



Supporting better quality health and social care for everyone in Scotland

Evidence and Evaluation for Improvement Team
(EEVIT)

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Forres Neighbourhood Care Team (FNCT) evaluation report:

Snapshot analysis of admissions,
length of stay and cost of
admission.

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Key Points

- The Forres Neighbourhood Care Team (FNCT) is a team that provides in-patient and community nursing and medical care for acute and chronic conditions including end of life and respite, in the Forres locality area.
- Hospital admission data were available from March 2016 to July 2018 for 28 patients who were cared for by the FNCT between January 2018 and April 2018. All 28 patients had a hospital admission within the March 2016 – July 2018 time period.
- These data were analysed to explore any trends or patterns in the available data related to: number of admissions, length of stay, and therefore cost of admissions, before and after the introduction of the FNCT.
- The analysis indicated there were 42 admissions at a cost of £69,028 for the 28 patients included in the data set before introduction of the FNCT. There were 9 admissions at a cost of £5,357 in the data set after the introduction of the FNCT.
- Average length of stay for the 28 patients was 19 days before the introduction of the FNCT, and 7 days after the introduction of the FNCT.
- These data and analyses are subject to a number of important limitations including (but not limited to): unequal data collection length pre and post entry into the FNCT; data were collected from a sample of patients seen by the FNCT rather than all FNCT patients; the sample and data analysis was opportunistic and not part of a pre-defined analysis plan; and crucially, establishing causality with a before and after study design is difficult.
- Due to the data collection issues noted above, it is not possible to definitively conclude the FNCT has reduced admissions (and cost) from 42 admissions (£69,028) to 9 admissions (£5,327) or conclude length of stay has become shorter.
- However it does appear the 28 patients included in the opportunistic sample were associated with a material resource burden before entry into the FNCT (£69,028), and for the same group of patients the cost of admissions is now down to £5,327 for the period up to July 2018. Therefore, there is scope for resource/cost avoidance if the FNCT is able to limit the number of admissions these patients have over the coming months. Anecdotally, from the limited data available, there is also a suggestion that length of stay has decreased for these patients when considering length of stay after the introduction of the FNCT.
- While the analysis shows the potential for reduced resource use associated with the service, it should be borne in mind that there are costs associated with running the FNCT and these have not been factored into this analysis.

Main Report

Introduction

The FNCT is a team that provides in-patient and community nursing and medical care for acute and chronic conditions including end of life and respite, in the Forres locality area. In terms of staffing, the FNCT is primarily made up of nursing staff who provide a 24 hour and 7 days a week service.

The FNCT aims to impact on patient care and experience through a number of channels including reducing hospital admissions, associated length of stay and therefore cost of admissions.

The purpose of this document is to explore any trends or patterns in the available data related to: number of admissions, cost, and length of stay, before and after the introduction of the FNCT in the Forres locality.

Patient Population and Data Set

Patient records were available for a sample of 28 patients who were cared for by the FNCT between January 2018 and April 2018. The patient records included community health index (CHI) numbers which made it possible to obtain admission data (such as number of admissions and length of stay) for each patient, for the following time period: March 2016 to July 2018. The FNCT patient records also provided the date the patient was referred to FNCT, as well as the date the patient was discharged from the FNCT. The patient- specific referral date was used to separate the March 2016-July 2018 admission data into “before” and “after” entry into the FNCT.

It should be noted additional patient records were available for patients who entered into the FNCT between January 2018 and April 2018; however these patients were not included in the hospital admission analysis as they did not have a hospital admission in the March 2016 to July 2018 time period. In addition, the FNCT programme started receiving and discharging patients from around April 2017 and is currently still active. Therefore the patients included in the data set are very much a selected sample; for example they represent a selection of patients seen by the FNCT from January 2018 and April 2018 who had a hospital admission between March 2016 to July 2018 and therefore patterns in this group may not be representative of the broader group treated by FNCT.

Methods

To determine number of admissions in the sample of patients noted above, simple counts were undertaken of all admissions in the data set classified as “before FNCT”, and “after FNCT”. Similarly, average length of stay was calculated by determining the mean length of hospital admissions for those

classified as “before FNCT” and “after FNCT”.

The cost of admissions was assessed by multiplying the length of a particular admission by the appropriate bed day cost. Using the same classification system as above, it was then possible to sum the cost of admission for all admissions categorised as “before FNCT”, and “after FNCT”.

In terms of the bed day costs, costs were taken from the ISD Scotland cost book reflecting 2016/17 prices and were specific to each hospital included in the data set (Dr Gray’s Hospital, Flemming Cottage Hospital, Stephen Cottage Hospital, and Leonchoil Hospital)¹. A general medicine inpatient cost was applied to the Dr Gray’s admissions, however general medicine costs for the other hospitals were not available and therefore an all specialty cost relevant for each hospital was used instead. Emergency admissions to Dr Gray’s were costed on a cost per case basis as opposed to a cost per bed day due to the short length of stay associated with an emergency admission.

