Informing Discharge Plans - Assessments of Elderly Patients in Australian Public Hospitals: A Field Study

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Abstract
This paper describes assessment practices related to discharging elderly patients from Australian acute public hospitals. Common assessments were of cognition, continence, wound care, hygiene needs, nutrition, mobility and self-care. Nurses and social workers commonly took non-standardised assessment approaches, whilst therapists were more likely to use published assessment instruments. Patients’ perspectives were rarely incorporated into assessments. The relationship between many common assessment items and patients’ ability to manage safely after discharge from hospital was unclear. The validity of assessment items, the reliability with which assessments were taken, ‘normal’ variability in responses, and interpretation of instrument ‘scores’ with respect to post-discharge independence were rarely considered. This study highlighted the need to consider organisational and professional barriers to good discharge planning practices, the purpose, frequency, validity and accuracy of discharge-related assessments, patients’ and carers concerns, health professionals’ capacity, opportunity and commitment to share assessment findings relative to planning discharge.

INTRODUCTION
Discharge planning research consistently reports the importance of taking elderly patients’ complex and multifactorial health problems into account when planning their discharge from hospital.¹ ² It is increasingly common for an elderly person to be discharged ‘early’ from hospital, consequently requiring family and community supports to assist in their recuperation.³ ⁴ Discharge planning is the process by which the required support services are organised to address short-term deficits in patients’ health and functional status on discharge from hospital.¹ ³ These deficits are identified by assessing patients’ current health and functional status, compared with that required for independent community living.⁶

Identifying and addressing these deficits is a major challenge of discharge planning.⁷ ⁰ Failure to do this can result in unplanned re-admissions of often, very ill elderly people to acute hospital beds, increased load on patients and families, increased unplanned and unnecessary use of community support services, compromised health and social functioning of older people in the community and/or earlier than planned admission to residential care.¹¹
While there is little research into the nature, amount and frequency of assessment data required to form discharge plans, there are concerns worldwide about the volume of assessment data collected from elderly patients whilst they are in hospital, and inefficiencies in data collection, storage, retrieval and synthesis.\textsuperscript{12-15} To effectively and efficiently plan the discharge of elderly patients from a hospital requires a recognition by hospital staff of the minimum number of critical assessment items for each patient, measured at appropriate time intervals.\textsuperscript{16}

This paper reports on an investigation into discharge planning-related assessments of elderly patients in Australian public hospitals. This study was undertaken under the direction of a standing committee of the Australian Health Ministers Advisory Council (called our Reference Committee). For the purpose of this study the definition of the term ‘assessment’ (relative to discharge planning) as proposed by the Department of Health, UK\textsuperscript{6} was used (‘a collection of scales, questions and other information to provide a rounded picture of an individual’s needs and related circumstances’).

**METHOD**

**Ethics approvals**

The study was approved by the relevant ethics committees of the researchers’ university and all participating hospitals.

**Study Design**

A cross-sectional observational study captured information on assessment practices in Australian acute public hospitals, related to planning discharge for elderly patients.

**Data collection**

Invitations to participate in the study were sent to 24 acute public hospitals, identified by the Reference Committee as representative of Australian hospital location (rural and remote, capital city, other large cities)\textsuperscript{17} and bed size (<100 beds, 100-300 beds, 300-500 beds, 500+ beds). Each hospital administrator assigned a key hospital contact who was integrally involved in planning discharge for older patients. This contact then identified all other relevant hospital staff engaged in some way with this activity.

Questionnaires seeking information on discharge-related assessment processes were sent to all assigned staff contacts, including requests for all relevant assessment documentation. Themes covered by the questionnaires comprised:

- Organisational service models and referral practices
- Role of specific health disciplines in assessment and discharge planning
- Assessment tools
- Systems and procedures related to documentation, retrieval and communication of assessment findings
- Barriers to and facilitators of effective assessment related to discharge planning practices

Site visits were then undertaken, where key personnel participated in semi-structured interviews with the researchers to expand on the questionnaire responses. An iterative approach\textsuperscript{18} underpinned all interviews, based on the notion that when no new information was forthcoming, a complete picture had been provided of the discharge-related assessment practices at the hospital.

**Data analysis**

Site maps of each hospital, and data summary tables were constructed to outline the referral processes for discharge assessments. This included the staff involved in these assessments, how assessments were documented, retrieved, analysed and communicated (within hospital, and between hospital and community), and how assessments were related to discharge plans. Comparisons were then made within, and between, strata of hospital location and bed size.

