaluate the effects of the interventions in terms of effectiveness and efficiency of care processes.

3. Methods

A systematic literature search was conducted by using the electronic databases: PubMed, Medline, Cinahl, Academic Search Elite, the Cochrane Database of Systemic Reviews and the controlled trials register and in addition we scanned the reference lists of selected articles (snowballing). The following search terms were used: "discharge planning", "patient care planning", "follow-up care", "transitional care", "handoff", and "clinical pathways", all concepts in combination with "patient safety" AND/OR "interventions" AND "elderly". The following journals' contents pages were searched electronically for relevant papers: *Journal of clinical nursing*, *Social science and Medicine*, *Aging and society*, *Age and Aging*, *Social care in the community*, *International Journal of Integrated Care*. The search included randomized studies, review articles and descriptive studies and was limited to English language articles in peer-reviewed journals. The review concentrates on recent literature published between 2000 and 2010. The criteria for inclusion were intervention studies proposed to improve transitional care, and more specifically, hospital discharge. The sample subjects were older patients (over age of 65) with a medical condition (e.g., chronic disease or frail elderly). We excluded studies of patients with a surgical condition or a mental/psychiatric condition from the review. Studies were eligible for inclusion if they described or measured the effects of

discharge interventions on adverse patient outcome (i.e. readmission rates, rehospitalization, adverse events, medical errors, delay in diagnosis or treatment, mortality, patient, family and carer satisfaction).

4. Results

A substantial literature regarding discharge arrangements for elderly patients from hospital to home exists. The initial literature search identified 569 publications of which 37 met the inclusion criteria: 12 were review [8,11-21] papers, 11 were randomized controlled trials (RCT) [22-32], and 10 were descriptive studies [33-42]. The review revealed several systematic reviews that assess the effects of supporting elderly discharge from hospital to home. On average at least one review paper has been published each year for the past ten years. The oldest article included data from 1966 and the most recent one from 2010. A majority of review papers included solely RCT studies and other comparative designs. Two reviews included both qualitative and quantitative designs, and one review included evidence of descriptive studies solely. Some of the reviews included studies in which interventions target mixed patient population, elders in general (>65) while others were restricted to studies with a specific patient group, in particular patients with congestive heart failure. All the review articles differed to some extent in their objectives. Several reviews state that there exists uncertainty about the overall effectiveness of discharge arrangements. The meta-review by Mistian and colleagues (2007) concludes that there is overall very limited evidence that discharge interventions are effective. Occasionally, significant results are achieved due to local factors that may not be generalizable. For instance, comprehensive discharge planning and interventions in patients with heart failure have been proven effective. However, even though significant effects overall are absent, several reviews provide evidence that discharge arrangements for the elderly population is of value and has beneficial effects on reducing readmission rates and drug related problems. Interventions which address family and educational components show promising results. There is evidence indicating that interventions should commence well before discharge to have the best preconditions for successful results. A common feature recognized by most reviews is that interventions combining discharge planning and discharge support tend to yield the greatest effects. In the review of primary trials and studies the literature addressed several interventions and revealed a set of potential intervention types aimed to improve safe transitional care (see table 1).

