

**LINKED CARE EVALUATION
HORNSBY KU-RING-GAI
COORDINATED CARE TRIAL**

LOCAL EVALUATION
WHOLE OF SYSTEM REPORT

SPRC Report 3/00

University of New South Wales Consortium
Social Policy Research Centre
Centre for General Practice Integration Studies
March 2000

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ISSN 1446-4179
ISBN 0 7334 1871 6

March 2000

The views expressed in this publication do not represent any official position on the part of the Social Policy Research Centre. This report was produced to make available the research findings of the individual authors, and to promote the development of ideas and discussions about major areas of concern in the field of social policy.

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Thank you to all the participants, carers, Linked Care staff, Management Committee and Working Party members and service provider staff who so willingly participated in the evaluation. All names used in the report are pseudonyms.

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Contents

UNSW Evaluation Consortium	i
Contacts for Follow up to this Report	i
Contents	ii
Tables	iv
Abbreviations and Glossary	vi
Part A Introduction	1
1. Introduction and Background	1
1.1 Background to the CCTs and the Evaluation	1
1.2 Background to Linked Care	3
1.3 Overview of the Report	4
2. Methodology and Approach to the Local Evaluation	5
2.1 Background to the Evaluation	5
2.2 Evaluation Methods and Other Issues	6
Part B Findings	7
3. Impact on Clients	7
3.1 Client Outcomes	7
3.2 Impact on Carers	11
3.3 Impact on Clients not in Linked Care	12
4. Service Usage Patterns	14
4.1 Linked Care Service Usage Data	14
4.2 Participant Reported Service Usage Data	21
4.3 Service Provider Experiences of Service Usage Patterns	27
4.4 Data Quality Issues	28
5. Impact on Service Delivery	30
5.1 Service Provider Profile	30
5.1a Availability of Services	31
5.1b Service Delivery Processes	34
5.2 Impact on Care Coordination and Service Integration	38
5.3 External Changes	45
5.4 Service Delivery Conclusions	47
6. Organisation and Operation of Linked Care	48
6.1 Financial and Fund Pool Management	48
6.2 Duplication of Assessment Processes	50

6.3	Specific Linked Care Initiatives	51
6.4	Responsiveness of Service Organisational Structures	52
Part C	Conclusions	53
7.	Whole of System Conclusion	53
7.1	Introduction	53
7.2	Summary of Whole of System Response	53
7.3	Implications of the Whole of System Response	54
7.4	Conclusion	58
	References	59
	Appendix 1: National and Local Hypotheses	66
	Appendix 2: Evaluation Conceptual Framework	69
	Appendix 3: Evaluation Data Sets	71
	Appendix 4: Participant Profile	73
	Appendix 5: Service Usage Charts	77
	Appendix 6: Service Provider Evaluation Tables	98

Tables

Table 2.1:	Service Providers and Funders in Linked Care	6
Table 3.1:	Care Coordinator Views: Linked Care has More Benefits than Disadvantages, November 1998 and November 1999	10
Table 3.2:	People the Participant Received Informal Help from in the past 4 weeks by Participant Group	11
Table 4.1:	Logistic Regression of Intervention Group Membership and Change in Use of Each Service, June 1998 and August 1999	15
Table 4.2:	Logistic Regression of Intervention Group Membership and Change in Cost of Each Service, June 1998 and August 1999	15
Table 4.3:	Type of Assistance Received by Participant Group	22
Table 4.4:	Medical Service Use by Participant Group	26
Table 4.5:	Expectations and Impact of Linked Care on Service Usage	28
Table 5.1:	Service Personnel Views of Service Integration: Description of Care Provided to Clients, 1998 and 1999	41
Table 5.2:	Expectations and Impact of Linked Care on Service Integration	42
Table 6.1:	Expectations and Impact of Linked Care on Service Organisation	52
Table A4.1:	Selected Baseline Characteristics of Linked Care Participants by Participant Group	74
Table A4.2:	Baseline Comparison - Mean Nominations of Disease Category by Participant Group	76
Table A6.1:	Care Coordinators Views of Linked Care, 1998 and 1999	98
Table A6.2:	Service Personnel Views of Service Integration, 1998 and 1999	101
Table A6.3:	Service Personnel Views of Service Integration - Care Coordinators Compared to Non-Care Coordinators, 1998 and 1999	105
Table A6.4a:	Hornsby Ku-ring-gai Community-based Agencies Client Profile (estimates) 1996-97	108
Table A6.4b:	Hornsby Ku-ring-gai Community-based Agencies Client Profile (estimates) 1998-99	108
Table A6.5a:	Hornsby Ku-ring-gai Community-based Agencies Financial Data (estimates) 1996-97	109
Table A6.5b:	Hornsby Ku-ring-gai Community-based Agencies Financial Data (estimates) 1998-99	109
Table A6.6a:	Hornsby Ku-ring-gai Community-based Agencies Staff Profile (estimates) 1996-97	110
Table A6.6b:	Hornsby Ku-ring-gai Community-based Agencies Staff Profile (estimates) 1998-99	110
Table A6.7a:	Estimated Duration of Service Provision for Current Clients, December 1997	111
Table A6.7b:	Estimated Duration of Service Provision for Current Clients, November 1999	111
Table A6.8a:	Size and Length of Waiting Lists (percentage, weeks), December 1997	111
Table A6.8b:	Size and Length of Waiting Lists (percentage, weeks), November 1999	111
Table A6.9:	Hornsby & Ku-ring-gai Hospital & Community Health Services Client Profile (estimates) 1996-97	112
Table A6.10:	Hornsby & Ku-ring-gai Hospital & Community Health Services Staff Profile (estimates) 1996-97	112
Table A6.11a:	Hospital Separations for Residents Aged 65 years and over, Hornsby Ku-ring-gai, 1997 and 1999	113
Table A6.11b:	Hospital Separations for Residents Aged 65 years and over, Ryde Hunters Hill, 1997 and 1999	114
Table A6.12a:	HACC Services in the Intervention and Control Areas, November 1997	115
Table A6.12b:	HACC Services in the Intervention and Control Areas May 1999	115
Table A6.13:	Summary of Demographic Information of GPs, 1997 and 1999	116
Table A6.14:	Average Consultations per GP in the Quarter, Hornsby Ku-ring-gai and Ryde Hunters Hill, 1997 to 1999	116
Table A6.15:	GPs with less than 1000 Patient Contacts per Quarter, Hornsby Ku-ring-gai and Ryde Hunters Hill, 1997 to 1999	117
Table A6.16:	Rate of Imaging Ordered in Quarter per 100 Patient Contacts, Hornsby Ku-ring-gai and Ryde Hunters Hill, 1997 to 1999	117
Table A6.17:	Rate of Pathology Ordered in Quarter per 100 Patient Contacts	118
Table A6.18:	Ease of Referral to Selected Types of Service - Percentage of GPs Agreeing that Referral is Easy, 1997 and 1999	119
Table A6.19:	Percentage of GPs Agreeing that Communication with Selected Types of Service is Satisfactory, 1997 and 1999	120
Table A6.20:	Percentage of GPs Agreeing that Patients See them Coordinating their Clinical and Community Care, 1997 and 1999	120

Table A6.21: GP Satisfaction with Aspects of Providing Care for Patients with Complex Care Needs, 1997 and 1999	120
Table A6.22: Self Reported Levels of Involvement with Patients in the Linked Care Trial for GPs Aware of the Trial, 1997 and 1999	121
Table A6.23: GPs Aware of the Trial Reporting Problems for Patients Arising from the Trial, 1997 and 1999	121
Table A6.24: GPs Aware of the Trial who Agree that the Benefits of the Trial Outweigh the Disadvantages for Selected Groups, 1997 and 1999	121

Abbreviations and Glossary

ACAT	Aged Care Assessment Team, part of RACS
ADD	Ageing & Disability Department, NSW
AN-DRG	Australian National Diagnosis Related Group
ATC	Anatomical Therapeutic Chemical Classification
CACP	Community Aged Care Package
CEO	Chief Executive Officer
CC	Care coordinator
CCDM	Coordinated Care Data Management group
CCT	Coordinated Care Trial
CDHAC	Commonwealth Department of Health and Aged Care
CDHSH	Commonwealth Department of Human Services and Health (now Health and Aged Care)
CIARR	Client Information Assessment and Referral Record
Clients and participants	Linked Care referred to clients and consumers as ‘participants’ in order to differentiate between their role in Linked Care and their role as clients or users of community services. Generally this report retains that convention unless it is referring to the general client population, clients outside the trial or in tables.
CM	Case Manager
COAG	Council of Australian Governments
COPS	Community Options Program
Division of General Practice	Hornsby Ku-ring-gai Division of General Practice (incorporating Ryde)
DOCS	Department of Community Services, NSW
DRG	Diagnosis Related Group
DVA	Department of Veterans’ Affairs
Effective sample	Participants who responded to both the baseline and end trial participant questionnaires
GP	General Practitioner
HACC	Home and Community Care program
HCF	Hospital Contributions Fund
HCS	Home Care Service
HIC	Health Insurance Commission
HKCC	Hornsby Ku-ring-gai Coordinated Care
HKHCHS	Hornsby Ku-ring-gai Hospital and Community Health Services
IHD	Ischaemic Heart Disease
ILU	Independent Living Unit
IT	Information Technology
MBF	Medical Benefits Fund
MBS	Medical Benefits Scheme
MFC	Mercy Family Centre
MOW	Meals on Wheels, Hornsby Ku-ring-gai Hospital
NESB	Non-English-Speaking Background
NIDDM	Non-Insulin Dependent Diabetes Myelitis
NOS	Not Otherwise Specified
NSAHS	Northern Sydney Area Health Service
NSHNS	Northern Sydney Home Nursing Service
NUM	Nursing Unit Manager
PBS	Pharmaceutical Benefits Scheme
PHI	Private Health Insurance
PMMS	Patient Medical Management System
PSG	Peer Support Group (care coordinator meetings)
QCWP	Quality and Complaints Working Party
RACS	Rehabilitation and Aged Care Service, Hornsby Ku-ring-gai Hospital
SAH	Sydney Adventist Hospital
SF-36	Health and Well-being Questionnaire (Short Form 36)
SNAP	Sub-Acute and Non-Acute Patient Classification
TCM	The Care Manager

Part A Introduction

1. Introduction and Background

The Linked Care Trial was an innovative approach to linking health and community care services for people in need of ongoing care, established in 1996-97 in the municipalities of Hornsby and Ku-ring-gai in Sydney's northern suburbs. The trial formed part of a national program of Coordinated Care Trials (CCTs) established in 1996 to test whether it was possible to coordinate the care currently provided by a variety of different health and community care services and practitioners using funds pooled from a number of different Commonwealth and State programs. This flexible use of funding was to be managed by care coordinators (CCs) assigned to each participant,¹ using an individual care plan to help organise the medical care and social assistance that each would receive. The local evaluation of the Linked Care Trial was to test whether this approach could be practically implemented in the local community and, if so, to determine whether this led to a more effective use of existing resources with improved outcomes for participants and caregivers.

This final evaluation report reviews progress with Linked Care and the evaluation from commencement of the Live Phase of the trial in 1997 to its formal conclusion in December 1999. Drawing on quantitative and qualitative data collected as part of the Local Evaluation, the report presents an analysis of findings with respect to a number of separate components of Linked Care. It also identifies the conditions which underlie the achievements of Linked Care in this period and considers obstacles that have constrained the achievement of trial goals or which could have affected the evaluation.

The remainder of this introduction provides a brief overview of the background to the Coordinated Care Trials and specifically this trial, Linked Care. This introduction also serves as a guide to the remainder of the report.

1.1 *Background to the CCTs and the Evaluation*

The proposal for the establishment of what became known as 'Coordinated Care' can be traced to the reform proposals advanced by the Council of Australian Governments (COAG) in 1995. A report published by the Council in April of that year (COAG, 1995) identified 60 different programs for health and community services in Australia, some operated by State governments, others by the Commonwealth or by both levels of government. This complex system of organisation and funding, which also involved funding from private health insurance funds and individuals and their families, was seen as providing a number of perverse financial and organisational incentives that promoted the duplication of basic tasks such as assessment and referral, often skewing service use towards more intensive and expensive interventions than may be required.

¹ Linked Care referred to clients and consumers as 'participants' in order to differentiate between their role in Linked Care and their role as clients or users of community services. Generally this report retains that convention unless it is referring to the general client population, clients outside the trial or in tables. All names used in the report are pseudonyms.

The system of health and social care was seen to be in a state of near crisis and in need of drastic overhaul. It was argued that the complexity of provision and the problems and inefficiencies in the provision of health and community services arose from the rigidity of program boundaries, from the duplication and overlapping responsibilities of State and Commonwealth programs, and from the absence of competition between service providers. For example, it was simple for general practitioners (GPs) to prescribe medications for their chronically ill patients, but relatively difficult to obtain assistance with physiotherapy or housekeeping. It is possible to refer on to community services, but there was no guarantee that their referral would be accepted, as the fixed budgets under which most services operated meant they were unable to assist all applicants and may have had to set priorities amongst applicants. It was also difficult to introduce innovative approaches to service provision; to fill gaps in the local system was also difficult, as there was little flexibility allowed those at the local level over the way in which existing funds could be deployed.

To overcome problems such as these a reform agenda was proposed which would draw the existing 60 programs together in to one of three streams of care:

- ? a *General Care* stream, for those who required occasional primary care;
- ? an *Acute Care* stream, providing specialised acute and follow-up care services for those with acute care needs; and
- ? a *Coordinated Care* stream, to meet the needs of those with disabilities or chronic illnesses with complex care needs, requiring continuing care (COAG, 1995a).

It was subsequently proposed that a series of large scale trials should be undertaken to test the efficacy of the proposed models, before any large scale system change was introduced. These trials were, initially, to be focused on the coordinated care stream.

Expressions of interest in conducting trials were called for in September 1995 by the (then) Commonwealth Department of Human Services and Health (CDHSH, 1995). Of the approximately 50 submissions received, 12 were selected and funded for the Tracking Phase, which provided the proposed trials with an opportunity to develop and refine their initial proposals and to firm up links between the participating services and agencies. From the 12, nine trials were given Commonwealth approval and funding to proceed in 1996. Along with the Care Net Trial established in the Illawarra region, Linked Care, sponsored by the Northern Sydney Area Health Service (NSAHS) was one of two trials to proceed in New South Wales (CDHAC, 1999).

Commonwealth priorities determined many of the operational characteristics of the nine successful trials and their evaluation. All trials were required to be large scale, with an initial minimum size of at least one thousand clients receiving the intervention. Trials were also required to nominate a control group of at least five hundred clients receiving 'standard' or normal services. The Live Phase of the trials was to commence October 1997, the recruitment phase to finish in April 1998 and the Live Phase to be completed in December 31 1999.

Many of the detailed requirements of the evaluation were determined in similar way. Specifications for the evaluations of the trials were first developed by the evaluation team from Coopers and Lybrand Consultants and the Centre for Health Program Evaluation, as

trials were developing and refining their designs. Detailed requirements for the evaluation, at both national and local levels, were agreed upon, and published, first in a series of draft documents, then in a final *Evaluation Framework* (Coopers and Lybrand, 1997). As well as outlining the structure of local evaluations alongside a national evaluation, the framework provided a comprehensive inventory of the data required from different sources, and set out the evaluation hypotheses, which are discussed in the following section of this report.

Responsibility for the local evaluation of the Linked Care Trial was awarded to the University of New South Wales Evaluation Consortium (UNSW Evaluation Consortium) in December 1996, following a competitive tendering process. In 1997 responsibility for the national evaluation was contracted to a consortium between the Centre for Health Advancement at Flinders University of South Australia² and KPMG Management Consulting. The design, development and management of quantitative data systems for the national evaluation was assigned to La Trobe University's Coordinated Care Data Management (CCDM) group.

1.2 Background to Linked Care

The Linked Care Trial was proposed in 1995 by the NSAHS in response to a national call for expressions of interest in September of that year. The NSAHS committed associated facilities and services through a joint expression of interest with the Hornsby Ku-ring-gai Division of General Practice (incorporating Ryde) and a number of independent non-profit health and community services, most of which were funded through the Home and Community Care Program (HACC). Preparations continued throughout 1996 and 1997, and Linked Care formally commenced operation on October 1 of that year. It operated until December 1999, with a final Evaluation Report due by the end of March 2000.

Briefly, the model of care coordination proposed for Linked Care was that a CC was to be appointed for each participant, either their GP or an employee from an agency that provided or could provide them with other health and community care. The CC, in consultation with the participant and relevant service providers, was to prepare or review a care plan for the participant at least every three months, covering both medical and other health and community care services. Care provided to the participant and care coordination costs were to be paid from a fund pool of health and community care funds. This was intended to provide a budget that was capped but flexible, wherein which the CC could seek the most cost effective solutions to the participant's care needs. Services used were to be reconciled against the care plan as feedback to the CC. CCs were to be accountable to each other for significant financial decisions through a Peer Support Group (PSG) structure.

² This responsibility passed to Monash University in early 1999, due to the transfer of the Centre's director.

1.3 Overview of the Report

Part A of this report (this section) provides an introduction to the report including the background to the trials, Chapter 1, and an explanation of the evaluation methodology, which is presented in Chapter 2.

Part B presents the findings of the evaluation. Chapter 3 details the impact of Linked Care on the clients, including clients in and outside Linked Care and carers. Chapter 4 examines the impact on service usage, and related to this, Chapter 5 reviews service delivery response. Issues regarding the organisation and management of Linked Care, including financial management, care coordination, service substitution, medical intervention are discussed in Chapter 6. The findings are drawn together in Part C, in terms of analysing the whole of system response to the Linked Care model.

The report should be read in conjunction with the *Local Evaluation Final Report* and the other two thematic reports:

? *Client Experience Report*

? *Service Provider Experience Report.*

A volume of evaluation instruments also accompanies the *Local Evaluation Final Report*.

2. Methodology and Approach to the Local Evaluation

2.1 Background to the Evaluation

The local evaluation of the Linked Care Trial was undertaken by the UNSW Evaluation Consortium as part of the larger, national evaluation of Coordinated Care (Coopers and Lybrand, 1997; CDHSH, 1996). It was also conducted as a paid consultancy in accordance with the specifications laid out in the tender brief from the NSAHS (NSAHS, 1997). The commissioning process thus set out the basic parameters of the research and determined the resources available for the evaluation.

Evaluating such a complex trial with limited resources required careful conceptualisation, planning and prioritisation of the research tasks. This chapter provides an overview of the main elements of the research design developed and the methodologies employed by the evaluation team.

National and Local Hypotheses

The *National Evaluation* and the *Local Evaluation Tender Requirements*, stated that the evaluation was to test the primary hypothesis:

1. that coordination of care for people with multiple service needs, where care is accessed through individual care plans and funds are pooled from within existing programs, will result in improved individual client health and well-being within existing resources (HKCC Project, 1997; CDHFS, 1996a).

It was also to test the hypotheses that the success of coordinated care would be affected by:

2. the extent of substitution between services;
3. the range of services and the size of the trial pool;
4. the characteristics of the clients;
5. the quality of the clinical and service delivery protocols;
6. the characteristics of the care coordination function;
7. the particular types of administrative arrangements;
8. the extent to which clients were partners in the planning and coordination process; and
9. that the primary results can be achieved without detriment to other key areas of government policy, particularly equity of access and privacy.

The local evaluation also had to address *the extent of collaboration in care between those involved*, and *the quality of care* and a number of related secondary hypotheses as set out in the national project documentation.

The local evaluation was also to determine the extent to which the trial was able to meet six primary objectives concerned with establishing the trial and five secondary objectives concerned with changing existing patterns of service usage. Two of the objectives emphasised issues which were not identified in the national evaluation, namely the *impact of coordinated care on informal caregivers*, and the introduction of *integrated*,

multidisciplinary assessment services for frail aged people, people with severe disabilities and people with chronic medical problems in the trial area.

The national and local hypotheses are listed in full in Appendix 1. The evaluation conceptual framework is described in Appendix 2.

2.2 Evaluation Methods and Other Issues

Data on each of the key topic areas discussed above was collected as part of the evaluation, using quantitative data where available, and qualitative data and observations where appropriate. A summary of these is found in Appendix 3. A description of the methods used in relation to each of the instruments are included in the other two thematic reports: *Client Experience Report* and *Service Provider Experience Report*.

Service providers surveyed for the evaluation, listed in Table 2.1, included those with an active role in Linked Care, based on fund pool contribution, care coordination subcontracting and representation on the management committees of Linked Care. A sample of smaller providers likely to be affected by Linked Care was also included.

Table 2.1: Service Providers and Funders in Linked Care

	Surveyed for the evaluation	Fund pool contributor	Care coordination subcontractor	Management/working party representation
NSAHS ^(a) (sponsor)	yes	yes	no	yes
HKHCHS ^(b) Inpatient, outpatient, emergency services, ACAT, RACS, Dementia Services	yes	yes	yes	yes
General Practitioners	yes	(HIC)	yes	yes
Northern Sydney Home Nursing Service	yes	yes	yes	yes
Home Care Service	yes	yes	yes	yes
Mercy Family Centre	yes	yes	yes	yes
Other HACC services Hornsby Meals on Wheels Ku-ring-gai Neighbour Aid	yes	no	no	yes
HCF and MBF	no	yes	no	yes
Pharmacists	no	(HIC)	no	yes
HIC (MBS and PBS)	no	yes	no	no
Department of Veterans' Affairs	no	yes	no	no

Notes: (a) Northern Sydney Area Health Service

(b) Hornsby Ku-ring-gai Hospital and Community Health Services.

Part B Findings

3. Impact on Clients

Three groups of clients can be identified in relation to the whole of system response to Linked Care. They are the participants enrolled in Linked Care, their carers and other clients outside Linked Care. Each of these groups is discussed in this chapter.

Clients recruited to Linked Care were people with complex care needs, living in the community, predominantly older people and people with disabilities. Target recruitment numbers were almost but not fully achieved. Final recruitment was 722 Intervention participants and 423 Control participants. The annualised exit rate was 27 per cent. A description of the participants is included in Appendix 4.

Linked Care did not appear to have a negative effect on outcomes for clients. Positive benefits were reported by participants and some CCs. However, the rates of death, hospitalisation or admission to a nursing home did not improve or worsened. This is consistent with the absence of a large shift in service usage patterns (Chapter 4).

Participants and carers in Linked Care, corroborated by reports from CCs, spoke of the benefits from having an appointed CC. They received better monitoring through the greater attention, that when combined with the financial flexibility of the fund pool, potentially increased access to services. It appears clients not involved as participants in Linked Care may have been disadvantaged but the evidence is ambiguous.

The chapter begins with a discussion about client outcomes from the perspective of the participants, service providers and Linked Care administration (Section 3.1). The impact on carers and clients not in Linked Care are discussed separately in Sections 3.2 and 3.3.

3.1 Client Outcomes

The results about outcomes for Linked Care participants were ambiguous. Linked Care did not appear to have a negative effect on the outcomes of participants enrolled in Linked Care or their carers and positive benefits were reported by participants and some CCs. However, the rates of death, hospitalisation or admission to a nursing home remained stable or worsened. Measurable differences with the health and well-being instrument, the SF-36, were not observed. Similarly, the health and well-being questions in the participant questionnaire did not reveal change.

Exits

Final consents were obtained from 722 Intervention and 423 Control participants. The number of Intervention participants fell to 396 by the end of the trial. The annualised withdrawal rate averaged 27 per cent (one to four per cent per month). When Linked Care was designed the management expected that the exit rate would be between 20 and 25 per cent. The exit rate also did not decline as expected over the life of Linked Care.

The most common reason for exiting was admission to a nursing home or hostel (18.2 per cent of Intervention exits); followed by death as the next most common reason (12.0 per cent). The rate of exit due to these two reasons was one of the outcomes that Linked Care was hoping to improve through the intervention. Other reasons given by participants related to the burden of Linked Care or change of residence outside the catchment area. In the Control group, participants who decided to leave formed the largest group (18.4 per cent), with related deaths again being the second largest reason for exit (12.5 per cent).

