

The Healthy Ageing Unit: Beyond discharge

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ABSTRACT

This article describes the final stage of a three-stage pilot research project conducted in a private hospital in Western Australia to examine the effectiveness and acceptability of a Healthy Ageing Unit. The Unit was based on a model of nurse-led intermediate care for the older acute patient. The objective of this stage was to review clinical outcomes of a sample of patients who had formed the intervention and control groups in Stage Two. The clinical outcomes included patient functional status and psychological well-being. Levels of patient satisfaction with the Unit, level of support required, confidence and re-admission rates were also examined. Eighty-one of the original 168 patients (48.2%) were followed-up at three-month post-discharge. Results revealed that at discharge the intervention group showed significantly greater improvement in levels of confidence and on the clinical outcomes measured, but that these improvements were not maintained at three-months. However, continued differences were still observed between the groups in relation to the level of support required by the groups. Specifically, 100% of the control group compared to 88% of the intervention group indicated that they still required support from external sources, such as the doctor, community services, family or friends. In addition, feedback from patients who formed the intervention group indicated a high degree of satisfaction with the Unit - with comments praising the model and particularly the support provided by the nurse-led, multidisciplinary, gerontological care team. The pilot study provided evidence of the positive impact and benefits of the Unit on patient outcomes beyond discharge.

Key words: healthy ageing, multi-disciplinary, transitional rehabilitation, intermediate care, therapeutic nursing.

INTRODUCTION

Intermediate care, in its many forms, has emerged as a crucial part of health-care and social policy in many parts of the world, including Australia. The generic model has been recognised as offering the potential to amalgamate the explicit demands of contemporary health services for lower cost health-care, appropriate use of human resources and improved bed management, with requirements for improving services and achieving better clinical outcomes for older people.

One model of intermediate care that has received considerable attention is the *nurse-led or post-acute nurse-led unit* for hospitalised patients who are deemed medically stable but not ready for discharge (Steiner, 1997). This model of care, which is strongly associated with the concept of therapeutic nursing, is based on the proposition that for some patients there is a period in their recovery where person-centred nursing care is the main determinant of satisfactory recuperation (Alfano, 1969). That is, by transferring appropriate patients to a low technology environment, where patients engage in self-care, practice home-like activities under the supervision and guidance of nursing staff, patients' clinical outcomes will improve, post-discharge quality of life will be increased, and hospital lengths of stay and re-admission rates will be reduced (Evans & Griffiths, 1994; Hall et al, 1975 cited in Pearson, 2003; Pearson et al, 1992). In particular, it is the two latter outcomes that underpin the model's effectiveness for cost-savings and the 'unblocking' of acute hospital beds.

The results of trials of nurse-led units, particularly in the United Kingdom, have been equivocal, suggesting that there are diverse variables or elements of such models that influence the effectiveness of such units. These variables, which include the skills mix, staffing levels and rehabilitative activities of the units were found to differ across trials and thus may explain the inconsistent findings (Griffiths & Wilson-Barnett, 2000). Indeed, the pattern of results implies that the potential benefits claimed of intermediate care may not have equal value and may, in fact, resemble a hierarchy of outcomes that can be manipulated (Michael et al, 2004). Steiner et al (2001) expounded on this view when they stated that the intermediate care model cannot and should not be explicitly associated with cost-savings, nor should it always be tied to nurse-led care.

In 2004 one of Australia's largest not-for-profit private health care providers established a ten-bed transitional rehabilitation unit, the Healthy Ageing Unit

(HAU). The establishment of this Unit presented the Organisation and health researchers with an opportunity to address key issues identified from the 'intermediate care' literature. More specifically, the HAU provided a way of evaluating extended length of stay and re-admission rates in its acute elderly population. Transitional rehabilitation was also identified as a model of acute aged care that was consistent with the health care organisation's Strategic Plan 2001-2011 for the Care of the Older Person and Marginalized Groups (sic).