Table 1
Interventions with positive outcomes

Author and year	Design	Type of intervention	Sample	Outcome Measures	Main results
Naylor et al 1999	Randomized clinical trial	Comprehensive discharge planning and home follow-up (at 2,6,12, 24 weeks) protocol designed for elders at risk for poor outcomes after discharge and implemented by advanced practise nurse	A total of 363 patients (age >65) 186 in the control group and 177 in the intervention group	Readmission, time to first readmission, acute care visits after discharge, cost, functional status, depression and patient satisfaction	An advanced practice nurse-centered discharge planning and home care intervention for at-risk hospitalized elders reduced readmissions, lengthened the time between discharge and readmission, and decreased the costs of providing health care. However there were no significant group differences in postdischarge acute care visits, functional status, depression or patient satisfaction.
Caplan et al 2004	Prospective randomized controlled trial	Comprehensive geriatric assessment (CGA)	A total of 575 (age >75) (intervention n=293; control n=282)	Primary; all admissions to the hospital within 30 days of the initial ED visit. Secondary: Elective and emergency admissions , and nursing home admissions and mortality.	Intervention patients had a lower rate of all admissions to the hospital during the first 30 days after the initial ED visit (16.5% vs 22.2%; $P=0.048$), a lower rate of emergency admissions during the 18-month follow-up (44.4% vs. 54.3% $P=0.007$). There was no difference in admission to nursing homes or mortality.
Naylor et al 2004	Randomized controlled trial	An advanced practice nurse directed discharge planning and home follow up (through 52 weeks postindex hospital discharge) protocol	A total of 239 (age >65) (control n=121; intervention n=118)	Time to first rehospitalisation or death, number of rehospitalizations, quality of life, functional status, cost and satisfaction with care.	Time to first readmission or death was longer in intervention group patients. At 52 weeks, intervention group patients had fewer readmissions and lower mean total cost. However, only short term improvements were demonstrated in the intervention group concerning overall quality of life and patient satisfaction.
Anderson et al 2005	Randomized controlled trial	A comprehensive community hospital-based heart failure program. (Discharge planning and follow-up).	A total of 121 patients (mean age 78.5) Intervention n= 44; control n= 77)	Readmission rate and utilization of home health care services	Intervention subjects had an 11.4% readmission rate within 6 months, compared with a 44.2% readmission rates in control subjects. There was a significant increase in the number of both skilled nurse visits and home health aide visits required in the control group.
Sinclair et al 2005	Randomized controlled trial	A single-blind randomised controlled trial comparing home-based intervention by a nurse with usual care for patients with cardiac problems	A total of 324 Patients (age>65) (intervention n= 163; control group n=161).	Deaths, hospital readmissions and use of outpatient services	At 100 day follow-up there was no difference in deaths, activities of daily living or overall quality of life, but those in the intervention group scored significantly better on the confidence and self-esteem subsections. The intervention group had fewer hospital readmissions (35 versus 51, relative risk 0.68, 95% CI 0.47-0.98, $P < 0.05$).
Coleman et al 2006	Randomized controlled trial	Care transition intervention. Intervention patients received (1) tools to promote cross -site communication; (2) encouragement to take	A total of 712 patients (age>65) (intervention n= 360; control n= 352)	Rates of rehospitalisation at 30, 90 and 180 days after hospital discharge	Intervention patients had lower rehospitalisation rates at 30 days and at 90 days than control subjects. The mean hospital cost were lower for intervention patients vs control at 180

		a more active role in their care; and, (3) continuity across settings and guidance from a "transition coach"			days.
Schnipper et al 2006	Randomized trial	Patient counselling and follow-up by pharmacist	A total of 178 patients (mean age 58.4) (intervention n= 92; control n = 84)	Rate of preventable adverse drug events (ADEs)	Medication review, discharge counselling and telephone follow-up by pharmacist were associated with a significant lower rate of preventable ADEs 30 days after hospital discharge. Preventable medication related ED visits and hospital readmissions were similarly reduced. On the other hand the groups did not differ significantly with respect to total ADEs, total health care utilization, or patient satisfaction.
Midlov et el 2008 a	A prospective intervention with retrospective controls	Use of medication report at discharge	A total of 427 patients (age>65)(intervention n =248;control group n=179)	Need for medical care in hospital or primary care within three months after discharge from hospital.	The use of medication report reduced the need for medical care due to medication errors. Of the patients with medication report 11 out of 248 (4.4%) needed medical care because of medication errors compared with 16 out of 179 (8,9) of patients without medication report. The use of medication report also reduced the need for administrative corrections due to medication errors.
Midlov et al 2008 b	A prospective intervention with retrospective controls	Use of medication report at discharge describing all medication changes during hospital stay and the reason for these changes	A total of 427 patients (age>65) (intervention n =248;control group n=179)	Number of medication errors	79 (32%) patients in the intervention group had at least one medication error as compared with 118 (66%) patients in the control group. In the intervention group 15 % of the patients had errors that were considered to have moderate or high risk of clinical consequences compared with 32% in the control group.
Courtney et al 2009	Randomized controlled trial	Comprehensive nursing and physiotherapy assessment and follow-up	A total of 128 patients(age>65) (intervention n= 64;control n=64)	Emergency health service utilization and high-related quality of life 4,12 and 24 weeks after discharge.	The intervention group required significantly fewer emergency hospital readmissions (22% of intervention group vs 47% of control group) . The intervention group reported significantly greater improvements in quality of life than the control group.
Rytter et al 2010	Randomized controlled trial	Follow-up program by GPs and district nurses.	A total of 331 patients /(age>65) intervention n= 166;control n= 165)	Primary: Readmission and any kind of concordance between the GPs knowledge of the medical treatment and what the patient was actually taking. Secondary: degree to which the GP implemented the recommended follow-up as described in the hospital discharge letter, cost, functional ability, death rate, patient satisfaction and self rated health.	Control group patients were more likely to be readmitted than intervention group patients (52% vs 40% $P=0.03$). In the intervention group, the proportions of patients who used prescribed medication of which the GP was unaware (48% vs 34% and who did not take the medication prescribed by the GP (39%vs 28%) were smaller than in the control group.