**RESULTS AND DISCUSSION**

**Hospital sample**

Twenty-three sites participated in the study. Whilst the remaining site (a 300-500 bed hospital) indicated its interest, ethical approval could not be obtained within the study period. Eleven sites were located in metropolitan capital cities, three in other metropolitan locations, five in large rural centres and four in small rural / remote centres. The frequency of hospitals by bed number is provided in Figure 1.
A range of hospital personnel (N=286) were initially identified as being involved in assessing elderly patients in relation to planning their discharge. These included medical staff (consultants and specialists, registrars, residents), nursing staff (ward and in-charge nurses, nurses working in other roles within the hospital), liaison officers, discharge planners, social workers and therapists (usually physiotherapists and occupational therapists, but also including dieticians, speech pathologists, podiatrists). Figure 1 reports the average number of discharge-assessment personnel by hospital size.

Responses
Completed questionnaires were received from 216 hospital staff (76% of those initially identified), 229 hospital staff (80% of the those initially identified) participated in interviews. Response rates did not differ by location or hospital bed size. At interview, participants were asked to identify other hospital staff involved in assessing elderly patients in preparation for their discharge, who had not been involved in the project to date. No other relevant staff was identified in the smallest hospitals, two were identified in the 100-300 bed hospitals, and 37 staff were identified in the remaining hospitals (12 in the 300-500 bed hospitals, and 25 in the 500+ bed hospitals).

Staff / bed ratios
If one assumes that all relevant hospital personnel were identified by the process described above, and that at least half the beds in each hospital were occupied by patients over the age of 65 years, then the smallest hospital sites were better resourced with personnel undertaking discharge-assessments for elderly patients than the larger sites (see Figure 1). To provide the same elderly hospital bed / staff ratio as in the smallest hospitals, the 100-300 bed sites should have identified (on average) 16 staff per site, the 300-500 bed sites (on average) 32 staff per site, and the largest sites (on average) 80 personnel per site. This would require an increase of four staff involved in discharge assessments in each of the 100-300 bed sites, 17 staff in each of the 300-500 bed sites, and 62 staff in each of the largest sites. To do this would primarily require greater sharing of the responsibility for assessing elderly patients relative to planning their discharge.
These estimates raise the question of appropriate ratios of discharge assessment staff to elderly acute hospital patients. In the smaller sites, it was a relatively simple exercise for key hospital contacts to identify all staff involved in discharge assessments and discharge planning, as most staff members knew each other, their roles and responsibilities. However in the larger sites, identification of relevant staff was not as simple, suggesting that the larger the hospital site, the more difficult it is for any one person to have a thorough knowledge of discharge planning activities, or staff who are involved in them.

Overview of content and purpose of discharge planning assessments
Purpose: Discharge-related assessments focused mostly on function, with some attention to needs identification (see Table 1).

| Table 1. Common themes and elements of assessments related to discharge planning |
| Key Themes                                      | Elements                                                                 |
| Patients’ current physical and mental status    | 1. Mobility                                                              |
|                                                | 2. Function (activities of daily living and emotional status)            |
|                                                | 3. Cognition                                                             |
|                                                | 4. Medical conditions likely to influence health, emotional and social status in the future |
| Patients’ predicted physical and mental status  | 1. Mobility                                                              |
|                                                | 2. Function (activities of daily living and emotional status)            |
|                                                | 3. Cognition                                                             |
| Patients’ community circumstances              | 1. Family/carers’ availability, skills and willingness to be involved in patient care after discharge |
|                                                | 2. Pre-admission living arrangements and environment of the patient     |
|                                                | 3. Pre-admission use of community health and other support services     |
|                                                | 4. The supportiveness of the environment to which the patient will return, in terms of facilitating patient independence, (ease of accessing food, hygiene, moving around safely, adequate cooling, heating, ongoing medical care etc) |
| Patient needs and preference                   | Aspects of care for which the patient requires assistance now, and in the future |
| Patient preference regarding discharge destination |                                                                           |

