

## ANZSGM Position Statement

### Position Statement 15: Discharge Planning

#### About the Australian and New Zealand Society for Geriatric Medicine (ANZSGM)

The ANZSGM is a society of medical practitioners engaged in the practice of Geriatric Medicine or related disciplines. Membership of the Society is open to registered medical practitioners who demonstrate a commitment to clinical practice, research, education and administration in Geriatric Medicine and allied specialties and to those undergoing training in these fields.

#### Acknowledgements

This Position Statement represents the views of the Australian and New Zealand Society for Geriatric Medicine and was approved by the Federal Council of the ANZSGM on 11 November 2015. This paper was co-authored by A/Prof Wen Kwang Lim, Dr Carol Chong, A/Prof Gideon Caplan and Professor Len Gray.

## Introduction

1. Discharge planning is an important component in providing a smooth transition from hospital to home for older patients. These processes are becoming even more important as there are increasing numbers of patients in hospital with multiple chronic and disabling conditions in the setting of an ageing population.
2. Discharge planning should start from the beginning of a patient's admission to hospital. For elective patients, discharge planning should start prior to admission.
3. A comprehensive geriatric assessment should be performed in older patients, particularly those who have functional impairment, multiple comorbidities or complex social issues<sup>1</sup>.
4. Discharge planning and assessment of post acute care requirements should be performed by a multidisciplinary team in all patients but particularly if the risk screen determines that the discharge needs of the patient are complex.
5. Risk screening should include assessments of: i) pre-morbid function and disabilities ii) pre-morbid cognitive function and mood iii) current social situation and supports available at home iv) pre-admission service utilisation and carer capability
6. Positive outcomes resulting from efficient discharge planning include a reduction in the length of stay, reduction in re-admissions, better medical outcomes and improved satisfaction for patients and carers.
7. There should be pre-discharge education particularly about medication awareness and management in the community. The patient's capacity to selfmedicate should be assessed or an alternative method of medication administration should be introduced, eg. blister packs, dosette boxes&/or carer administration of medications or nursing administration (eg. district nursing services).
8. Communication with the patient's general practitioner should occur in a timely manner, with a comprehensive discharge summary should accompany the patient and a copy sent to their general practitioner at the time of discharge outlining the clinical course in hospital, any complications, changes to management and support services enlisted.
9. There should be timely access to community support services on discharge from hospital to ensure continuity of care and adequate medical follow-up. Insert text]

## Background paper

### Introduction

In Australia and New Zealand, the population is ageing as a result of sustained low fertility and increasing life expectancy.<sup>(2)</sup> Furthermore, the percentage of people aged 65 years and older has increased from 11.1% of the population in 1990 to 13.6% of the population in 2010. (2-4) This is projected to nearly double over the next 20 years and in New Zealand, the over 65's will make up a quarter of the population by the late 2030's. The burden on health services is anticipated to increase significantly due to the fact that hospital utilisation rates increase with age which will represent a significant challenge for hospitals in the future.<sup>5</sup> Hospitalisation rates are high for older Australians. In 2011-2012, persons aged 85 and over accounted for approximately 7% of all separations and the number of separations in this group increased by an average of 9% each year between 2007-2008 and 2011-2012.<sup>6</sup> Separation rates are increasing at a greater rate among older patients, even after adjusting for population growth.<sup>(7)</sup> With the increase in projected hospital utilisation, the demand for quality discharge planning and the provision of health and related services in the community in the immediate period after discharge from acute hospital care are emerging as important issues. The reduction in hospital length of stay under current funding arrangements, as well as explicit government policy to substitute community for institutional care has led

to an increased emphasis on the provision of formal community services to support older patients discharged from hospital.

There is a perception that discharge planning and organisation of post-acute care services leads to better outcomes. This review was performed to examine the effectiveness of discharge planning in improving patient outcomes and reducing health care costs. Although there is substantial literature surrounding the effectiveness of in-patient geriatric and evaluation units, orthopaedic geriatric services and stroke units, which is relevant to the matter of discharge planning for older people, a detailed analysis of these particular strategies was beyond the scope of this review. This review looks at the role of discharge planning but has references to post-acute services where they play an integral role in the discharge process.