As several studies were identified, table 1 is limited to interventions that demonstrate positive effects on measures related to the prevention of adverse patient outcomes. These intervention types included *profession-oriented interventions* (e.g. education and training); *organisational interventions* (e.g. transfer nurse, transition coach, discharge protocol, discharge planning, discharge follow-up, medication reconciliation, standardized discharge letter, electronic tools); or *patient-and next of kin- oriented interventions* (e.g. patient empowerment, discharge support). The primary articles included in our review overlap somewhat with those cited by other review papers. Despite the variety of interventions reported in the literature, the review did not provide evidence for the validity of one intervention over others. However, some interventions have achieved good results and therefore deserve attention. The characteristics of these interventions are presented in table 2. Supplementary comments for each are then given.

Table 2
Features of successful interventions

Features of successful interventions	
<ul style="list-style-type: none"> ➤ Interventions that commence at an early stage and are maintained throughout hospitalization and the post-discharge period. ➤ Interventions that consist of a key health care worker which acts as a discharge coordinator. ➤ Interventions that include patient participation and /or education. ➤ Interventions that involve family caregivers. ➤ Interventions which undertake a multidisciplinary approach. ➤ Curriculum interventions teaching transitional care. ➤ Pharmacy interventions- medication reconciliation. ➤ Standardized medication reports. ➤ Comprehensive transitional care programs with multi-interventional components. 	

➤ *Discharge planning and support*

Two categories of discharge interventions, are divided in discharge preparation and discharge support [16]. A common feature in several studies is that combining hospital discharge preparation/planning (interventions that mainly take place during admission in the hospital) and discharge support (interventions that mainly take place after discharge from the hospital) for older patients provides significant results when compared with interventions provided in the hospital or community setting only. The effects, especially on readmission risk reduction appear most apparent in interventions provided in both care settings [22-24, 27]. However, it must be mentioned that Rytter and colleagues [32] among others [26] achieved positive but not significant effects based solely on discharge support including joint follow-up home visits involving both the general practitioner and

the district nurse. Halasyamani and colleagues [37] highlight and emphasize the need for follow-up appointment within at most 2 weeks of discharge or sooner with patients with fragile clinical conditions.