These findings concur with the literature, where best practice discharge plans are reported to be formulated on a comparison of patients’ current function with that required for independence post-discharge.²⁻⁵⁻²⁰⁻²¹ Functional status is believed to be a sensitive health indicator, reflecting core activities of daily living (bathing, dressing, eating, toileting, hygiene and mobility (transferring and walking)), and activities associated with recuperation (wound care, medication management, preparing meals, managing household tasks, re-establishing social contacts).²²⁻²⁶ However, the variability found in hospital assessment practices reflects the lack of guidance in the literature regarding the correlation between functional status measured in hospital with patients’ successful return to independent living in the community.²⁻¹¹ Examples of variable practices are outlined in the following section.
Instrument choice: Across sites, there was wide variability in discharge-related assessment practices, including their nature, purpose, content and frequency. Discharge-assessment practices were classified post-hoc as those which used standardised instruments (with published information on psychometric properties), and those which used in-house instruments (not published, developed for site-specific use). The majority of assessment instruments of the latter description, with little evidence of testing for content or construct validity. Item definition and measurement processes in many instances seemed to have evolved over time, with few documented attempts to re-evaluate assessment purpose, content or reporting. Data items mostly reflected hospital staff perspectives. Therapists and staff involved in multidisciplinary discharge team meetings being most likely to use standardised assessment instruments (see Table 2), although their use of these assessments instruments also varied between sites.

Interpretation of scores
The usefulness of assessment information in formulating discharge plans was frequently constrained by the interpretation of functional change in terms of post-discharge needs. Change in function over time was reported in a range of ways, for instance, subjective descriptions, percentage improvement, raw scores, or perceived ability to undertake specific tasks. Where change was reported quantitatively, there was variable understanding by hospital staff of what the ‘numbers’ meant, or of ‘how much improvement’ was required to support safe, sustainable discharge. There was limited recognition by staff of reasons for variability in patient responses when repeated assessments were taken during the hospital admission, and there was generally limited ability by staff to interpret this variability in terms of functional independence post-discharge. It was found that there were few attempts to test the reliability of staff in using any instrument (standardised or ‘in-house’) for assessment purposes.

Formal discharge-related assessments were often completed once only during the patients’ admission, despite their common purpose of assessing change in function during the admission. When assessments were undertaken more frequently, reassessment information was often recorded in alternative forms (such as text) on patient notes, which did not support accurate estimation of change. The interpretation of quantitative findings from assessment instruments thus often relied on subjective judgement applied retrospectively. This finding highlights the importance of establishing benchmarks for the function required by older patients in order to manage independently in the community.

There was variability in the way in which discharge assessment information was recorded and communicated within hospitals, and between hospital and community. The most common repository of documentation, and hence communication of assessment findings was patients’ medical records. This meant that for patients with complex problems, or repeated admissions, access to relevant assessment information for discharge planning was difficult to find, and relied on the interest and time of health professionals to retrieve and collate it.

There were few ways in which serial assessment of the same features (for instance function, need, cognition, pain management) was recorded efficiently, or in ways that encouraged evaluation of change over time. Only three hospitals (13% of the sample) used electronic systems for recording, extracting, evaluating and summarising assessment information relative to making discharge plans, however there was little evidence that use of electronic data handling systems improved assessment data synthesis or interpretation.

Exchange of information
In the larger hospitals, it was common to find different assessment systems operating in similar wards or units (for instance three co-located medical wards could use three different approaches to assessing patients for discharge). Like assessment items, system evolution seemed historical in many instances, developing over time to address specific patient types, or to reflect particular staff requirements or skills. Except in the smallest sites, there was little exchange of ideas between units or wards in the same site on assessment purpose, content, practices, data synthesis or input into discharge planning. For example, in one 300-500 bed hospital site we collected 30 different forms which were used for discharge-assessments of the elderly.

ORGANISATIONAL MODELS SUPPORTING DISCHARGE ASSESSMENTS
The organisational models supporting discharge-assessments of elderly patients varied within and across sites, and were unrelated to hospital size or location. The most common models (in descending order of frequency) were:

- hierarchical models where senior medical personnel dictated discharge decisions to other staff
- non-inclusive models where medical and ward nursing personnel collaborated on patient care, and then other health professionals were recruited as appropriate
multidisciplinary models including formal and informal collaborations between hospital staff regarding evaluation of patient function and need
inclusive and integrated models where relevant hospital staff were formally involved in assessment and discharge practices.

The hospital staff most commonly involved in assessing elderly patients in order to plan discharge from hospital comprised nurses, therapists and social workers. Nurses most commonly undertook discharge-related assessments, reflecting their daily contact with the patient, and their opportunities to regularly discuss patients’ discharge plans with other hospital staff (eg at shift hand-over meetings, or on ward rounds). They worked:

- on wards (generally as charge nurses, or nurse managers)
- as specialist nurses undertaking specific assessments (for instance continence, cognition, stoma care etc), or
- in the emergency department, assessing elderly patients with the purpose of reducing admissions.