AIM

The study's aim was to explore the effectiveness and acceptability of the HAU, using a three-stage study, in collaboration with the School of Nursing and Midwifery and the Centre for Research into Aged-Care Services (CRACS) at Curtin University of Technology. The first stage of the pilot, a Needs Assessment using a qualitative descriptive approach, informed the development of the HAU (Michael et al, 2004). The second stage combined qualitative and quantitative methods in a controlled intervention and described the clinical outcomes of patients admitted to the HAU compared with those in the control group, who were admitted to a conventional post-acute care ward (Michael et al, 2005).

This article describes the third and final stage of the pilot study, the aim of which was to compare functional status and psychological well-being of patients in both the intervention and control groups, three-months beyond discharge. The level of patient satisfaction with the Unit, confidence level, support required, and re-admission rates will also be presented in this article.

METHOD

Participants

The sample for Stage Three was drawn from the 168 original patients who consented to participate in the pilot study that was conducted across two of the health care organisation's hospitals located in metropolitan Perth, Western Australia. The follow-up sample included eighty-one respondents, but with markedly disparate numbers in each group. Sixty-eight discharged patients from the 135 elderly patients in the HAU intervention group (site one) and 13 discharged patients from the 33 elderly patients in the control group (site two) participated in Stage Three. The average age of patients at follow-up was 81.38 years (SD = 7.733). The average age of patients in the intervention group was 81.13 years (SD = 7.961), compared to 82.69 years (SD = 6.499) in the control group. The majority of respondents in the final stage were female (84%).

Materials

To determine patients' clinical outcomes with regard to functional status and psychological well-being, the Modified Barthel Index (BI) and the Revised Philadelphia Geriatric Center Morale Scale (PGCMS) were used. Both instruments were selected based on

their use in the aged and intermediate care literature, and their published psychometric properties (Bowling, 1997).

- The BI is designed to measure functional independence, with pre- and post-intervention scores used to indicate the amount of care required following discharge. The BI is scored from zero (dependent) to 100 (independent). The scale has been found to be internally consistent with reported alpha reliability coefficients of between .95 and .97. Validation studies that have correlated the BI with the PULSES profile, which documents functional ability based on six categories: physical condition (P), upper limb function (U), lower limb function (L), sensory components (S), excretory functions (E), and support factors (S) (Marshall et al, 1999). Such studies have revealed negative correlations of between -.74 and -.90, thus demonstrating the criterion validity of the both measures (Bowling, 1997). The correlation is negative because the two measures run in opposite directions.
- The PGCMS is designed to measure dimensions of psychological well-being in older individuals. The test-retest reliability coefficients for the scale are reported in the range of .75 to .91, with a Kuder-Richardson coefficient of internal consistency of .81. Factor analysis of the items provided alpha internal consistency coefficients of between .81 and .85. Validity testing with various Neugarten indices range from .57 to .79. In this study, only an overall morale score was calculated, as opposed to also calculating the three subscales of agitation, dissatisfaction and attitude towards ageing. The overall morale scale is scored from zero (low morale) to 14 (higher morale) (Lawton, 1972; 1975).

Patients from the intervention and control groups were also asked to complete a researcher developed survey at follow-up. This survey included a total of seven open and closed questions regarding the patients' confidence since returning to their place of residence, the ongoing support required, and their potential to further improve their function. Box 1 (see next page) shows the version used with intervention group participants. The closed questions used a simple dichotomous Yes/No scale, or a three-point Likert scale. Those patients who had been admitted to the HAU were also asked to complete a series of open-ended questions on a Patient Comment Card related specifically to the Unit (refer Box 2 on next page).

Procedure

There were three time-points in the pilot-study (Stage 1, Pre-test; Stage 2, Post-test 1, and Stage 3, Post-test 2) at which the patients were asked to complete a composite questionnaire. This questionnaire included versions of the researcher developed Confidence, Support and Potential to Improve Survey, the BI and the PGCMS. The pre-test was administered to patients within 24 hours of their

Box 1. Confidence, Support and Potential to Improve Survey – Intervention group version

1. Since leaving hospital do you feel confident in your place of residence at this point in time?
Yes - 1
No - 2
To some degree - 3
2. Do you think you have the potential to improve your function?
Yes - 1
No - 2
To some degree - 3
3. What things could be done to improve your function?
4. Since being out of hospital have you needed to seek support/assistance?
Yes - 1
No - 2
5. Who provided this support/assistance?
Doctor - 1
Community services - 2
Family - 3
Friends - 4
Other - 5
6. Do you think that the Healthy Ageing Unit assisted with your transition to home?
Yes - 1
No - 2
7. If yes, in what way did it help?