➤ *Key - coordinator*

Several intervention studies have designated a nurse, most frequently an advanced practice registered nurse as the intervention clinical manager or leader [21-22, 24]. Naylor and colleagues [21] identified in their review nine studies that reported a statistically positive effect on readmission. The common feature among these interventions was that they all relied on a nurse as the clinical leader or manager of care. Interventions that included a key liaison person, or discharge coordinator to organize information exchange and transfer had in addition to improving communication a positive impact on patient and caregiver satisfaction [12]. Payne and colleagues [12] stress that there is still insufficient research evidence to determine from which professional background this key-coordinator should come and whether they should be based in the hospital or community. Naylor and colleagues [22] successfully tested the effectiveness of a comprehensive advanced practice nurse (APN) centered discharge planning and follow-up intervention, designed for older people at risk for rehospitalization. The APN centered discharge intervention was found to reduce readmission, lengthen the time between discharge and readmission and decrease cost. The intervention included a comprehensive patient and caregiver assessment of knowledge, education, caregiver burden and resources and an individualized and documented discharge plan developed in collaboration with the caregiver, patient, physician and other health team members. The post discharge follow-up support in terms of home visits and telephone contact was also a part of the intervention. It is stressed that APNs involvement throughout the transition from hospital to home provided a safety net designed to prevent medication and other medical errors and assure accurate transfer of information. Naylor and colleagues [24] tested a similar APN directed intervention program to elder patients with heart failure, achieving even better results. The authors argued that the success was largely driven by two factors; (1) the continuity of care provided by the same APN who coordinated the patients discharge plan and implemented in the patients home; and, (2) the use of highly skilled APNs who are prepared to use a holistic approach to address the complex need of patients and their caregivers.

➤ *Patient and family involvement/Education*

Compelling evidence supported by both qualitative [34,41] and quantitative

(22,24,27) studies highlight the importance of involving patient and family care givers in the hospital discharge process. Numerous studies on discharge planning have identified the importance of the role of the family, suggesting it as one of the most significant factors influencing the success of discharge planning for frail older patients [43]. Studies indicate that patients express clear preference for participation [41] and that approximately 46 % of families reported little or no involvement in discharge planning [33]. Evidence has shown that family caregivers who were included in discharge planning had significantly higher scores on satisfaction, feelings of preparedness and acceptance of the caregiver role [34]. Providing patients with educational sessions pre- and post- discharge have been found to have positive effects. Parker and colleagues [13] imply that educational programs/ interventions represent the single most positive effect of any single type of intervention, and stress that interventions which empower patients by paying particular attention to their specific educational needs should be of great interest to the field.

➤ *Multidisciplinary approach*

A multidisciplinary approach to the provision of services for patients following discharge is viewed as a best practice [17]. Avlund and colleagues [44] demonstrate that elders discharged from medical wards most likely benefit from interdisciplinary home-visits following discharge. A multidisciplinary team approach is applied in several studies which report positive effects [22-25,45]. All the health care professionals interviewed in the study by Bull and Roberts [34] identified a multi-disciplinary team approach as critical for a proper discharge because elders have complex needs and each discipline brought different perspectives in planning for the elders' needs following hospitalization. In addition the interdisciplinary team emphasized that members of the team learned from each other, valued each others' perspectives and came to trust the judgement of other team members.

➤ *Education and training*

Historically there have been few curricular/curriculum interventions teaching transitional care to physicians. However, it has been recognized that curricular interventions teaching this topic to physicians in training and physicians have increased dramatically over the past ten years [46]. Study findings from an education intervention [40] reveal that medical students transitional care skills improved after the implementation of a transition in care curriculum. In addition students also rated the usefulness of such education above all other project work in all required clerkships. Another educational intervention conducted by

Ouchida and colleagues [39] reported similar significant results using a pre and post test design. This multi-modal educational intervention for medical students increased their transitional care knowledge. After the intervention 56 % (vs 14.9%) identified medication errors as the most common source of adverse events after discharge. Significantly more participants reported feeling competent or expert in safely discharging chronically ill patients (66.3% vs. 9.8 %) and in educating patients about discharge medications. Participants also reported changes in transitional care behaviours after educational interventions to ensure safe transitions [39]. It is an imperative to implement interventions that teach physicians and nurses to recognize their role within the interdisciplinary team and their responsibility to ensure safe transitions at an early stage of clinical training [4].