## Definitions

Discharge planning is defined as a “systematic, organised and centralised approach to providing continuity of care from the time a patient is admitted to a health care facility through return to the community”.(8) It is the development of an individual discharge plan for the patient prior to them leaving the hospital for home and has been described as the “critical link between treatment received in hospital by the patient and the post-discharge care provided in the community”.(9, 10) Discharge interventions aim to smooth the discharge process and prevent, ease or solve problems in patient’s functioning and health after discharge.(11) The goal of discharge planning is to facilitate transition of care back to the community.(12) Postacute care programs refer to programs that specifically organise or provide health and related services in the immediate post discharge period. Although it can be argued that discharge planning and post acute care programs are not identical, there is considerable overlap in their functions in preparing a patient for discharge from hospital. Post-acute care programs play a role in organising the post-discharge requirements for patients and in some instances are involved directly in patient care in the immediate period after discharge from hospital. In some hospitals the role of the post acute care program is to take on the role of discharge coordination and planning for patients with complex needs.(13)

## Care planning

Assessment and planning occurs during the hospital admission with the objective of organising care and ensuring patients are in such a condition that they can be discharged back to the community and not be readmitted due to complications or deteriorate after discharge.(11) The aim is to reduce delays in discharge from hospital so that the length of stay is as short as possible. Factors identified in delaying discharge from hospital include inadequate assessment by health care professionals e.g. poor knowledge of patient’s social situation, poor organisation of services and poor communication (3) between hospitals and community service providers.(9) Care providers also need to know about available services before they can offer it to their patients. Some physicians still demonstrate an unsatisfactory level of knowledge and awareness in regards to discharge planning.(14) Care planning involves understanding the patient and their ongoing needs which relies on a thorough knowledge of the patient’s medical conditions, their physical function and social set up. A comprehensive geriatric assessment can be incorporated into discharge planning and there are standardised assessment instruments that can aid in this assessment.(1,9) This assessment can help to identify factors which may need to be addressed either prior to discharge or in the community. Comprehensive geriatric assessments are not wholly focused on the discharge process itself but instead on improving the functional health status of the patient and promote independent living through medical intervention and rehabilitation.(9)

## Outcomes of discharge planning

Outcomes of effective discharge planning can be classified as “patient centred” and “hospital centred”. Patient centred outcomes include:

- Improved patient and carer satisfaction

- Improved access to community services and support
- Reduced short and medium term morbidity
- Reduced mortality

Hospital centred or health financier centred outcomes include:

- Reduced length of stay and episode cost
- Reduced likelihood of unplanned readmission to hospital
- Reduced health care expenditure

The literature pertaining to discharge planning can be broadly described as comprising descriptive and intervention studies. The descriptive studies aim to analyse patient populations with a view to understanding their needs and the potential health care service responses. These studies have a strong emphasis on diagnosing health service delivery problems, and on establishing processes to identify “high risk” patients. The intervention studies evaluate a range of strategies devised to improve outcomes. Firstly, descriptive studies are reviewed.

## Patient satisfaction and consumer feedback

Few studies were identified which assessed patient satisfaction with discharge programs. Consumer satisfaction surveys of varying degrees of sophistication have been incorporated into studies examining the impact of discharge planning. (15-17) Some have studied satisfaction with the discharge process itself and these have shown that patients often feel that they are not provided with enough information or given adequate notification of discharge. One study found that at least 10% of patients indicated that they were not given sufficient information at the time of discharge.(15) Dissatisfaction rates among readmitted patients were almost twice those of patients who were not readmitted. One study found that one third of patients were not informed of their discharge date until the actual day of discharge.(16) Therefore, a discharge date needs to be estimated early in the course of the admission to enable time for the organisation of appropriate post-acute care services. This discharge date should be reviewed regularly throughout the admission to ensure that the patient is making the expected recovery.

Several North American and British studies report disparity between expectation of service requirement and receipt, with levels of up to 30% being reported.(18, 19) Of greater relevance is the patient perception of post-discharge interventions organised and implemented as an integral part of discharge planning, by hospital-based discharge-planning staff. There is some evidence that such interventions may be associated with improved patient satisfaction and quality of life.(14, 17, 20, 21) One study showed that patients had better quality of care scores when they are involved with the discharge planning process and they had increased knowledge about whom to contact about care/services at three and twelve months.(17) In Australia, a controlled study performed looking at the introduction of a re-engineered surgical service, consisting of preadmission assessment and education, admission on day of surgery, and post acute care after discharge found (4) an increase in the patient satisfaction rate.(22) Interpretation of patient satisfaction surveys however is difficult as subjects’ replies depend on many other factors such as educational level, social circumstances and general expectations of the role of hospital staff, which may influence responses to a greater degree than the process of discharge and post-acute interventions. An Australian study found that highly valued aspects of discharge planning for all involved (patients, carers and hospital staff) include: (1) communication with the patient and education (2) providing information on medications (3) provision of information on community services and equipment.(23)

Consumer feedback is an important concept in discharge planning. Patients as consumers need to have an understanding of the aims of discharge planning and should be able to have input into this process. Active participation by patients and their carers can enhance the adherence to a discharge plan, such as medication compliance.(24, 25) A New Zealand study found that 17% of patients wanted to know more about their medications, and some people were confused about their medications following hospital discharge.(26) Additionally, another New Zealand study found that computer programs that can detect possible adverse drug reactions can help screen and target at risk individuals.(27) Increased knowledge

can lead to empowerment of the patient so that they feel more in control in the management of their condition and thus more satisfied with their care.