Of particular interest is whether, after taking socio-demographic characteristics into account, there was a difference in exiting between Intervention and Control participants. When disaggregated by type of exit, it was found that Intervention participants were much less likely to exit due to dissatisfaction, not-reconsenting and so on, than Control participants. They were also less likely to exit due to a related death. However, the analysis showed that their odds of exiting to residential care were significantly higher (a factor of 1.42) than for Control participants.³

Therefore this model of care coordination could be seen as possibly lowering clients rate of death but perhaps accelerating admission to residential care. Further analysis of the baseline severity of conditions would be needed to confirm this result.

Health and Well-being

The SF-36 Health and Well-being Questionnaire was used to measure change in participants health and well-being. In summary, as expected, there was very little change in participants' health and well-being as measured throughout the trial, comparing a baseline, mid-trial and end of trial scores. The participant questionnaire sample found similar results. Preliminary analysis identified the following differences.

- ? At the baseline the Intervention participants scored significantly better than the Control participants on emotional role. At the mid-trial this changed to better scores for Control participants for physical function and social function. By the end of trial bodily pain was significantly higher among Intervention participants.
- ? When scores for each item were examined, it was found that large proportions of Intervention participants had a worse score at the end of the trial for all measures except physical and emotional roles. A similar pattern was also evident among Control participants. When exited participants were included, the proportions of participants whose score worsened increased considerably.
- ? When controlling for differences in the baseline characteristics of the Intervention and Control participants, participants in the Intervention group were more likely to have a better or worse emotional role score (rather than an unchanged score). This pattern was repeated when exited participants were included. In addition, participants in the Intervention group were more likely to be the same rather than worse on the bodily pain score, compared to the Control participants.

³ Analysis was conducted using Cox proportional hazard analysis (*Local Evaluation Final Report*, Section 4.3a).

It appears that this model of care coordination was insufficient to significantly change the health and well-being of predominantly older clients.

Satisfaction

The participant questionnaire asked eight questions about various aspects of care coordination to gauge client satisfaction levels and to observe change over time.⁴ The results showed that there was little difference between Intervention and Control participants in their satisfaction levels. Differences were observed between the two groups on only three items: had a say in the type of services received, services responded to changed needs, and self or family pay for the costs of care.

Analysis of changes in satisfaction over time revealed that only paying for costs of care was significantly different.⁵ When analysed by CC type, some additional areas of significant improvements in satisfaction in were identified. Participants with a full-time CC were more likely to have rated an improvement in receiving services they needed compared to participants with other types of CCs. Similarly, participants with a GP were more likely to have rated services responsive to changes in care needs as worsening over the life of the trial.⁶

It seems that some models of care coordination experienced in this trial have the potential to change some aspects of client satisfaction with service delivery; that being the more intensive model CCs in relation to accessing appropriate care and responding to changing needs.

Service Provider and Care Coordinator Experiences of Client Outcomes

At the start of Linked Care, on balance managers from both health and community care service providers seemed to be of the view that participants would benefit from Linked Care. The possible threats to participants were short-term administrative issues, such as recruitment, that had already been resolved by Linked Care. They identified a potential negative impact on access to care by clients outside Linked Care because of capped budgets.⁷

Half the CCs (51.1 per cent) reported more benefits than disadvantages for their participants. Only one-third (32.6 per cent) reported improvements in the health and well-being of the participants although over half (56.8 per cent) thought Linked Care was more

⁴ There are a number of problems associated with investigating client satisfaction. Older clients in particular are unlikely to criticise or rate poorly services they receive in satisfaction surveys (Draper and Hill, 1995: 67). Other studies have found satisfaction surveys can be usefully employed to improve specific aspects to service provision, such as waiting time, and length of consultations (Client-Focused Evaluations Program, 1998:9).

⁵ Intervention participants reported that the likelihood of them contributing to the cost of care decreased over the course of the trial (participant questionnaires, November 1998 and 1999).

⁶ These results should be read with caution, given the small number of respondents, the subjective nature of the answers and questions about the links between the ability of the CC to influence these outcomes in service satisfaction.

⁷ Service provider manager baseline interviews.

beneficial for some participants that others, particularly participants with complex care needs or participants who, for a variety of reasons, had not been able to negotiate access to care.⁸

CCs were asked about the balance of benefits and disadvantages of Linked Care to their service or practice (Table 3.1).

Table 3.1: Care Coordinator Views: Linked Care has More Benefits than Disadvantages, November 1998 and November 1999

	n	1 Strongly agree %	2 Agree %	3 Neutral %	4 Disagree %	5 Strongly disagree %	Median
1998							
For my participants	44	18.2	31.8	36.4	13.6	0.0	2.5
For my other clients	42	2.3	11.4	52.3	18.2	11.4	3.0
For my service or practice	43	9.1	25.0	36.4	20.5	6.8	3.0
1999							
For my participants	45	11.1	40.0	28.9	8.9	11.1	2.0
For my other clients	45	2.2	11.1	35.6	26.7	24.4	4.0
For my service or practice	45	6.7	17.8	37.8	15.6	22.2	3.0

Source: CC questionnaires, November 1998 and November 1999.

By the end of the trial a greater proportion of CCs surveyed strongly disagreed that Linked Care had more benefits than disadvantages for their Linked Care participants, their other clients, and their service or practice. However, examination of the median suggests that it was only in reference to clients not in Linked Care and that opinions of CCs has shifted from neutrality to disagreement. Analysis revealed significant variation by CC type for impact on other clients and impact on the service or practice. Non-GP CCs were more likely to disagree about the balance of benefits and disadvantages to other clients and similarly disagree about the balance of benefits to their service than GP CCs.⁹

Participant Experiences of Benefits of Having a Care Coordinator

The participant interviews revealed information about how participants experienced the relationship with CCs. The Intervention group participants identified at least four benefits they perceived from having a CC:

- ? a sense of security if circumstances changed;
- ? a facilitator or advocate to access services to avoid the burdensome and time consuming processes and to negotiate their case; and
- ? a sympathetic health professional; and
- ? a centralised point of advice and information.

⁸ CC mid-trial and end trial questionnaires.

⁹ p=0.042 and p=0.029, Pearsons Chi-Square.

3.2 Impact on Carers

Linked Care appeared to enhance the support to participants provided by carers. Although the number of participants relying on informal care did not change significantly, the combination of care provided by non-resident family decreased in comparison to the Control group. A possible explanation for this might have been that Linked Care might have supplemented residential family care, thereby assisting in the sustainability of the informal care.

Carers reported that their GP CCs had begun considering their holistic needs as carers when they attended medical appointments with their family member.¹⁰ Both non-GP CCs with less than ten participants and full-time CCs were likely to plan more actions to meet the needs of carer support and disability than other categories of CC where these needs were identified.¹¹

By far the majority of Intervention and Control participants received some form of informal support.¹² Participants reported a high rate of reliance on informal support for everyday activities, including: shopping, transport, home maintenance, meal preparation, ongoing supervision and nursing. Mainly family members, particularly spouses and children were most likely to be relied upon (Table 3.2). There was also a high incidence of reliance on a combination of informal support.

Table 3.2: People the Participant Received Informal Help from in the past 4 weeks by Participant Group

	Participant group					
	All baseline responses		Effective Sample ^(a)			
	Intervention	Control	Intervention		Control	
	% (n=)	% (n=)	baseline % (n=)	end trial % (n=)	baseline % (n=)	end trial % (n=)
No informal help	6.1	14.4	**	**	**	**
Family live with	37.6	32.2	36.7	34.3	35.2	17.4
Family live separately	21.2	22.6	22.9	19.7	17.0	17.4
Mix of family who live with/separately	9.7	6.8	8.3	21.9	6.8	32.2
Friends/Neighbours	7.9	11.0	5.5	2.9	15.9	8.7
Mix of family as well as friends/neighbours	17.6	13.0	20.2	14.6	11.4	13.9
Total	100.0 (164)	100.0 (146)	100.0 (109)	100.0 (137)	100.0 (88)	100.0 (115)

** p<0.05

Source: Participant questionnaires, November 1998 and 1999.

Notes: Percentages may not add to 100 due to rounding.

(a) Effective sample: participants who responded to both the baseline and end trial questionnaires.

¹⁰ Carer interviews.

¹¹ Linked Care and DHAC analysis of care plan content, March 2000; Section 3.4.d.

¹² Participant questionnaire.

Informal carers and a wide network of supporters were also involved in arranging formal care according to participants.¹³ This occurred not only in the Linked Care model with CCs, but also with clients in the Control area or outside Linked Care. Interestingly, this appeared to be the case even when participants received formal case management services. That is, care coordination or case management did not completely replace the coordination role of carers. Perhaps this is a reflection of the complexity of caring for these types of clients,

For example, three of the Intervention participants who had disabilities were often in an unstable health condition which required flexible care arrangements. In two of these situations the primary carer remained a family member during participation in Linked Care. These carers were concerned to balance the arrangements for: quality of care, quality of life for participant, and adequate respite to enable some time apart for themselves to do other tasks and have a break. However, other participants expressed a preference to maintain independence and felt that care from a family member was more acceptable than from strangers.¹⁴

In summary, the Linked Care model appeared to complement the carer relationship in several ways:

- ? supplementing rather than replacing the role of the carer or other client networks;
- ? providing another choice to the client seeking assistance to change care needs;
- ? providing another source of information for the CC in the care planning process;
- ? carers gained assistance and support from the CC for coordination decisions;
- ? acknowledging the expertise/experience of families in managing care needs of the person; and
- ? if the carer was no longer available, providing a back-up and therefore a sense of security for the client and carer.

3.3 Impact on Clients not in Linked Care

One of the objectives of the trials was to implement the intervention without disadvantaging non-participants. There appeared to be four ways that clients outside Linked Care could have been disadvantaged:

- ? if the infrastructure of a service provider was insufficiently flexible to be able to use the reimbursement from the Linked Care fund pool to increase the total hours of care provided by that agency, e.g. to employ additional staff;
- ? if payments to the service provider from the fund pool were not transferred to the branch so the cost of the additional care to participants was at least partly funded from a branch budget;
- ? if the payment for CCs was insufficient to cover the cost of employing them; or

¹³ Participant interviews and participant questionnaire.

¹⁴ Client interviews.

? if the cost of service used to calculate capitation rates and service payments was inaccurate and did not cover the cost of care.

It was unclear to the evaluators the extent to which these four risks were avoided. Certainly a concern about inequity between clients in and outside Linked Care was expressed throughout the second half of the trial in 1999, particularly in relation to accessing assistance from Home Care Services (HCS), the largest HACC service provider.¹⁵ It was reported that if a participant had a change of circumstance requiring access to HCS care they were able to access that care, compared to other potential clients who could not. This was because HCS personal care was reportedly capped since August 1998 and was reducing the care available to non-participants.¹⁶

At the baseline, all service providers feared Linked Care could be detrimental to clients outside Linked Care, if resources and care provided were capped and the effect was to allocate a significant proportion of care to participants.¹⁷

CCs were also negative in their views. Over half thought there had been a negative impact on clients outside Linked Care (51.1 per cent; Table A6.1). Comments supporting this result described the negative impact on access to services for non-participants because of capped resources.¹⁸

Repercussions from perceptions by service staff of an inequity between clients in and out of the trial could be a continuing issue for a model such as this, if the perception resulted in a detrimental attitude to participants. Additionally, the perceived inequity could have created resentment towards Linked Care and its participants. A result might have been that providers were less willing to incorporate ideas from Linked Care in their service delivery processes (e.g. using the CIARR to enhance referrals) or to comply with expectations from Linked Care (e.g. covering for CCs on leave, or attending PSG meetings).

It would seem that the expansion of the model would continue to pose these risks to clients outside coordinated care. Even if financial reimbursement was accurately calculated and transferred, with smaller agencies, rigidities such as the availability of suitable staff or volunteers could be present. Similarly, for larger organisations, industrial relations issues concerning temporary staff could restrict their ability to continue to provide the same level of care to other clients.¹⁹

The evidence about the impact on non-participants was only sketchy. The implications from this limited analysis are that the Linked Care model could have been sustainable at a cost to clients outside the model. Second, greater provision of community and hospital-based services to a larger number of clients in this model may only have been possible if the flexibility of the structure of existing and possibly new service providers changed.

¹⁵ From managers of service providers contributing to the trial, other service providers, CCs and reportedly from field staff at HCS.

¹⁶ This is consistent with the increase in waiting list numbers for HCS and other service providers; Table A6.8a and A6.8b.

¹⁷ Service provider baseline interviews, December 1997.

¹⁸ Service provider managers and CC mid-trial questionnaires.

¹⁹ Service provider manager baseline interviews.

4. Service Usage Patterns

4.1 *Linked Care Service Usage Data*

A vast data set of service utilisation was generated by Linked Care. Analysis for this evaluation has only begun to explore the implications of the data. Descriptions of service use and cost during the trial are presented in chart format in Appendix 5.

Analysis was conducted of both service usage and cost according to the basic service groups defined by the national evaluators. These groups were: hospital inpatient services; hospital non-admitted patient services; Home and Community Care Services (HACC); diagnostic and investigational services; pharmaceutical services, medical and specialist services; and other goods and services (a catch all other category, mainly private providers).²⁰

Mean use and mean cost per month per participant in Linked Care were calculated for the period May 1998 to September 1999.²¹ In addition to the broad service groups listed above, charts are included for sub-groups of participants, services and funders: HACC providers, and DVA, MBF and HCF clients. Outliers have not been removed (further analysis should include this alternative description of the data).

As discussed in Chapter 3, Linked Care did not appear to change the measured health outcomes of participants enrolled in Linked Care. Similarly, this chapter discusses the apparent absence of major shifts in use and cost of service types. The exceptions were possible increases in use and cost of medical practitioner and specialist services and changes in care provided by specific HACC agencies.

Participants and CCs reported that the model provided better monitoring, and that when combined with the financial flexibility of the fund pool, the model potentially increased access to and use of services. It is therefore not surprising that in the absence in a shift in service use, a possible increase in use was observed for some service types (e.g. community care).

Logistic regression was used to analyse changes in both service usage and cost according to the basic service groups.²² Tables 4.1 and 4.2 show that increased use of medical

²⁰ Other service groups included in the national data set, but not in this analysis were nursing home or hostel services, non-MBS general or specialist medical services including coordinated care services, and services arising from the CCT context. Hospital non-admitted patient services data were charted, but not included in further analysis.

²¹ Three month moving averages were calculated to minimise irregular monthly variations. Data were successively averaged by adding values for the month in question, and the month preceding and following. This was then divided by a moving or rolling average of the number of participants for the corresponding period.

²² Two sets of variables were created. The first represented baseline usage for the month of June 1998 calculated as a three-month average (May, June, July). A second set was created to capture change over time, that is, end of trial (August 1999 – average of July, August, September) minus baseline (June 1998). The comparison of different months risks seasonal effects, minimised through the use of a three-month average. This was repeated for cost of service use. The approach controlled for baseline differences (largely demographic, Appendix 4) that had the potential to influence outcomes. This allowed for changes in the amount and cost of service use to be analysed in terms of the Intervention alone. The regression predicts that with a given outcome (e.g. cost of service), and controlling for background differences, the participant is or is not from the Intervention group.

practitioner and specialist services was more likely to be found (by a factor of 1.2) among Intervention participants than a decrease in use. This was also found for cost, although to a lesser degree. No significant differences between Intervention and Control groups were found regarding total cost of services.

Table 4.1: Logistic Regression of Intervention Group Membership and Change in Use of Each Service, June 1998 and August 1999

	Coefficient	SE	Sig	Effect on Odds
Background variables				
Born overseas	0.5685	0.2709	**	1.7657
English not spoken at home	-2.0615	0.4924	****	0.1273
Lives in independent living unit	1.3234	0.3877	****	3.7563
Has a carer	0.8904	0.2689	****	2.4361
Renter	-0.6379	0.2640	**	0.5284
Tertiary level education	1.5623	0.2901	****	4.7699
Service groups				
Hospital inpatient (non-DVA)	0.2662	0.3590		0.8001
DVA hospital inpatients	0.0167	0.0964		0.9835
HACC-based services	-0.0051	0.0074		1.0510
Diagnostic and investigational	-0.0196	0.0378		1.0198
Pharmaceutical	-0.0404	0.0279		1.0413
Medical practitioner and specialist services	-0.1885	0.0638	***	1.2075
Intercept	0.7527			

n = 669; -2 log likelihood 707

** p<0.05 *** p<0.01 **** p<0.001

Reference category: Australian-born; English spoken at home; lives at home (unit, flat etc); does not need or have a carer; owns home; secondary education level.

Table 4.2: Logistic Regression of Intervention Group Membership and Change in Cost of Each Service, June 1998 and August 1999

	Coefficient	SE	Sig	Effect on Odds
Background variables				
Born overseas	0.5573	0.2693	**	1.7459
English not spoken at home	-2.0907	0.4880	****	0.1236
Lives in independent living unit	1.3516	0.3858	****	3.8635
Has a carer	0.8129	0.2667	***	2.2545
Renter	-0.6329	0.2610	**	0.5310
Tertiary level education	1.5832	0.2889	****	4.8704
Service groups				
Hospital inpatient (non-DVA)	-5.2E-05	6.9E-05		1.0001
DVA hospital inpatients	-0.0002	0.0003		1.0002
HACC-based services	-0.0001	0.0002		1.0001
Diagnostic and investigational	-1.5E-05	0.0012		1.0000
Pharmaceutical	-0.0011	0.0010		1.0011
Medical practitioner and specialist services	-0.0022	0.0009	**	1.0022
Intercept	0.9966			

n = 669; -2 log likelihood 707

** p<0.05 *** p<0.01 **** p<0.001

Reference category: Australian-born; English spoken at home; lives at home (unit, flat etc); does not need or have a carer; owns home; secondary education level.

Although the fund pool analysis showed some changes in total service use, this is not immediately evident in the current analysis, apart from medical practitioner and specialist services (Chart A6.24). The results presented here, however, should be interpreted with some caution. First, the analysis only examines changes in cost and usage at two points in time (three-month averages for June 1998 and August 1999). Strictly speaking, the results only refer to changes between the means calculated for these two months. It should also be noted that the direction and strength of results is sensitive to and partly determined by which particular time periods are analysed, for example they may include winter seasonal effects in the end of trial month. Future research into the data, therefore, would utilise more sophisticated longitudinal techniques.

Hospital Inpatient Services

Hospital inpatient services included all private and public admissions to three of the public hospitals in the NSAHS: Ryde, Hornsby Ku-ring-gai and Royal North Shore. It did not include other public or private hospital admissions except as it related to the clients of the two contributing private health insurers, MBF and HCF.²³ Costs are 75 per cent of AN-DRG costs as supplied by the NSAHS (Section 3.3).²⁴

The pattern of average hospital inpatient service use and cost per participant in Linked Care began with higher recorded use and cost for the Intervention participants at the beginning of the trial (Charts A5.1a and A5.1b, Appendix 5). This relative position remained throughout the trial, although the trends converged towards the end of the trial (the convergence could have been a trial effect or due to incomplete data collection in the last months). The higher baseline might be explained by either the impact of the geographical Control or unmeasured differences in the severity and complexity of the health conditions of the participants.

Mean use and cost per participant decreased over time for both Intervention and Control group participants. Unlike the convergence between the Intervention and Control participants mentioned above, this appears to be due to an actual decrease in use (rather than a data capture problem), most likely explained by the survivor effect of the reducing participant groups over time.

The regression described above, revealed no significant difference in hospital inpatient service use or cost between Intervention and Control participants. (Tables 4.1 and 4.2). Further analysis could examine length of stay patterns of usage.

Two of the substitution goals in Linked Care were to prevent hospitalisation and reduce length of hospital stay. Specific hospital service substitution strategies were implemented

²³ Seventy-six records were dropped from the HIC and MBF/HCF data as duplicate private hospital admissions. They are included in the private insurance graphs.

²⁴ This was the fund pool contribution cost negotiated with the NSAHS. Hospital inpatient costs were estimated on 75 per cent AN-DRG, weighted by the three NSAHS hospitals included in the Trial, Hornsby Ku-ring-gai, Royal North Shore and Ryde Hospitals. AN-DRGs are one part of the total resource formula for calculating NSAHS resources. The NSAHS is funded on 80 per cent of AN-DRGs, and 20 per cent is retained by the Department of Health for capital grants and special purposes. A further discount of five per cent was agreed upon with the Trial to minimise the NSAHS exposure and to reflect their expected loss on substitution away from the NSAHS.

and others were explored by Linked Care, including the hospital notification system and the convening of the Hospital Issues Working Party. Participants and CCs related stories of early discharge through intense home-based care arrangements. Other examples of avoiding admission, especially to hospital-based palliative care, were also reported. According to the full-time CCs, Linked Care seemed to be effective at providing services in the home to keep participants out of hospital or get them out early.²⁵ Palliative care was a good example of this, reportedly effective because it also coincided with the goals of those specialist care facilities, such as Neringah, a private palliative care hospital. However, the full-time CCs noted that it would take longer than two years to assess the effect on hospital admissions and health outcomes of earlier intervention of services, aids and equipment.

Hospital Non-inpatient Services

The data for non-inpatient services were manually collected and entered only for the purpose of the Linked Care trial. It was incomplete. Data were not available for the Control group. The charts of average non-inpatient service use and cost per Intervention participant show a decrease in service use and cost for the first eight months before it stabilises for the remainder of the trial (Chart A5.2a and A5.2b). It is unlikely that the data reflect much beyond the adequacy of the data recording, as there is no explanation for a decrease or stabilisation in service use and cost.

Home and Community Care Services (HACC)

The data included in the HACC service group included that from all HACC fund pool contributors (Home Care Service, Northern Sydney Home Nursing Services, Mercy Family Centre), sample data from Meals on Wheels and Easy Care Gardening and other miscellaneous services provided by HACC agencies.

The Home Care Service data appeared to be a reasonably accurate reflection of service use and comparison between the Intervention and Control areas because they were extracted from the head office financial application. To achieve this, each branch of Home Care Services was required to ensure that each service record relating to a Linked Care participant was assigned to the Linked Care account number.

Throughout the trial, Linked Care and the Northern Sydney Home Nursing Service (NSHNS) invested considerable effort to overcome difficulties in transferring reliable data about service use due to a number of information technology changes at the NSNHS (new IT systems and personnel and an office relocation). It appears that by the end of the trial most of the problems were solved.²⁶

Mercy Family Centre (MFC) service data related to packages of care (COPs, CACP). No equivalent data were available from the Control area. Similarly the sample data for Meals on Wheels and Easy Care Gardening were only available for the Intervention area. These differences in the data set contribute to the difference in both the use and cost per participant between the Intervention and Control area, but the effect would be approximately constant.

²⁵ Full-time CCs interview 6 May 1999.

²⁶ Linked Care developed a program in Microsoft Access to extract data from the NSHNS information system. Linked Care discovered in the middle of the trial that the data extract software was missing data when performing monthly extracts. All efforts to modify the program failed to solve the problem.

The charts of average HACC service use and cost per Intervention participant show little change throughout the trial (Charts A5.3a and A5.3b). This was also reflected in the regression analysis (Tables 4.1 and 4.2). The Intervention participants entered the trial with a considerably higher mean cost per participant (I=\$285, C=\$93) and roughly maintained that relative position during the trial (end of trial I=\$311, C=\$73). This is similar to the geographical differences in total use of HACC described in Section 5.1a (Tables A6.12a and A6.12b, Appendix 8).

Although as a group HACC service use and cost did not vary significantly, the service usage patterns were different for particular service providers. Charts of the service use and cost relating to the HACC fund pool partners to Linked Care (HCS, NSHNS, MFC) and the sample data from Meals on Wheels and Easy Care Gardening are included in Appendix 5 (Charts A5.4a to A5.8b).²⁷

The HCS chart shows a distinct increasing trend in cost and service use for the Intervention participants, relative to their baseline position and relative to the Control participants (Charts A5.4a and A5.4b). This was also reflected in participant and CC reports that Linked Care enabled them to use greater amounts of HCS care, both in terms of initially accessing care and increasing the amount and type of care they needed. Future analysis could include changes in the use of HCS home help and personal care, given the constraints on non-participants.