➤ *Pharmacy interventions / medication reconciliation*

It is widely known that older age and polypharmacy are risk factors for medication discrepancies and errors [47-48]. It is also widely known that medication discrepancies occur commonly during hospital discharge. All the studies included in the review by Garcia-Caballos and colleagues [19] underscored the high frequency and complexity of drug related problems in elderly patients after hospital discharge. Several studies test the impact of pharmacist interventions at discharge aimed to prevent and reduce adverse drug events following discharge. Studies indicate that pharmacists may play an important role in preventing prescribing errors or medical related problems [28,49,50] Schnipper and colleagues [28] showed that medication review, discharge counseling and telephone follow-up by a pharmacist were associated with a significant lower rate of preventable adverse drug events 30 days after hospital discharge. The same study also revealed that the medical team often misunderstood the patients' preadmission medication regimen and carried these inaccuracies to the discharge medication orders. Similar findings have been identified by Glintborg and colleagues [38] revealing that the hospital had insufficient knowledge of prescriptions and that they only reported half of the administered drugs in the discharge letter. The use of a pharmacist transition coordinator improved aspects of inappropriate use of medicines across health sectors [28, 50-51]. Pharmacist review of medication list may help identify omitted or indicated medications on transfer [8]. We also found studies that question the benefit of such interventions [52]. However, the studies included in the review by Hanlon and colleagues [14] provided considerable evidence that clinical pharmacy interventions reduced the occurrence of drug related problems for elderly,

including improvements in medication adherence and suboptimal prescribing. There was limited evidence that such interventions reduce morbidity, mortality or health care costs. Medication reconciliation includes the collection of a complete medication list from the patient at the point of entry; using that information when prescribing medications; and, comparing the new medication orders against the original medication list to ensure that all the correct medications are ordered or held as appropriate [53].

➤ *Standardized medication reports/discharge summary*

The use of standardized medication reports at discharge have also been proven beneficial. Midlov and colleagues [30] conducted an intervention study to assess the effects on medication errors when elderly patients are transferred from the hospital to primary care by use of a structured medication report. In contrast to the regular information exchange this report also described all medication changes during hospital stay and the reasons for these changes. The study demonstrated that the use of the developed structured medication report reduced the number of medication errors by more than 50%. Midlov and colleagues [29] also tested if the same medication report could reduce the number of patients with clinical outcomes due to medication errors. They concluded that the medication report appears to represent an effective tool to decrease adverse clinical consequences when elderly patients are discharged from the hospital. Several studies have proposed standardized summaries or checklist for elderly patients in order to improve information transfer [37,54]. However, present information on the implementation or evaluation of these summaries or checklists is lacking.

➤ *Comprehensive transitional care programs*

The studies conducted by Naylor and colleagues [22,24] and Coleman and colleagues [27], focus on long term effects on rehospitalization. All studies are distinguished by the use of comprehensive transitional care programs which undertake a multi-interventional component approach. These comprehensive interventional care programs address several primary factors (highlighted in table 1) that are considered significant for successful discharge. Coleman and colleagues [27] reported significant reduction in readmission at 180 days post discharge compared to the control group. Similarly, Naylor and colleagues [22] achieved significant reduction in readmission rates at 24-weeks post-discharge. Naylor and colleagues argue that comprehensive transitional care programs have not been adopted due to lack of Medicare reimbursement, absence of marketing forces, and the challenges such care present to the culture of current practice. These challenges are characterized

by the organization of care in distinct and separate silos, and limited longitudinal integration of physician and nursing care to support patients' needs.

5. Discussion

Elderly patients benefit from targeted interventions aimed at facilitating cross site communication and accurate information transfer in transitional care. Some studies report intervention effects related to decrease in adverse drug events and readmission rates, and an increase in patient and family satisfaction. Others demonstrate effects on cost effectiveness. Strong evidence of effectiveness seems principally to be limited to specific diagnostic groups managed in specific settings. This may suggest that developing a single approach within transitional care of the elderly is not possible because of the diversity and complexity of elderly health care [55]. This confirms that one-size fits all approaches to transitional care may not be sufficient [56]. Improving safe transitional care of the elderly will require future interventions that involve a multi-component approach which incorporates and takes into account the characteristics presented in table 2. We encourage that future interventions must focus in particular on comprehensive discharge planning combined with follow-up care. Interventions must incorporate patient participation and family involvement to a greater extent, where one must consider and take into account their preferences, goal settings, and an individualized care plan.