## Communication between hospitals and general practitioners

General practitioners are often the main medical point of contact for patients on discharge from hospital and thus play a vital role in the follow-up of patients post discharge. Thus, the transfer of information between hospitals and general practitioners is a crucial aspect of patient care. Communication of information between hospitals and general practitioners needs to be improved.(28-30) Suboptimal handovers at hospital discharge can lead to increased rehospitalisation and decreased quality of health care.(30) Liaison with the patient's general practitioner during the hospital admission is often beneficial and assists in determining a suitable discharge plan, particularly for patients with complex needs.(31) On discharge of the patient from hospital, the transfer of information should be timely and contain relevant data. Delayed or lack of communication with the general practitioner can have implications in continuity of care, patient safety, patient and clinical satisfaction and resource use.(28, 32, 33) A recent review found that the availability of a discharge summary at the first post-discharge visit was low (12-34%) and remained poor at 4 weeks (51-77%), affecting the quality of care in 25% of follow-up visits.(28) Another study found that incomplete or non-availability of discharge summaries led to lack of completeness in follow-up tests recommended by the hospital.(34) Other studies have commented on the usefulness of comprehensive discharge summaries and electronic discharge summaries.(30) Other options to facilitate timely transfer of information to general practitioners include web-based discharge summaries.30 A recent trial found that a multidisciplinary approach in discharge planning which includes liaison with the patient's general practitioner can reduce hospital readmissions and lower hospital costs.(31)

## Community services and post hospital care

A wide range of forms of assistance may be offered to patients and their families in the post acute period. These can be broadly classified as follows:

- *Review, advisory and referral services.* This includes review of patient progress, provision of advice or education, and referral to additional services not organised prior to discharge.
- *Treatment services.* These are often a continuation of treatment offered in the inpatient hospital setting. Examples include renal dialysis, pathology tests, wound dressings and rehabilitation services.
- *Support services.* These services assist dependent individuals to manage in the home environment. Such services include assistance with bathing, house cleaning, provision of meals and respite services.

Depending on the nature of service required, the provider may vary. Services of a highly technical nature may only be (5) able to be provided by the hospital from which the patient was discharged, under the supervision of specialist professionals. This includes hospital substitution programs such as rehabilitation in the home, for example after a stroke. Studies have shown that these programs can be effective.(35) They are cost effective, reduce length of stay in hospital and it has been shown in some studies that participants in a home based rehabilitation program have less adverse events which leads to better outcomes.(35-37) Community providers such as general practitioners or outpatient rehabilitation services may provide less complex treatment services. Assistance to overcome functional dependency is generally offered by the same agencies that provide similar services on a long-term basis to the chronically disabled. Details of which community services are used are also important for future planning of these services. Differing regional discharge practices, service availability and demographic profile complicate the interpretation of the literature and the degree to which findings are applicable at a local level. However studies from Australia and overseas generally show that the three most commonly used services are the "social" services, home meals (meals on wheels) and home help, usually provided by the council and the "medical/nursing" service community nursing, provided by community nursing agencies.

An Australian study examined the quality of discharge planning from the perspective of the carer.(38) They found that carers rated the quality of planning for discharge lower than the patient which suggests that carer needs were often not met during this period. The authors concluded that planning for discharge

requires more consideration for the carer. Therefore, a holistic approach is recommended which incorporates the needs of both the patient and the carer. A study of eight countries including Australia and New Zealand found that deficits in care management occurred in all countries during hospital discharge and that system innovations are needed to improve outcomes for patients with complex chronic conditions.(39)