The NSHNS charts reveal the opposite trend (Charts A5.5a and A5.5b). Participant service use and cost reduced throughout the trial, this time for both Intervention and Control participants. Like the inpatient service use, this might reflect a survivor effect, where the higher users of NSHNS care left the trial. The lack of relative change between the Intervention and Control groups would tend to support this conclusion. A similar explanation might apply to the MFC and Easy Care Gardening charts (Charts A5.6a to A5.7b), which decreased in average use and cost over the trial.

Further analysis could exclude HACC services that were not comparable between the Intervention and Control group data sets, such as the MFC data.

Diagnostic and Investigational Services

Intervention participants' diagnostic and investigational services (MBS categories 2, 5 and 6) use and cost did not appear to change either in relation to the baseline or relative to the Control participants (Charts A5.9a and A5.9b). This might indicate that the application of care coordination did not spawn a proliferation of additional assessments, a risk of intensive case management.

Pharmaceutical Services

There were several idiosyncrasies with the PBS data transfer. They included HIC changes to the management of MBS and PBS data relating to participants who withdraw; the effect of the household safety net level; and a consistently low match on Medicare numbers.²⁸

²⁷ The MFC, MOW and Easy Care Gardening data are presented as an average per client who used the service rather than an average per Linked Care participant.

²⁸ This was despite Linked Care recording the participants' Medicare number with their usual pharmacist.

The analysis of the use and cost of pharmaceutical services revealed little change between the Intervention and Control group participants over the life of the trial (Charts A5.10a and A5.10b). Initial analysis of service usage data did not reveal any significant changes in either use or cost of PBS (Tables 4.1 and 4.2).

The pharmaceutical services group would be a particularly interesting data set to examine further given this was one of the few service groups with an apparent surplus after balancing contributions and payments from the fund pool.

Future analysis could also include examination by ATC code and the most frequently prescribed pharmaceuticals, to investigate changes in patterns of use over time. The sample of participants with diagnostic data (803) could be further examined in combination with the PBS data.

Linked Care implemented specific service substitution strategies to reduce pharmaceutical use (e.g. PMMS, medication reviews, reporting PBS data analysis to the Division of General Practice; Section 3.5). The lessons from designing and piloting these strategies might result in measurable changes in service use when applied more widely in future models of service substitution.

Medical and Specialist Services

The remaining MBS items, medical practitioner and specialist services (MBS Categories 1, 3, 4 and other) was the only service group that showed a significant difference in change of service use and cost between the Intervention and Control group participants (Charts A5.11a and A5.11b, Tables 4.1 and 4.2). After controlling for demographic and other characteristics, it was found that increased use of services and increased costs were both more likely among the Intervention group than were decreased costs. More detailed analysis is required to further analyse the size of these effects and to determine if it was the result of seasonal variation of the particular months chosen for the analysis. Further analysis could also separate the GP services from other medical and specialist services.

Although disappointing, this result was probably not unexpected. Several parts of the care coordination process encouraged an increase in medical and specialist service use. Participants were required to visit their GPs for care planning or to complete medical care plans on a regular basis and quarterly monitoring by a CC could be expected to precipitate early recognition of changes in medical need. Yet there were limited opportunities for Linked Care in a short trial with few and reducing numbers of participants to effectively implement strategies to counter this increase or reduce medical and specialist service use. A longer, more widespread trial, with continuing recruitment would be more likely to be able to design and implement service substitution strategies to address this opportunity for service reduction. The Phase II development for Linked Care is attempting to do that.

Other Goods and Services (Private Providers)

Data from multiple sources were included in this last catch all service group. Primarily the group included equipment, private providers and individual professionals such as private physiotherapy and podiatry services. Additional services approved by Linked Care to be paid from the fund pool were also generally included in this category (Section 3.3h). It does not include other private services paid for by participants. Nor is it an accurate collection of data from the Control participants.

The analysis of other goods and services shows an increase in use and cost toward the last third of the trial (Charts A5.12a and A5.12b). Possible explanations could be that Linked Care exercised conservative financial management of the fund pool during the first year and that CCs were less familiar with making requests for additional services or using private providers until the end of the trial.

Future analysis could include breakdown of the type of services included in this category e.g. range of services, cost, frequency, type of participant, type of CC.

Private Health Insurance Clients (MBF and HCF)

Service usage data of clients of the two private health insurance companies, MBF and HCF is presented separately in Charts A5.13a to A5.14b.

Department of Veterans' Affairs Clients

Analysis to differentiate between DVA inpatient and non-DVA inpatient services is presented in Charts A5.15a to A5.20b. The DVA data could not be interpreted in the same way as the other inpatient hospital data. DVA data were collected as per patient hospital day (bed day) records, compared to admission event data regardless of the number of days for other participants. The cost data also differed. The cost only included the accommodation or bed day costs, not the medical costs such as theatre, which were all included for non-DVA clients.

Further analysis could test the relative change between DVA clients and other Linked Care participants and between DVA clients in the Intervention and Control groups.

Impact of Care Coordinator Type

Analysis was conducted by CC type to explore if CCs had different influences on the type and cost of services participants used during the trial, particularly any patterns of change. The analysis used the allocation of the last CC.²⁹ CC types were divided into GP, non-GP part-time and full-time CCs, using data about the 614 participants who had an allocated CC during the May 1998 to September 1999 period. The analysis separated inpatient services from all other service groups because of the infrequency and high cost of inpatient services. DVA inpatient services were treated separately because of the difference in the nature of the data (see above).

Analysis showed mean use and mean cost of services varied according to CC type (Charts A5.21a to A5.23b). Cost and use was higher for participants with non-GP part-time CCs. This could either be due to the characteristics of the participants or the CCs. There was no evidence to suggest a difference in the characteristics of participants allocated to the various CC types, but this should be confirmed through statistical analysis. Further analysis is needed to explore this apparent difference between CC types.

²⁹ Further analysis could include longitudinal analysis by CC, taking point-of-time-allocated-CC, to account for the effects of CC reassignment on service use and cost.

4.2 Participant Reported Service Usage Data

The participant questionnaire provided a cross-reference with other information collected by Linked Care about service use. This section presents parallel results in relation to service groups described above including assistance with daily activities, medical service use and GP consultations, and hospitalisations.

Assistance with Daily Activities

The participant questionnaire provided a checklist for participants to identify if assistance was required for a particular activity and who provided the assistance (community service, privately paid, or family, friends or neighbours). Information was not collected on the frequency of assistance.³⁰

At the baseline, Intervention participants generally had higher service use than Control participants and this did not change over the life of the trial (Table 4.3). For some service types Intervention participants received even more help but mainly from informal caregivers. The source of the help varied for each activity.

- ? Community services provided major support for: housework, podiatry (Control participants), personal care, physiotherapy, day care and occupational therapy.
- ? Informal caregivers provided major support for shopping, transport, home maintenance, meal preparation, ongoing supervision and nursing.
- ? Private services provided major support for podiatry to the Intervention participants. There did not appear to be changes in use of private services as a result of Linked Care.

These results are consistent with the 1993-1994 HACC User Characteristics Survey (Mathur, 1996: 22). From the total NSW HACC clients 65 and over, just under half were provided with personal care (40.1 per cent); Linked Care participants (38.2 per cent). Similarly, most Linked Care and NSW HACC clients received assistance with housework (Mathur, 1996; and Fine and Thomson, 1995: 68-9).

³⁰ After consultation and piloting it was considered too complex for clients to complete frequency data. The *Service Provider Experience Report*, Section 5.1 details service level across the HACC area.

Table 4.3: Type of Assistance Received by Participant Group

	Participant group					
	All baseline responses		Effective Sample ^(a)			
	Intervention	Control	Intervention		Control	
	% (n=)	% (n=)	baseline % (n=)	end trial % (n=)	baseline % (n=)	end trial % (n=)
Housework				**		**
Assistance Not Received	21.7	20.9	20.0	12.0	22.7	22.9
Community Service	36.2	44.9	37.1	38.7	46.2	44.1
Privately Paid	13.5	7.7	15.0	15.5	6.7	7.6
Family/Friends/Neighbours	19.3	18.9	17.9	21.1	16.0	16.1
Community & Family	3.9	2.6	3.6	7.7	2.5	1.7
Private & Other Assistance	5.3	5.1	6.5	4.9	5.9	7.5
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)
Shopping						
Assistance Not Received	33.8	41.8	35.7	30.3	41.2	38.1
Community Service	6.3	8.2	5.7	6.3	9.2	8.5
Privately Paid	2.9	3.6	3.6	4.2	5.0	4.2
Family/Friends/Neighbours	54.1	44.4	51.4	54.9	42.9	44.9
Community & Family	1.9	1.0	2.1	2.1	0.0	0.0
Private & Other Assistance	1.0	1.0	1.4	2.1	1.7	4.1
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)
Transport				**		**
Assistance Not Received	38.6	46.9	39.3	31.7	47.9	48.3
Community Service	11.1	13.3	12.9	14.1	15.1	15.3
Privately Paid	2.4	3.1	1.4	4.2	3.4	4.2
Family/Friends/Neighbours	41.1	30.6	39.3	35.9	27.7	28.8
Community & Family	3.9	3.6	4.3	9.2	4.2	1.7
Private & Other Assistance	2.9	2.6	2.8	1.4	1.7	1.6
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)
Home Maintenance			*		*	
Assistance Not Received	42.5	50	42.1	33.1	54.6	42.4
Community Service	6.8	8.7	5.7	7.0	9.2	9.3
Privately Paid	16.9	12.8	19.3	19.7	9.2	17.8
Family/Friends/Neighbours	29.0	24.0	28.6	30.3	21.8	22.0
Community & Family	0.0	0.5	0.0	2.8	0.8	0.0
Private & Other Assistance	4.8	4.1	4.3	7.0	4.2	8.4
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)
Podiatry	***	***	**	***	**	***
Assistance Not Received	51.7	45.9	48.6	39.4	47.9	40.7
Community Service	13.0	28.1	14.3	18.3	28.6	35.6
Privately Paid	30.4	23.0	31.4	35.2	21.8	19.5
Family/Friends/Neighbours	3.9	2.6	5.0	7.0	1.7	2.5
Community & Family	0.5	0.5	0.0	0.0	0.0	0.0
Private & Other Assistance	0.5	0.0	0.7	0.0	0.0	1.6
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)
Meal Preparation	*	*				
Assistance Not Received	44.0	58.2	47.1	42.3	59.7	56.8
Community Service	16.4	13.3	15.7	13.4	11.8	11.0
Privately Paid	1.9	2.6	1.4	3.5	1.7	2.5
Family/Friends/Neighbours	34.3	24.5	31.4	34.5	25.2	27.1

Community & Family	1.9	0.5	2.1	4.2	0.8	0.8
Private & Other Assistance	1.4	1.0	2.1	2.1	0.8	1.6
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)

Table 4.3 (continued): Type of Assistance Received by Participant Group

	Participant group					
	All baseline responses		Effective Sample ^(a)			
	Intervention	Control	Intervention		Control	
	% (n=)	% (n=)	baseline % (n=)	end trial % (n=)	baseline % (n=)	end trial % (n=)
Personal Care						
Assistance Not Received	58.5	65.3	65.7	63.4	70.6	72.9
Community Service	14.0	16.3	10.7	12.0	15.1	14.4
Privately Paid	3.9	1.0	3.6	3.5	0.0	0.8
Family/Friends/Neighbours	11.6	7.1	10.0	11.3	7.6	6.8
Community & Family	8.7	7.1	5.7	6.3	5.9	3.4
Private & Other Assistance	3.4	3.0	4.3	3.5	0.8	1.6
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)
Ongoing Supervision						
	**	**				
Assistance Not Received	65.2	76.0	69.3	59.2	79.0	74.6
Community Service	4.8	1.0	2.9	4.9	1.7	3.4
Privately Paid	0.0	0	0.0	0.7	0.0	0.8
Family/Friends/Neighbours	24.6	21.9	25.0	31.0	19.3	19.5
Community & Family	4.3	0.5	1.4	1.4	0.0	0.8
Private & Other Assistance	1.0	0.0	1.4	2.8	0.0	0.8
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)
Nursing						
	*	*	*	***	*	***
Assistance Not Received	68.6	78.6	74.3	66.2	84.0	80.5
Community Service	6.3	6.6	3.6	4.9	5.9	8.5
Privately Paid	1.4	1.5	0.0	2.1	0.0	0.0
Family/Friends/Neighbours	22.2	11.2	21.4	24.6	9.2	8.5
Community & Family	1.4	2.0	0.7	0.7	0.8	1.7
Private & Other Assistance	0.0	0.0	0.0	1.4	0.0	0.8
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)
Physiotherapy						
			*	**	*	**
Assistance Not Received	78.7	86.7	78.6	70.4	88.2	84.7
Community Service	12.1	8.7	12.1	14.8	9.2	7.6
Privately Paid	5.8	4.1	5.7	9.9	2.5	5.1
Family/Friends/Neighbours	2.4	0.5	3.6	4.2	0.0	0.0
Community & Family	0.5	0.0	0.0	0.7	0.0	0.0
Private & Other Assistance	0.5	0.0	0.0	0.0	0.0	2.5
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)
Day Care						
	*	*		**		**
Assistance Not Received	88.9	86.2	90.7	83.1	85.7	81.4
Community Service	4.3	9.7	5.0	5.6	9.2	14.4
Privately Paid	2.9	0	1.4	2.8	0.0	0.0
Family/Friends/Neighbours	2.9	2.0	1.4	6.3	1.7	1.7
Community & Family	0.0	0.5	0.0	0.0	0.8	0.8
Private & Other Assistance	1.0	1.5	1.4	2.1	2.5	1.6
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)
Occupational Therapy						
Assistance Not Received	87.4	92.9	86.4	86.6	93.3	90.7
Community Service	9.7	5.6	10.7	7.0	5.0	5.1
Privately Paid	1.4	0	1.4	0.0	0.0	0.8
Family/Friends/Neighbours	1.4	.5	1.4	4.9	0.0	1.7

Community & Family	0.0	0.0	0.0	0.7	0.0	0.0
Private & Other Assistance	0.0	1.0	0.0	0.7	1.6	1.6
	100.0	100.0	100.0	100.0	100.0	100.0
	(206)	(196)	(140)	(142)	(119)	(118)

*p<0.1, **p<0.05, ***p<0.01

Source: Participant questionnaires, November 1998 and 1999.

Notes: Percentages may not add to 100 due to rounding.

(a) Effective sample: participants who responded to both the baseline and end trial questionnaires.

Medical Service Use

The majority of Intervention and Control participants reported regularly visiting their doctor (Table 4.4). Around 60 per cent in both groups had seen their doctor once a month in the last six months. They reported seeing their doctors when they were sick and also for regular appointments for check-ups or to renew prescriptions.³¹

Table 4.4: Medical Service Use by Participant Group

	Participant group					
	All baseline responses		Effective Sample ^(a)			
	Intervention	Control	Intervention		Control	
	% (n=)	% (n=)	baseline % (n=)	end trial % (n=)	baseline % (n=)	end trial % (n=)
GP visits				*		*
No visits	1.2	1.0	1.5	0.0	0.5	1.7
1 visit	10.9	9.7	11.0	4.3	4.5	2.5
Approximately monthly	62.7	62.8	69.1	61.0	59.0	50.0
Approximately fortnightly	15.9	16.3	12.5	28.4	11.1	32.2
Approximately once a week or more	8.5	10.2	5.9	6.4	7.5	13.6
	100.0	100.0	100.0	100.0	100.0	100.0
	(200)	(196)	(136)	(141)	(119)	(118)
Total hospital admissions						
No Admissions	69.8	67.2	70.4	60.6	63.9	64.9
1 Admission	20.1	24.1	21.5	20.5	26.9	16.2
2 Admissions	8.0	6.7	5.9	12.9	8.4	12.6
3 Admissions	1.5	0.5	1.5	3.8	0.8	3.6
Over 3 Admissions	0.5	1.5	0.7	2.3	0.0	2.7
	100.0	100.0	100.0	100.0	100.0	100.0
	(198)	(195)	(135)	(132)	(119)	(111)
Total hospital days				*		*
No days	70.9	67.9	71.4	58.8	65.1	64.3
1 day	2.0	3.1	2.3	0.7	14.5	5.4
2 days to a week	8.2	13.5	9.0	13.2	12.8	7.1
1 week to a month	13.8	10.9	14.3	19.1	5.1	19.6
Over 1 month	5.1	4.5	3.0	8.1	2.6	3.6
	100.0	100.0	100.0	100.0	100.0	100.0
	(195)	(193)	(133)	(136)	(117)	(112)
Other hospital service visits			**		**	
No visits	77.8	83.9	75.4	72.9	82.5	77.3
1 visit	2.1	2.7	1.5	6.0	2.6	7.3
2 to 6 visits	8.8	4.3	9.7	5.3	7.0	8.2
7 to 14 visits	4.1	5.4	3.1	12.0	4.4	5.5
Over 14 visits	7.2	3.8	10.4	0.8	3.5	1.8
	100.0	100.0	100.0	100.0	100.0	100.0
	(193)	(186)	(134)	(133)	(114)	(110)
Medical or diagnostic visits						
No visits	48.2	50.5	42.2	37.9	46.9	29.2
1 visit	17.8	16.5	20.7	6.8	20.4	11.5
2 to 6 visits	27.4	27.5	29.6	41.7	26.5	46.0
7 to 14 visits	5.1	3.8	6.7	12.1	4.4	10.6
Over 14 visits	1.5	1.6	0.7	1.5	1.8	2.7
	100.0	100.0	100.0	100.0	100.0	100.0

³¹ Participant interviews.

*p<0.1, **p<0.05, ***p<0.01

Source: Participant questionnaires, November 1998 and 1999

Notes: Percentages may not add to 100 due to rounding.

(a) Effective sample: participants who responded to both the baseline and end trial questionnaires.

While most participants did not report hospital attendance, about 20 per cent had one hospital admission. About half the participants from both groups reported attending other medical specialist visits or diagnostic appointments.

The baseline results were not comparable to the end of trial responses to the participant questionnaire due to questionnaire design.³² However results showed patterns remained similar between the two groups implying Intervention participant use of medical services had not been significantly changed relative to the Control group.

4.3 Service Provider Experiences of Service Usage Patterns

Service provider managers were asked throughout the trial about their expectations and experience of Linked Care.³³ In relation to their experiences on service usage, summarised in Table 4.5, the experiences were generally not as negative as they initially feared at the start of the trial. They were critical however of apparent wastage of resources where Linked Care participants were given access to care when they would not have been assessed as meeting the priority needs for a HACC service. This suggested that the system may not have been sustainable if extended to more clients.

There was agreement from the service provider managers that participants benefited from extra access to services, but that this also could have been having a negative impact on clients outside Linked Care, because of capped resources and difficulty recruiting staff (Section 3.4). They did not consider that the additional access to care could be maintained if all clients had access to the same level of service.

GPs felt that some patients had improved access to some services such as respite care and that it had enabled some patients to be managed at home and delayed (rather than prevented) admission to nursing homes. However, others had patients whose access to care had been limited, for example, to Home Care Services.³⁴

³² The baseline questionnaire asked about services used in the previous six months while the end of trial questionnaire asked about the previous 12 months.

³³ Appendix 3 Evaluation Data Sets.

³⁴ GP mid-trial focus group.

Table 4.5: Expectations and Impact of Linked Care on Service Usage

Expectations	Service providers' experience
Loss of resources to other providers	Usage by service type did not decrease except perhaps MBS and PBS services. Payments were greater than contributions for all local services.
Reduced access to services by clients outside Linked Care	Inconclusive. Service managers and staff reported reduced access that they attributed to the inequity between clients in and out of Linked Care. It could equally have been due to other competing pressures on budgets and increased demand for services.
Cost shifting from residential care	Decisions were made by CCs in Peer Support Groups to keep participants at home despite the higher cost because of participant preference.
Inefficient use of resources or over-servicing compared to existing priorities	Some managers reported a lack of understanding of the need to manage care costs by a number of CCs who prescribed services that ordinarily would not have been a priority for that participant or participant group.

4.4 Data Quality Issues

Service usage data was used by Linked Care for two main functions:

- ? financial management, such as estimating the size of the fund pool and confirming invoices from fund pool contributors; and
- ? to observe care used by the clients, to inform the design of intervention strategies, to inform care planning and to assess the impact of the intervention.

Linked Care management balanced decisions about service usage and financial viability against the need to collect data and keep systems stable for the evaluation.

Linked Care initially identified a wide range of agencies from which to collect data. These included small HACC agencies whose data management systems were not highly developed. Early in the development phase Linked Care decided to exclude small HACC agencies from fund pooling following a review by the North-East Metropolitan HACC Services Forum (Beatty, 1997). Data collection from these agencies then held a lower priority.

Data concerning the services that drew the most from the fund pool seemed to be adequately collected from both the intervention and control areas. This involved MBS, PBS, inpatient services from the three major public hospitals, home care and home nursing services.

There were however, a number of services for which reliable and consistent data were not available. Most difficult was where agencies relied on a manual system of data collection and transfer. The gaps in the service usage data areas included: inpatient services from private

hospitals and other public hospitals outside the NSAHS (except data provided for MBF and HCF clients); non-inpatient services; accident and emergency services; other HACC services, client paid services and informal care. The private health insurers also struggled to provide unit level data until after the end of the trial.

Electronic records were provided by the Health Insurance Commission; Department of Veteran Affairs; NSAHS; Northern Sydney Home Nursing Services; Home Care Services; Medical Benefits Fund (MBF); and Hospitals Contribution Fund (HCF).

Obtaining records from other health care providers was labour intensive and required the health services to be recorded in a hard copy format and entered manually into the Linked Care information system.

This experience is significant to both the design and evaluation of future models of coordinated care. Some service providers did not have information systems sufficiently oriented to individual data record keeping. For these providers it is probably unrealistic to expect accurate data management, which has implications for each of the service usage data purposes described above.

5. Impact on Service Delivery

As the base for the *Local Evaluation Final Report* and thematic reports concerning service delivery, information about service providers and GPs during the Establishment Phase was collected and analysed. For the purposes of the description, three groups of service providers were examined: hospital-based services; home and community care services; and GPs. There were three parts to the investigation: data profile questionnaires of service providers, interviews with managers of the service providers and written questionnaires to all GPs practising in the Hornsby Ku-ring-gai area. In addition, HIC provided information on patterns of local GP test ordering and consultations in the Intervention and Control areas.

This chapter describes the profile of the health and community care system in Hornsby Ku-ring-gai both at the beginning and end of the trial, the service delivery processes and the extent of service integration and general care coordination. The profile is described in terms of clients, finances, staffing and range of services. The tables are presented in Appendix 6. A more detailed profile is available in the *Service Provider Experience Report*. The chapter also includes a section describing the external changes to the sector experienced during the trial.

The picture of the service system was one of interrelated service delivery. Agencies include public, private and voluntary services. Their care ranged from specialised medical intervention to personal care in the community. Of interest in Linked Care was not only the range of services, but also how these services interrelated, through referrals and other information exchange. Potentially, Linked Care could have changed both the assistance provided and the links between the providers.

Some of the directions of change already in progress in Hornsby Ku-ring-gai were necessitated largely by the limits on budgets and resources and the increasing demands for service from more clients. The existing directions of change were therefore similar to the objectives of Linked Care, focused on opportunities for improved efficiency within agencies as well as greater cooperation between them.

In this context, with Linked Care operating only for a two-year period, the evaluation was unable to observe changes in the scope of service delivery directly attributable to the Intervention. Instead, changes to service delivery in the health and community care sectors, advocated in both Linked Care and in other parallel strategies were observed.

5.1 Service Provider Profile

This evaluation measured a service provider profile baseline to compare service availability and service delivery processes at the end of the trial period. In some aspects, notably waiting lists, the profile and processes significantly worsened over the two-year period. However, the changes external to Linked Care, described in Section 5.3 were more likely to be the cause of these pressures on the sector rather than the operation of Linked Care.

5.1a Availability of Services

Hospital-based Services

The first service group to be explored is hospital-based services. Public hospital services are administered by the NSAHS. Hornsby Ku-ring-gai Hospital and Community Health Services (HKHCHS) is the regional public hospital in the intervention area and Royal North Shore Hospital the major teaching hospital. In addition, many private hospitals supplement the public services and are accessed by the population in the trial area.