All costs were based on direct costs which included items such as medical and dental, nursing, pharmacy, Allied Health Professional (AHP), other direct care, and laboratory costs. Therefore costs associated with overheads (such as building costs) were omitted in order to generate more conservative cost estimates which may be seen as more representative of the economic value of changes in resource use where it is unlikely that, for example, an entire ward or facility could be closed as a result of an intervention .

Some admissions included in the data set recorded a length of stay of 0; however the analysis assumed a length of stay of 1 day in these instances under the assumption that some health care resource would be associated with the admission. In addition there were only 4 cases of this issue arising in the data set with 3 of these admissions being classified as emergency admissions.

Results

The key results are presented in the table below

Table 1: number, length of stay, and cost of admissions

Analysis	Before FNCT	After FNCT	Difference
Number of admissions	42	9	33
Average length of stay (days)	19	7	12
Cost of admissions (£)	69,028	5,347	63,681

Limitations

- The admission, length of stay and therefore cost data were based on a sample of patients who were discharged by the FNCT over a limited time period (January 2018 and April 2018). Therefore the analysis did not include all patients who would have entered the FNCT since the programme started around April 2017.
- The data sample and subsequent analysis is opportunistic as it was based on data available, and not a pre-defined analysis plan.
- Any interpretation of the data is limited by the small sample size of 28 patients.
- The data set included limited data for the after FNCT period. At most there was 7 months of data from January 2018 to July 2018.
- Some patients who were referred to FNCT in April 2018 will only have a few months of admission data until July 2018.
- Therefore the data set is significantly “skewed” against the before FNCT time period, due to the long data collection period (from March 2016 until January-April 2018 depending on when the patient was admitted to the FNCT), and relatively short after FNCT time period.
- The before and after FNCT periods are not directly comparable due to the different data collection length.
- The analysis assumes patients who were seen by the FNCT between January 2018 and April 2018 were not cared for by the FNCT programme before this time period. Data were not available to confirm whether this assumption was accurate.
- Attributing the effect of any change in admissions, length of stay or cost to the FNCT is difficult due to the before and after study design. Patients may receive additional or new services/treatments outside the FNCT, within the “after FNCT” time period which may affect the results.
- The analysis may be considered a “snapshot” of admissions, length of stay and cost, as opposed to a comprehensive study from which definitive conclusions can be drawn about the resource use changes brought about by the introduction of the service.
- The analysis has only considered the possible resource changes arising from the introduction of this model of care and has not considered the cost to the NHS of providing the FNCT. As such, this is a limited type of economic analysis.
- By focusing only on the patterns of admission as a possible benefit of FNCT, this analysis does not address other important aspects of service introduction such as quality of care or patient preference and satisfaction.

Discussion

Despite the limitations expressed above the analysis does highlight a material resource burden associated with the sample of patients who were seen by the FNCT (42 admissions at a cost of £69,028 before entry into the FNCT). For the same group of patients, the number and cost of admissions is now down to 9 admissions and £5,347 respectively, for the period up to July 2018. Therefore, it appears

there may be scope for significant resource/cost avoidance if the FNCT is able to limit the number of admissions these patients have over the coming months.

Further to this, the costs above are based on a sample of patients and not the “full FNCT” cohort, therefore costs associated with patients before entry into the FNCT could be significantly larger if analysing data for all FNCT patients. This again supports a potential for cost avoidance if the FNCT can reduce admission or length of stay consistently across patients who enter the programme.

In terms of length of stay, the data does support a decrease in the average time spent in hospital for patients who were previously seen by the FNCT. However, it should be noted the length of stay data for the “after FNCT” period is based on only 9 admissions. In addition, it may be difficult to attribute the shortened length of stay directly to the FNCT (i.e. the service is facilitating earlier hospital discharge) as some of these patients may have been described as discharged from the FNCT by the time of their post FNCT admission.

Anecdotally, there was a suggestion from the data of a spike in admissions in the few months prior to entry in the FNCT, with the number of admissions reducing in the period following referral to the FNCT programme. However further data collection and analysis is required to establish this trend.

Conclusion

The analysis presented is a “snap shot” looking at the number of admissions, length of stay, and cost of admissions for a sample of patients seen by the FNCT in January-April 2018. The analysis has a number of important limitations but prior to entry into the FNCT the estimated cost of admissions was £69,028 (42 admissions) and in the few months after entry into FNCT the cost was down to £5,347 (9 admissions). It appears there may be scope for significant resource/cost avoidance if the FNCT is able to limit the number of admissions these patients have over the coming months.

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References

1. ISD Scotland National Statistics (2017) "Costs_RO40_2017" <http://www.isdscotland.org/Health-Topics/Finance/Costs/Detailed-Tables/Speciality-Costs/Acute-Medical.asp>

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