## Cost constraints and reducing length of stay

In recent decades a progressive decline in average length of hospital stay has been a universal phenomenon.<sup>9</sup> This results partly from improvements in medical practice and the increase in day admission rates. However, it is also influenced by attempts by government, insurers and hospitals to reduce costs. While limitations in physical space (beds) may contribute, probably the major driving force is the effect on cost reduction afforded by reducing length of stay. Prospective payment systems based on case mix have probably accelerated this trend. The introduction of Diagnosis Related Groups as a basis for payment to hospitals in the United States of America in the mid-1980s was associated with reduced hospital length of stay, discharge of patients while in less stable condition but no change in readmission rates or 30 day mortality. However, the demand for community services increased.<sup>(40)</sup> Decreased length of stay reduces the time available to organise care requirements following discharge from hospital which impacts on discharge planning. This is likely to increase the risk of patients being discharged with inadequate or inappropriate services. Further, if it is assumed that the recovery path is unchanged, the period of dependency following an acute illness will increasingly be transferred to the post-discharge period, where the responsibility of care will lie with families and formal community service providers. In effect, this represents cost shifting by the hospital to the community which may not necessarily eventuate in an improvement in patient or societal welfare. In fact, some studies suggest that shorter length of stay is associated with higher rates of readmission, but an exclusive statistical relationship has not been established.<sup>(41)</sup> A recent Cochrane meta-analysis found that hospital length of stay was statistically significantly reduced for patients admitted to hospital with a medical diagnosis who received discharge planning as an intervention (mean difference length of stay -0.91, 95% CI -1.55 to -0.27).<sup>42</sup> Conversely, another meta-analysis from Fox et al<sup>12</sup> did not find a difference in hospital length of stay.

## The intervention studies – what is the evidence?

### Introduction and Methodology

Studies published since the mid 1980's have focused on evaluating the impact of 6 discharge planning and/or post-acute care programs. The literature was reviewed in order to identify evidence that discharge planning and post-acute strategies in acute care produce any of the benefits described earlier in this paper. Thirteen studies were identified in the previous version of this position statement in 2008.<sup>(43)</sup> An additional four studies have been identified for this review.<sup>(44-47)</sup> All seventeen studies met the following criteria:

- There was a prospective experimental design with a control group
- There was a clearly defined intervention related to discharge planning and / or provision of post-acute care
- There was an adequate sample size • Older patients constituted a major proportion of the subjects involved
- There was a minimum of three months follow-up

### *Study populations*

Six studies (46, 48-52) used age cut offs to recruit patients. Four of these studies,(48, 49, 5) recruited patients greater than 75 years of age, the study by Legrain et al (46) recruited inpatients aged 70 and older and the study by Siu et al (50) had patients greater than 65 years of age. The Post Acute Care study in Australia (53) used medical and surgical patients aged 65 years and over. Two studies recruited

only general medical inpatients (54, 55) Smith et al (54) recruited 1001 consecutive patients admitted to a general medical inpatient unit with an average age of 53 years. The study by Fitzgerald et al (55) studied 688 veteran patients with an average age of 64 years and the study by Legrain et al (46) recruited from six acute geriatric units in Paris and its surroundings. Seven studies targeted specific patient groups. Rich et al (56), Harrison et al (45) and Laramée et al (44) recruited patients with congestive cardiac failure, Naylor et al (57) recruited cardiac medical and surgical patients, Weinberger et al (21) studied patients with a diagnosis of congestive cardiac failure, chronic obstructive airways disease or diabetes mellitus, Lin et al (47) recruited hip fracture patients and Legrain et al (46) recruited inpatients from an acute geriatric unit.

### *Interventions*

Thirteen studies incorporated discharge planning into the intervention. One study (58) had discharge planning only, by social workers, as the intervention. Five (56, 59, 60, 45, 47) of the thirteen studies incorporated a nurse mediated home visit following discharge from hospital. Two studies (52, 60) also had a pharmacist intervention performed on 'high risk' patients and three other studies (21, 44, 59) had telephone-follow up performed after discharge. One study focused predominantly on the purchase and provision of services following discharge.(53) The DEED II study incorporated a Comprehensive Geriatric Assessment followed by a multidisciplinary outreach service up to 28 days following discharge from the Emergency Department. Le Grain et al (46) used geriatrician intervention targeting three components (1) comprehensive chronic medication review, (2) education on self-management of disease and (3) detailed transition-of-care communication with outpatient health professionals.

