



Counties Manukau District Health Board

Integrated Care Evaluation 2000-2001

Integrated care project for Patients with CHF

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Executive Summary

The aim of the Integrated Care Project for Patients with CHF was to implement CHF disease management as a pilot project with a group of GPs in SouthMed and Procure South. The project was a trial of interventions and systems. It did not anticipate achieving a significant effect on secondary care utilisation.

The project team had designed significant, high quality evaluation into the project. To avoid unnecessary duplication the project was therefore not evaluated by the Uniservices Evaluation Team to the same extent as the other integrated care projects. In particular qualitative research processes were undertaken by the project team, when in other projects they were performed by Uniservices.

The initial plan was to recruit 15 doctors from four practices, to construct an intervention cohort of 150 patients with heart failure. The number of doctors was expanded during the project, as patient recruitment rates were less than anticipated.

The key features of the project were a primary care focus, incorporating patient enrolment, a diagnostic review, a review of management (including self management) to improve consistency with guidelines, and the use of patient held care plans and early post-discharge primary care interventions. In addition the project team was keen to establish electronic communication systems to move data from providers practice computer systems to a central database.

The project achieved significant improvements in a number of areas. The number of echos received by patients increased (improving diagnostic accuracy), and prescribing changed to be more consistent with guidelines – rates of ACE inhibitor, spironolactone (in NYHA class 3 and 4 patients) and beta-blocker prescribing increased over the course of the project. The most surprising result was a significant reduction in secondary care utilisation, and a saving of \$187154 on previous years expenditure.

From 149 enrolled patients	1 year before enrolment	From enrolment to 4/9/01
Number with inpatient event	61	29
Number of inpatient events	130	38
Number of bed days	544	188
Average Length of Stay	4.18	4.95
Patient days in period	54385 (=365*149)	26398 (sum to date)
Total cost	\$427,536.51	\$116,757.52
\$ per patient day	\$7.86	\$4.42

Annualised “post” cost	\$240381.70	
Saving on “pre” period <i>if sustained</i>	\$187154.81	

NOTE: In other projects we have used a marginal costs analysis – applying this methodology to these same data yields a secondary care saving on admissions of \$34,470.

This is an impressive result which warrants further investigation by comparing it with a matched retrospective control group. This would be easy to do with SAH IT capability, and we recommend that this be done.

Introduction

The Integrated Care Project for Patients with CHF aimed to implement CHF disease management to improve patient well-being, reduce avoidable admissions and reduce overall costs of patient care. It was implemented as a pilot project in SouthMed and Procure South. The pilot objective was to trial interventions and systems.

The key features of the Project are a primary care focus, incorporating patient enrolment, a diagnostic review, a review of management (including self management) to improve consistency with guidelines, and the use of patient held care plans and early post-discharge primary care interventions. In addition the project team was keen to establish electronic communication systems to move data from providers practice computer systems to a central database.

The outcome data from the pilot were not expected to be sufficient to assess effect on hospital readmissions with statistical significance.

Description of evaluation

The evaluation of the CHF differed from the other projects. The project incorporated extensive evaluation, which was reviewed by the CHF evaluation team. The project collected a wide range of quantitative and qualitative outcome data, and developed questionnaires to assess provider and patient satisfaction. The evaluation planned by the project team appeared well thought out and was to be conducted by skilled researchers, and was sufficient to provide assessment of the success of the pilot project.

It was agreed between the project oversight team and CMDH that as an extensive evaluation plan had already been signed off and was underway, there was no need for an additional evaluation to be conducted by the Auckland Uniservices evaluation team. The evaluation team also felt that it was important not to overburden any project with extraneous demands, such as multiple evaluation processes. There were initially only 15 GPs involved in the pilot (although this number was increased as recruitment slowed), with a target of 150 patients. The evaluation team suggested therefore that, given the competence of the project team, we should not repeat tasks already being performed.

On reviewing the CHF evaluation plan, it was recommended that it be expanded to include an explicit evaluation of the project from the perspective of Pacific peoples. This suggestion was approved by the project team who then organised a separate focus group for Pacific peoples patients with a Samoan investigator.