Educational efforts that strengthen patient self-management have been proven effective. Though the family is often the first line of defense against problems within transitional care, little work has been done that focuses on building partnerships between patients, families and healthcare providers [57]. Poor communication between patients, family and health professionals, including deficient documentation is one of the primary obstacles to improving the patient discharge process [18]. There is a need for further investigation into the experiences and needs of older people and their families at home following hospitalization [17]. Interventions should further be based on effective multidisciplinary teamwork both within the hospital and between the hospital and the community. This teamwork should be based on clear and explicit core competencies [58].

This review reveals that interventions often focus on single groups such as nurses, physicians, patients or families, social workers, or occupational therapists. To our knowledge few studies undertake a multidisciplinary approach which involves multiple stakeholders. An interesting and somewhat surprising finding also recognized by Shepperd and colleagues [20] in their review is the fact that there

are limited studies that involve secondary care settings in discharge planning. In the pursuit of patient safety, models that provide interventions across the hospital–community interface seem essential. Elders often have complex health care needs and each discipline may bring and fulfill different perspectives in planning for the elders' needs following hospitalization. We argue that it is vital to undertake a multidisciplinary approach if the objective is to improve transitional care of the elderly. We also highlight the need to increase the awareness of healthcare providers to the challenges of transitional care and make discharge planning a priority. Both nurses and physicians need formal training in transitional care as a core competency for caring for the elderly population [4]. Content in training and education must reflect skills that are necessary to promote cross-site collaboration (e.g. medication reconciliation and provider–provider communication). Lack of knowledge, experience and ability were all cited as important concerns related to discharge planning effectiveness in the study conducted by Bowles and colleagues [59]. Learning to work effectively in multidisciplinary teams should become an essential component of nursing and medicine education [33, 60].

Last we emphasize that simple tools have been proven effective, such as the use of structured medication reports at discharge, read back checklists, pharmacy interventions, and discharge support and follow-up in primary care. Single interventions appear to achieve short term effects as opposed to multi–component interventions which seem to achieve sustained long term effects especially in regards to reducing rehospitalization and health care utilization.

6. Limitations

A major weakness in this review is the absence of a thorough assessment of the methodological quality of the included studies. We emphasize that the studies are not bias-free, indicating the need for caution when interpreting the results. Several methodological problems limit the interpretation of findings. Minstian [16] stresses that “summing up bias generally results in more bias”. However with this in mind, methodological issues have been taken into account in the framing of the conclusions. Most randomized controlled trials stated that control patients received “usual care”. However, the authors seldom described what constituted “usual care”. The intervention studies also varied considerably in measured outcomes, although a majority used readmission rates to identify poor transitional care. However, there is evidence that this outcome measure has limited value as an indicator of quality of care process in general [61]. The sample size in the primary studies also varied in range, from 96 to 712 subjects. Overall, there is lack of large-scale empirical research in this

field. Strategies to improve transitional care are insufficient and not sustained [8, 62-63]. Further research is therefore necessary to develop operationalized definitions for safe transitional care.

7. Conclusions

The study results presented in the paper indicate that elderly discharged from hospital to the community will benefit from targeted interventions aimed to improve transfer across healthcare settings and health care providers. Successful interventions have been proven to reduce readmission rates, adverse drug events, health care utilization, increased patient, family satisfaction and decreased cost. The characteristics of these successful interventions have been identified and highlighted in this review. Future interventions should take into account multi-component and multi-disciplinary interventions incorporating several single interventions combined. Finally, an important step is to introduce and highlight transitional care knowledge in curriculums for both nurses and physicians in addition to multidisciplinary training at an early stage of their education.

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