### *Outcomes of intervention studies - Mortality*

The capacity of discharge planning and post-acute care programs to influence patient centred outcomes remains largely unanswered. Only one study had an impact on patient survival and this effect remained sustained up to 18 months in the cardiac subgroup of the trial.(60) Another study which performed a multifaceted intervention on patients with heart failure showed a trend towards the reduction of mortality suggesting that targeting cardiac medical patients, in particular those patients with congestive cardiac failure may provide the largest benefit on patient survival. Two recent meta-analyses did not find a significant difference in mortality between the intervention and control groups.(2, 42)

### *Functional status*

Six studies examined physical function (14, 47, 48, 50, 57, 59) as an outcome measure. The study by Caplan and colleagues (51) demonstrated a reduction in physical decline as measured by the Barthel Index and Lin et al (47) showed a trend to better functional status with the discharge planning intervention. No differences were observed between intervention or control patients in the other studies. These findings suggest that discharge planning (7) and/ or post-acute care programs have a minimal impact on changes in the level of disability. Other studies and metaanalyses have come to the same conclusion.(9, 11, 61)

### *Patient satisfaction and quality of life*

With regard to patient satisfaction there was little evidence that discharge planning had sustained effects. In fact, one study<sup>50</sup> somewhat paradoxically demonstrated that intervention patients were less satisfied with the quality of post acute care. The authors suggested that their intervention might have raised patient expectations beyond those of the control group. The study by Weinberger et al<sup>21</sup> demonstrated an increase in patient satisfaction, despite increased readmissions in the intervention group. The study by Lin et al<sup>47</sup> did not find a difference in patient satisfaction compared to the control group. Three studies that demonstrated improvement in quality of life were targeted at cardiac failure patients 45, 56 and all patients who had short term service provision and case management.(53)

### *Hospital readmissions and length of stay*

The effect of the interventions on hospital based outcomes is more promising. All 17 studies used hospital readmissions as one of the main outcome measures. Of these, 11 studies (44-46, 48, 51, 53, 56-60)

reported a reduction in readmission rates. Three factors were identified that reduce hospital readmission rates; (1) active discharge planning, (2) targeting high risk patient groups and (3) home visits.

(1) Active discharge planning. Ten of the eleven successful trials offered assistance, usually guided by a protocol, in preparing patients and carers for the hospital discharge. The study by Townsend et al (48) offered no formal discharge planning, although care attendants visited patients before they were discharged and were involved in organising help from family, friends and statutory services. This service could have therefore taken on a proxy discharge planning role. In contrast, discharge planning was only offered in one unsuccessful trial.(21)

(2) Targeting of high risk patient groups. Of the 11 studies with a reduction in readmission rates, three studies did not have specific targeting of a high risk patient group. 48, 51, 53 Four studies (44, 45, 56, 57) targeted cardiac patients. Three studies (44, 45, 56) enrolled only patients with an admission diagnosis of congestive cardiac failure while Naylor et al 57 enrolled both cardiac medical and surgical patients. Interestingly, there was no difference in readmission rates in the surgical group of patients.

(3)Home visits. Five trials with improved readmission rates used home visiting as a major feature of the intervention (48, 51, 56, 59, 60). Only two out of the five studies identified with no improvement in readmission rates had home visits incorporated as part of their intervention.(49, 50)

Apart from the lack of interventions highlighted above, three of the six studies (21, 54, 55) that were unable to show reductions in readmission rates relied on telephone and outpatient follow-up. In the study by Weinberger et al,(21) readmission rates were actually increased in the intervention group over a six month follow-up period.

Only five studies (21, 47, 53, 57, 58) reported length of stay of the initial admission, which is surprising given the increasing preoccupation with Diagnosis Related Group (DRG) based prospective payment systems. Four studies that involved discharge planning as a component of the intervention demonstrated no difference in length of stay of the index admission.(21, 47, 57, 58)

### *Nursing home admissions*

Five studies (49-51, 54, 58) looked at the effect of their intervention on discharge disposition in the form of nursing home admissions. Two studies which showed a reduction in nursing home admissions over the follow-up period had a social worker driven discharge planning intervention (58) and a post-discharge home visit intervention by nurses and general practitioners.(49) The studies by Siu et al (50) and Caplan et al (51) in which the intervention consisted of a comprehensive geriatric assessment, showed no impact on discharge to nursing homes. In the study performed by Smith and colleagues (54) there was no difference in groups in terms of nursing home placement in a 6-month follow-up period with a protocol driven telephone follow-up intervention supported by a general medical outpatient service.

### *Cost-effectiveness*

Six of the trials (53, 55-57, 59, 60) included an analysis of cost of delivering the intervention. In five studies, there were substantial reductions in cost in the intervention group, but in only three studies (53, 56, 59) were the differences statistically significant. However, the studies failed to analyse in detail community or non-hospital services costs, an important component in assessing the efficacy of discharge planning and post-acute interventions from a health financier's perspective.