Box 2. Questions from the HAU Patient Comment Cards

1. How did the care you received in the Healthy Ageing Unit enable you to return home with confidence?
2. What did you find different between the Healthy Ageing Unit and the other ward that you were on?
3. What did we do well during your stay in the Healthy Ageing Unit?
4. What didn't we do well during this time?
5. In what areas could we improve our service?
6. What other comments would you like to make about the Healthy Ageing Unit and its staff?

acceptance into the study that is, to those who met the admission criteria and were willing to participate. Post-test 1 occurred at discharge. The results of the pre-test and post-test 1 were described in a previous article (Michael et al, 2005). Post-test 2 occurred at three months post-discharge and is the focus of this article.

In Stage Three (i.e., Post-test2) the researcher, or a trained nominated person, administered a telephone version of the composite questionnaire to home-based respondents. During this stage, information regarding patient satisfaction with the HAU was collated from the Patient Comment Cards which they had completed at discharge. Also during this stage, re-admission rates following discharge from the HAU were collated from hospital records using the telephone interview date as the end time-point.

DESIGN

A controlled comparative descriptive design was employed for the third and final stage of the pilot. As with Stage Two, quantitative and qualitative methodologies were used. All patients who had participated in Stage Two of the pilot were invited to participate in Stage Three.

ANALYSIS

A significance level of alpha equal to 0.05 was used for all statistical tests and the Statistical Package for Social Sciences (SPSS) default settings were used unless stated otherwise. Descriptive and inferential statistical analysis of the quantitative data was undertaken, using appropriate parametric and non-parametric tests. Chi-square (χ^2) test was used to determine if differences in frequency existed across groups or response categories. Within-group and between-group comparisons were performed using paired

and independent t-tests, respectively. An analysis of variance (ANOVA) was used to determine differences between groups and levels, where appropriate. A logistic regression analysis was conducted to compare the groups controlling for any difference in age with their functional ability, and a Pearson's correlation was used for correlation between age and the PGCMS with admission, discharge and follow-up. The qualitative data obtained from the open-ended questions were analysed following the procedures set out by Straubert and Carpenter (1999), and Feld and Morse (1992). This process involved line-by-line coding to reduce the data into key words, phrases or processes. These substantive codes were then clustered to identify patterns, relationships or categories in the data to enable more sophisticated interpretation. The reproducibility and accuracy of the analysis was established by demonstrating the extent to which two researchers were able to reproduce the same results from the same criteria and data.

RESULTS

Eighty-one of the 168 elderly acute patients (48.2%) admitted to the pilot study were followed-up at Post-test 2. The follow-up sample included 68 of the 135 elderly patients who formed the intervention group (50.4%) and 13 of the 33 elderly patients in the control group (39.4%).

Functional status

The intervention and the control groups were asked at the three points if they thought that they had the potential to improve their function and what things could be done to reach this goal. On admission 85.7% of patients in both groups indicated "yes", they did have the potential to improve (control: 75.8% vs. intervention: 88.1%). At discharge these figures had altered very little (control: 78.8% vs. intervention: 87.4%). At follow-up these figures had reduced, although more than half of the patients in both groups (56.6%) still reported that they had the potential to improve (control: 46.2% vs. intervention: 58.3%). In analysing only the "yes" responses, a chi-square test revealed that the proportion of patients who stated "yes", they had the potential to improve did not differ between the groups, at any of the three time points. At all time-points the majority of patients in both groups indicated their function could be improved through exercise, social activities, health, and pain management.

The groups were also asked at Pre-test, Post-test 1 and at Post-test 2 to complete the Barthel Index (BI), a test of functional independence. On the day of hospital discharge the patients showed a mean BI score of 96.0 (SD = 7.2), a statistically significant increase from a mean BI of 87.3 (SD = 12.7) ($t(162) = 15.16, p < .05$). At the three-month follow-up the BI had been maintained, with a mean of 96.1 (SD = 6.3).

