

Assessment of the Impact of the Intermediate Care and Augmented Care at Home Teams

1 Introduction and Background

NHS Highland introduced a number of initiatives aimed at reducing unplanned hospitalisation of elderly patients into Raigmore hospital in 2006/07. These included:

- A weekend co-ordinator and Receiving physician in Raigmore (November 2006);
- Extended patient transport (November 2006);
- Enhanced Intermediate Care Team (ICT) in Inverness Locality (February 2007); and
- Augmented Care at Home team in Ross and Cromarty (ACAH) (April 2007).

The purpose of this paper is to describe the impact of the ICT and ACAH interventions on elderly unplanned hospital utilisation in General and Community hospital sites and to estimate any resulting budget adjustments necessary to fund them on a recurrent basis. Given the introduction the above interventions within a few months of each other, this paper does not attempt to isolate the impact of the ICT and ACAH from that of the other interventions, rather it considers the impact of the bundle of interventions as a whole on the hospitalisation rates of patients in the two Localities.

2 Objective

To assess the impact of the Enhanced ICT, General Medicine interventions and patient transport on unplanned hospitalisation rates of elderly patients from Inverness Locality; and of the ACAH team, General Medicine interventions and patient transport on unplanned hospitalisation rates of elderly patients from Ross & Cromarty Locality.

3 Methodology

Emergency Hospital utilisation rates (Occupied Bed Days, Admissions and Transfers) by elderly patients (>65 years) from Inverness and Ross & Cromarty practices in Raigmore and local Community hospitals (RNI for Inverness ICT, Easter Ross Primary Care Centre and Ross Memorial hospitals for ACAH) were examined for respective post intervention periods and control periods.

For Inverness ICT this was February 2007 to end of March 2008 compared with February 2006 to end of March 2007 as control; for ACAH, it was April 2007 to end of March 2008 with April 2006 to end of March 2007 as control period.

Analysis was limited to the following Specialties:

- GP Beds
- General Medicine
- Geriatric Medicine
- Respiratory Medicine
- General Surgery
- Orthopaedic Surgery

Rheumatology Specialty was also included in the ACAH evaluation.

As a Control, the same analysis was carried out for Badenoch & Strathspey practices' use of Raigmore and Ian Charles and St. Vincents community hospitals, for both the ACAH and the ICT intervention and control periods.

4 Results

4.1 Inverness Intermediate Care Team

4.1.1 Raigmore

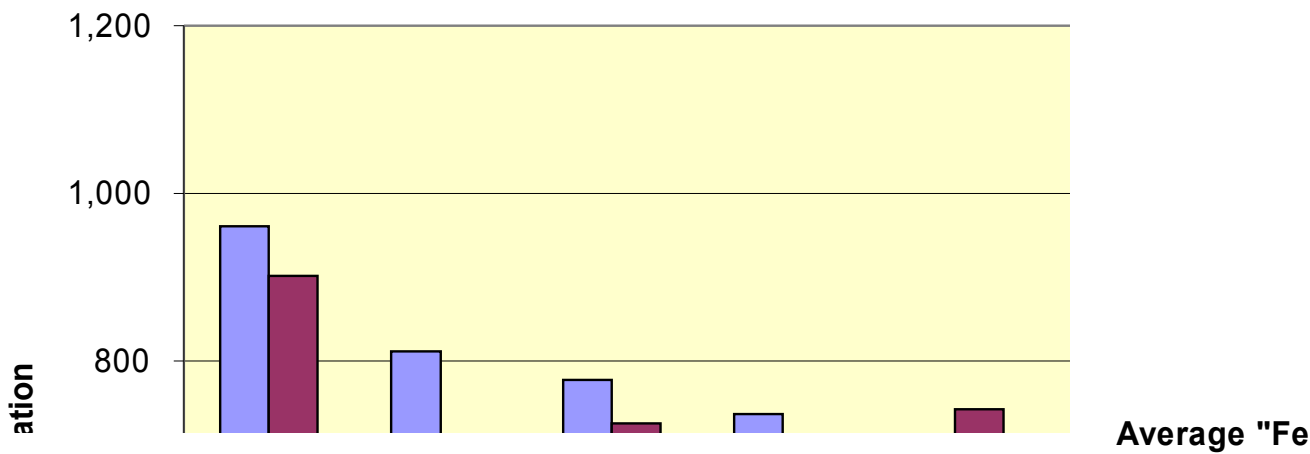
There was a net reduction of 1,806 (4.5%) in Occupied Bed days in Raigmore. The majority of the reduction was in General Medicine which reduced by 13.5% from 21,509 to 18,598; Occupied Bed days in the Geriatric Medicine and Orthopaedics Specialities increased by 13.4% and 15.6% respectively.