### *Discussion*

The role of discharge planning in achieving a successful outcome in reducing readmissions to hospital may be mediated through a variety of mechanisms. For example, patient education may result in improved compliance with treatment regimes, including medications and lifestyle advice. Other advantages of discharge planning include providing psychological support and appropriate formal home care services. These 17 studies were primarily designed to ascertain whether the intervention could

influence readmission rates. The capacity of these or similar interventions to influence other health outcomes largely remain unanswered given the heterogeneity of the studies. However, the evidence available in these studies suggests that the effects on outcomes such as physical function and quality of life are likely to be weak.

### *Conclusion*

This is an updated review of the 2008 Australian and New Zealand Society for Geriatric Medicine position statement on discharge planning.<sup>(43)</sup> The conclusions are similar; significant sub-groups of acute hospital patients are at risk of adverse outcomes, which the evidence suggests are at least partially preventable through careful discharge planning. A variety of strategies are available to identify most of these patients during the inpatient episode. The intervention studies suggest that interventions targeted at high risk patients have the capacity to reduce readmission rates for these patients during the first few months after discharge. The evidence suggests that carefully designed discharge planning and home based review protocols implemented by health professionals, perhaps in a multidisciplinary team setting, with a focus on patient education, treatment compliance, and review of service requirements can achieve optimal results.

## References

1. Caplan GA, Williams AJ, Daly B, Abraham K. A randomized, controlled trial of comprehensive geriatric assessment and multidisciplinary intervention after discharge of elderly from the emergency department--the DEED II study. *Journal of the American Geriatrics Society*. 2004;52:1417-23.
2. Australian Bureau of Statistics (homepage on the Internet) Canberra; Australian Bureau of Statistics 2010 (cited 2013 Nov 15). Available from [www.abs.gov.au/ausstats/abs@.nsf/mf/3201.0](http://www.abs.gov.au/ausstats/abs@.nsf/mf/3201.0). 2013.
3. Australian Institute of Health and Welfare. Older Australia at a glance: 4th edition. Cat. no. AGE 52. Canberra: Australian Institute of Health and Welfare; 2007.
4. Australian Bureau of Statistics [homepage on the Internet] Canberra; Australian Bureau of Statistics 2008 [updated 2008 March 11; cited 2008 June 20]. Available from: <http://www.abs.gov.au/ausstats/abs@.nsf/ProductsbyCatalogue>.
5. Glasby J, Littlechild R, Pryce K. All dressed up but nowhere to go? Delayed hospital discharges and older people. *Journal of Health Services & Research Policy*. 2006;11:52-8.
6. Australian Institute of Health and Welfare. Australian hospital statistics 2011- 12. Cat no. HSE 134. Canberra: Australian Institute of Health and Welfare; 2013.
7. Gray LC, Yeo MA, Duckett SJ. *Med J Aust*. 2004;181:478-81.
8. Shulman L, Tuzman L. Discharge planning: a social work perspective. *Quarterly Review Bulletin*. 1980;3-8.
9. Shepperd S, Parkes J, McClaren J, Phillips C. Discharge planning from hospital to home.[update of Cochrane Database Syst Rev. 2000;(4):CD000313; PMID: 11034682]. *Cochrane Database of Systematic Reviews*. 2004:CD000313.
10. Lin CJ, Cheng SJ, Shih SC, Chu CH, Tjung JJ. Discharge Planning. *International Journal of Gerontology*. 2012;6:237-40.
11. Mistiaen P, Francke AL, Poot E. Interventions aimed at reducing problems in adult patients discharged from hospital to 9 home: a systematic meta-review. *BMC Health Services Research*. 2007;7:47.
12. Fox MT, Persaud M, Maimets I, Brooks D, O'Brien K, Tregunno D. Effectiveness of early discharge planning in acutely ill or injured hospitalized older adults: a systematic review and meta-analysis. *Bmc Geriatrics*. 2013;13.
13. Caplan GA, Brown A. Post acute care: can hospitals do better with less? . *Australian Health Review*. 1997;20:43-54.
14. Lin SC, Cheng SJ, Shih SC, Chang WL, Chu CH, Tjung JJ. The Past, Present, and Future of Discharge Planning in Taiwan. *International Journal of Gerontology*. 2013;7:65-9.
15. Victor CR, Vetter NJ. Preparing the elderly for discharge from hospital: a neglected aspect of patient care? *Age Ageing*. 1988;17:155-63.
16. Harding J, Modell M. Elderly people's experiences of discharge from hospital. *Journal of the Royal College of General Practitioners*. 1989;39:17-20.
17. Berglund H, Wilhelmson K, Blomberg S, Duner A, Kjellgren K, Hasson H. Older people's views of quality of care: a randomised controlled study of continuum of care. *Journal of Clinical Nursing*. 2013;22:2934-44.
18. Wolock I, Schlesinger E, Dinerman M, Seaton R. The posthospital needs and care of patients: implications for discharge planning. *Social Work in Health Care*. 1987; 12:61-76.
19. Jones EW, Densen PM, Brown SD. Posthospital needs of elderly people at home: findings from an eight-month follow-up study. *Health Services Research*. 1989;24:643-64.
20. Phillips C. Post discharge follow-up care: effect on patient outcomes. *Journal of Nursing Care Quality*. 1993;7:64-72.
21. Weinberger M, Oddone EZ, Henderson WG. Does increased access to primary care reduce hospital readmissions? *New England Journal of Medicine*. 1996;334:1441-7.
22. Caplan GA, Brown A, Crowe PJ, Yap SJ, Noble S. Reengineering the elective surgical service of a tertiary hospital: a historical controlled trial. *Medical Journal of Australia*. 1998;169:247-51.
23. Grimmer K, Moss J. The development, validity and application of a new instrument to assess the quality of discharge planning activities from the community perspective. *International Journal for Quality in Health Care*. 2001;13:109-16.
24. Hanlon J, Weinberger M, Samsa G, et al. A randomised controlled trial of a clinical pharmacist intervention to improve inappropriate prescribing in elderly outpatients with polypharmacy. *Am J Med*. 1996;100:428- 37