Since one of the aims of the HAU is to restore patients to an independent status, patients were categorised as *independent* if their BI was 100, and *dependent* if it were less. On admission 17.3% of

patients participating in the study were classed as independent and at discharge this figure was 46.6%. At the three-month follow-up 48.1% of patients were categorised as independent. A comparison of the BI *independent* category between the groups at discharge had revealed that there were significantly more patients in the intervention group considered independent (52%) than control patients (25%) ($\chi^2 = 7.8, df = 1, p < .01$). However, at the three-month follow-up this difference appeared to have disappeared, with the control patients (42.9% independent) being comparable to the intervention patients (45.9% independent) in degree of improvement. Formal testing of this result was not possible because of violations of the expected cell frequency assumption due, in part, to the disparate group sizes.

Psychological well-being

On admission to the pilot study patients showed a mean Revised Philadelphia Geriatric Center Morale Scale (PGCMS) of 10.07 (SD = 3.6). At discharge this had risen to a mean score of 11.03 (SD = 3.5), and at follow-up it was 10.73 (SD = 3.7). On admission there was no significant difference between the groups in morale ($t(166) = -0.89, p > .05$). However, at discharge, the intervention group had a significantly higher mean morale score ($M = 11.35, SD = 3.4$) than the control group ($M = 9.73, SD = 3.6$) ($t(166) = -2.44, p < .05$). At follow-up the difference between the groups had not been maintained and was no longer significant ($t(80) = -1.96, p > .05$).

There was no association between the PGCMS and gender at any stage in the study. Age also was not significantly associated with morale at admission or discharge, but there was a significantly negative association at follow-up ($r = -0.24, p < .05$). Further analysis revealed that morale at discharge and follow-up was significantly associated with the morale score on admission (discharge: $r = 0.83, p < .01$, follow-up: $r = 0.71, p < .01$).

An analysis of covariance comparing the groups at discharge and at follow-up was conducted controlling for age and morale at admission. This analysis confirmed a significantly higher morale score on discharge of the intervention group ($F(1) = 6.43, p < .05$). Even though there was a comparable difference between the groups at follow-up (intervention: $M = 11.01, SD = 3.6$; control: $M = 8.83, SD = 3.9$) the difference did not reach statistical significance ($F(1) = 1.03, p > .05$).

Confidence

Using tailored versions of the researcher-developed Confidence, Support and Potential to Improve Survey patients were asked if they felt confident to return home, at the three time-points. On admission 40.7% of the Intervention group reported that they felt confident, compared to 48.5% of the control group. A chi-square test however, revealed that the difference was not statistically significant ($\chi^2 = 0.647$, $df = 1$, $p > .05$). Analysis of this data at discharge (Post-test 1) revealed that confidence levels for both groups had increased (intervention: 85.9% vs. control: 78.8%). Although, the observed difference between the groups was again not significant ($\chi^2 = 0.968$, $df = 1$, $p > .05$).

At the three-month follow-up (Post-test 2) it was found that 78.3% of both groups felt confident in their place of residence. Further examination revealed that 77.1% of the intervention group felt confident and 84.6% of the control group. Although there was a difference between the groups, this was not statistically significant ($\chi^2 = 0.385$, $df = 1$, $p > .05$). Table 1 details the percentage of intervention and control group patients who felt confident to return to their place of residence at Pre-test, Post-test 1 and Post-test 2.

Table 1. Percentage of patients confident to return to their place of residence at Pre-test, Post-test 1 and Post-test 2, on the basis of group.

| Percentage (%) of participants at Pre-test | | | |
|--|-----------|--------------------------|---------------|
| Group | Confident | Confident to some degree | Not confident |
| Intervention | 40.7 | 27.4 | 31.9 |
| Control | 48.5 | 6.1 | 45.5 |

| Percentage (%) of participants at Post-test 1 | | | |
|---|-----------|--------------------------|---------------|
| Group | Confident | Confident to some degree | Not confident |
| Intervention | 85.9 | 12.6 | 1.5 |
| Control | 78.8 | 9.1 | 12.1 |

| Percentage (%) of participants at Post-test 2 | | | |
|---|-----------|--------------------------|---------------|
| Group | Confident | Confident to some degree | Not confident |
| Intervention | 77.1 | 18.6 | 4.3 |
| Control | 84.6 | 7.7 | 7.7 |