The hospital-based services data indicated that residents in the trial area used a diverse range of hospital services, both in and out of the local area, and with a high use of private health care, especially by the intervention group and people from an English speaking background. Control area residents appeared to use fewer private hospital services.

Linked Care participants and their associated hospital costs were a small proportion of total hospital patients and budget. Any impact of Linked Care on hospital services was therefore likely to be measurable mainly in terms of changes in client outcomes (Chapter 4) and possibly hospital substitution costs (Chapter 4).

The hospital-based staffing profile indicates that a significant proportion of paid staff time was already spent organising care (25 per cent); and even volunteers were reported as being involved in organising care 10 per cent of their time. It is conceivable that care coordination by Linked Care could change these patterns of care provision if Linked Care's care coordination replaced, rather than supplemented existing organisational processes; or on the other hand, if they encouraged greater internal coordination by HKHCHS staff.

Implications for the Linked Care model from these client hospital use data were that the provision of the costly inpatient services was likely to be spread among many facilities, both public and private. If it was intended that Linked Care should have had an impact on the use and cost of inpatient services there seem to be two possibilities. Either CCs needed to have some influence over where participants received these services or Linked Care needed to negotiate with multiple facilities to establish processes to control the use of inpatient services. Given the scope of Linked Care, neither of these strategies occurred.

Community-based Services

The second group of service providers to be examined is the community-based agencies. The profile of community-based services in the area was one of many agencies serving nearly 3000 clients each month. The most frequently provided services in Hornsby Ku-ring-gai were food services, transport, home nursing, and home help. This varied slightly from the control area, Ryde Hunters Hill, where home help was the service type provided to the most people. A comparison of the 1997 and 1999 ADD reports (Tables A6.12a and A6.12b, Appendix 6) indicate that intervention and control areas continued to show a similar pattern of service usage over the period of the trial.

Total numbers of people assisted by HACC agencies increased in the intervention area during the trial and dropped in the control area over the period of the trial, but these changes were not marked e.g. small increases in food services, particularly centre meals; and a

decrease in home nursing services. The number of people receiving home help almost doubled in the intervention area over the period of the trial but there was not a proportional increase in the hours spent assisting these people, perhaps due to a policy of broadening access to care by restricting hours per client.

Most significantly to Linked Care, the number of people receiving personal care services increased by four times during the course of the trial in the intervention area. No similar increase was noted in the control area over the period of the trial. In August 1998 Home Care Services capped personal care budgets. The large increase in the intervention area could perhaps be due to the activities of Linked Care.

These agencies served a large and stable client base over the trial period, new referrals were reported to have replaced less than 50 per cent of clients at the beginning of the trial. This number had risen to a little over 50 per cent by the end of the trial. This could have presented several opportunities for Linked Care, including assisting agencies to refine processes to facilitate turnover of clients when their needs are satisfied, and to efficiently meet the needs of new referrals either through prioritising demands or referring to other agencies. No evidence of these changes were available to the evaluators.

Most agencies reported relying on more part-time and volunteer staff than full-time staff both in terms of the number of staff and the hours of care. Like the hospital sector, nearly one-third of full-time staff hours was spent organising care.³⁵ A goal of the Linked Care model was to build on services' coordination expertise and presumably the budgets these agencies already allocate to coordinating services. The service provider managers and staff reported a duplication rather than complementary role of Linked Care, perhaps because of the service providers' reluctance to change their systems of assessment, data collection and care planning for a two-year trial.

Only very general financial data were available from the service providers through the baseline and end of trial data questionnaires. Client fees and donations amounted to only 12 per cent of revenue increasing to 14 per cent at the end of the trial. Most revenue was reported to have been received from the Commonwealth and State HACC program, supplemented by other State funding over the period of the trial (Tables A6.5a and A6.5b). There were many reasons for change in the financial profile over the life of Linked Care, including: HACC policies for higher revenue from client fees; and changes in the Commonwealth State funding arrangements such as an increased number of Commonwealth packages.

General Practitioners

The third type of service is the primary health care provided by GPs. At the time of the trial, 334 GPs practised in the area. Most GPs in this area appeared to serve a general

³⁵Time spent organising care was reported as dropping during the course of the trial from 28 per cent to eight per cent (a similar trend was not noted for volunteer workers). This is probably due to changes in reporting between the two questionnaires rather than changes in practice. The decrease was in part due to two smaller agencies reporting they spent no time on organising care at the end of the trial. Even when considering only larger agencies that had subcontracted care coordinators to Linked Care, there is still a reported decrease in time spent organising care.

population of all age groups; only 28 per cent of GPs reported having more than one-third of their patients aged 65 years and over (Table A6.13). Almost all GPs reported that their patients saw them as coordinating their clinical care and nearly half were also seen as coordinating their community care.

The results of two questionnaires of GPs within the Linked Care trial evaluation are discussed throughout the report. The questionnaires were almost identical, the first being a baseline questionnaire conducted in December 1997 and the second an end of trial follow up between November 1999. The full reports and summaries are available from Linked Care, *Baseline Survey of General Practitioners in Hornsby Ku-ring-gai, Report for the local evaluation of the Linked Care Trial* (May 1998) and *Survey of General Practitioners in Hornsby Ku-ring-gai, Report for the local evaluation of the Linked Care Trial* (February 2000).

The evaluators also requested comparative health insurance data on consultation and test ordering from the Health Insurance Commission (HIC) for all GPs in the Intervention and Control areas from 1997 to 1999. The aim was to examine HIC data for all patients (Linked Care participants and others) seen by comparative groups of GPs during the June quarters of 1997, 1998, and 1999 in order to:

- ? compare differences between GP CCs; GPs who were not CCs but who had some patients in Linked Care (both in the Intervention area and Control area); and GPs with no patients in Linked Care (both in Intervention and Control areas); and
- ? analyse differences between these groups and change over time in GP consultation rates and ordering of imaging and pathology tests.

The hypothesis was that participating in Linked Care may have global effects on how GPs managed all the patients. For example, Linked Care could affect the frequency with which GPs ordered tests or asked patients to attend tests, even for patients who were not included in Linked Care. It also provided an opportunity in the Intervention area to examine whether at the baseline there were differences between the types of GPs who volunteered to become CCs and others.

The findings are presented in Appendix 6. The global effect in the Intervention area was a reduction in GP consultations whether GPs had patients who were trial participants or not (Tables A6.14 to A6.17). The reason for this change, and whether it was related to Linked Care, was unclear. Changes in rates of ordering imaging and tests did not appear to be associated with Linked Care (Table A6.16) although the data did reveal some differences, both between the groups and over time. The reasons for those differences will be explored further and taken into account by the evaluators when drawing conclusions about both service usage patterns and the role of GPs in Linked Care. See Appendix 8 for more details.

5.1b Service Delivery Processes

Service profiles can secondly be described in terms of the processes of service delivery in the area. This was explored through the service managers and GPs' perceptions. These were used at the end of the trial to identify change over the period attributable to Linked Care itself or to other external influences.

The discussion is made in the context of the multiple providers and types of care. The providers each served a similar client base, but without explicit coordination mechanisms. Within the network of service provision, providers both rationed care to match clients to resources, and also spread referrals between the various services to meet the most urgent client needs. It seems that once clients received care, there were limited processes for changing the type or amount of care clients received.

Health and community care services delivered in the Hornsby Ku-ring-gai area appeared to operate in a highly developed, complex system of interrelated service delivery. Players included public, private and voluntary services. They ranged from specialised medical interventions to personal care in the community. Of interest to Linked Care was not only the range of services, but also how these services interrelated, through referrals and other information exchange. Potentially, Linked Care could change both the assistance provided and the links between the providers.

The existing range of care and service providers in the health and community service sectors in Hornsby Ku-ring-gai was broad. Their client base had more diverse needs than those of the Linked Care target group. The target group itself used services from providers both in and outside the Intervention area. This breadth of service provision presented challenges to clients attempting to access appropriate care and challenges to coordination of services for those who had access.

The health and community service sectors had already identified these complexities and in various ways were coping with the multiplicity of service types and service providers. Linked Care was therefore operating in a context of larger changes, with similar goals to those of Linked Care, aiming to improve service delivery.

Service delivery processes were described by the managers from the point of entry into the sectors, through allocation of services, review and client turnover. In addition links between services including care coordination were discussed. The processes were as reported by the service provider managers and GPs. Opportunities to verify the information from other sources were not available to the evaluators.

The providers each served a similar client base, with only informal coordination mechanisms. Perhaps because of the intricate network of service provision, providers managed to both ration services in an attempt to maximise client access to the limited resources, and also spread referrals between the various services to meet the most urgent client needs. Once clients received care, there seemed to be few processes for changing the type or amount of care clients receive, particularly reducing service levels. Observation of the effectiveness of the informal links between services, suggests that the current processes work reasonably well to match need and services.

Entry to Services

To enter health and community care services potential clients must first gain access, satisfying providers of their need through some form of assessment, and negotiating the referral and allocation processes until they are matched with available care.

In the context of frequent referral between service providers, the question of sharing assessment data was investigated. Assessment processes were reported as being sometimes duplicated and not consistent between agencies. It appears that some service providers were attempting to reform assessment processes to improve integration and efficiency. Trends indicating this were: the conduct of joint assessments; sharing assessment information when referrals were made; adoption of a shared client record (CIARR); and using simpler assessments, such as telephone assessments, in standard referral situations.

Access to most services was reported to be flexible, through mechanisms ranging from direct contact by potential clients to referrals from other service providers. It appears that entry to services could be haphazard, depending on where a potential client tried to enter the system. The multiple points of entry and referral no doubt worked to the advantage of the persistent and articulate clients and those supported by knowledgeable service providers. However, it is probable that others fell between the gaps and only managed effective entry at a later crisis point.

The potential drawback of relying on this type of critical management of clients' health and community service needs is that it may not be the most effective from the perspective of the client or the health and community care sectors. It may indicate an inappropriate use of resources such as missed opportunities for prevention or less interventionist care.

Such conclusions can only be hinted at as possibilities because of the absence of data on these issues. Without consistent assessment procedures it is not possible to quantify the needs, let alone the response to alternative assistance. Indeed, observation of the apparent effectiveness of the links between services suggests they worked reasonably well to match need and services.

Managing Demand

Processes to cope with the demand for new or more services from clients were one of the major management concerns raised. The strategies used by service providers to manage demand were: only providing assistance to existing clients; allocating available services at internal coordination meetings; referring clients to alternative agencies; placing clients on waiting lists; and providing less care per client. Data in Tables A6.12a and A6.12b show that allocating less care per client did occur in some services during the trial period.

Analysis of waiting list data collected for the evaluation (Tables A6.8a and A6.8b) showed large increases in numbers of clients on waiting lists over the trial period, and higher percentages of people waiting for longer periods at the end of the trial, compared to the beginning, for two of the three agencies which responded (HCS, MFC). The third agency on which information was gathered, the Aged Care Assessment Team, did not operate a formal client waiting list at the beginning of Linked Care but had 50 clients waiting for service by the end of the trial.

Linked Care appeared to facilitate more rapid entry to services, as two service personnel commented at the end of the trial.³⁶

Because community service providers operate within fixed budgets, they appear to act informally as gatekeepers to the limited resources by balancing the best interests of one client against multiple client needs. They reported that it was not in the providers' interest to over-service one client since it meant that other potential clients may receive no assistance. Managers claimed that demand was generally managed through prioritising demand rather than by maintaining waiting lists.

Duration of Service Delivery

The next steps in the management of service delivery are procedures for review and exits. Exit processes described by the service managers seemed to be almost self-managed by clients. Except for the hospital-based services, duration of service appeared to be long, turnover of clients low, and few providers reported formalised review mechanisms. Once a client received some level of care it appeared that they generally had priority over persons outside the service until they no longer needed or wanted care. Tables A6.7a and A6.7b show the estimated duration of service provision for current clients in the Intervention area.

Single client visits or events decreased over the trial period from 13 per cent of total client numbers across all agencies surveyed in 1997 to five per cent in 1999. All agencies surveyed except ACAT reported increased percentages of clients receiving service for over six months. These data support the view that agencies were prioritising service for existing clients and taking on fewer new clients over the trial period. Linked Care clients were also prioritised, as one service provider commented at the end of the trial 'the participants on the Linked Care trial appeared to receive a greater range of services and for a more realistic amount of time'.

It is possible that some of these issues could have been taken up by Linked Care as opportunities for incrementally improving the processes of health and community service delivery. These opportunities included: integrated access and assessment processes; information about the range and cost of services; and review and discharge planning. No evidence of these changes were available to the evaluators.

Cost and Charges

Integral to Linked Care intervention was the management of the cost of services and of the total health and community service funds held by service providers or contributed by clients. The evaluation attempted, with only limited success, to collect cost data from service providers.

The first question to address in relation to funding is the cost of care, particularly comparative costs for similar services. Different service providers in the trial area apparently provided similar forms of assistance. Duplication of services may have been appropriate in

³⁶ 'Immediate service provision, no delays due to branch budgets' and 'Those in the Linked Care trial received services more promptly e.g. HCS for which others have had to wait and one still waiting'.

this context with the possible drawback of distorting demand, access or cost. The investigation seemed to reveal that there was some distortion through differential service availability to clients, possibly affecting the level of care clients received, the mix of services available to them and the stability of that care.

Implications for Linked Care related to the variable cost to the fund pool of accessing potentially similar care from different providers. Linked Care was restricted in its ability to address these anomalies by pre-existing relationships between clients and providers, and the 'preferred provider' status of fund pool contributors.

A second cost issue is the affordability of the care to the client due to the charging practices of each provider. In this respect the spectrum of client cost varied greatly from medical and nursing care to community and social services. Despite this variation, it appeared that under the baseline charging processes affordability was not an issue for clients because co-payments were means tested or were set so low that they were unlikely to affect demand for services.

In the context of Linked Care, the expectations of participants for cost contribution may be shaped by their prior contact with service providers' charging mechanisms. If, for example, they were only familiar with accessing free NSAHS services, they may be reluctant to change to a HACC provider that expected some level of co-payment. Some participants made these comments to CCs during the trial. Overall, client contribution to costs decreased in Linked Care.³⁷

³⁷ Participant questionnaires, November 1998 and November 1999; *Client Experience Report*.

5.2 Impact on Care Coordination and Service Integration

The effectiveness of service delivery depends not only on processes within an organisation, but also on the strength of the links between agencies and service types. The concept of linkages are examined at three levels:

- ? at a micro-level, through care coordination or care planning for individual clients;
- ? at an internal organisational level, through the use of multi-disciplinary teams and service types; and
- ? at a macro-level, in working relationships between agencies.

At the beginning of Linked Care, the managers' description of an existing culture of coordination, their constructive relationships and predilection for increased cooperation was a positive base from which to achieve the goals of Linked Care.³⁸

Service provider managers used the language of care coordination in a very broad sense to include at various times all three ways of linking services. The analysis tried to divide the types of interrelationships into the three levels to more fully understand the comparison to Linked Care goals and the extent of service interrelationships in the Hornsby Ku-ring-gai area.

This section discusses the influence of Linked Care on service delivery practices relating to care coordination and service integration. The experiences of service providers specifically in relation to the organisation of the Linked Care model of care coordination are explored more fully in the *Local Evaluation Final Report*, Section 3.4.

Care Coordination or Referrals?

Care coordination or care planning for individual clients can be described as the micro-level where the impact of the two other levels of integration can be tested. Effective links between agencies or within a range of care types in one agency should be conducive to successful care coordination.

For the purpose of this discussion, care coordination is taken to mean case management for clients; that is, assessing their needs, arranging the services and monitoring any changes in need. Other references made by the service providers to more general coordination such as information sharing and referral (discussed later in this section) are taken to mean ways that practitioners and agencies communicate and operate together in the same health and community service environment.

All the health and community service providers, including most GPs, said they coordinated the care needs of their clients. This ranged from informal coordination when a client approached them to provide advice and make referrals, to formal care coordination through funded packages such as COPs and CACPs. GPs tended to emphasise coordination of clinical needs.

It appears that the distribution of limited resources to clients was moderated by service providers linked through referrals to other service providers. While clients could potentially enter at any part of the health and community service sectors, they seemed to rely on a

³⁸ Service managers baseline interviews, December 1997.

series of referrals to become aware of other services. Managers reported that most clients got some service and that most urgent needs were met.

This form of access and service allocation was dependent on the autonomous decision-making of service providers to meet the most critical needs of most clients. It represents a basic level of coordination, with information sharing through referral and sector meetings. Some service delivery benefited from additional client-focused management, such as packaged care, case management or discharge planning. Other clients, though, struggled without adequate assistance until a crisis, only then presenting in the health care sector.

Except for case management of packaged care, care coordination appeared to be reactive in nature after the initial care arrangements were established, relying on the client or direct carers to indicate a need to review the care arrangements.

The cost advantage of the baseline service delivery coordination was that it had a minimal infrastructure cost, because service providers needed to only manage their own budget, staff and client base. Perhaps that was only a short-term gain. Conversely, without addressing issues such as equity between clients and preventative early intervention, opportunities for improvements in service delivery and allocation could be missed.

At the baseline most service provider managers saw the Linked Care model of care coordination as an opportunity to formalise and improve on existing types of care coordination in the health and community care sectors.³⁹ They hoped it would improve outcomes for clients and relieve providers of the unpaid, time-consuming task of coordination. They proposed incremental improvement of the existing system by Linked Care rather than imposing a new regime. This could be achieved through: more thoroughly arranging care delivery provided by other agencies; being a single point of contact; and preventing wasted service use.

They raised cautions about the need to minimise financial cost and bureaucracy, and the need for training and guidance to ensure informed performance from CCs cognisant of accessing care from the full breadth of the health and community services.

The CCs views of the Linked Care model were explored through mid- and end of trial questionnaires.⁴⁰ The results are presented in Appendix 8, Table A6.1. Section 3.4 discusses the results in more detail. The findings from the mid-trial GP focus group and comments on questionnaires summarise the views expressed by many of the CCs. Some CCs of all types (GP, non-GP and full-time) reported that Linked Care had improved their role as CC and advocate for the participant. However, some found it difficult to make contact with other CCs, GPs and other services, resulting in wasted time on the telephone. Some CCs and service providers, including GPs, reported little impact other than being expected to complete forms. Most GPs reported some improved communication and referral with other services. However there was now some duplication of communication required around referral (e.g. to the CC and to the service being referred to). Some non-CC GPs felt 'out of the loop', being asked to provide information but not being informed of the outcomes.

³⁹ Service managers baseline interviews, December 1997.

⁴⁰ CC mid-trial and end of trial questionnaires, November 1998 and November 1999.

Overall, the service manager and CC expectations about improvements to existing care coordination appeared unfulfilled by the end of the trial. Linked Care at times duplicated existing coordination, especially if a formal case manager already existed. Rather than complementing their existing roles, 42.2 per cent of CCs reported a conflict between their role as CC and their other work (Table A6.1). Feedback from CCs to providers was patchy and there was no evidence of reducing wasted service use. In some cases, managers and staff appeared angered at the apparent wastage and inequity created by Linked Care participant access to services, such as care from the Home Care Service (see also Section 3.4).

Internal Organisational Coordination

The second level of integration may be described as internal organisational coordination. Within a broad-based agency clients may benefit from access to multiple service types and professions, without needing to initiate links with other agencies. Breadth of service orientation was observed in service delivery in the forms of a range of service types, multiple professions or co-location with a larger service provider. Generally this broad service range appeared to be present in some of the community-based agencies (MFC, RACS), and it also seemed to be developing in the HKHCHS due to the shift of some hospital services away from on-campus delivery toward community delivery.

As part of the trend towards integration of care, some service providers were integrating services internally by broadening the types of care they provide, the skills of the care staff or co-locating with other providers. The health and community service agencies observed in this area included instances of this integration that often transcended the distinctions given to health and community care, especially if they were associated with the HKHCHS.

The second type of internal integration is focusing on the coordination of the service delivery processes within an organisation. At both the beginning and end of the trial some service personnel remarked that their service was already well coordinated with adequate communication, implying that there was no room for Linked Care to have an impact on internal coordination. This was in contrast to the quantitative results (Table 5.1). Comments that service delivery from service provider's programs remained unchanged, except for the increase in paperwork were repeated many times throughout the trial by GPs, CCs, service managers and service personnel alike.

The most positive change over the life of the trial reported by service personnel was in relation to internal communication.⁴¹ Over the period of the trial there was a significant decrease from one quarter of respondents (24.4 per cent) reporting that staff knew little about each other's work in their organisation to only 8.2 per cent reporting the same lack of coordination at the end of the trial. This corresponded with an increase in staff working closely together occasionally. Interestingly CCs, in contrast to other staff, reported that staff worked closely together most of the time both at the beginning and end of the trial, with no significant change (69.6 per cent and 64.7 per cent).

⁴¹ Service personnel and CCs were asked to rate their personal knowledge of, and their organisation's mechanisms for, integration (Appendix 6, Tables A6.1 – A6.3 and A6.18 – A6.24).

Table 5.1: Service Personnel Views of Service Integration: Description of Care Provided to Clients, 1998 and 1999

	Total		Care Coordinators			Other Staff	
	1998	1999	Non-GP	Non-GP	GP	1998	1999
	% (n=45)	% (n=75)	% (n=24)	% (n=17)	% (n=29)	% (n=20)	% (n=26)
Staff work closely together most of time	46.7	39.7	69.6	64.7	30.8	16.7	34.6
Staff work closely together occasionally	28.9	52.1	17.4	29.4	61.5	44.4	53.8
Staff know little about each other's work	24.4	8.2	13.0	5.9	7.7	38.9	11.5

** p<0.05 * p<0.10

Source: Service Personnel Questionnaires, May 1998 and November 1999.

Inter-Service Integration

More generally, service providers also raised issues surrounding interrelationships between service types and between service providers. They extolled the benefits of both working with different professionals within the one organisation, and of having cooperative relationships with other complementary and similar health and community service providers.

Links with other providers, such as through telephone referrals, were reasonably effective according to many of the service providers interviewed. They surmised that Linked Care may have the effect of further improving these links because it provided an opportunity for greater contact, including the potential gain of increasing GP involvement in the community sector (UNSW Evaluation Consortium, 1999b).

As expected, Linked Care did in fact facilitate many opportunities for managers and staff to discuss service delivery processes in the trial, and more generally. They thought this provided an opportunity for better care for clients.

Both health and community service managers said that links between service providers strengthened through the establishment period. The managers reported that existing relationships between the providers were enhanced by constant contact through Linked Care and it was an opportunity to establish relationships with other providers.

The increased contact developed more of a team spirit and a greater understanding of each service. The hospital manager particularly noted the benefits to his organisation from this. The Division of General Practice did not seem to similarly benefit, perhaps because of the ambiguity over the duties of GP representation. On a more individual level, GPs felt that Linked Care had improved awareness of and referral to GPs.⁴² GPs also felt Linked Care had improved some of their patients' access to services and their own awareness of other services (Tables A6.21 and A6.22).

⁴² GP mid-trial focus group.

At the beginning of the trial a number of HACC services feared that Linked Care involvement might, through competition, cause division between services that before Linked Care had worked collaboratively. During the trial, this situation was avoided through the preferred provider status of agencies contributing to the fund pool, rather than adoption of a competitive contracting model.

In relation to their experiences on service integration, summarised in Table 5.2, service managers were positive about the opportunities for working together created by organising Linked Care. However, Linked Care did not appear to be able to change the responsiveness of service delivery processes to address specific integration shortcomings in the existing system.

Table 5.2: Expectations and Impact of Linked Care on Service Integration

Expectation	Service providers' experience
Better working relationships	Linked Care facilitated many opportunities for managers and staff to discuss service delivery processes in the trial and more generally, improve care and develop more of a team spirit, a greater understanding of each service and a greater ownership of the larger system. The hospital manager particularly noted the benefits to his organisation from this. The Division of General Practice did not seem to similarly benefit.
Improvement in existing care coordination	Linked Care at times duplicated existing coordination, especially when a formal case manager already existed. Feedback to providers was patchy. There was no evidence of reducing wasted service use.
Streamlined referral processes	No evidence of change in practice e.g. CIARR not extensively used, care plan not widely distributed to providers

This was also reflected in the reported changes to service integration made by service personnel and CCs (Appendix 6, Tables A6.1 – A6.3 and A6.18 – A6.24). Respondents were asked to rate their personal knowledge of, and their organisation's mechanisms for, coordinating with other service providers.