Discharge liaison officers worked in approximately 60% of sites, unrelated to hospital size or location. They primarily had nursing backgrounds, although social workers and occupational therapists also worked in this role. Liaison officers were either based within the hospital, or in a community health or support agency, and served as a link between hospital and community with respect to continuity of care following discharge. Liaison officers often had specific roles, which included developing pre-discharge plans for home care, facilitating communication between hospital and community health service providers, promoting a specific service (such as community nursing or general medical practitioners), supporting the interests of specific patient types (for instance rural patients) and/or serving as intermediaries between hospital and community resources. Their involvement with discharge-related assessments for elderly patients was generally by referral from other hospital staff to address specific concerns.

Discharge planners were found in 78% of sites. All the discharge planners in this study had nursing backgrounds, and in all sites they played a pivotal role in planning discharge of elderly patients. They were generally highly regarded by the other hospital staff for their ability to match patient/family needs with appropriate community services, and often carried the bulk of responsibility for patient discharge and bed management. In the process, they were also responsible for compiling discharge assessment findings of other staff and synthesizing these into discharge plans. Their success in discharging patients was related to personal attributes such as personality, insights, ability to trouble shoot or think laterally, the length of their employment at the hospital (and hence their knowledge of hospital processes and personnel), knowledge of available community resources, expertise in referring to other health practitioners and community resources, and ability to effectively coordinate activities within the hospital, and between hospital and community.

**Nursing documentation**
Across all sites, 871 different nursing assessments were identified. Thirteen sites used one or more standard assessment instruments. These instruments comprised approximately 9% of the total number of nursing assessments, with the most frequently used standardised nursing discharge-assessment instruments outlined in Table 2.
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Table 2. Most frequently used standard assessment tools

<table>
<thead>
<tr>
<th>Assessment tool</th>
<th>Nurses</th>
<th>Therapists</th>
<th>Social Workers</th>
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<tbody>
<tr>
<td>Functional Independence Measure (FIM)</td>
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<tr>
<td>Geriatric Depression Scale (GDS)</td>
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<tr>
<td>Mini Mental Scale</td>
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<tr>
<td>Barthel’s Index (including MBI (Modified Barthel Index))</td>
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<td>√</td>
<td></td>
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<tr>
<td>Falls Risk Assessment Scale</td>
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<tr>
<td>AMTS Competence Scale</td>
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<tr>
<td>Blaylock Assessment Screen</td>
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<tr>
<td>Rhomberg Scale (High Level Balance)*</td>
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<tr>
<td>MAS (Motor Assistance Scale)</td>
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<tr>
<td>TUG (Timed up to Go)*</td>
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<tr>
<td>COVS (Clinical Outcomes Variance Score)</td>
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<tr>
<td>EMS (Elderly Mobility Scale)*</td>
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<tr>
<td>Braden Scale (skin care)</td>
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<tr>
<td>Waterlow Scale (dietary, incontinence, medication, mobility and skin care)</td>
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<tr>
<td>ACE/DL Assessment tool</td>
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</table>

The remainder of the assessments were site-specific, collecting a range of data, and using a variety of measurement options (scales, text, categories etc). Though similar intent was found of nursing discharge assessments across sites (as outlined in Table 1), most hospitals pursued individual measurement approaches. The most common discharge assessments using in-house forms were of independence in daily activities (12.5%), continence (10.6% total), underlying medical conditions (8.8% total), discharge risks (5.3% total), dietary/hydration requirements (4.7% total), mental state (3.6% total), patient history (3.3% total) and medications (3.0% total). Multiple assessment forms were needed in all but two sites to provide comprehensive information on nursing discharge assessments. The two sites which attempted to comprehensively integrate assessment data collection over the hospital admission period were small (90 beds and 255 beds).

Therapists were widely viewed by patients and hospital staff as specialists in function, mobility, balance, aids and appliances, physical prognosis and rehabilitation. Physiotherapists and occupational therapists most commonly undertook discharge-related therapy assessments, with occasional involvement of podiatrists, speech pathologists or dieticians for patients with specific conditions. Thirty-eight different discharge-assessment forms were collected from therapists in 21 sites (in the other sites therapists were not involved in assessing or planning for discharge). The most common assessments related to functional status (outlined in Table 1), with 96% of all therapy assessments being standardised instruments (See Table 2).

There were two common organisational models relating to therapists’ involvement in discharge assessments, which were not specific to hospital size or location. In 13 sites (62%), therapists were integral to multidisciplinary discharge teams, which used a structured approach for assessment, communication of findings and decision-making. In the remaining sites (38%), therapists’ assessment tasks were specified by referral from other health professionals (i.e. ‘assess this patient for her ability to climb stairs’, or ‘...to get off and on the toilet’). The referrer then used the assessment findings independently in discharge decisions.