Support needed following discharge

Using the follow-up version of the Confidence, Support and Potential to Improve Survey patients were asked at follow-up if they had *needed support* since their discharge and if so, *who provided this support*. Eighty-eight per cent of the intervention group indicated they did need support, as compared to 100% of the control group. The intervention group reported having this support provided by their doctor (42%), community services (23%) and family and friends (29%) and from other sources not indicated (6%). The control group ($n = 13$), however, indicated having support provided by the family (54%), community services (31%), and friends and other sources (15%). Again, it must be noted that the apparent difference in support

required at follow-up should be viewed with caution in light of the smaller sample size at follow-up, and the disparate group sizes.

Re-admission rates following discharge from the HAU

On examining re-admission rates it was found that of the 135 patients in the intervention group there were 29 re-admissions (21%). Further inspection revealed that of those re-admitted all were categorised with a *medical* condition as the primary diagnosis, which included: Twenty patients (69%) re-admitted for cancer, of whom six were re-admitted with the same diagnoses several times (one patient being re-admitted five times, two patients both re-admitted four times, and one patient re-admitted three times); and six (21%)

patients were re-admitted for conditions such as cellulitis, oedema, urethral stricture, and Parkinson's disease, of whom three were re-admitted more than once with the same diagnoses. A further three patients (10%) were re-admitted with a primary diagnosis of cardiac aetiology, such as unstable angina, congested cardiac failure. Two of this group of patients were re-admitted more than once with the same diagnoses.

Patient satisfaction with the HAU

To conclude the pilot, patients in the intervention group were asked for feedback related to their satisfaction with the HAU and to identify areas that could be improved. Of the 135 intervention group patients, 60 (44.4%) completed Patient Comment Cards, from which a number of categories emerged in response to the six open-ended questions (refer Box 2). From these a number of overriding themes were captured and identified as (1) support and encouragement, (2) confidence, (3) socialisation (4) independence, (5) communication and (6) specialised staff and excellent care.

Question 1:

In response to the first question "How did the care you received in the Healthy Ageing Unit enable you to return home with confidence?" the patients identified a wide range of opinions, which encompassed *encouragement, confidence and socialisation*.

Statements included [the Unit provided] "*encouragement towards self care*", "*promoted and nurtured independence*", "*routine more like home*", "*gained confidence*", "*(gave) strength and reassurance*", and "*the opportunity to socialise*". Staff were consistently described as "*caring, kind, understanding and had patience*".

Remarks further included:

"*gave me confidence and security*", "*my confidence grew as I managed to make a cup of tea and serve my own meal ... showering and getting dressed*"; "*it intensified my activity and always with wonderful support and in a wonderful atmosphere*", "*I found it most helpful and stimulating ... nothing was too much trouble for the nursing staff and they were all wonderful caring people*", "*it was reassuring that I would be able to cope at home and work out the level of care I would need*", "*routine more like home and social activity shared with other patients*", and "*consistent attention to all aspects of my treatment and follow through by staff with explanation to any queries added confidence*" and "*whilst professional, there was a happy approach, friendly, patient and understanding*".

Question 2:

Information gained from the second question "What did you find different between the Healthy Ageing Unit and the other ward that you were on?" identified

concepts involving the ability to gain *independence, confidence and socialise* on the HAU, which was not forthcoming on the general wards. There were also remarks made concerning the difference in the nursing care provided.

Descriptions incorporated:

"*being able to find one's feet and the build up of confidence that was enthused into me once I was in the Unit [HAU] was so great that I am going home full of confidence, that I can cope*", "*confidence was taken away [on the general ward] when I was told by a staff member I could not go to visit another ward*", "*staff were MUCH! more caring and helpful and very accommodating [on the HAU]*", "*there was not the same attention paid to the patient all of the time [on the general ward]*", "*I had to do more for myself [on the HAU], like choosing meals and dressing myself in clothes that I would wear during the day instead of being in a nightie and just having meals*", and "*the nurses had more time for me*", and "[staff] were ... *more gracious and ... much more compassionate*".