The evaluation of the CHF project that follows is based exclusively upon data supplied to the evaluation team by the project team in October. The project team will be producing their own evaluation, with final data being available in the next six to eight weeks (early 2002).

Clinical process measures

At the end of September there were 151 patients enrolled in the project. In the May evaluation plan we requested that the following data from the project team by the 30th of October, for presentation in the final evaluation report. As mentioned earlier, the project team itself in planning a comprehensive evaluation report. Based on the data supplied:

- % pats with care plans

All 151 patients have a care plan.

- % pats who have received an echocardiogram

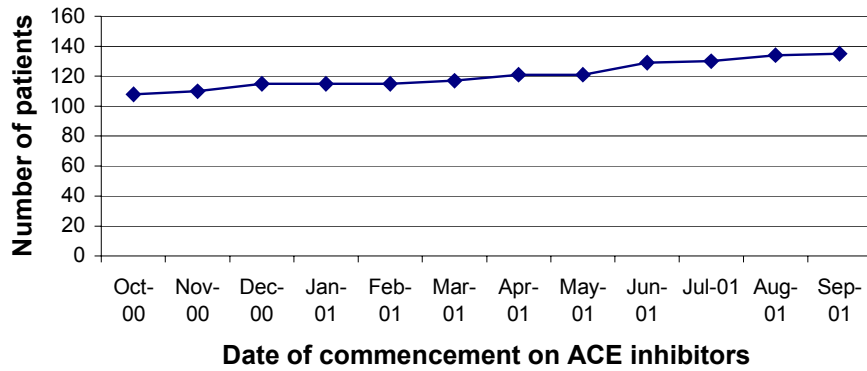
On November 10th 106 (71%) of enrolled patients had had an echo (target >60%). This number was arrived at by adding the number of notified echos (through formal project data capture) to other sources of data that indicated that a particular patient had had an echo.

- change in % patients on ACEI, beta blocker, spironolactone

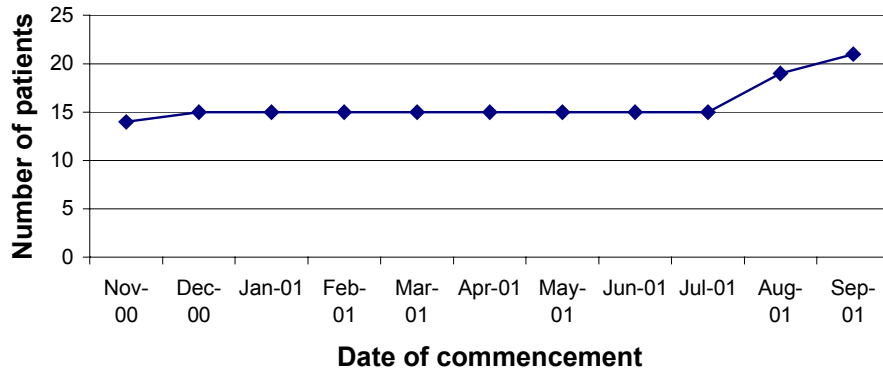
The following three graphs were supplied by the project team To be correctly interpreted fully we need to know the number of patients that for which each therapy is appropriate. However due to a variety of clinical reasons this exact data is not available. Under the assumption that patients were under treated previously, it is clear that there has been a significant shift in prescribing patterns, reflecting increased following of guidelines.

The graphs present the data for the final cohort (149 in these graphs) extrapolated back to study entry i.e. the graphs show the rate at which the final rates of prescription were achieved over the study period, and are not confounded by changing denominators. Thus, for example, the greatest change in prescribing was the increase in number of patients in NYHA 3 and 4 at study completion, using spironolactone.