Social workers

Social workers were involved in assessing patients for discharge in all but one site, and were integrally involved in discharge assessments in eighteen sites (82%). Social workers operated in a range of situations in the acute hospital setting, for instance from their own department, in the emergency department, on wards, in rehabilitation units, aged care wards or interim care units. A common finding was that social workers became involved in discharge assessments following referral from other health professionals, although in of 20% sites (not specific to bed strata or location), social workers had ‘blanket’ referrals to assess all patients. Social workers were the only professionals to whom patients and their families could self refer with discharge-related questions. Social workers described their role in assessing elderly patients for discharge as incorporating:

- assessing patient psychosocial needs
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In only five sites did social workers use one or more standard instruments for planning discharge (see Table 2).

Barriers and facilitators to good assessment and transition practices
Hospital staff believed that good discharge planning assessments were supported by:

- a holistic understanding of patients within their usual environment
- general agreement of what constitutes core and sustainable function related to safe discharge
- the involvement of experienced discharge planners who could match function, need and community services
- regular multidisciplinary discharge planning meetings in which every participant had an equal responsibility, and say, in decision-making
- efficient and accurate documented communication between staff, and
- widely-held knowledge of the roles and responsibilities of all staff who were involved in assessing patients prior to their discharge from hospital.

Barriers to good discharge assessments practices were reported as shortage of hospital staff, high turnover of hospital staff, lack of structured communication processes, lack of information on community services, and lack of sustainable community services, lack of interim care and residential beds, lack of short-term rehabilitation / recuperation options for unwell patients and pressure to discharge patients early.

CONCLUSION
This study provides the first known overview of discharge assessment practices for the elderly, and despite the convenience nature of its sample, the consistency and homogeneity of study findings suggests that this study provides a robust vehicle for identifying where improvements in discharge assessment practices could occur.

Discharge assessments of elderly patients were made by a range of health professionals in the acute public hospital setting. These assessments had the primary aims of measuring function, and identifying discharge needs. A plethora of standard and ‘in-house’ assessments were found that underpinned decisions on elderly patients’ ability to return to independent living in the community. There was no minimum core data set of key discharge assessment items, and there were variable ways in which discharge assessment information was used to plan the transition of elderly patients from hospital to community. When standardised assessment instruments were used, there was limited understanding by hospital staff of how to interpret scores, or how changes in scores related to functional ability. There were few standard ways of interpreting or communicating discharge assessment information between health professionals in hospitals, or between hospital and community. Multiple assessments were often required to collect key information related to discharge planning, leading to inefficient use of staff expertise and time, and respondent burden. Whilst patient case notes were the most common repository of discharge assessment information, information was recorded and located variably, which constrained ready data collection and synthesis by hospital staff, and precluded involvement of community health service staff.

Hospital staff seemed to have little interest in validating the content or constructs of ‘in-house’ instruments in any setting, and in general there was little reflection on the reliability with which data was collected using any assessment instrument. Variability in patient responses on repeated collection of data was neither well understood nor factored into discharge plans. In order to improve the transparency of purpose of discharge assessments, and the ways in which assessment findings could be used to plan discharge, a sequence is proposed by which assessment of function becomes assessment of needs, which then informs discharge plans (Figure 2). Because of the number of health professionals involved in assessment related to planning for discharge, and because the variety of ways in which discharge assessment information was exchanged between health...
professionals, in no site was this sequence followed clearly, particularly the prediction of the functional capacity required for safe and sustainable discharge to the community. Without this information, patient needs cannot be identified, and discharge assessments simply become point in time statements of various aspects of function.

This study suggests that there is much to be done to improve discharge assessment practices within Australian public hospitals. The authors believe that there is a particular need for staff in acute public hospitals to work within multidisciplinary teams that collect minimum core data items with minimum impost on patients. Data should be stored in a standard manner on patient case notes so that it is readily retrieved, interpreted and communicated to other health care professionals within the hospitals, and in the community. Patient and carer provider input should be included in assessments related to planning for discharge, and there should be more overt mechanisms for staff to share information about what and how they assess, and how they interpret the information. These findings concur with those of other researchers.1-5 It is recommended that:

- explicit statements be made regarding good discharge assessment practices that will underpin consistently high quality discharge planning activities by health professionals in acute public hospitals, and
- the identification of needs be given as high a priority as functional assessments, to ensure that discharge assessments have clear and measurable outcomes.

REFERENCES

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