Question 3:

The question "What did we do well during your stay in the Healthy Ageing Unit?" raised a diversity of opinions, all of which were positive. The main concepts identified were *support, independence, confidence and communication*.

Opinions ranged from "*a helpful and caring service*", "*autonomy was encouraged*", "*supportive, smiling, kind, cheerful, encouraging and compassionate staff*", "*gave me confidence*", "*felt safe and cared for*", and "*showed me that life was good*".

Other comments included:

"*Staff kept my family up to date with my progress*", "*encouraged to visit the gardens and communicate with others beside staff – so important in the healing process...*", "*listened to and explaining (advise about) ones smaller worries at anytime of the day or night*", and "*the persistent encouragement by staff to be active and make the effort to be as active as possible was well received by most in spite of individual difficulties and the tendency to ease up. The staff knew their objectives and skilfully pursued [them] with tact and humour*".

Question 4:

In response to the fourth question "What didn't we do well during this time?" there were a few concerns raised such as "*not enough rest*" and the food "*too much chicken*". However most comments involved the irregularity in nursing staff and staff that were not specialised in aged care, which was encapsulated by one patient's statement: "*I know it is difficult to put the same staff to the same patient during your stay. When there is a shortage of staff you depend on agency nurses - they do not know the patient and*

sometimes you have to explain to them your need".

Question 5:

Information gained from the fifth question "In what areas could we improve our service?" resulted in few issues being raised, perhaps indicating the level of satisfaction with the HAU. Of those opinions expounded, however, issues were concerned with food, such as "sweets, especially the cream is too rich", "the serving of some dishes to make them appeal more to one's palate after having an operation, especially the meat section, as some meats are so bland you can't even tell what you are eating". Also an improvement in facilities was noted such as, "have more small bedpans - [the] large are very uncomfortable", and "the bed control and other equipment needs to be easy to reach".

The general census of opinion however is summed up by one patient who said, "if there are folks who find faults, they must be very hard to please! The service is wonderful".

Question 6:

In response to the final question, "What other comments would you like to make about the Healthy Ageing Unit and its staff?" the overall responses were positive and congratulatory, with the major concepts emerging as support, socialisation, confidence, cheerful environment, specialised staff and excellent care. Comments included "... they [the nurses] are always around; the food was absolutely the best in Western Australia", "An essential interface between hospital and home. It needs to be expanded", "Keep going [with the HAU] and God bless you all", "[the HAU] concept and application is a 'bright light' from normal ward care", "this is an asset to the hospital", "everyone was absolutely wonderful to me and I could not wish for anything more", "I think the Unit is a wonderful confidence boost for setting folk up to continue life at home and in the community and I thank the management", and "Family/visitors are such an important support in the healing process. This was recognised by all staff and the cups of tea were greatly appreciated during long visiting hours. Thank you so much".

Finally a suggestion, which was made by one patient and may be worth considering is "maybe the Unit could be referred to as the 'Independent Living Unit' rather than ageing - sounds more positive and reflects more what we have found this Unit to be about."

DISCUSSION

The aim of the three-stage pilot study was to examine the effectiveness and acceptability of a Healthy Ageing Unit (HAU), based on a model of nurse-led intermediate care for the older acute patient. The objective of this stage was to review and compare clinical outcomes of a sample of patients who had formed the HAU intervention group, with a control group of patients who had received conventional post-acute general, medical and surgical/orthopaedic care for the elderly acute.

The results presented in this article reveal that on admission, discharge and follow-up, both the intervention and control groups were extremely positive in their perceptions of having the potential to improve their functional ability through exercise, social activities and health and pain management. This was also reflected in the results from the Barthel Index, which measured the patients' functional ability and independence, and indicated that all patients showed at least a 10% improvement. However, between admission and discharge the patients on the HAU showed a greater improvement than patients from the conventional post-acute ward. Interestingly though, at follow-up the difference in BI had disappeared, suggesting that whilst the intervention group patients had regained their independence more quickly, patients in the control group had 'caught-up' by the three-month assessment. It must be noted that this latter result should be interpreted with caution in view of the smaller sample size at follow-up; however, it is possible to say that the HAU was effectively able to enhance the morale of those who responded.