Chart 1 shows the reduction in bed days by Practice; 83% of the gross reduction was from four practices, Kinmylies, Kingsmills, Cairn and Culloden Medical Practice.

Chart 1 – Inverness Bed Day Reduction in Raigmore by GP Practice

The standardised Bed day rate in Raigmore for the Locality fell from 689 to 657.8 bed days/1000 population, however there was and remains significant variation in bed day rates between Practices as shown in Chart 2.

Chart 2 – Inverness Standardised OBD Rate/1000, by GP Practice



Total admissions (direct admissions and transfers) fell by 93 (1.7%); the variation in admission rates is shown in Chart 3 below.

Chart 3 – Inverness Admissions Rate/1000, by GP Practice

36% of the total 1,806 bed day reduction was due to reduced admissions and 64% due to reduced length of stay.

4.1.2 Community Hospital

There was an increase of 360 (3.5%) in Occupied Bed days in the RNI. Admissions increased by 75, mainly due to transfers from Raigmore, which in 2007/08 made up 70% of total admissions to the RNI.

Occupancy in the RNI at the outset was 96% leaving little scope for additional activity; however, this was made possible because ALOS fell from 23.3 to 20.6 days, effectively creating an additional 1,200 bed days capacity.

4.2 Badenoch & Strathspey-Intermediate Care Team control

4.2.1 Raigmore

There was a reduction of 895 (13.5%) in Occupied Bed days in Raigmore. Chart 4 shows the reduction in bed days by Practice; 88.7% of the net reduction was attributable to Grantown Practice.

Chart 4– Badenoch & Strathspey Bed Day Reduction in Raigmore by GP Practice

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In total, admissions and transfers increased by 85 (8.9%); average length of stay fell from 7.6 to 6.1 days.

4.2.2 Community Hospitals

There was a reduction of 477 (4.4%) in Occupied Bed days in community hospitals.

In total, admissions and transfers increased by 57 (14.4%). This increase in activity was possible due to a reduction in ALOS which fell

from 27.4 to 22.9 days effectively creating an additional capacity of 1,780 bed days.

4.3 Ross & Cromarty Augmented Care at Home

4.3.1 Raigmore

There was a reduction of 1,590 (6.4%) in Occupied Bed days in Raigmore. The majority of the reduction was in General Medicine which fell by 1,231 days (10.6%).

Chart 5 shows the reduction in bed days by Practice; there was a gross reduction of 2,477 bed days of which 80.5% was from Alness, Dingwall and Tain & District practices. This was offset by material increases in two practices.

Chart 5 – Ross & Cromarty Bed Day Reduction in Raigmore by GP Practice

The standardised Bed day rate in Raigmore for the Locality fell from 464.9 to 434.6 bed days/1000 population, however there was and remains significant variation between bed day rates between Practices as shown in Chart 6.

Chart 6 – Ross & Cromarty Standardised OBD Rates GP Practice

Total admissions and transfers decreased by 61 (1.4%); the variation in practice standardised admission rates as shown in chart 7 below.

Chart 7 – Ross & Cromarty Standardised Admission Rates GP Practice

80

406 days (25%) of the total reduction in bed days is attributable to reduced admissions with the balance of 1,184 days being attributable to reduced length of stay.

4.3.2 Community Hospitals

There was an increase of 2,074 (17%) in Occupied Bed days in the Community hospitals with an increased utilisation by most Practices.

In total, admissions to community sites increased by 41 (8.1%); transfers from Raigmore make up 47.8% of admissions to community hospitals.

The ALOS increased from 24.01 to 25.99 days (8%).

The increase in bed days in community hospitals is due in equal measure to increased admissions and increased length of stay.

4.4 Badenoch & Strathspey-ACAH control

4.4.1 Raigmore

There was a net reduction of 542 (10.0%) in Occupied Bed days in Raigmore. Chart 8 shows the reduction in bed days by Practice; 77.1% of the gross reduction was attributable to Grantown Practice.

Total admissions increased by 69 (10%); average length of stay fell from 7.8 to 6.4 days.

Chart 8 – Badenoch & Strathspey Bed Day Reduction in Raigmore by GP Practice

4.4.2 Community Hospitals

There was a reduction of 338 (3.6%) in Occupied Bed days in community hospitals.