The contrast between the two administrations of each instrument was a general trend of little change in the 'needs to be improved' category, but a tendency away from rating integration as excellent toward satisfactory (Table A6.2). Examples of this decline were knowledge of assistance provided by services; referral processes to and from services including community services, other health and hospital services and GPs; and clients involvement in choosing level of care.

The decline may have reflected an actual decrease in service integration by the end of the trial as a result of changes in the wider context of health and community services sector (see Section 5.3). However, more likely explanations relate to the change in context of responding to the questionnaire. Baseline questions were asked when service personnel would have limited knowledge about Linked Care beyond its goals. Responses at the end of

the trial would be much more likely to be based on service personnel's experience of Linked Care with a more accurate assessment of the shortcomings of the sector's integration and Linked Care's achievements. Specific comments supporting an improvement in inter-agency integration were made by these same respondents such as improved networking generally or in relation to community services and improved cooperation and communication between the services.

On a more positive note, in relation to the Linked Care model CCs reported that the trial had had a positive effect or no impact on links with other services (50.0 per cent and 45.7 per cent) and by the end of the trial only 17.8 per cent had problems persuading services to cooperate in the care coordination process (Table A6.1).

Medical and Community Service Cooperation

A notable aspect of the descriptions of care coordination in its various forms was the limited extent of integration between health and community service sectors. Providers appeared to focus on either community services, perhaps incorporating referrals to medical services; or they coordinated medical needs, sometimes referring also to community services.⁴³ For example, almost all GPs reported that their patients see them as coordinating their clinical care (81 per cent) and only a smaller proportion reported they were seen as coordinating their patients' community care (45 per cent). If this is what had evolved in the sector, it could be that it was a realistic limitation on a working care coordination model: the professional expertise of the CC might determine which parts of a participant's care were most successfully integrated.

The division between GPs and community-based service providers did not appear to dissipate during the trial. Although both groups expressed their support for an interdisciplinary coordinated care approach there were criticisms about lack of communication between CCs, GPs and community agencies about care available to participants.

Several evaluation instruments attempted to measure the integration of medical and other services: the GP, service personnel, CC and service manager questionnaires, interviews and focus groups.⁴⁴ Tables of results are presented in Appendix 6.

A positive outcome of Linked Care was that GPs who answered both the baseline and end of trial GP questionnaires gave a significantly higher rating to communication with community services in the second questionnaire than in the first (Table A6.19).⁴⁵ This is in contrast to the more general questionnaire of all service provider personnel, where they reported their referral processes to community care had declined in excellence. This difference was due to the GP responses (Tables A6.2 and A6.3).

Referral processes to GPs were reported as significantly improved over the course of the trial (36 per cent of other service personnel reported them as excellent; Table A6.3). Staff

⁴³ Similar results were found in a baseline questionnaire to staff and volunteers of the key service providers to canvass their views on existing care coordination and referral (May 1998).

⁴⁴ See Appendix 3 Evaluation data sets.

⁴⁵ chi square = 5.63, df=1, p<0.05; the changes for other respondent GPs were not significant.

were the most negative about referral processes from GPs (44 per cent reported the processes needed improving, although this was an improvement, but not statistically significant, from 57 per cent at the beginning of the trial; Table A6.3). GPs and other service staff reported a two-way improvement; their own awareness of other services and an awareness of and referral to GPs.⁴⁶

How to implement processes to improve the quality of the medical aspects of the care plan proved to be a continuing issue for the Quality and Complaints Working Party. GPs themselves were reluctant to be reviewed, as evidenced by the reaction to the Patient Medication Management System (PMMS) initiative. Agency CCs also expressed a reluctance to broach the professional divide of raising questions about medical care and expressed resentment at spending time at PSG meetings 'educating GPs about how to use services and fill out care plans.'⁴⁷ One PSG discussed this issue directly and a GP expressed the opinion that the PSG meeting was an appropriate place to discuss medical management.

⁴⁶ GP mid-trial focus group, November 1998; service personnel questionnaire comments, November 1999.

⁴⁷ Care coordinator interviews, May 1998.

5.3 External Changes

Many structural changes were underway in the health and community service sectors in Hornsby Ku-ring-gai and they were likely to dominate the immediate concerns of the service providers throughout the trial period. Fortunately, in the main the goals appeared to be similar to those of Linked Care. The changes include shifting hospital-based service delivery off campus; new HACC funding arrangements; and internal restructuring to meet financial constraints.

In the baseline interviews, all managers discussed the climate of change and uncertainty in which they were operating, involving broad changes to the delivery of health and community care or internal restructuring in response to these wider changes. GPs were not asked about external changes.

The direction of the changes appeared to be similar to the goals of Linked Care. However, in many cases the implications of external changes were probably of greater significance to the service providers than Linked Care.

The HKHCHS manager described the context of change for hospital care: inpatient stays were shortening; budget restraints were in place; budgets were moving between Area Health Services; and the mix of staff was changing. He described the emphasis as being on the core business of patient care, with a cost efficiency priority for all other services, such as food services which were contracted out. He foresaw a future where patients would travel for specialist care, hospital stays would be brief and community care would increase.

The hospital director laid the claim that the HKHCHS had priority over other agencies in Linked Care to provide care in the community because HKHCHS staff needed replacement positions in community care when they were told to move from hospital-based positions. It was impossible for the evaluation to test whether this possibility eventuated because non-inpatient data were inadequately collected. Observations suggest, however, that additional staff were not recruited to non-inpatient services to meet demand from Linked Care. This could be explained by the short, temporary nature of Linked Care, and the fact that the care coordination model delegated care planning discretion to CCs, who had no incentive to direct demand toward non-inpatient HKHCHS care.

The second set of external changes described were those by the NSAHS manager in relation to pressures on Area Health Service budgets. These included the impact of Medicare Agreement renegotiations and the relatively higher salary costs in NSW compared to other states; the relative needs of Area Health Services; and the decrease in the number of patients covered by private health insurance. He feared that during the life of the trial, this could mean significant changes to service provision and organisational structure. The two-year timeframe of Linked Care in fact was not long enough to witness such structural changes in the NSAHS, except the absorption of the home nursing service (NSHNS) into the NSAHS infrastructure.

The NSHNS reported that during the trial period it would be designing and implementing long-term changes to overcome expected budget deficits; yet these measures were in a time of increasing need for community nursing care. The effect of these changes was reflected in the decrease in home nursing delivered in terms of both number of hours and number of participants (Table A6.6a and A6.6b).

HACC-funded agencies also listed the many changes happening in the community care delivery. They included: competitive tendering in HACC growth funding; a new round of CACP funding, supplementing HACC funded care; changes to on-line data collection due to ADD taking over the management role from DOCS; and other concurrent research such as case management and the NSW Demonstration Projects in Integrated Community Care. An effect of these changes can be seen in the doubling of the size of the Mercy Family Centre community program (Tables A6.4a – A6.6b).

HACC providers reported increasing pressure on community care from policies such as decreased nursing home beds, preference for hostels and preference for care in the participant's home. One manager described the bitter irony of how successful the government strategies to care for older people in the community had been yet they had not been matched with increased resources to provide care to those people.⁴⁸ This dilemma was directly relevant to Linked Care, which had similar goals to these strategies. If the budgets at the field staff level were not adequately supplemented by the fund pool, the result may have been to only further increase demand and pressure on the already stretched budgets (see Chapter 3 for discussion on these organisational difficulties for service providers).

Smaller voluntary agencies, such as Neighbour Aid, described their vulnerability to HACC funding changes because all their financial support was from the narrow base of HACC or fundraising.

The individual local service managers were important to the success of Linked Care because of their critical role in the establishment and operation of care coordination, the fund pool and other management processes. For these reasons their personal knowledge of, and commitment to, Linked Care was important. Unfortunately many of the service providers restructured or their directors were replaced during the first year of Linked Care, perhaps in response to some of the external pressures described earlier in this section. This probably had the impact of delaying Linked Care processes and negotiations with providers.

Significant changes to the key agencies included:

- ? the senior executive of the NSAHS changed during the trial;
- ? the two branches of the HCS (one in the Intervention area and one in the Control area) amalgamated and the manager with the most involvement in Linked Care left the HCS;
- ? the board and senior management of the MFC changed twice, resulting in Linked Care negotiating with three different CEOs;
- ? NSHNS was restructured with a complete change in senior management, again resulting in Linked Care negotiating with three directors; and
- ? the director of the ACAT changed.

Changes such as these appear common within this dynamic sector and therefore need to be accounted for in any ongoing care coordination model.

⁴⁸ Service Managers meeting 18 March 1999.

It appears that most service providers were preoccupied with larger external changes in service delivery occurring simultaneously to Linked Care. They help to explain the changes in service profile described in Section 5.1. Many of these changes related to funding structures and highlighted the perceived vulnerability of smaller agencies to State or Commonwealth policy movements.

5.4 Service Delivery Conclusions

This chapter has examined the lasting impact of participation in Linked Care on the availability of services and the process and integration of service delivery. It seems that Linked Care had few direct effects on the profile of services and the system of service delivery. This could be explained by several factors expected at the beginning of Linked Care. First, the Linked Care population was small in comparison to other participant numbers for most providers except the Home Care Service. Second, providers and participants knew that Linked Care was a temporary initiative.

It is clear that the influence of the many other significant changes in the sector may have been larger than the impact of participating in Linked Care. Nevertheless, participation provided an opportunity for service provider managers, staff and volunteers to meet with a common goal and discuss issues such as whether their service delivery processes needed reform and how integration could assist in improving outcomes for clients.

6. Organisation and Operation of Linked Care

The picture of service provision constructed by this evaluation was one that was ready for experimenting with the formal principles of a model of care coordination as offered by Linked Care. Linked Care adopted a model of inclusion as illustrated by its complex working party structure, yet it also managed to basically adhere to a strict and perhaps unrealistic timeframe set by the Commonwealth. The achievement of establishing the Linked Care infrastructure while managing of the tension created by these two conflicting goals needs to be acknowledged. The very design of Linked Care relied on the securing and maintaining the organisational and strategic commitment of the service providers.

Service providers were involved in the management of Linked Care, contributing to the fund pool, subcontracting care coordinators to Linked Care and providing services to Linked Care participants. Each of these functions created difficulties that Linked Care and the service providers managed to work through. This chapter discusses some of those difficulties and the whole of system lessons learned from the process.

6.1 Financial and Fund Pool Management

Fund Pool Establishment and Revision

Establishing the fund pool required negotiations with individual contributors and committees to manage Linked Care. The challenges in negotiating costs and estimating contributions are briefly listed below.

- ? Some service providers did not have lists of services, costs or a management information system that easily allowed a cost to be attributed to services.
- ? Some service providers did not record service usage by clients.
- ? All services were concerned to protect their limited funding base and reduce the impact of the risk of their contributions being greater than the payments from the fund pool.
- ? Not all services were familiar with financial management decision making and did not have experts within their organisational structure to advise them. They were forced to rely on the more remote advice from Linked Care and the HACC forum.
- ? There were multiple options for calculating costs: marginal cost, actual cost, average cost or a proportion of one of those costs. Some options were more advantageous to one party than another and some parties had more knowledge or negotiating power to dictate their preferred option. Agreements using different options were negotiated by the contributors.

In retrospect, it may have been more realistic to acknowledge that the services' management information systems could not expect to produce tracking data accurate enough to predict future use. Most services did not manage their finances on a unit cost basis, nor have alternative accurate service usage data on record. The second note of realism would have been to acknowledge that some contributing agencies were not familiar with the methods and risks associated with fund pooling.

Simplified arrangements might have been sufficient. They might have included phasing in contributors over a number of years rather than attempting to begin with so many diverse agencies. Second, rather than undertaking the complex Tracking Phase that proved inaccurate at times, the original fund pool estimates could have been calculated in the manner of the DVA estimates. That is, an alternative is to establish an approximate figure to verify and adjust retrospectively during the first months of Linked Care and in comparison to the control group.

Private Health Insurers

Having responded somewhat later than other stakeholders, the private health insurer contributions were treated differently to other fund pool contributors. The HCF and MBF funds were not added to the Linked Care fund pool, but operated as separate pools held by the companies. It was intended that two transfers be made to the Linked Care fund pool: a contribution for care coordination and payments for any care substitution that prevented or shortened hospital stays. Pool balances were to be transferred to Linked Care at regular intervals.

MBF and HCF did not transfer accurate service usage data to Linked Care until the end of the trial, except total financial figures. Without unit level data, Linked Care was unable to verify the PHI summary analysis or make transfers to the fund pool.

The private health insurers did not take a pro-active role in Linked Care, such as responding to the need for unit record data transfers, taking an active role in substitution decisions, or promoting Linked Care opportunities to their members or the members' CCs. Rather the trial afforded them an opportunity to observe issues that arose when organising care coordination. Those observations may be of relevance to them if they also were to experiment further with managed care, funds holding, care coordination, or other forms of case management.

Cost of the Model

Funds were pooled from ten service providers. This was supplemented by an infrastructure grant from CDHAC. There was little evidence of service substitution or savings opportunities from the operation of the fund pool. Although inconclusive, the apparent surplus in the financial management of Linked Care could be explained by questions about the accuracy of the capitation rates, the incomplete collection of service usage data, questions about the division of administrative costs between establishment and ongoing costs, and the impact of a small number of participants with a high exit rate and no continuous recruitment. It is difficult to conclude whether the Linked Care model would be self-sustaining if applied in other circumstances without a supplementary infrastructure grant. If not, the cost of care coordination and its accompanying infrastructure would need to be covered by a reduction in funds for services used by participants.

6.2 Duplication of Assessment Processes

A goal of Linked Care was to minimise duplication of participant assessments between referring agencies. No additional assessment procedures were designed specifically for CCs as it was assumed that the information would be available from existing service provider records. Linked Care attempted to avoid additional assessment and recording burden on participants, given the evaluation burdens already anticipated.

Interestingly, both Intervention and Control group participants were overwhelmingly satisfied with the level of tests and assessments they received both at the baseline and end of trial (Section 4.2c).⁴⁹

When Linked Care instruments were designed, they took account of compatibility with the standard HACC instrument under development, the Client Information Assessment and Referral Record (CIARR). A NSW HACC discussion paper promotes the use of the CIARR as one means of developing seamless service provision and greater communication between services (ADD and HACC, 1998: 37-9). Linked Care was also interested in locating its care plan and communication booklet at the client's home with the CIARR 'Yellow Book' which documents all relevant care information.

Although Linked Care had the capacity to print off CIARR reports, this facility was not used well by CCs or service providers. It was reported that only the full-time CCs used the facility when making a referral, such as to respite care. Other GP and non-GP CCs did not request a CIARR print off.⁵⁰ This was probably a reflection of the early stages of use and acceptance in the local agencies using CIARR,⁵¹ although some of the agencies were already using it before Linked Care began (MFC, HCS and Neighbour Aid).

The goal of integrating with existing assessment appears to have been limited in two respects. Service provider baseline investigations by the evaluators revealed few standard procedures for assessing and recording client information (UNSW Evaluation Consortium, 1999c). Second, even when the existence of an assessment was suspected, it may have been treated as an internal record not necessarily available to CCs.⁵²

It appears therefore that from the participant perspective the need to reduce assessment duplication was exaggerated. However, they did complain about the amount of paperwork in Linked Care.⁵³ In addition, although the care coordination process did not add to the assessment burden for participants and service providers, CCs could not necessarily utilise existing assessment and client information recording mechanisms.

⁴⁹ Participant questionnaires, November 1998 and 1999; Participant interviews.

⁵⁰ Staff interview, February 2000.

⁵¹ HCS representatives explained that the CIARR has met with resistance from service providers unwilling to undertake further paper work. Linked Care may similarly find resistance as it has with the current care plan.

⁵² Linked Care staff, March 2000.

⁵³ Participant interviews.

6.3 Specific Linked Care Initiatives

Care coordinators and GPs were wary of developing best practice protocols in the context of Linked Care. Complexities they saw were the multiple diagnoses of most participants, the emphasis on community-based care rather than medical interventions and the relevance to the local context.⁵⁴

Instead the Clinical Advisory Group developed one page reminder lists for use in general practice and by other service providers for patients with, or at risk of, particular diagnoses. They would be distributed to GPs for participants with care plans that included the diagnosis or were at risk of acquiring it. There was general concern about adding more paperwork to Linked Care. The evaluator observed contrasting reactions from GPs. Some GPs thought the sheets might be useful reminders but they might not result in any changes to current practice. Other GPs were less positive saying that they would be affronted to receive such material because it was information GPs should already know. Some non-GP CCs agreed. They said they already had enough difficulty communicating with the GPs about their participants. By handing over a reminder list to which the GP might take offence they might potentially aggravate the relationship further. On the other hand, a non-GP CC noted that they find it helpful to use similar sheets to orient new staff. The Clinical Advisory Group agreed that for the strategy to be successfully received an extensive prior explanation to GPs would be required.

A more general initiative was the formation of the Hospital Issues Working Party.⁵⁵ This working party was formed to examine if improvements could be made to the admission, length of stay and separation of persons admitted to the rehabilitation ward of HKHCHS. Admission for DRG 941 (rehabilitation) is the most frequent reason for admission for Linked Care participants. While a number of initiatives suggested to the working party may be useful (such as more resources in the rehabilitation discharge team, improved accident and emergency-community interface, and early discharge programs), none of these strategies would have been cost effective for the number of participants in Linked Care and the frequency with which they were admitted. Such strategies would only be cost effective if they were introduced for all patients in the hospitals. It is dubious then as to whether these types of strategies are relevant to a coordinated care trial, unless the client population is a significant proportion of the total service population.

⁵⁴ CC mid-trial workshop November 1998.

⁵⁵ Initially the Rehabilitation Working Group.

6.4 Responsiveness of Service Organisational Structures

Service provider managers were asked throughout the trial about their expectations and experience of Linked Care.⁵⁶ In relation to their participation in the organisation of Linked Care, they made interesting observations about the ability of their internal management structures to respond to the demands of the model, summarised in Table 6.1. Issues related to the infrastructure barriers rather than faults with the Linked Care management model.

Table 6.1: Expectations and Impact of Linked Care on Service Organisation

Expectation	Service providers' experience
Organisation costs increase or remain the same	Hospital and HACC service managers reported increased costs because of trial effects (time, workload, duplication and inertia), subsidising CC time and their own limited administrative systems to seek reimbursement
Inertia in service organisation to make structural changes	Service managers and staff in community- and hospital-based organisations complained about having to stretch existing resources further to meet the additional service and administrative demands of Linked Care, despite reimbursement from the fund pool.
Improvement in data information systems	ACAT reported a more accurate assessment of their normal operating costs to be able to analyse the appropriateness of the ACAT budget.

⁵⁶ Appendix 2 Evaluation Data Sets.

Part C Conclusions

7. Whole of System Conclusion

7.1 Introduction

At the completion of the Live Phase of the trial, Linked Care had been fully operational for approximately 21 months. Progress over the time from the initial expression of interest, through the establishment of the trial, recruitment of participants and the live operation of the trial to the conclusion was impressive. Linked Care was able to demonstrate a practical operational model, based on the principles of coordinated care, which operated within budget. This model served substantial numbers of people with complex care needs from the trial's catchment area in the Hornsby Ku-ring-gai municipalities over a prolonged period of time.

The three key elements of the coordinated care model – a fund pool, case management arrangements through CCs, and the use of individual care plans for all participants - were each well established. Within the constraints of the trial design, operational issues that arose during implementation were also effectively addressed by Linked Care management and other health professionals and service providers who participated as partners in Linked Care.

As the results presented earlier in the report have shown, many aspects of the operation of Linked Care were successful. However, there were also a number of elements of the model of care coordination utilised by Linked Care that were not demonstrated to be any more effective than the pre-existing service provision arrangements, despite the increased costs associated with their introduction.

7.2 Summary of Whole of System Response

Access to care services by Linked Care participants was enhanced by the care coordination and fund pool mechanisms. There were no confirmed cases in which access by other clients was detrimentally affected by the operation of Linked Care. The contrast between the easy access for Linked Care participants to some community services, most notably the Home Care Service of New South Wales, while other applicants were placed on a waiting list, was widely criticised and regarded by many as inequitable. Structural barriers within agencies might have disadvantaged non-participant clients. First, they might be unable to accurately claim full reimbursement from the fund pool for services accessed by participants. Second, ability to employ additional and replacement staff appeared to be constrained. Evidence on this was inconclusive (Section 4.5).

Linked Care provided an opportunity for providers to meet face to face in management and CC meetings. The hospital liaison process to notify Linked Care of participants admitted to hospital improved communication. Whether CCs acted on the notification was not evaluated, nor did the hospitals expand the process to notifying other service providers. Anecdotal and evaluator observations indicated that there was some improved collaboration

between service providers. Service manager, staff and CC questionnaires indicated no effect or detrimental effects.

The Linked Care geographic area was subject to other collaborative initiatives, particularly between HACC services, that also had potential to improve the integration of care e.g. CIARR, formalised waiting lists.

Caregivers indicated improved satisfaction with Linked Care by the end of the trial, rather than being fearful of forfeiting their significant role in the life of their family member.

Participants reported high satisfaction with the quality of care in both the Intervention and Control groups. These satisfaction scores tended to converge during the course of the trial. Participants did not report duplication of tasks as a problem.

CCs reported being able to arrange care quicker through mechanisms such as avoiding waiting lists and using private care until public care could be arranged. They complained about the repetitive paperwork generated by the care coordination process. Evidence-based guidelines were thought by CCs and service providers to be inappropriate for care coordination of chronic complex care participants with multiple needs.

Participants appeared to access similar medical care irrespective of their CC type. Participants in the Intervention group were able to access higher levels of community-based care than participants in the Control group.

7.3 Implications of the Whole of System Response

In this section we concentrate on the implications of the findings of the whole of system response to Linked Care. The conclusions are drawn in relation to the needs of readers seeking to improve local patterns of service provision and promote appropriate forms of care substitution.

? Additional coordination processes, but little or no impact on structure or practice

The establishment of the Coordinated Care Trials placed considerable emphasis on mechanisms for the coordination of existing services and health professionals. At the local level, attention was also given to the development of substitution strategies. Importantly, however, Linked Care was limited to working within constraints of the existing system of services. No structural changes in service operations were achieved or, in retrospect, envisaged. The outcome was that additional transaction levels were introduced into the local service system. These carried additional direct and indirect administrative and organisational costs while having at best, only an indirect impact on care provided to participants at the actual point of service delivery.

Following the lead provided by successful overseas trials of case management (Davies, 1992, 1994; Fine and Thomson, 1995) future trials may wish to change this emphasis. This could, for example, involve improved targeting of case management or limiting its duration (see below). Other strategies could concentrate on developing more comprehensive development processes for service delivery, involving, for example, the establishment of multi-disciplinary home care teams or the introduction of skilled, multi-task care workers (as

compared with the existing specialised approach). Greater use could also be made of comprehensive staff education strategies.

? *Ongoing care coordination and care planning appear expensive and only necessary for some participants*

While there has been considerable enthusiasm for the processes of case management (and its variants such as care coordination) and care planning amongst service providers and policy makers, the evidence from Linked Care suggests that these interventions were not cost-effective for at least a proportion of the participants. Future trials could constrain or target these interventions, limiting their application to short-term case management for those whose needs are associated with a particular crisis (such as admission or discharge from hospital following unexpected illness) and targeting ongoing case management more closely to those most likely to benefit over time. One possible target group might be clients with extensive disabilities and chronic illnesses, unable to access services without mediation and needing ongoing adjustments and additional support not provided by existing agencies.