In general, the PGCMS results (i.e., emotional status) were similar to the results of analysis of the Barthel Index. Although both groups improved during their stay, there was a significantly greater improvement for those patients on the HAU than for the control group. Regardless, when examining the PGCMS and the Barthel Index, the findings at follow-up suggests that the control group were comparable with the intervention group. These outcomes were also reflected in the patients' reported confidence levels. At discharge patients on the HAU reported a larger increase in confidence levels than control patients, but at follow-up both groups were similar in their confidence level ratings, although these results must be treated cautiously given marked differences in sample size.

Analogous clinical outcomes were reported in a randomised control trial study by Steiner (1997), who also found no differences at the six-month follow-up in functional and emotional adjustment between those who had been discharged from a nurse-led transitional ward to those from general wards. Steiner noted that the small numbers, due to refusal to participate, was also a major limitation of that study. She concluded that "this would have diluted the effects that could be observed" (p. 7).

All patients reported that they had continued to receive support from external sources, at follow-up. However, unlike patients discharged from the HAU where a large percentage of patients had sought support from their doctor, none of the control group indicated their doctor as being involved. However, all of the control group patients did report that they had sought support from family, community services and friends. It could be speculated that the higher demand for support by the control group may have been indicative of them 'catching-up' with the intervention group, who had shown increased functional improvement and morale. This latter

comparison, however, as previously indicated, is based upon a small number of the total sample and should, therefore, be interpreted with caution.

Re-admission rates following discharge from the HAU were found to be small in number with only 2% of the 135 patients being re-admitted. On further examination of the results it is evident by the primary diagnoses (treatment for cancer, re-occurring medical and cardiac conditions) that these patients would most likely have needed to be re-admitted for further treatment as a matter of course. Therefore, it could be concluded that the reason for re-admission is irrelevant to the impact of the intervention (HAU). These results may also explain why more of the intervention group had sought support from their doctor than did patients in the control group.

The positive feedback and satisfaction with the HAU was resounding, with comments praising the concept of such a Unit and particularly the care provided by the nurses and allied health professionals. The ramifications of this care were reflected in the majority of patients indicating that their time in the HAU was a positive experience, ensuring a smooth transition from hospital to home, and enabling them to feel confident, independent and empowered by their experience.

STUDY LIMITATIONS

Limitations of the study were that there were small numbers within the control group and the limited time-frame imposed in which to overcome this problem. The consequence of a control group sample size of $n = 13$ at follow-up is that it is difficult to conduct any meaningful statistical analysis on the data. Therefore, as indicated previously, results should be interpreted with caution; in addition, there was a gender bias observed at follow-up which limits our ability to fully assess the potential impact of the HAU for all older patients. The lack of information related to the re-admission rates of patients in the control group also limits our ability to fully understand why patients in the intervention group had sought more support from their doctor.

In conclusion, the findings of the three-stage pilot study highlight the impact of a HAU, involving a multi-disciplinary model of care with nurses and allied health professionals specialised in the area of gerontology and community-based care, on certain clinical outcomes at admission and discharge. The results reveal positive outcomes in the functional ability and psychological wellbeing of patients admitted to the HAU. Although re-admission rates were reported, it seems possible that they are unrelated to the care provided by the Unit, but to acute-on-chronic diagnoses. Moreover, unlike most recent evaluations which have reported that longer stays usually translate into a higher cost overall (Griffiths et al, 2000; Griffiths et al, 2001; Richardson et al, 2001 and Steiner et al, 2001) this was not the case with the HAU. The HAU was found to demonstrate good use of the beds, produce sufficient revenue to cover the costs of the research project,

absorb costs of allied health services, and produce earnings before interest and tax depreciation amortisation (EBITDA) comparable with that of a conventional care general, medical or surgical / orthopaedic ward. This further justifies the adoption of the innovative staffing model as an important element in the Unit's ability to meet the health care organisation's business goals.