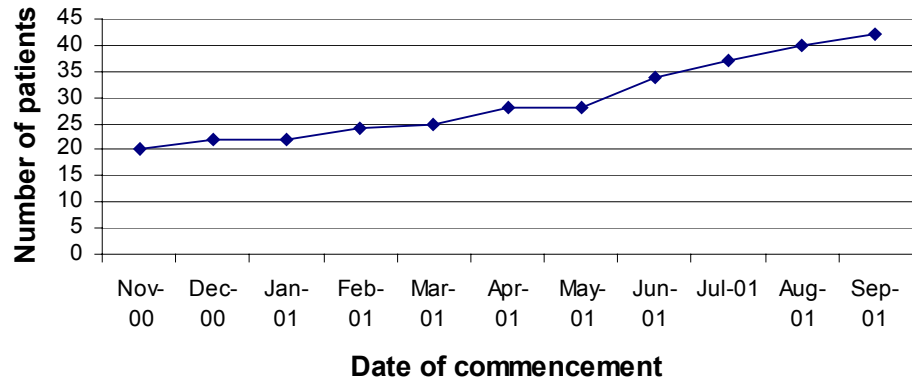
Number of patients on ACE Inhibitors enrolled in the CHF project



Number of patients on Beta Blockers enrolled in the CHF project



Number of patients on Aldactone enrolled in the CHF project



- change in patients NYHA category

This data was not reported as there was considerable unreliability in the data. At the end of the project period there were 40 patients classified as NYHA 3 and 4. For example, as can be seen in the above graphs, slightly more than 40 patients were on spironolactone, possibly reflecting the difference between GP clinical assessment and formal NYHA classification (an indicator for spironolactone).

- change in admission rates (ED use, admission, LOS, total bed days) , cf last 3 years, required for estimated ROI

The project team supplied the following preliminary analysis of admissions and LOS undertaken by the clinical support unit of Middlemore Hospital, with a calculation of financial impact on secondary care resource use.

The analysis was performed on patients enrolled between 31/01/01 – 04/09/01. There were 149 patients in the dataset. Searching SAH records by NHI revealed that 70 of these patients have had an “inpatient event”, i.e. an admission or spent more than 3 hours in EC, in the period during which they had been enrolled in the project, on in the year previous to the date of their enrolment in the project.

The resource use in the period preceding enrolment and after enrolment is summarised in the following table:

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There are a number of cautions with this calculation, the following two are most pertinent:

- We have only accumulated 48% of a full years “post” experience. However known seasonal patterns of CHF hospital admissions would tend to suggest the next few months will see fewer secondary costs incurred.

- Study entry bias – if an admission precipitated entry to the project then the above calculations will overestimate the secondary costs of the year before enrolment. However this effect might be mitigated by an increased probability of admission in the year following an admission. Ideally, in the absence of an RCT study design, a matched control group should be examined. This would be easy to do.

The above bias is in fact unlikely to be operating. In discussion with the project team no patients entered the project through post-discharge procedures. All patients were selected by GPs. Furthermore, the qualitative research conducted by the project team indicates that GPs may have selected “compliant” patients. If this is the case then there might be a bias operating against increased savings – with well-controlled patients it would be harder to achieve savings by improved management.

The CHF evaluation team have also conducted and completed the following aspects of their extensive evaluation:

- A Maori specific patient focus group
- A general patient focus group
- A practice nurse focus group
- Key informant interviews with GPs involved in the project
- A questionnaire to all GPs involved in the project
- A questionnaire to all practice nurses involved in the project
- A review of the IT component of the project

Also, a patient questionnaire to all participants involved in the project is currently underway.

The results from this part of the evaluation will be released in the next 6-8 weeks when the project is completed.

Conclusions and recommendations

Overall an extensive evaluation was planned and carried out by the CHF project team and we await these final results with interest.

This project appears to have achieved a remarkable result - certainly the evaluation team did not expect an effect of such magnitude after reading the original project plan. Because of the size of the effect it would be worth devoting some further resources to constructing a retrospective matched cohort to check these results against a control group. This was considered by the evaluation team but has to date not been implemented due to budgetary limitations. However due to the importance of the effect being shown this decision will be reviewed.