? *Care Coordination is not a viable method of cost control at present*

The evaluation evidence suggests that the CCs in Linked Care were not able to exercise devolved budgetary control for many if not most of the participants for whom they were responsible. Instead, they generally served as budget monitors, responsible for tracking expenses that were generated by the participant's self-referral activities, or by referrals initiated by others. This difficulty arises from the continuation of existing service access and payment arrangements in both the public and private sectors, alongside the introduction of Linked Care. To test the efficacy of devolved budgetary management, different spending authorisation arrangements, requiring approval by a CC before a service is accessed, may need to be introduced. This would arguably involve a diminution of existing consumer rights under Medicare for public patients and may prove difficult to test through a trial mechanism. For clients with private health insurance coverage, however, such an approach could provide a valuable mechanism for cost-control and hence, prove an attractive proposition for the purposes of more extensive trials.

? *Fund pooling methodology is still developing*

Controversies surrounding the interpretation of the findings of this evaluation are likely to identify the fund pooling methodologies as still immature. Linked Care management achieved well beyond reasonable expectations in the development of the methods of calculating annual capitation fees for existing participants, but considerable doubt still remained at the conclusion of the trial, over the actual calculation processes. One of the difficulties identified was associated with predicting changes in costs in the final year of a person's life, as previous service use patterns do not provide much guidance in such cases. Difficulties were also experienced in calculating capitation rates for individual services, both hospitals and community services. Further, it is unclear whether a capitation method has yet been developed which would be acceptable to GPs or to Divisions of General Practice. Future trials of fund pooling may need to consider relying on centrally derived funding formulas.

? *The original COAG 'diagnosis' of problems with the health and social care system was inaccurate and exaggerated*

The focus of this evaluation has largely been on the performance of Linked Care and on the outcomes of the coordinated care model for participants. However, the robust performance of the pre-existing system of services in the Control area, should command equal attention. The absence of significant differences in the outcomes of participants in the Control group in the Ryde Hunters Hill area demonstrates that the original ‘diagnosis’ of the problems with the health and social care system advanced by the COAG (COAG, 1995) was inaccurate and exaggerated. By portraying the system as expensive, crisis ridden, fragmented, inaccessible for consumers and unresponsive to their needs, many of the strengths of the existing system were overlooked. Further examination of the strengths of the existing system, using, for example, more detailed analysis of Control group area data, is warranted.

? *Collaborative local approach to serving the population was valued*

One of the more positive findings of the evaluation was the extent to which the collaborative and systemic approach to servicing the local population was valued by participants and stakeholders. Until the introduction of Linked Care there had been few opportunities for representatives from the different services and GPs to plan joint activities. The system of working parties and voluntary agreements entered into by the stakeholders was intended purely as an instrumental mechanism for Linked Care, but they appear to have produced considerable incidental benefits. Building on this experience, it may prove possible to adopt many of Linked Care’s consultative, community-building methods in future locality-based initiatives for service development.

Finally, we consider the potential implications of extending the principles of the coordinated care model to operating principles for the Australian health care system.

? *Operational viability*

Linked Care has demonstrated that it is possible to use the approach of coordinated care as the basic operational principle of a system of care. While the evidence from the evaluation presented earlier in this report shows the approach did not ensure a superior level of outcome for participants, neither is there any evidence of systematic disadvantage. Recipients of the care, family caregivers and health professionals from a range of disciplines rated the care provided positively. The evidence suggests that the approach was in general, comparable to and in some cases possibly preferred to the standard forms of care available to the participants.

? *Potential cost implications*

The coordinated care approach adopted by Linked Care appeared to be most questionable in terms of the cost of the operations. Considerable savings had been anticipated from the introduction of substitution strategies as part of Linked Care. There was no evidence of successful, cost-reducing substitution of services beyond that which was already evident in the standard care available to the Control group. Evident instead was the additional costs involved in operating the model.

The evidence presented in the *Local Evaluation Final Report* suggests that the trial operated within budget, and that over the period September 1997 to December 1999, a total surplus of \$714 283 was achieved (Section 3.3e, Final Report). However this figure included infrastructure grants and other monies. If the ongoing costs of infrastructure, other

operational concerns and relevant service usage costs are analysed, the surplus is reduced to \$294 599 still, apparently, a healthy financial result. How can it be that such a surplus was produced for the Intervention group while the level of expenditure, per participant exceeds that of the Control group on almost all items? The answer lies in the qualifications associated with this surplus calculation. The capitation rates used to calculate the contribution by stakeholder services, for example, appear to have been inaccurate. It is unlikely that such rates could be sustained on a population basis without considerable additional expenditure by government. Other financial data management difficulties appear to have contributed to the apparent surplus. These include the incomplete collection of service usage data (and, therefore not paid from the pool); decisions about the attribution of costs as either establishment, ongoing or trial-related costs, and the absence of continuous recruitment despite a high exit rate for a small number of clients.

Diligent administration by Linked Care management kept the additional costs of care coordination and project administration to a minimum. This was achieved by maintaining payments for care coordination at a low level and by increasing the productivity of many CCs through relatively large work loads. There were suggestions that this level of productivity and efficiency may not have been sustainable had Linked Care continued. CCs for example, complained that their case loads were high whilst their level of remuneration was too low for ongoing operation. But even if these relatively low levels of ongoing costs had been maintained, the results would still require expenditure additional to existing service usage costs for participants.

Taken together, the results suggest that the model did not offer a simple solution to the financial problems of providing public care through the existing system of services. Doubts about the viability of the fund pool suggest that the approach would not be affordable as the main principle for the Australian Health Care System. Even in a modified form, as a sub-system to be deployed for those needing complex care, it would require the injection of significant extra amounts of funding into the care system. Incomplete accounting records and other problems discussed above, however, point to the need for further work on this issue. This is also discussed further below.

? *Fund pooling methodology*

Linked Care demonstrated that it is possible to create a fund pool utilising contributions from participating services. However, as discussed above and noted earlier in the report, the extent to which such fund pools could serve as viable sources of funding for all care needs of clients in the future is less clear. Although incomplete records and other problems make definitive statements about the adequacy of the fund pool difficult, it would be imprudent to proceed with the approach without further financial research.

If fund pooling were to be favoured for further trials, the main question arising from the experience of Linked Care is: should fund pool calculations be carried out at the local level? The data from the evaluation to date suggest not. Not only was it a very resource intensive exercise, it was one requiring extensive professional expertise, well beyond the level of financial expertise available in most health and community care services. Further, the proliferation of local-level approaches to the calculation of fund pool contributions would, over time, tend to regional differences which would undermine inter-regional equity and may place the ongoing financial viability of some services at risk.

? *Excluded services*

One of the more interesting findings of the evaluation concerned the higher rate of admission of subjects from the Intervention group to nursing home care when compared to the admission rate from the Control group. Under these circumstances, a suspicion arises, perhaps unfairly, that the funding arrangements may have created an incentive for placing high-need, high-cost participants off budget in such homes.

Given that a great many of the participating services, particularly those funded through the HACC program, had been developed as alternatives to such care, it was a major flaw in the national design of the trials that residential care services such as nursing homes were excluded from the stakeholders and contributors to the funds pool. It is recommended that residential care be included in any further trials.

7.4 Conclusion

The results of Linked Care provide valuable insights into the operation of the health and community services system available to most residents of New South Wales. In the Intervention area, innovative service provision arrangements were put in place within a short period and were found to function with reasonable effectiveness to the general satisfaction of their direct users.

Doubts remain, however, about a number of aspects of the program. These include doubts as to the full cost and affordability of the innovative approach and doubts as to the true value of some of the planning mechanisms, especially care plans and the extensive use of care coordination for all participants. The failure to markedly improve outcomes for participants, in comparison with those of members of the Control group, also raises important questions about the identification of problems in the existing system of care.

Encouragingly, the results suggest that the system operating in the Control area functioned reasonably effectively, and that major health gains or improvements in the outcomes for consumers were not easily achieved simply by improving care coordination arrangements. This is not to suggest, however, that improvements are not possible. Indeed much could be learnt from Linked Care that would be of benefit to the existing system. By reviewing the substitution strategies proposed in the trial, for example, it may be possible to identify cost-effective opportunities for improvement that can readily be adopted by existing services.

To those who promoted the trial, the results should be encouraging. They provide a strong testimony to the value of establishing large scale demonstration projects in the field of health care and have ensured that a wealth of information and experience will be available to inform future developments. The results presented in this report provide the first opportunity to examine these issues comprehensively. Further analysis of the data collected should sharpen the lessons learned from Linked Care and yield further valuable insights into the operation of health and care services in the Hornsby Ku-ring-gai area, and across New South Wales and Australia.

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Appendix 1: National and Local Hypotheses

National Hypotheses

1. That *coordination* of care for people with *multiple service needs*, where care is accessed through *individual care plans* and *funds are pooled* from existing programs, will result in improved individual client *health and well-being* within *existing resources*.

That the success of coordinated care, as testing in the primary hypothesis, will be affected by:

2. the *extent of substitution* between services within the trial pool;
3. the *range of services* included in the trial and the *size of the pool*;
4. the *characteristics of the clients* to whom services are provided;
5. the *quality* of the clinical and service delivery protocols;
6. the *characteristics of the care coordination* function;
7. the particular *types of administrative arrangements*;
8. the extent to which health and community service *clients are partners* in the planning of the coordinated care trial the development of care plans and empowerment through the coordination process; and
9. that the primary results can be achieved *without detriment to other key areas* of government policy particularly in regard to equity of access and privacy including any impact on clients outside the trial.

Other areas to be examined are:

10. the extent of *collaboration in care* between those involved (including clients and informal caregivers), as expressed in such matters as communication, sharing common guidelines, care pathways and protocols; and
11. the *quality of care* provided, in terms of such measures as timeliness and consistency of the care provided, the financial and geographic accessibility of care, the cultural appropriateness of care, the reduction of duplication of tasks, and the evidence of efficacy as demonstrated through adherence to evidence based guidelines and other relevant measures.

Local Hypotheses

12. To improve the *health outcomes* and *social well-being* of people with *multiple service needs* while maximising their *ability to exercise choice* and *live independently* in the community by *coordinating care* from community and health services, within *existing resources and pooled funds*.

A further six primary objectives are concerned largely with getting the trial and its evaluation established and with implementing the mechanisms for pooled funding and service planning. These objectives, elaborated by the local evaluation working party, are:

13. to develop and implement a pilot of coordinated care which ... will *identify the characteristics of coordinated care* which contribute to the improvement in clients health and social well-being ...;
14. to establish a system of care planning for clients receiving care from *a range of providers* including funded services and *informal caregivers*;
15. to assess whether coordinated care can be provided ... in a way which demonstrates *cost-effectiveness*;
16. to operate the trial in a manner which has *no detrimental effect on access to care or privacy*;
17. to evaluate this pilot in terms of *client satisfaction*, outcomes relating to *health status* and *social well-being*, *provider satisfaction*, the *management model* (structure and process), *cost-effectiveness* and *carer satisfaction*; and
18. to create a 'pool' of funds from which services will be funded with *greater flexibility* and with a *closer match to clients' needs*.

Five other secondary objectives are concerned with changing existing patterns of service usage to realise the project's aims.

19. to provide a *service mix* that better meets the *needs of frail aged* people, people with *severe disabilities* ... and people with *complex chronic medical* problems in the Hornsby Ku-ring-gai areas.
20. to *substitute high cost, high dependency* support services with lower cost lower dependency services where appropriate to maintain clients in the most *appropriate environment*.
21. to *substitute inappropriate service usage* by more appropriate service usage by the introduction of *new funding* arrangements.
22. to test different approaches to care management...; and
23. to introduce integrated, multidisciplinary assessment services for this group.

Four major aspects of the intervention were also specified in the funding agreement and consultancy brief. These are:

24. the introduction of *new assessment* arrangements;
25. care management arrangements that include a *care coordinator* and a *care planning team* for the set of related needs;
26. the establishment of a *pool of funds* for the trial groups from which access to included services is funded *in accordance with the care plan*; and

27. *funding participating agencies according to an agreed schedule of fees.*

Appendix 2: Evaluation Conceptual Framework

As the number and range of hypotheses suggest, the evaluation of such a large-scale trial is a major undertaking in its own right. To help manage the complexity of the research task, a sound conceptual framework is essential. Building on the basic framework set out by the national evaluation and the NSAHS specifications for the local evaluation, the research design and methodologies were conceived as largely following the broader field of research in social policy. In this approach, data of different kinds, often collected using a number of different methods, are drawn together in order to inform decision making about policy issues. The approach is demanding but also eclectic and pragmatic, using different approaches when and as necessary, to collect, assemble and analyse different types of evidence in the most rigorous manner possible.

Research Questions

To assess the relative success of the reforms introduced in the Hornsby Ku ring gai district in meeting the broad aims and objectives of the trial, the evaluation needed to be able to determine whether the intervention led to improved outcomes for clients by increasing the effectiveness and efficiency of service provision, and not by relying on increased expenditure. As a first step towards the development of a methodological framework, the evaluation was conceptualised as an attempt to answer two related sets of questions.

- i. What specific innovations were planned in the trial? How were these actually implemented, what factors assisted or impeded the process, and what were the financial and organisational costs involved?*

Experience in Australia and overseas shows that plans for the introduction of major reforms are usually significantly modified and developed in the process of being implemented. The first set of research questions therefore focuses attention on issues of implementation and cost, drawing attention to issues concerned with the organisation of services and the processes of change and development that occur in attempting to develop a more integrated and effective system of provisions within the given economic and systemic constraints. It is essentially concerned with the organisational processes by which the Trial developed, and operated over time.

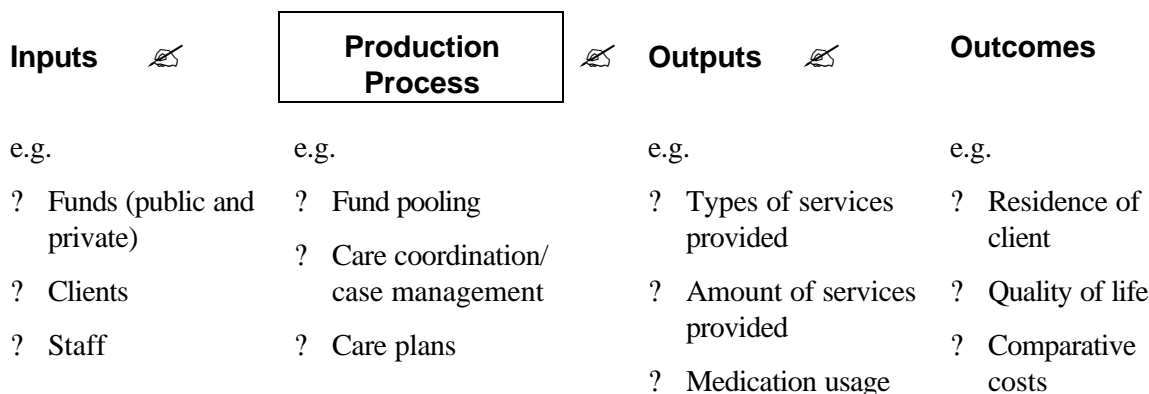
- ii. Have the innovations led to improvements in service provision which influence the outcomes for clients and their caregivers?*

This second set of questions concerned the outputs of services and the outcomes of service provision for actual and potential clients in the target group. Its focus is on the measurement of results for the participants.

To address the questions, three research paradigms were particularly important for this study. The first, the Production of Welfare approach (Davies et al. 1986, 1990), is essentially a conceptual scheme linking different components of the policy process. Derived originally from the economic analysis of production processes, the approach links together service inputs, outputs and outcomes. Drawing these together is the production process itself. For this study, the scheme provides a relatively simple and practical way of conceptualising the intervention, and of ordering the vast amounts of evaluative data material that the trial will generate.

Applying this schema to the Linked Care trial, the relationship between the different components of the project can be conceptualised as follows (Fig. 2.1):

Figure A2.1: The Production of Welfare Process and the Linked Care Trial



The second approach utilised in the development of the research design was based on the ethnographic tradition of social research, applied to the study of contemporary complex societies. Sometimes termed ‘Administrative Anthropology’, the approach uses methods such as participant observation, in-depth interviews and the analysis of documentary evidence, to obtain and analyse data on the evolution of administrative and organisational processes involved in the trial.

The third element of the research design developed for the evaluation is based on epidemiology, utilising a comparative approach in which the results for participants in the intervention group are compared with those for a matched control group of research subjects.

It is widely recognised that there are a clear advantages to be derived from using a randomised control group in medical trials. Randomisation of the trial subjects (participants) chosen from the same pool of subjects to the intervention and control groups allows for differences between individual subjects that might affect the outcomes of the study to be controlled for, providing a sufficiently large sample size is selected. Differences between the intervention and control groups can then be attributed only to the intervention and not to pre-existing differences between the two groups. However, there are often practical reasons and/or ethical for selecting a control group on another basis. Practical difficulties arose when seeking to use a matched control group from outside the trial area in the case of the Linked Care trial. Having considered the issue, the Evaluation Team endorsed the approach proposed by the trial management to select a matched control group from a comparable, neighbouring area, the Ryde Hunters Hill municipalities.

Appendix 3: Evaluation Data Sets

Data set	No. times administered	Data type	
		quantitative	qualitative
Participants			
1. Participant Profile (demographics)	2	x	
2. SF-36 Health and Well-being Questionnaire	3	x	
3. Participant Telephone Interview	3		x
4. Participant Questionnaire (service usage, support and well-being)	2	x	x
5. Service usage and care plan	continuous	x	
6. Medical care plan (diagnosis and measure of control)	2	x	
7. Participant exit data	1	x	
8. Allocation and reassignment to CCs	many	x	
Service Providers			
1. Service Providers Interview	1		x
2. Service Staff and Volunteer Questionnaire	2	x	
3. Service Provision Data Survey	2	x	
4. Service Manager Questionnaire	2	x	x
5. General Practitioner Questionnaire	2	x	
6. General Practice Focus Group	1		x
Care Coordinators			
1. Care coordinator Interviews	1		x
2. Care coordinator Questionnaire	2	x	x
3. Care coordinator demographics and exits	1	x	
Organisation of Linked Care			
1. Consumer Representatives Focus Group	1		x
2. Consumer Representatives Survey	1		
3. Linked Care staff Focus Group	2		x
4. Trial minutes, reports and policies			x

A volume of evaluation instruments accompanies the *Local Evaluation Report*.

Appendix 4: Participant Profile

Baseline Characteristics

Final consents were obtained from 722 Intervention and 423 Control participants.⁵⁷ Table A4.1 presents the demographic, household and income-related data for Intervention and Control participants. The number of missing cases for each item and group is noted at the end of the table.

The sample can be described as consisting of mainly older people with over 80 per cent from the Intervention and Control groups aged 70 years or more, and well over 50 per cent from each group aged at least 80. Women, single participants, Australian-born and participants from families where English was spoken at home were the predominant demographic features in both groups. There were no indigenous participants in either group.

Over 90 per cent of all participants lived in a house or flat, with many more owning their residence rather than renting. Given the age distribution of the sample it is not surprising that over 90 per cent from both groups described themselves as 'retired'. Roughly one-third from each group paid for private domestic help and both groups had similar proportions of DVA clients. Data on household income were dropped from the analysis due to missing data (participants did not respond).

Although the participants in both the Intervention and Control groups were fairly similar overall, some large differences were evident. A greater proportion of Intervention participants had a carer; well over 50 per cent had some private insurance compared to just over 32 per cent of Control participants; more of the Intervention group had tertiary level education; and Intervention participants who had had a 'professional' occupation greatly outnumbered Control participants with the equivalent.

The Intervention group also had greater proportions of males, married participants and participants from families where English was spoken at home. Compared to the Control group, more Intervention participants owned their home, many more shared their home with another person, while less held a pensioner concession card or a health care card. This last characteristic also implies that fewer were in receipt of a government pension or benefit.

Logistic regression analysis was carried out to estimate to what extent personal and other characteristics change the odds of being in the Intervention group, while at the same time controlling for the influence of all other characteristics. The results are presented in the *Local Evaluation Report*, Section 4.2 and Appendix 6, Table A6.1. The results confirm some of the differences between the Intervention and Control groups – language, tenancy, carer status, private health insurance, concession and health care cards, educational background and occupational background. In addition, two less obvious differences between the groups were found – country of birth and current living arrangements. These differences are taken into consideration in the analysis of participant outcomes and service usage (Section 3.2 and Chapter 4).

⁵⁷ Linked Care recruited 725 Intervention clients. No accurate demographic and service usage data about three clients who exited early in the trial was available to the evaluators.

Table A4.1: Selected Baseline Characteristics of Linked Care Participants by Participant Group

Participant Characteristics	Participant Group			
	Intervention		Control	
	% ^(a)	n	% ^(a)	n
Age^(b)				
<50	5.5	40	2.1	9
50-59	3.7	27	2.6	11
60-69	7.9	57	9.2	39
70-79	28.0	202	30.5	129
80-89	44.6	322	46.1	195
90 and over	10.2	74	9.2	39
	100.0	722	100.0	422
Gender				
Male	34.8	251	26.2	111
Female	65.2	471	73.8	312
	100.0	722	100.0	423
Marital status^(c)				
Single	56.1	395	69.3	293
Couple	43.9	309	30.7	130
	100.0	704	100.0	423
Country of birth^(d)				
Australia	77.7	557	76.4	323
Other	22.3	160	23.6	100
	100.0	717	100.0	423
Language spoken at home^(e)				
English	97.8	697	89.6	379
Other	2.2	16	10.4	44
	100.0	713	100.0	423
Participant's accommodation^(f)				
House, unit, apartment, flat	90.7	645	94.5	399
Independent living unit, hostel, other	9.3	66	5.5	23
	100.0	711	100.0	422
Tenancy^(g)				
Owner	83.0	577	72.2	304
Renter	17.0	118	27.8	117
	100.0	695	100.0	421
Shares home				
Does not share	39.2	283	54.1	229
Shares with spouse	41.4	299	28.8	122
Shares with other	19.4	140	17.0	72
	100.0	722	100.0	423
Carer status^(h)				
Carer not needed	14.0	100	24.2	102
Has a carer	63.8	455	40.1	169
Needs a carer	22.2	158	35.6	150
	100.0	713	100.0	421
Private Assistance				
Has private paid domestic help	32.8	237	28.1	119
No help	67.2	485	71.9	304
	100.0	722	100.0	423
Employment status⁽ⁱ⁾				
Retired	90.4	644	93.6	395
Not retired	9.6	68	6.4	27
	100.0	712	100.0	422

Table A4.1 (continued): Selected Baseline Characteristics of Participants by Participant Group

Participant Characteristics	Participant Group			
	Intervention		Control	
	% ^(a)	n	% ^(a)	n
Health insurance^(j)				
Some private insurance	51.8	373	32.6	138
No insurance	48.2	347	67.4	285
	100.0	720	100.0	423
DVA status				
DVA card	17.5	126	18.9	80
No DVA card	82.5	596	81.1	343
	100.0	722	100.0	423
Cards status^(k)				
Has card	85.9	619	95.3	403
No card	14.1	102	4.7	20
	100.0	721	100.0	423
Education level^(l)				
Primary	13.2	94	20.8	88
Secondary	54.8	391	71.2	301
Tertiary	32.0	228	8.0	34
	100.0	713	100.0	423
Occupation^(m)				
Professional	32.3	230	21.5	91
Trade	44.4	316	59.3	251
Home duties	23.3	166	19.1	81
	100.0	712	100.0	423

Source: Participant profile collected by CCs and Linked Care staff, 1997 to 1999.

Notes: a) Percentages may not add to 100 due to rounding. b) 1 missing case (0 Intervention; 1 Control).
c) 'Single' includes widowed, divorced, separated and never married. 'Couple' includes de facto. 18 missing cases (18 Intervention; 0 Control). d) 5 missing cases (5 Intervention; 0 Control).
e) 9 missing cases (9 Intervention; 0 Control). f) 12 missing cases (11 Intervention; 1 Control).
g) 'Renter' includes 'Other' (2 cases). 29 missing cases (27 Intervention; 2 Control).
h) 11 missing cases (9 Intervention; 2 Control).
i) 'Not retired' includes children, students, employed, unemployed, home duties and other. 11 missing cases (10 Intervention; 1 Control). j) 2 missing cases (2 Intervention; 0 Control).
k) 1 missing case (1 Intervention; 0 Control). l) 9 missing cases (9 Intervention; 0 Control).
m) 10 missing cases (10 Intervention; 0 Control).