Total admissions and transfers increased by 48 (14%). This increase in activity was possible due to a reduction in ALOS from 27.4 to 22.9 days, effectively creating an additional 1,458 bed days which were available for the additional admissions which used 1,120 bed days.

5 Discussion

There is clear evidence of a change in hospitalisation rates in Raigmore and the RNI by Inverness practices since the introduction of the ICT. This is evident in a reduction in bed days in Raigmore due to both a reduction in admissions and a reduction in average length of stay. At the same time, the average length of stay in the RNI has been reduced, increasing the effective availability of GP beds to allow an increase in admissions, largely resulting from increased transfers from Raigmore.

There is a similar pattern of change in hospitalisation rates in Raigmore by Ross & Cromarty practices with the reduction in bed days being due to both reduced admissions and reduction in the average length of stay. Like the Inverness practices, the main impact has been in the General Medicine specialty.

There is further similarity in the increased admissions and bed days in community hospitals, but a key difference here is that this is due to increased occupancy levels in Ross and Cromarty community hospitals whereas the increase in the RNI is due to reduced length of stay at unchanged near full occupancy levels.

The bed days in Raigmore used by Badenoch & Strathspey also fell, but by a materially greater proportion than seen in both Inverness and Ross & Cromarty. However, the cause of this was different to that seen than in the other localities, with the B&S reduction being due entirely to a reduction in the length of stay; in fact admissions from B&S increased by 9%.

This would suggest that the cause of the changes in Raigmore for Inverness and R&C practices is different to that for B&S practices; we can attribute the impact in R&C and Inverness to the combined effect of the ICT, ACAH and other interventions, but as to what to attribute the impact in B&S, where there was no intermediate care intervention is less clear.

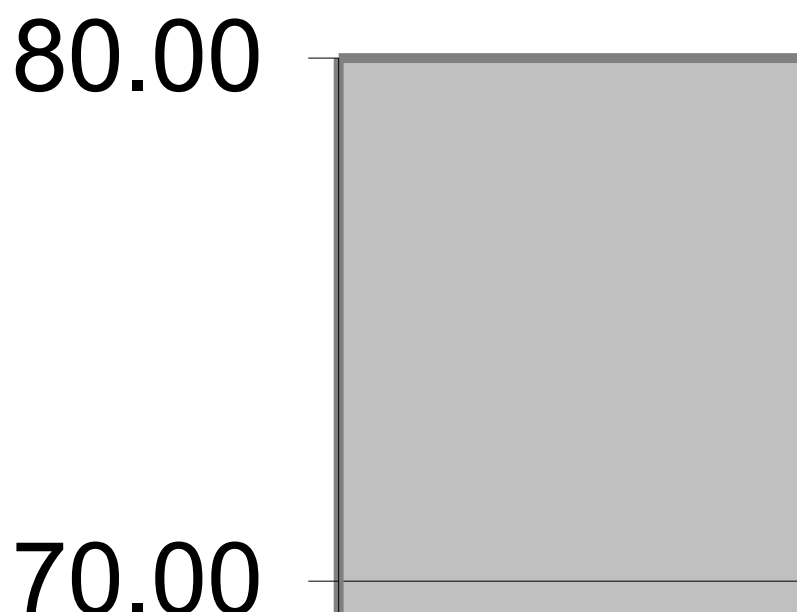
It is reasonable to attribute some of this to the effect of the receiving physician and weekend co-ordinator; similarly, some of the reduction can be attributed to the impact of the patient transport intervention which extended into Badenoch & Strathspey Locality. However, the fact that >80% of the bed day rate reduction in Raigmore by B&S patients was attributable to Grantown practice, suggests that there may have been additional Practice specific factors at play. The fact that Grantown practice was actively involved in the Unscheduled care

Collaborative and also had a standardised bed day rate that was 11% higher than the Locality average may go some way to explaining this, but further patient level statistical analysis would be required to examine this hypothesis, which is beyond the scope of this paper.

A worrying finding is that 70% of admissions to the RNI are transfers from Raigmore, compared to 48% in Ross & Cromarty. This can be expected to have an impact on the ability of the Inverness practices to access GP beds directly and will result in increased hospitalisation rates in Raigmore. This is evident in the fact that the standardised bed day rate for Inverness practices is 126 days/1000 patients greater than for Ross & Cromarty practices, equivalent to 20 beds; conversely, the standardised community hospital bed day rate is 107 days/1000 less than R&C; this suggests that some of the Inverness Locality use of Raigmore is as a substitute for GP led community beds.