25. Begley S, Livingstone C, Hodges N, Williamson V. Impact of domiciliary pharmacy visits on medication management in an elderly population. *Int J Pharm Practice*. 1997;5:111- 21.
26. Tordoff JM, Bagge ML, Gray AR, Campbell AJ, Norris PT. Medicine-taking practices in community-dwelling people aged  $\geq 75$  years in New Zealand. *Age and Ageing*. 2010;39:574-80.
27. Falconer N, Nand S, Liow D, Jackson A, Seddon M. Development of an electronic patient prioritization tool for clinical pharmacist interventions. *American Journal of Health-System Pharmacy*. 2014;71:311-20.
28. Kripalani S, LeFevre F, Phillips CO, Williams MV, Basaviah P, Baker DW. Deficits in communication and information transfer between hospital-based and primary care physicians. *JAMA*. 2007;297:831-41.
29. Schabetsberger T, Ammenwerth E, Andreatta S, et al. From a paper-based transmission of discharge summaries to electronic communication in health care regions. *International Journal of Medical Informatics*. 2006;75 (3-4):209-15.
30. Hesselink G, Schoonhoven L, Barach P, et al. Improving Patient Handovers From Hospital to Primary Care A Systematic Review. *Annals of Internal Medicine*. 2012;157:417-U81.
31. Torisson G, Minthon L, Stavenow L, Londos E. Multidisciplinary intervention reducing readmissions in medical inpatients: a prospective, non-randomized study. *Clinical Interventions in Aging*. 2013;8:1295-304.
32. Carroll A, Dowling M. Discharge planning: communication, education and patient participation. *British Journal of Nursing*. 2007;16:882-6.
33. EG, Gandhi TK, Sequist TD, Murff HJ, Karson AS, Bates DW. "I wish I had seen this test result earlier!" dissatisfaction with test result management systems in primary care. *Arch Int Med*. 2004;164:2223-8.
34. Moore C, McGinn T, Halm E. Tying up loose ends: discharging patients with unresolved medical issues. *Archives of Internal Medicine*. 2007;167:1305-11.
35. Langhorne P, Holmqvist LW, Early Supported Discharge T. Early supported discharge after stroke. *Journal of Rehabilitation Medicine*. 2007;39:103-8.
36. Anderson C, Ni Mhurchu C, Brown PM, Carter K. Stroke rehabilitation services to 10 accelerate hospital discharge and provide home-based care: an overview and cost analysis. *Pharmacoeconomics*. 2002;20:537- 52.
37. Miller P, Gladman JRF, Cunliffe AL, Husbands SL, Dewey ME, Harwood RH. Economic analysis of an early discharge rehabilitation service for older people. *Age & Ageing*. 2005;34:274-80.
38. Grimmer KA, Moss JR, Gill TK. Discharge planning quality from the carer perspective. *Quality of Life Research*. 2000;9:1005-13.
39. Schoen C, Osborn R, How SKH, Doty MM, Peugh J. In *Chronic Condition: Experiences Of Patients With Complex Health Care Needs, In Eight Countries, 2008*. *Health Affairs*. 2009;28:W1-W16.
40. Estes CL, Swan JH. *Prospective payment revolution and long term care, The long term care crisis - elders trapped in the nocare zone* Sage Publications. 1993: 1-21.
41. Tierney AJ, Worth A. Review: readmission of elderly patients to hospital. *Age & Ageing*. 1995;24:163-6.
42. Shepperd S, Lannin NA, Clemson LM, McCluskey A, Cameron ID, Barras SL. Discharge planning from hospital to home. *Cochrane Database of Systematic Reviews*. 2013.
43. Lim WK, Chong CP, Gideon C, Gray L. Australian and New Zealand Society of Geriatric Medicine Position Statement No. 15 - Discharge Planning. *Australasian Journal on Ageing*. 2009;28:158-64.
44. Laramee AS, Levinsky SK, Sargent J, Ross R, Callas P. Case Management in a heterogeneous congestive heart failure population: a randomized controlled trial. *Arch Intern Med* 2003;163:809-17.
45. Harrison MB, Browne GB, Roberts J, Tugwell P, Gafni A, D. GI. Quality of life of individuals with heart failure: a randomized trial of the effectiveness of two models of hospital-to-home transition. *Med Care*. 2002;40:271-82.
46. Legrain S, Tubach F, BonnetZamponi D, et al. A new multimodal geriatric discharge-planning intervention to prevent emergency visits and rehospitalizations of older adults: the optimization of medication in AGEd multicenter randomized controlled trial. *J Am Geriatr Soc*. 2011;59:2017-28.
47. Lin PC, Wang CH, Chen CS, Liao LP, Kao SF, Wu HF. To evaluate the effectiveness of a discharge-planning programme for hip fracture patients. *J Clin Nurs*. 2009;18:1632-9.