In spite of the limitations, the pilot study has supplied evidence to successfully address, in part, the health care organisation's strategy of Care of the Older Person, and Marginalized Groups and Australia's National Strategy on Ageing, whilst addressing challenges posed by its long stay population.

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REFERENCES

- Alfano, G.A. (1969), "The Loeb Center for Nursing and Rehabilitation", *Nursing Clinics of North America*, vol. 4, no. 3, pp. 487-493.
- Bowling, A. (1997), *Measuring health: A review of quality of life measurement scales*, Open University Press, Philadelphia.
- Evans, A. and Griffiths, P. (1994), *The development of a nursing-led in-patient service*. King's Fund, London.
- Field, P.A. and Morse, J.M. (2002), *Nursing research: The application of qualitative approaches*, Chapman and Hall, London.
- Griffiths, P. and Wilson-Barnett, J. (2000), "Influences on length of stay in intermediate care: lessons from the nursing-led in-patient unit studies", *International Journal of Nursing Studies*, vol. 37, pp. 245-255.
- Griffiths, P., Wilson-Barnett, J., Richardson, G., Spilsbury, K., Miller, F. and Harris, R. (2000), "The effectiveness of intermediate care in a nursing-led in-patient unit", *International Journal of Nursing Studies*, vol. 37, pp. 153-161.
- Griffiths, P., Harris, R., Richardson, G., Hallett, N., Heard, S. and Wilson-Barnett, J. (2001), "Substitution of a nursing-led inpatient unit for acute services: randomized controlled trial of outcomes and cost of nursing-led intermediate care", *Age and Ageing*, vol. 30, pp. 484-488.

- Lawton, M. (1975), "The Philadelphia Geriatric Center Morale Scale: A revision", *Journal of Gerontology*, vol. 30, pp. 85-89.
- Lawton, M. (1972), "The dimensions of morale", in D. Kent, R. Kastenbaum and S. Sherwood (Eds.), *Research, planning and action for the elderly: the power and potential of social science*, Behavioral Publications, New York, pp. 144-165.
- Marshall, S.C., Heisel, B., and Grinnell, D. (1999), "Validity of the PULSES Profile compared with the Functional Independence Measure for measuring disability in a stroke rehabilitation setting", *Archives of Physical and Medical Rehabilitation*, vol 80, pp. 760-765.
- Michael, R., Wichmann, H., Wheeler, B., Homer, B. and Downie, J. (2004), "A multidisciplinary model of transitional care in acute aged care", *JARNA*, vol. 7, no. 4, pp. 10-16.
- Michael, R., Wheeler, B., Wichmann, H., Homer, B. and Downie, J. (2005), "The Healthy Ageing Unit: A comparative controlled intervention", *JARNA*, vol. 8, no. 2, pp. 9-15.
- Pearson, A., Punton, S. and Durant, I. (1992), *Nursing beds: An evaluation of the effects of therapeutic nursing*, Royal College of Nursing Series, Scutari Press, Harrow.
- Pearson, A. (2003), "A blast from the past: whatever happened to the 'new nursing' and 'nursing beds'?", *International Journal of Nursing Practice*, vol. 9, pp. 67-69.
- Richardson, G., Griffiths, P., Wilson-Barnett, J., Spilsbury, K., Batehup, L. (2001), "Economic evaluation of a nursing-led intermediate care unit", *International Journal of Technology Assessment in Health Care*, vol. 17, no. 3, pp. 442-450.
- Steiner, A. (1997), *Intermediate care: Conceptual framework and review of the literature*, King's Fund, London.
- Steiner, A., Walsh, B., Pickering, R.M., Wiles, R., Ward, J. and Brooking, J.I. (2001), "Therapeutic nursing or unblocking beds? A randomised controlled trial of post-acute intermediate care unit", *British Medical Journal*, vol. 322, no. 7284, pp. 453-459.
- Streubart, H. and Carpenter, D. (1999), *Qualitative research in nursing: Advancing the humanistic imperative* (2nd ed.), Lippincott Philadelphia.

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