The variation in all site bed day rates and admission rates across Practices in both localities needs to be understood as a first step towards engaging practices in managing elderly unplanned hospitalisation of their patients. To illustrate the importance of this for capacity planning, Chart 8 shows the General Medicine specialty bed capacity required in Raigmore for Inverness patients, depending on which bed day rates are achieved by Inverness practices. If the rate of the Practice with the lowest bed day rate is replicated across all Practices, 41 beds will be needed; if that of the Practice with the highest rate is replicated, 75 beds will be needed.

Chart 8: Inverness capacity in Raigmore General Medical Specialty



6 Financial Impact

In the absence of agreed case mix adjusted discharge based tariffs (with the flexibility to allow unbundling of constituent care elements), site and specialty specific Occupied Bed Day rates have been used to value the impact of the interventions.

The description of the methodology of how this is calculated is given in more detail in the paper on the evaluation of Nairn ACP. In brief, this method analyses changes in Occupied bed days into those changes attributable to changes in the number of admissions and those changes attributable to changes in the ALOS and applies site and specialty specific rates to these; the bed day rates used are discounted as follows:

- For bed day changes attributable to changes in admissions, the full OBD rate has been discounted to remove indirect costs;
- For bed day changes attributable to changes in ALOS, the full OBD rate has been discounted to remove both the proportion attributable to indirect proportion attributable to medical input, theatres and investigations.

The financial impact of changes in hospitalisation in Raigmore for the intervention specialties, calculated in this way, is shown in table 1 below.

Table 1: Impact of Interventions in Raigmore

	Inverness ICT	Ross & Cromarty	Badenoch & Strathspey	FYE Total
Change in Bed days attributable to:				
Admissions	(659)	(406)	512	(532)
ALOS	(1,147)	(1,184)	(1,407)	(3,159)
Total Change in Bed Days	(1,806)	(1,590)	(895)	(3,691)
Value of change in Bed Days (£)	(514,072)	(437,415)	(180,704)	(974,748)

This suggests that £975k should be released to offset the £1m used to pump prime the ICT and ACAH interventions, with £540k going to SE Highland (for Inverness and B&S reductions) and £437k to Mid Highland for R&C reductions. Out of interest, £975k is 62% of the bed day reduction valued at full cost bed day rate.

Considering the impact from a Raigmore perspective, Table 2 shows the changes in bed days in the intervention specialties for unplanned admissions in Raigmore between 2006/07 and 2007/08; the change is shown for bed days for Inverness, B&S and Ross & Cromarty localities in total and those from all Highland Localities.

Table 2 Change in Raigmore Bed days for Intervention specialties

	Inverness, R&C	
	Badenoch & Strathspey	All Localities
General Medicine	(3,976)	(4,787)
General Surgery	(1,086)	(2,123)
Geriatric Medicine	917	1,072
Orthopaedics	697	673
Respiratory Medicine	(243)	(43)
Total	(3,691)	(5,208)

Although this change in activity has not been valued in £ terms for the change in bed days for patients from all Localities (due to time constraints), this bed day analysis suggests that the bed day reduction attributable to the interventions (and the resource saved) has not been used on increased activity in other Localities. Raigmore General Medicine and General Surgery budgets and Facilities budgets should therefore be able to release resource to fund the interventions.

Only £500k (7C ward budget) has been identified to fund this to date; this is only 51% of the sum identified here (and 33% of the full cost bed day reduction). This suggests that a more thorough understanding of activity and cost behaviour in Raigmore and Facilities resulting from these activity changes is required to identify budgets that can release the additional resource. Having said that, there is a risk that savings from these budgets may already have been released to meet generic savings targets allocated to in Raigmore and Facilities. Non-recurrent parachute payments may be needed in year one to allow this understanding of cost and activity behaviour to take place.

7 Recommendation

£975k should be released to recurrently fund the ICT and ACAH interventions.

An analysis of activity and costs in Raigmore and support service budgets should be carried out to identify how budgets would be expected to change with activity changes. This understanding should be developed as part of the IRF implementation.

The variation in all site bed day rates and admission rates across Practices in both localities needs to be understood and contracts developed with practices to encourage management of elderly unplanned admissions. This should be supported with a combined Anticipatory care and intermediate care approach as part of CHP older peoples strategies.

The South East Highland CHP older peoples strategy should consider converting some Raigmore capacity to Inverness GP led beds.

8 Conclusion

The interventions have resulted in shifts in the balance of care, as measured by per capita days spent in hospital, from general hospital to community hospital and from hospital per se. These have been largely cost neutral, but further work is required by Raigmore and support service budget holders to identify the balance of the savings.