48. Townsend J, Piper M, Frank AO, Dyer S, North WRS, Meade TW. Reduction in hospital readmission stay of elderly patients by a community based hospital discharge scheme: a randomised controlled trial. . BMJ. 1988;297:544-7.
49. Hansen FR, Spedtsberg K, Schroll M. Geriatric follow-up by home visits after discharge from hospital: a randomized controlled trial Age Ageing. 1992;21:445-50.
50. Siu AL, Kravitz RL, Keeler E, Hemmerling K, Kington R, Davis JW. Postdischarge geriatric assessment of hospitalized frail elderly patients. Arch Int Med. 1996;156:76-81.
51. Caplan GA, Williams AJ, Daly B, Abraham K. A randomized, controlled trial of comprehensive geriatric assessment and multidisciplinary intervention after discharge of elderly from the emergency department-the DEED II study. J Am Geriatr Soc. 2004;52:1417-23.
52. Nazareth I, Burton A, Shulman S, Smith P, Haines A, Timberall H. A pharmacy discharge plan for hospitalized elderly patients - randomized controlled trial. Age and Ageing. 2001;30:33-40.
53. Lim WK, Lambert SF, Gray LC. Effectiveness of case management and postacute services in older people after hospital discharge. Med J Aust. 2003;178:262-6.
54. Smith DM, Weinberger M, Katz BP, Moore PS. Postdischarge care and readmissions. Med Care. 1988;26:699-708.
55. Fitzgerald JF, Smith DM, Martin DK, Freedman JA, Katz BP. A case manager intervention to reduce readmissions. Arch Int Med. 1994;154:1721-9.
56. Rich MW, Beckham V, Wittenberg C, Leven CL, Freedland KE, Carney RM. A multidisciplinary intervention to prevent the readmission of elderly patients with congestive heart failure. N Engl J Med. 1995;333:1190-5.
57. Naylor M, Brooteen D, Jones R, Lavizzo-Mourey R, Mezey M, Pauly M. Comprehensive discharge planning for the hospitalized elderly: a randomized clinical trial. Annals of Internal Medicine. 1994;120:999-1006.
58. Evans RL, Hendricks RD. Evaluating hospital discharge planning: a randomized clinical trial. Med Care. 1993;31:358-70.
59. Naylor MD, Brooten D, Campbell R, et al. Comprehensive discharge planning and home follow-up of hospitalized elders. A randomised clinical trial. JAMA. 1999;281:613-20.
60. Stewart S, Pearson S, Luke C, Horowitz J. Effects of home based intervention 11 on unplanned readmissions and out-of hospital deaths. J Am Geriatr Soc. 1998;46:174-80.
61. Beaupre LA, Cinats JG, Senthilselvan A, Scharfenberger A, Johnston DW, Saunders LD. Does standardized rehabilitation and discharge planning improve functional recovery in elderly patients with hip fracture? Archives of Physical Medicine & Rehabilitation. 2005;86:2231-9. [Insert text]