Diseases at the Baseline

Information on participants' diseases was provided by GPs as part of the medical care plan. Table A4.2 summarises this information by grouping it into disease categories and presenting mean nominations for each group.⁵⁸ The first two columns show the mean for those participants who had at least one disease nominated within the particular disease category and indicates how many times on average a participant had a disease nominated from that category. Columns three and four show the means for all participants within the sample and provide a more general overview of differences between the Intervention and Control groups. Significance is indicated by at least one asterisk.

⁵⁸ Data has been classified according to ICD-9.

Table A4.2: Baseline Comparison - Mean Nominations of Disease Category by Participant Group

Disease Category	Participants within category ^(a)		All participants ^(b)		
	Intervention	Control	Intervention	Control	
1. Infectious and parasitic	1.22	1.20	.02	.02	
2. Neoplasms	1.10	1.18	.11	.07	
3. Endocrine, nutritional	1.14	1.19	.32	.32	
4. Blood diseases	1.04	1.00	.06	.05	
5. Mental disorders	1.17	1.21	.26	.21	
6. Nervous system diseases	1.26	1.29	.54	.39	***
7. Circulatory diseases	1.57	1.61	1.00	1.19	***
8. Respiratory diseases	1.07	1.09	.22	.27	
9. Digestive diseases	1.28	1.15	**	.31	
10. Genitourinary diseases	1.08	1.08	.13	.15	
12. Skin diseases	1.04	1.08	.09	.05	**
13. Musculoskeletal diseases	1.47	1.33	**	.69	
14. Congenital anomalies	1.18	2.00	*	.01	
15. Perinatal	1.00	-	.002	-	
16. Ill-defined conditions	1.20	1.13	.18	.12	**
17. Injury and poisoning	1.05	1.18	.04	.05	
18. Accidents	1.00	1.11	.03	.04	
19. Communicable diseases	1.00	1.00	.01	.004	
20. Family or personal history	1.14	1.11	.21	.26	
23. Other	1.17	1.20	.20	.21	
24. Specific procedures/aftercare	1.00	1.00	.002	.01	
Total^(c)	n/a	n/a	4.38	4.40	

* p<0.1 ** p<0.05 *** p<0.01

Notes: a) Total number of nominations for category /number of participants in category e.g. neoplasms among Intervention group = 57/52.

b) Total number of nominations for category/total number of participants in participant group e.g. neoplasms among Intervention group = 57/527.

c) Total number of nominations/total number of participants in group (Intervention = 2 310/527; Control = 1 217/276; Total = 3 527/803).

Diagnosis data were available for only 803 of the 1145 participants. No data on severity of disease were collected for the trial or evaluation. Comparison between the Intervention and Control groups about disease severity could therefore not be made either at the baseline or to measure changes during the trial. This should be kept in mind when comparisons such as changes in client outcomes and service usage are made in the report.

Appendix 5: Service Usage Charts

Appendix 6: Service Provider Evaluation Tables

1. Service Provider Views of Linked Care

Table A6.1: Care Coordinators Views of Linked Care, 1998 and 1999

	1998		1999		
	n	%	n	%	
Service					
Sydney Home Nursing Service	5	12.2	15	19.5	
Home Care Service	2	4.9	4	5.2	
Hornsby Hosp. Rehab. & Aged Care	6	14.6	11	14.3	
Mercy Family Centre	8	19.5	17	22.1	
Neighbour Aid	0	0.0	0	0.0	
Wesley Gardens	2	4.9	1	1.3	
Meals on Wheels	0	0.0	0	0.0	
GPs	18	43.9	29	37.7	
Position					
Field Staff/Volunteers	0	0.0	5	6.5	
Coordinator	13	31.7	14	18.2	
Nurse	6	14.6	15	19.5	
Occupational Therapist	3	7.3	3	3.9	
Social Worker	1	2.4	2	2.6	
Clinical Specialist	0	0.0	3	3.9	
Physiotherapist	0	0.0	6	7.8	
Medical Practitioner/Doctor	18	43.9	29	37.7	
No. of care coordinated participants					
0 to 24 participants	40	93.0	46	100.0	
25 to 49 participants	0	0.0	0	0.0	
50 to 74 participants	1	2.3	0	0.0	
Over 75 participants	2	4.7	0	0.0	
Other clients who are not your participants					
0 to 19	29	80.6	39	86.7	
20 to 39	7	19.4	3	6.7	
40 or more	0	0.0	3	6.7	
Trial created problems in coordinating and planning care					
Yes	7	15.9	9	19.6	
No	38	86.4	37	80.4	
Trial created problems in delivering care					
Yes	9	20.9	2	4.3	**
No	34	79.1	44	95.7	
Trial affected health and well-being of clients					
Positive change	15	34.1	15	32.6	*
Negative change	0	0.0	1	2.2	
No change	24	54.5	30	65.2	
Don't know	5	11.4	0	0.0	
Trial been more beneficial for some types of participants than others					
Yes	19	43.2	25	56.8	
No	9	20.5	8	18.2	
Don't know	15	34.1	11	25.0	

Conflict between care coordinator role and other work

Yes	20	45.5	19	42.2
No	24	54.5	24	53.3
Don't know	0	0.0	2	4.4

Table A6.1 (continued): Care Coordinators Views of Linked Care, 1998 and 1999

	1998		1999		
	n	%	n	%	
Used strategies to involve participants in care plans					
Yes	28	65.1	26	56.5	***
No	12	27.9	19	41.3	
Don't know	3	7.0	1	2.2	
Care coordination has enhanced participant control in choosing care					
Yes	18	41.9	17	37.8	
No	18	41.9	22	48.9	
Don't know	7	16.3	6	13.3	
Trial changed access to assistance or care					
Yes	12	28.6	11	23.9	
No	26	61.9	34	73.9	
Don't know	4	9.5	1	2.2	
Trial changed access or assistance provided by other services					
Yes	22	52.4	22	50.0	
No	11	26.2	18	40.9	
Don't know	9	21.4	4	9.1	
Trial had impact on links with other services					
Positive change	28	63.6	23	50.0	
Negative change	1	2.3	1	2.2	
No change	15	34.1	21	45.7	
Don't know	0	0.0	1	2.2	
Problems persuading services to cooperate					
Yes	12	28.6	8	17.8	
No	27	64.3	34	75.6	
Don't know	3	7.1	3	6.7	
Trial has more benefits than disadvantages for my participants					
Strongly agree	8	18.2	5	11.1	
Agree	14	31.8	18	40.0	
Neutral	16	36.4	13	28.9	
Disagree	6	13.6	4	8.9	
Strongly disagree	0	0.0	5	11.1	
Trial has more benefits than disadvantages for other clients					
Strongly agree	1	2.4	1	2.2	
Agree	5	11.9	5	11.1	
Neutral	23	54.8	16	35.6	
Disagree	8	19.0	12	26.7	
Strongly disagree	5	11.9	11	24.4	
Trial has more benefits than disadvantages for my service/practice					
Strongly agree	4	9.3	3	6.7	
Agree	11	25.6	8	17.8	
Neutral	16	37.2	17	37.8	
Disagree	9	20.9	7	15.6	
Strongly disagree	3	7.0	10	22.2	

Adequate administrative support for your role as care coordinator

Yes	34	77.3	24	58.5
No	5	11.4	12	29.3
Don't know	5	11.4	5	12.2

Source: Care coordinators questionnaires, November 1998 and 1999.

*** p<0.01 ** p<0.05 * p<0.10

Table A6.2: Service Personnel Views of Service Integration, 1998 and 1999

	1998		1999	
	n	%	n	%
Service				
Sydney Home Nursing Service	13	27.1	15	19.5
Home Care Service	11	22.9	4	5.2
Hornsby Hosp. Rehab. & aged Care	12	25.0	11	14.3
Mercy Family Centre	7	14.6	17	22.1
Neighbour Aid	5	10.4	0	0.0
Wesley Gardens	0	0.0	1	1.3
Meals on Wheels	0	0.0	0	0.0
GPs	-	-	29	37.7
Position				
Field Staff/Volunteers	12	25.0	5	6.5
Coordinator	14	29.2	14	18.2
Nurse	15	31.3	15	19.5
Occupational Therapist	1	2.1	3	3.9
Social Worker	4	8.3	2	2.6
Manager	1	2.1	0	0.0
Clinical Specialist	1	2.1	3	3.9
Physiotherapist	0	0.0	6	7.8
Medical Practitioner/Doctor	-	-	29	37.7
Years working at service				
Less than 3 years	15	31.5	24	35.8
3 to <7 years	16	33.6	15	22.4
7 to 12 years	12	25.2	15	22.4
Over 12 years	5	10.5	13	19.4
Employment status				
Paid	43	89.6	73	96.1
Other	5	10.4	3	3.9
Care coordinator?				
Yes	24	54.5	46	63.9
No	20	45.5	26	36.1
Knowledge of assistance provided by other services				
Excellent	23	51.1	21	28.0 **
Satisfactory	17	37.8	43	57.3
Needs to be improved	5	11.1	11	14.7
Sharing of information within my area				
Excellent	9	20.5	16	21.3
Satisfactory	22	50.0	42	56.0
Needs to be improved	13	29.5	17	22.7
Communication between services				
Excellent	5	11.6	7	9.3
Satisfactory	23	53.5	44	58.7

Needs to be improved	15	34.9	24	32.0
Referral process to community services				
Excellent	17	40.5	18	24.0 *
Satisfactory	20	47.6	51	68.0
Needs to be improved	5	11.9	6	8.0
Referral process to GPs				
Excellent	6	16.7	16	26.7
Satisfactory	23	63.9	40	66.7
Needs to be improved	7	19.4	4	6.7

Table A6.2 (continued): Service Personnel Views of Service Integration, 1998 and 1999

	1998		1999		
	n	%	n	%	
Referral process to other health and hospital services					
Excellent	19	46.3	20	26.7	*
Satisfactory	18	43.9	49	65.3	
Needs to be improved	4	9.8	6	8.0	
Referral process from community services					
Excellent	10	23.8	8	11.0	
Satisfactory	25	59.5	49	67.1	
Needs to be improved	7	16.7	16	21.9	
Referral process from GPs					
Excellent	5	12.8	3	5.0	
Satisfactory	15	38.5	33	55.0	
Needs to be improved	19	48.7	24	40.0	
Referral process from other health and hospital services					
Excellent	4	10.3	5	6.8	
Satisfactory	24	61.5	44	60.3	
Needs to be improved	11	28.2	24	32.9	
Clients' initial access to services					
Excellent	8	17.8	11	14.9	
Satisfactory	22	48.9	39	52.7	
Needs to be improved	15	33.3	24	32.4	
Clients' involvement in choosing level of care provided					
Excellent	14	32.6	18	24.3	
Satisfactory	22	51.2	46	62.2	
Needs to be improved	7	16.3	10	13.5	
Informed if clients receive assistance from other services					
Always or nearly always	5	11.4	9	12.0	
Often	8	18.2	25	33.3	
Sometimes	18	40.9	26	34.7	
Seldom or never	13	29.5	15	20.0	
Officially informed of outcome of referral					
Always or nearly always	5	11.9	8	10.7	
Often	3	7.1	17	22.7	
Sometimes	19	45.2	23	30.7	
Seldom or never	15	35.7	27	36.0	
Description of care provided to clients					
Staff work closely together most of time	21	46.7	29	39.7	**
Staff work closely together occasionally	13	28.9	38	52.1	
Staff know little about each other's work	11	24.4	6	8.2	
Description of relationship with other services					
Well coordinated team	14	31.8	22	29.3	
Partially coordinated team	25	56.8	46	61.3	
Series of separate uncoordinated services	5	11.4	7	9.3	

Source: Service personnel questionnaires, May 1998 and November 1999.

*** p<0.01 ** p<0.05 * p<0.10

Table A6.3: Service Personnel Views of Service Integration - Care Coordinators Compared to Non-Care Coordinators, 1998 and 1999

	Care Coordinators			Other Staff	
	Non-GP 1998	Non-GP 1999	GP 1999	1998	1999
	n (24)	n (17)	n (29)	n (20)	n (26)
Service					
Sydney Home Nursing Service	12	3	-	1	11
Home Care Service	3	0	-	7	4
Hornsby Hosp. Rehab. & Aged Care	5	6	-	6	5
Mercy Family Centre	4	7	-	2	6
Neighbour Aid	0	0	-	4	0
Wesley Gardens	0	1	-	0	0
Meals on Wheels	0	0	-	0	0
GPs	-	-	29	-	0
Position					
Field Staff/Volunteers	0	0	-	9	1
Coordinator	7	8	-	7	6
Nurse	13	4	-	2	10
Occupational Therapist	0	3	-	0	0
Social Worker	2	2	-	2	0
Manager	1	0	-	0	0
Clinical Specialist	1	0	-	0	3
Physiotherapist	0	0	-	0	6
Medical Practitioner/Doctor	-	-	29	-	0
	%	%	%	%	%
Knowledge of assistance provided by other services					
Excellent	62.5	52.9	17.9 **	33.3	26.9
Satisfactory	37.5	47.1	64.3	44.4	50.0
Needs to be improved	0.0	0.0	17.9	22.2	23.1
Sharing of information within my area					
Excellent	25.0	35.3	7.1 *	17.6	30.8
Satisfactory	58.3	52.9	78.6	29.4	26.9
Needs to be improved	16.7	11.8	14.3	52.9	42.3
Communication between services					
Excellent	12.5	11.8	3.6	12.5	15.4
Satisfactory	62.5	70.6	71.4	37.5	30.8
Needs to be improved	25.0	17.6	25.0	50.0	53.8
Referral process to community services					
Excellent	50.0	41.2	3.6***	33.3	38.5
Satisfactory	45.8	52.9	85.7	40.0	53.8
Needs to be improved	4.2	5.9	10.7	26.7	7.7
Referral process to GPs					
Excellent	19.0	21.4	23.5	16.7	36.0 **
Satisfactory	71.4	78.6	64.7	50.0	60.0
Needs to be improved	9.5	0.0	11.8	33.3	4.0
Referral process to other health and hospital services					
Excellent	56.5	29.4 *	21.4	25.0	34.6
Satisfactory	43.5	70.6	71.4	50.0	57.7
Needs to be improved	0.0	0.0	7.1	25.0	7.7

Referral process from community services					
Excellent	29.2	23.5	7.7 *	13.3	7.7
Satisfactory	58.3	70.6	57.7	60.0	69.2
Needs to be improved	12.5	5.9	34.6	26.7	23.1

Table A6.3 (continued): Service Personnel Views of Service Integration - Care Coordinators Compared to Non-Care Coordinators, 1998 and 1999

	Care Coordinators			Other Staff	
	Non-GP	Non-GP	GP	1998	1999
	1998	1999	1999	1998	1999
	%	%	%	%	%
Referral process from GPs					
Excellent	21.7	5.9	14.3	0.0	0.0
Satisfactory	34.8	41.2	64.3	42.9	56.0
Needs to be improved	43.5	52.9	21.4	57.1	44.0
Referral process from other health and hospital services					
Excellent	13.0	5.9	11.1	7.7	3.8
Satisfactory	60.9	76.5	59.3	53.8	46.2
Needs to be improved	26.1	17.6	29.6	38.5	50.0
Clients' initial access to services					
Excellent	25.0	17.6	10.7 *	5.6	19.2
Satisfactory	45.8	35.3	67.9	50.0	42.3
Needs to be improved	29.2	47.1	21.4	44.4	38.5
Clients' involvement in choosing level of care provided					
Excellent	45.8	29.4	11.1	12.5	26.9
Satisfactory	41.7	64.7	74.1	62.5	53.8
Needs to be improved	12.5	5.9	14.8	25.0	19.2
Informed if clients receive assistance from other services					
Always or nearly always	17.4	11.8	10.7	5.9	3.8
Often	17.4	47.1	32.1	23.5	30.8
Sometimes	47.8	41.2	28.6	29.4	42.3
Seldom or never	17.4	0.0	28.6	41.2	23.1
Officially informed of outcome of referral					
Always or nearly always	13.0	11.8	10.7	13.3	3.8
Often	8.7	23.5	39.3	6.7	7.7
Sometimes	56.5	35.3	25.0	26.7	38.5
Seldom or never	21.7	29.4	25.0	53.3	50.0
Description of care provided to clients					
Staff work closely together most of time	69.6	64.7	30.8 *	16.7	34.6 *
Staff work closely together occasionally	17.4	29.4	61.5	44.4	53.8
Staff know little about each other's work	13.0	5.9	7.7	38.9	11.5
Description of relationship with other services					
Well coordinated team	41.7	35.3	25.0	18.8	23.1
Partially coordinated team	58.3	58.8	64.3	62.5	69.2
Series of separate uncoordinated services	0.0	5.9	10.7	18.8	7.7

Source: Service personnel questionnaires, May 1998 and November 1999.

*** p<0.01 ** p<0.05 * p<0.10

2. Service Provider Profile

Table A6.4a: Hornsby Ku-ring-gai Community-based Agencies Client Profile (estimates) 1996-97

	Total	MOW	NSHNS	Neighbour Aid	Home Care Service	Mercy Family Centre	ACAT	
1. Number of clients								
No. clients receiving help	8018	475	2293	250	1085	439	3476	
No. referrals	6226	185	1824	50	594	97	-	
Referrals as a percentage of clients	43	39	80	20	55	22	-	
No. clients in a typical week	1725	230	521	44	714	216	-	
2. Client demographics								
	HK general population ^(a)	Average						
% clients over 65 years	14	88	90	81	95	83	83	95
% clients women	52	73	75	64	85	78	67	70
% clients NESB	15	6	1	0	4	9	12	7
% clients ATSI	0	0	0	0	0	0	0	0

Source: Baseline service data survey, December 1997.

Note: (a)ABS Census 1996, Hornsby Ku-ring-gai (HK) LGAs

Table A6.4b: Hornsby Ku-ring-gai Community-based Agencies Client Profile (estimates) 1998-99

	Total	MOW	NSHNS	Neighbour Aid	Home Care Service	Mercy Family Centre	ACAT	
1. Number of clients								
No. clients receiving help	9993	450	2491	250	1555	883	4364	
No. referrals	7980	0	2066	50	1080	420	4364	
Referrals as a percentage of clients	53	0	83	20	69	48	100	
No. clients in a typical week	2130	198	423	44	933	452	80	
2. Client demographics								
	HK general population ^(a)	Average						
% clients over 65 years	14	86	80	79	95	85	80	94
% clients women	52	72	68	61	85	77	75	67
% clients NESB	15	7	1	0	4	13	8	13
% clients ATSI	0.2	0	0	0	0	0	0	0

Source: End of trial service data survey, November 1999.

Note: (a)ABS Census 1996, Hornsby Ku-ring-gai (HK) LGAs

Table A6.5a: Hornsby Ku-ring-gai Community-based Agencies Financial Data (estimates) 1996-97

	Total		MOW	NSHNS	Neigh- bour Aid	Home Care Service	Mercy Family Centre	ACAT
	\$	%						
1. Revenue								
Commonwealth & State (HACC)	4 746 769	67	-	1 818 770	44 818	2 215 360	330 821	337 000
Other State funding	1 325 135	19	121 844	265 502	-	-	776 789	161 000
Client fees, co-payments, donations	859 253	12	246 456	-	1 765	463 945	147 087	-
Other	127 737	2	1 762	125 000	-	975	-	-
Total operating budget	7 058 894	100	370 062	2 209 272	46 583	2 680 280	1 254 697	498 000
Other in-kind support				rent	rent			
2. Expenses								
Wages & on-costs	5 675 564	81	81 363	1 964 060	35 663	2 311 647	785 431	497 400
Expenses - non-wages	1 308 534	19	-	245 212	7 940	305 155	434 042	19 000
Total expenses	6 984 098	100	378 548	2 209 272	43 603	2 616 802	1 219 473	516 400

Source: Baseline service data survey, December 1997.

Table A6.5b: Hornsby Ku-ring-gai Community-based Agencies Financial Data (estimates) 1998-99

	Total		MOW ^(a)	NSHNS	Neigh- bour Aid	Home Care Service ^(b)	Mercy Family Centre	ACAT
	\$	%						
1. Revenue								
Commonwealth & State (HACC)	3 745 066	49	-	2 392 268	46 400	-	953 648	352 750
Other State funding	2 769 677	36	-	685 811	-	-	1 870 340	213 526
Client fees, co-payments, donations	1 094 423	14	-	-	2 050	-	1 092 373	-
Other	24 900	0	-	-	-	-	24 900	-
Total operating budget	7 609 166	100	-	3 078 079	48 450	-	3 916 361	566 276
Other in-kind support	-	-	-	-	rent	-	24 900	-
2. Expenses								
Wages & on-costs	6 039 007	80	-	3 003 344	40 296	-	2 506 471	488 896
Expenses - non-wages	1 517 035	20	-	74 235	4 030	-	1 361 390	77 380
Total expenses	7 556 542	100	-	3 078 079	44 326	-	3 867 861	566 276

Source: End of trial service data survey, November 1999.

Notes (a)Data for this service are not available.

(b)Comparison of data is not possible as Hornsby Home Care Service amalgamated with the Ryde Home Care Service during the trial period.

**Table A6.6a: Hornsby Ku-ring-gai Community-based Agencies Staff Profile
(estimates) 1996-97**

	Total	Average/ per cent	MOW	NSHNS	Neigh- bour Aid	Home Care Service	Mercy Family Centre	ACAT
1. Number of staff	n	Average	n	n	n	n	n	n
Paid full-time staff	56	9	1	38	0	5	5	7
Paid part-time staff	176	29	2	12	2	93	61	6
Volunteers	239	80	100	-	75	-	64	-
2. Staff hours per week								
Paid full-time staff	2117	353	40	1444	0	175	190	268
Paid part-time staff	3118	520	35	188	40	1925	831	99
Volunteers	490	163	300	-	165	-	25	-
3. Paid staff tasks		Average %	%	%	%	%	%	%
Direct care		47	50	65	-	77	43	-
Organising care		28	25	15	60	10	30	-
Administration and management		17	25	15	30	3	10	-
Travel, training & other		8	0	5	10	10	17	-
4. Volunteer tasks								
Direct care		85	100	-	75	-	80	-
Organising care		0	0	-	0	-	0	-
Administration and management		7	0	-	20	-	0	-
Travel, training & other		8	0	-	5	-	20	-

Source: Baseline service data survey, December 1997.

**Table A6.6b: Hornsby Ku-ring-gai Community-based Agencies Staff Profile
(estimates) 1998-99**

	Total	Average/ per cent	MOW	NSHNS	Neigh- bour Aid	Home Care Service	Mercy Family Centre	ACAT
1. Number of staff		Average						
Paid full-time staff	63	13	2	34	0	5	12	11
Paid part-time staff	334	67	0	13	2	195	113	13
Volunteers	358	72	297	0	75	-	61	-
2. Staff hours per week								
Paid full-time staff	2251	450	76	1292	-	175	456	442
Paid part-time staff	5932	1483	0	211	35	3898	1808	226
Volunteers	241	48	100	0	165	-	141	-
3. Paid staff tasks		Average %	%	%	%	%	%	%
Direct care		55	50	65	55	61	60	50
Organising care		8	0	15	0	10	12	10
Administration and management		20	50	15	35	8	10	10
Travel, training & other		15	0	5	10	21	8	30
4. Volunteer tasks								
Direct care		75	60	0	75	-	90	-
Organising care		3	0	0	0	-	5	-
Administration and management		0	0	0	20	-	0	-
Travel, training & other		23	40	0	5	-	5	-

Source: End of trial service data survey, November 1999.

Table A6.7a: Estimated Duration of Service Provision for Current Clients, December 1997

	Average	MOW	NSHNS	Neigh- bour Aid	Home Care Service	Mercy Family Centre	ACAT	HKHCHS ^(a) Inpatient	HKHCHS ^(a) Non Inpatient
	Percentages								
Single visit or event	13	-	9	3	-	-	-	55	35
Less than 2 weeks	8	5	12	2	-	-	25	10	10
2 weeks to <1month	10	15	12	-	-	15	-	10	25
1 to 3 months	19	15	35	10	2	5	60	10	15
Over 3 to 6 months	9	15	17	-	13	10	-	10	5
Over 6 months	42	50	15	85	85	70	15	5	10
	100	100	100	100	100	100	100	100	100

Source: Baseline service data survey, December 1997.

Note: (a)Hornsby Ku-ring-gai Hospital and Community Health Services; excluding ACAT.

Table A6.7b: Estimated Duration of Service Provision for Current Clients, November 1999

	Average	MOW	NSHNS	Neigh- bour Aid	Home Care Service	Mercy Family Centre	ACAT	HKHCHS ^(a) Inpatient	HKHCHS ^(a) Non Inpatient
	Percentages								
Single visit or event	5	0	-	3	0	0	20		
Less than 2 weeks	8	5	-	0	0	0	25		
2 weeks to <1month	3	0	-	0	0	1	10		
1 to 3 months	6	0	-	7	2	2	20		
Over 3 to 6 months	7	10	-	0	0	4	15		
Over 6 months	71	85	-	90	98	93	10		
	100	100	100	100	100	100	100		

Source: End of trial service data survey, November 1999.

Note: (a) Data unavailable.

Table A6.8a: Size and Length of Waiting Lists (percentage, weeks), December 1997

	Home Care Service	Mercy Family Centre	Aged Care Assessment Team	HKHCHS Inpatient	HKHCHS Non Inpatient
Average no. on waiting list over the last 4 weeks	60	7	-	560	500
% Waiting less 1 week	-	-	-	10	5
% Waiting 1 to < 4 weeks	-	71	-	15	30
% Waiting 4 to < 12 weeks	40	29	-	50	50
% Waiting 12 weeks or more	60	-	-	25	15
	100	100	100	100	100

Source: Baseline service data survey, December 1997.

Table A6.8b: Size and Length of Waiting Lists (percentage, weeks), November 1999

	Home Care Service	Mercy Family Centre	Aged Care Assessment Team	HKHCHS ^(a) Inpatient	HKHCHS ^(a) Non Inpatient
Average no. on waiting list over the last 4 weeks	630	100	50		
% Waiting less 1 week	0	2	46		
% Waiting 1 to < 4 weeks	0	1	30		
% Waiting 4 to < 12 weeks	0	17	24		
% Waiting 12 weeks or more	100	80	0		
	100	100	100		

Source: End of trial service data survey, November 1999.

Note: (a) Data unavailable.

Table A6.9: Hornsby & Ku-ring-gai Hospital & Community Health Services Client Profile (estimates) 1996-97

		Total	Inpatient	Non Inpatient ^(a)
1. Number of clients				
Clients receiving help		48 849	17 249	31 600
Referrals		26 500	8 500	18 000
Referrals as a percentage of clients		54	49	57
Clients in a typical week		980	330	650
2. Client demographics				
	HK general population ^(b)	Average (per cent)		
% clients over 65 years	14	33	35	30
% clients women	52	60	57	62
% clients NESB	15	5	4	5
% clients ATSI	0	0	0	0

Source: Baseline service data survey, December 1997.

Notes: (a) Except ACAT & MOW services; included with community-based services in Table A6.4.

(b) ABS Census 1996, Hornsby Ku-ring-gai LGAs.

Table A6.10: Hornsby & Ku-ring-gai Hospital & Community Health Services Staff Profile (estimates) 1996-97

	Total staff	Staff hours per week
1. Staff numbers		
Paid full-time staff	700	26 000
Paid part-time staff	360	9 000
Volunteers	500	300
2. Staff tasks (% time spent)		
	Paid staff	Volunteers
Direct care	35	60
Organising care	25	10
Administration and management	20	10
Travel, training & other	20	20

Source: Baseline service data survey, December 1997.

Notes: Excludes ACAT & MOW; included with community-based services in Tables A6.4a and b.

Table A6.11a: Hospital Separations for Residents Aged 65 years and over, Hornsby Ku-ring-gai, 1997 and 1999

Hospital	Separations				Resident characteristics of inpatient clients								
	Multi-day n	Day only n	Total n	%	English speaking n %		NESB n %		Male n %		Female n %		
1997													
Private	49 636	7 697	13 677	56.2	13 493	58.5	184	14.1	5 712	52.7	7 961	59.0	
Hornsby Ku-ring-gai	33 694	1 184	4 860	20.0	4 676	20.3	184	14.1	1 898	17.5	2 962	21.9	
Royal North Shore	8 166	1 459	2 548	10.5	1 749	7.6	799	61.4	1 362	12.6	1 186	8.8	
Concord Repatriation	2 211	929	1 197	4.9	1 165	5.1	32	2.5	875	8.1	322	2.4	
Ryde	3 124	100	470	1.9	461	2.0	9	0.7	199	1.8	271	2.0	
Neringah Home of Peace	9 046	10	444	1.8	431	1.9	13	1.0	176	1.6	268	2.0	
Lady Davidson	5 003	3	232	1.0	231	1.0	1	0.1	139	1.3	93	0.7	
Westmead	876	99	230	0.9	212	0.9	18	1.4	149	1.4	81	0.6	
Royal Prince Alfred	1 033	61	203	0.8	176	0.8	27	2.1	107	1.0	96	0.7	
Sydney Hospital	297	21	106	0.4	91	0.4	15	1.2	43	0.4	63	0.5	
ALL	116 460	11 680	24 353	100.0	23 051	94.7	1302	5.3	10 849	44.5	13 500	55.4	
1999													
Private	63 153	9 070	16 182	62.1	15 751	60.4	431	1.7	6 994	26.8	9 188	35.2	
Hornsby Ku-ring-gai	33 212	1 334	4 711	18.1	4 546	17.4	165	0.6	1 977	7.6	2 734	10.5	
Royal North Shore	7 515	1 798	2 819	10.8	1 999	7.7	820	3.1	1 344	5.2	1 475	5.7	
Concord Repatriation	1 744	507	717	2.8	682	2.6	35	0.1	529	2.0	188	0.7	
Ryde	2 347	116	408	1.6	387	1.5	21	0.1	163	0.6	245	0.9	
Neringah Home of Peace	3 297	9	215	0.8	205	0.8	10	0.0	103	0.4	112	0.4	
Lady Davidson	-	-	-	-	-	-	-	-	-	-	-	-	
Westmead	1 537	145	305	1.2	278	1.1	27	0.1	167	0.6	138	0.5	
Royal Prince Alfred	993	86	221	0.8	205	0.8	16	0.1	46	0.2	45	0.2	
Sydney Hospital	242	37	91	0.3	74	0.3	17	0.1	46	0.2	45	0.2	
All	118 901	13 222	26 071	100.0	24 492	93.9	1 579	6.1	11 614	44.5	14 457	55.5	

Source: Northern Sydney Area Health Service (NSAHS) June 1998 and February 2000.

Note: The data set for 1999 is incomplete. Data for some private hospitals were not available at the time of compilation.

Table A6.11b: Hospital Separations for Residents Aged 65 years and over, Ryde Hunters Hill, 1997 and 1999

Hospital	Separations				Resident characteristics of inpatient clients							
	Multi day n	Day only n	Total n	%	English speaking		NESB		Male		Female	
					n	%	n	%	n	%	n	%
1997												
Private	16 600	1 498	3 435	28.6	3 300	29.8	135	14.2	1 541	28.4	1 890	28.6
Ryde	20 518	624	3 008	25.0	2 911	26.3	97	10.2	1 221	22.5	1 787	27.1
Concord Repatriation	8 354	1 452	2 494	20.7	2 225	20.1	269	28.3	1 382	25.5	1 112	16.9
Royal North Shore	5 618	1 193	1 884	15.7	1 570	14.2	314	33.1	710	13.1	1 174	17.8
Royal Prince Alfred	1 340	66	242	2.0	205	1.9	37	3.9	129	2.4	113	1.7
CBJD	6 591	0	205	1.7	178	1.6	27	2.8	65	1.2	140	2.1
Hornsby Ku-ring-gai	576	38	97	0.8	85	0.8	12	1.3	43	0.8	54	0.8
Greenwich Home of Peace	2 107	2	90	0.7	82	0.7	8	0.8	34	0.6	56	0.8
Lady Davidson	1 913	0	87	0.7	87	0.8	0	0.0	59	1.1	28	0.4
Sydney Hospital	221	21	78	0.6	62	0.6	16	1.7	33	0.6	45	0.7
ALL	79 209	5 016	12 020	100.0	11 070	92.1	950	7.9	5 419	45.1	6 597	54.9
1999												
Private	13 798	2 252	3 973	29.7	3 707	27.7	266	2.0	13.9	1875	2 116	15.8
Ryde	2 347	116	408	3.0	387	2.9	21	0.2	163	1.2	245	1.8
Concord Repatriation	675	91	187	1.4	2 142	16.0	365	2.7	1 546	11.6	961	7.2
Royal North Shore	7 515	1 798	2 819	21.5	1 999	14.9	820	6.1	1 344	10.0	1 475	11.0
Royal Prince Alfred	993	86	221	1.7	205	1.5	16	0.1	121	0.9	100	0.7
CBJD	-	-	-	-	-	-	-	-	-	-	-	-
Hornsby Ku-ring-gai	33 212	1 334	4 711	35.2								
Greenwich Home of Peace	1 201	4	54	0.4	52	0.4	2	0.0	14	0.1	40	0.3
Lady Davidson	-	-	-	-	-	-	-	-	-	-	-	-
Sydney Hospital	242	37	91	0.7	74	0.6	17	0.1	46	0.3	45	0.3
All	77 917	6 525	13 378	100.0	11 975	89.5	1 403	10.5	6 573	49.1	6 805	50.9

Source: Northern Sydney Area Health Service (NSAHS) June 1998 and February 2000.

Note: The data set for 1999 is incomplete. Data for some private hospitals were not available at the time of compilation.

Table A6.12a: HACC Services in the Intervention and Control Areas, November 1997

	Hornsby Ku-ring-gai		Ryde Hunters Hill	
	persons assisted	hours/meals	persons assisted	hours/meals
Total	2 786	27 398	3 094	19 116
Total home help	549	3 111	993	3 525
- housekeeping	301	-	705	-
- shopping	139	-	69	-
- social support	255	-	250	-
- linen/laundry	31	-	-	-
Personal care	102	1 965	129	1 773
Home nursing	607	3 129	411	1 673
Paramedical services	105	108	92	46
Respite care	139	1 867	199	2 126
Centre day care services	155	4 100	145	3 673
Total food services	687	-	602	-
- home delivered meals	585	10 615	290	5 018
- centre meals	129	599	275	646
- other food services	3	15	54	172
Total home maintenance and modification	171	1 138	113	-
- home maintenance	164	-	81	-
- home modification	7	-	32	-
Transport services	667	-	626	-
Other	248	711	192	464

Source: ADD Area Reports by LGA, November 1997.

Table A6.12b: HACC Services in the Intervention and Control Areas May 1999

	Hornsby Ku-ring-gai		Ryde Hunters Hill	
	persons assisted	hours/meals	persons assisted	hours/meals
Total	3 387	29 936	2 806	19 380
Total home help	931	4 747	980	3 056
- housekeeping	691	-	694	-
- shopping	136	-	87	-
- social support	285	-	209	-
- linen/laundry	34	-	22	16
Personal care	483	4 492	138	2 105
Home nursing	423	1 475	338	1 260
Paramedical services	58	115	14	261
Respite care	164	2 268	169	1 461
Centre day care services	218	3 993	186	3 909
Total food services	797	-	529	-
- home delivered meals	632	10 164	295	5 726
- centre meals	164	1 020	236	754
- other food services	1	7	36	86
Total home maintenance and modification	196	1 343	80	145
- home maintenance	159	-	52	-
- home modification	37	-	28	-
Transport services	679	-	662	-
Other	96	312	249	601

Source: ADD Area Reports by LGA, May 1999.

Note: End of Trial Data (November 1999) were not available at publication.

Table A6.13: Summary of Demographic Information of GPs, 1997 and 1999

Demographic information	1997 (n=197)		1999 (n=210)	
Sex	Male	55%	Male	50%
	Female	45%	Female	50%
Year of graduation	Earliest	1947	Earliest	1928
	Median	1978	Median	1978
	Latest	1992	Latest	1998
Years practising as a GP	Least	1	Least	1
	Median	15	Median	15
	Most	50	Most	50
Years practising in Hornsby Ku-ring-gai	Least	1	Least	1
	Median	10	Median	10
	Most	49	Most	49
Estimated percentage of patients aged 65 or over	0-5	10	0-5	10
	6-10	20	6-10	20
	11-20	22	11-20	22
	21-30	21	21-30	21
	31-50	19	31-50	19
	51-80	9	51-80	9

3. Comparative Consultation and Test Ordering by GPs

In the June 1997 quarter, GPs who had patients in Linked Care, had a higher number of patient contacts than those who had no patients in Linked Care. This was apparent for both the GPs in the intervention and control areas (Table A6.14).

The average number of patient contacts decreased for GPs in the intervention area (whether or not they had patients in the control) except for GPs who were CCs (the number of GPs who were CCs was small reducing from 82 in 1998 to 34 in 1999). There was no significant change for GPs in the control area or all GPs in NSW over the period.

Table A6.14: Average Consultations per GP in the Quarter, Hornsby Ku-ring-gai and Ryde Hunters Hill, 1997 to 1999

	June 1997	June 1998	June 1999
Intervention area			
Care coordinator GP	1236	1206	1244
Non CC with patients in trial	1386	1354	1233
No patients in trial	1107	1085	1003
Control area			
Patients in trial	1409	1293	1359
No patients in trial	1121	1263	1324
Total NSW	1374	1334	1333

GPs with patients in Linked Care in the intervention area tended to have more patient contacts than those with no patients in Linked Care (Table A6.15). Intervention area GPs

with patients in Linked Care who were not CCs and those with no patients in Linked Care tended to have fewer contacts in 1999 than in 1997 whereas this did not change for CCs.

Table A6.15: GPs with less than 1000 Patient Contacts per Quarter, Hornsby Ku-ring-gai and Ryde Hunters Hill, 1997 to 1999

	June 1997	June 1998	June 1999
Intervention area			
Care coordinator GP	35	38	32
Non-CC with patients in trial	33	36	40
No patients in trial	51	53	57
Control area			
Patients in trial	27	34	34
No patients in trial	54	44	49

At baseline, GPs who had patients in Linked Care (in both intervention and control areas) had lower rates of ordering imaging than those who did not have patients in Linked Care or who were CCs (Table A6.16). Over the three years the rate of ordering increased for GPs in the intervention area (except for CCs), for those with patients in Linked Care in the control area and for all GPs in NSW. The only group whose rate of ordering decreased were GPs with no patients in Linked Care in the control areas.

Table A6.16: Rate of Imaging Ordered in Quarter per 100 Patient Contacts, Hornsby Ku-ring-gai and Ryde Hunters Hill, 1997 to 1999

	June 1997	June 1998	June 1999
Intervention area			
Care coordinator GP	7.0	6.9	6.8
Non-CC with patients in trial	6.0	6.4	7.1
No patients in trial	7.0	7.1	7.6
Control area			
Patients in trial	6.1	6.3	7.0
No patients in trial	7.2	7.4	6.2
Total NSW	7.1	7.6	7.8

In the June 1999 quarter, GPs in the control area with no patients in Linked Care had lower rates of ordering CT scans and Xrays of the shoulders and pelvis than other groups. GPs in the intervention area with patients in Linked Care had higher rates of ordering CT scans than those in the control area. Those in the intervention area with no patients in Linked Care had higher rates of ordering ultrasound and Xrays of the extremities.

There appears to have been an increase in imaging ordering by GPs in the intervention area and those with patients in Linked Care in the control area (Table A6.16). In the intervention

areas this appears to have been largely due to increased rates of ordering ultrasound, examinations, CT scans and Xrays of the extremities (unpublished data).

Table A6.17: Rate of Pathology Ordered in Quarter per 100 Patient Contacts

	June 1997	June 1998	June 1999
Intervention area			
Care coordinator GP	45.7	46.0	46.1
Non CC with patients in trial	40.9	41.2	45.2
No patients in trial	39.3	40.2	43.3
Control area			
Patients in trial	39.9	43.1	42.7
No patients in trial	36.1	35.1	34.6
Total NSW	37.7	38.5	39.1

In June 1997 GPs who were CCs had higher and GPs in the control areas with no patients in trial had lower rates of pathology test ordering respectively than the other groups (Table A6.17).

Rates for GPs in the intervention area (except care coordinators who were already higher) for GPs in the control areas with patients in Linked Care, and NSW GPs as a whole, increased over the three years. The greatest increase was for GPs with patients in Linked Care who were not care coordinators. Only for GPs in the control area with no patients in Linked Care did rates decrease.

In the June 1999 quarter, rates of ordering chemistry tests were higher for GPs in the intervention area with patients in Linked Care and lower for GPs in the control areas with no patients in Linked Care. Rates of microbiological and cytological tests were higher for GPs in the intervention area with no patients in Linked Care.

Pathology test ordering rates increased for all groups except for GPs in the control area with no patients in Linked Care with the greatest increase being for GPs in the intervention area with patients in Linked Care. This appears largely due to increased rates of chemistry ordering and to a lesser extent rates of microbiological and cytological tests. The reasons for this are unclear but may be partially explained by increasing screening for diseases and complication (e.g. for diabetes).

The HIC data about the various groups of GPs in the control and intervention areas reveal some differences in both consultations and test ordering patterns, both between the groups and over time.

4. GP Questionnaire Results

The GP questionnaires were carried out with GPs working in the Hornsby Ku-ring-gai area, the first between December 1997 and March 1998 and the second between November 1999 and January 2000. They were sent to all GPs on the list maintained by the Division of General Practice at the time of the questionnaire and achieved response rates of 62 and 57.7 per cent respectively. The main findings of the questionnaires are as follows:

- ? the overwhelming majority of GPs were aware of the trial;
- ? most GPs had only a few patients in the trial - the median number was two. Just over a third of GPs reported acting as care coordinators and the vast majority of these had done this for only one or two patients;
- ? few GPs reported that the Trial had caused any problems for their patients;
- ? a minority of GPs reported difficulties in referring patients to, or communicating with, other services. More reported difficulties with community services than with nursing and allied health services, and fewest with specialists. The level of difficulties did not change significantly through the trial;
- ? almost all GPs reported that their patients saw them as coordinating their clinical care, but significantly fewer thought this applied to community care. This did not change through the trial;
- ? GPs were generally satisfied with the quality of care that they could provide and believed that they were able to act as effective advocates for their patients. These attitudes did not change through the Trial.
- ? in the first questionnaire most GPs found organising and coordinating care satisfying but thought that they were not adequately remunerated for it, while more than a third thought it took too much time. In the second questionnaire more GPs thought they were adequately remunerated for coordinating care but fewer found it satisfying;
- ? in both questionnaires the largest proportion of GPs was non-committal about the likely balance of benefits and disadvantages of the trial. However by the end of the trial significantly more thought that the trials would not, on balance, benefit GPs; and
- ? although there were some favourable remarks, the main thrust of GPs' comments was that they found the trial added little to the care they normally provided, and involved too much time and paperwork.

Table A6.18: Ease of Referral to Selected Types of Service - Percentage of GPs Agreeing that Referral is Easy, 1997 and 1999

Service type	Strength of agreement	1997	1999
		Percentages	
Specialist services (n = 203 (1997) and 213 (1999))	agree/strongly agree	72.4	69.0
	neutral	20.2	18.8
	disagree/strongly disagree	7.4	12.2
Nursing & allied health services (n = 202 (1997) and 213 (1999))	agree/strongly agree	43.6	49.8
	neutral	34.2	32.2
	disagree/strongly disagree	22.3	17.4
Community services (n = 203 (1997) and 211 (1999))	agree/strongly agree	34.5	30.8
	neutral	33.5	38.4
	disagree/strongly disagree	32.0	30.8

Table A6.19: : Percentage of GPs Agreeing that Communication with Selected Types of Service is Satisfactory, 1997 and 1999

Service type	Strength of agreement	1997	1999
		Percentages	
Specialist services (n = 203 (1997) and 213 (1999))	agree/strongly agree	75.7	73.7
	neutral	17.3	21.6
	disagree/strongly disagree	7.0	4.7
Nursing & allied health services (n=202 (1997) and 213 (1999))	agree/strongly agree	36.5	45.1
	neutral	34.5	34.7
	disagree/strongly disagree	29.0	20.2
Community services (n=203 (1997) and 211 (1999))	agree/strongly agree	27.7	30.8
	neutral	34.7	38.4
	disagree/strongly disagree	37.6	30.8

Table A6.20: Percentage of GPs Agreeing that Patients See them Coordinating their Clinical and Community Care, 1997 and 1999

Type of care	Strength of agreement	1997	1999
		Percentages	
Clinical (n=201 (1997) and 211(1999))	agree/strongly agree	83.1	81.0
	neutral	9.5	11.8
	disagree/strongly disagree	7.5	7.1
Community (n=201 (1997) and 211 (1999))	agree/strongly agree	49.3	45.5
	neutral	32.8	35.5
	disagree/strongly disagree	17.9	18.0

Table A6.21: GP Satisfaction with Aspects of Providing Care for Patients with Complex Care Needs, 1997 and 1999

Aspect of providing care	Strength of agreement	1997	1999
		%	%
Organising care takes too much time (n=201 (1997) and 212 (1999))	agree/strongly agree	36.8	42.5
	neutral	36.3	31.6
	disagree/strongly disagree	26.9	26.0
Satisfied with quality of care I am able to provide (n=203 (1997) and 212 (1999))	agree/strongly agree	70.9	66.5
	neutral	24.1	26.4
	disagree/strongly disagree	4.9	7.1
Find organising /coordinating care for patients satisfying (n=202 (1997)and 213 (1999))	agree/strongly agree	59.9	48.8
	neutral	26.2	32.4
	disagree/strongly disagree	13.9	18.8
Adequately remunerated for time spent coordinating care (n=199 (1997) and 211 (1999))	agree/strongly agree	4.5	11.3
	neutral	15.1	20.4
	disagree/strongly disagree	80.4	68.3
Able to act as effective advocate for patients (n=202 (1997) and 211 (1999))	agree/strongly agree	58.4	57.4
	neutral	28.2	29.4
	disagree/strongly disagree	13.5	13.2

Table A6.22: Self Reported Levels of Involvement with Patients in the Linked Care Trial for GPs Aware of the Trial, 1997 and 1999

Type of involvement	No. of patients	1997	1999
		Percentages	
Having patients who are involved in Trial (n=174 (1997) and 177 (1999))	None	38.5	26.6
	1	19.5	19.2
	2-4	27.6	37.3
	5-9	12.6	10.2
	10+	1.7	6.8
Acting as care coordinator (n=171 (1997) and 168 (1999))	None	74.9	64.3
	1	9.4	12.5
	2-4	9.4	17.3
	5-9	5.3	4.2
	10+	1.2	1.8
Writing medical plans (n=173 (1997) and 171 (1999))	None	73.4	36.3
	1	9.8	17.0
	2-4	10.4	32.7
	5-9	5.8	9.4
	10+	0.6	4.7
Providing clinical care (only) (n=164 (1997) and 161 (1999))	None	59.8	48.4
	1	12.8	18.0
	2-4	17.7	23.6
	5-9	6.1	5.0
	10+	3.7	5.0

Table A6.23: GPs Aware of the Trial Reporting Problems for Patients Arising from the Trial, 1997 and 1999

Type of problem	GPs reporting a problem	
	Percentages	
	1997	1998
Coordinating care (n=127)	8.7	10.6
Planning medical care (n=122)	2.5	5.6
Providing clinical care (n=125)	3.2	2.8

Table A6.24: GPs Aware of the Trial who Agree that the Benefits of the Trial Outweigh the Disadvantages for Selected Groups, 1997 and 1999

Group who may benefit	Strength of agreement	1997	1999
		% (166)	% (153)
Patients	agree/strongly agree	41.0	31.4
	neutral	47.6	49.0
	disagree/strongly disagree	11.4	19.6
GPs	agree/strongly agree	26.5	14.4
	neutral	53.0	54.2
	disagree/strongly disagree	20.4	31.4