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Evaluation of the Gold Coast hospital avoidance program: first report

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List of Abbreviations

ACAT	Aged Care Assessment Team	GP	General Practitioner
ACEIM	Aged Care Early Intervention and Management	HACC	Home and Community Care
ACT	ACT – Acute Care Team	HAH	Hospital at Home
ACS	Ambulatory Care Sensitive	HAP	Hospital Avoidance Program
AR-DRG	Australian Refined Diagnosis Related Groups	HBCIS	Hospital Based Computer Information System
ATODs	Alcohol, Tobacco and Other Drugs	HEAL	Health Education Activity Lifestyle
ATSI	Aboriginal or Torres Strait Islander	HHL	Home Health Link
CACP	Community Aged Care Packages	HiHT	Hospital in The Home
CALD	Culturally And Linguistically Diverse	HSS	Home Support Services
CARAS	Aged Care and Rehabilitation Service	IPAs	Independent Practitioner Associations
CCT	Continuing Care Team	KPI	Key Performance Indicator
CHIP	Community Hospital Interface Program	KSF	Key Success Factor
CHSD	Centre for Health Service Development	LOS	Length of Stay
CSAS	Community Subacute and Aged Care	MBS	Medical Benefits Schedule
CULT	Clinicians Using Lean Thinking	MDC	Major Diagnostic Category
DRGs	Diagnostic Related Groups	MH	Mental Health
DSS	Decision Support Services	MITT	Mobile Intensive Treatment Team
DSU	Discharge Support Unit	NGOs	Non Government Organisations
EACH	Extended Aged Care in the Home	NUM	Nurse Unit Manager
ED	Emergency Department	PHCS	Primary Health Care Strategy
EDD	Estimated Discharge Date	PHO	Primary Health Organisation
EDDI	Emergency Department Discharge Unit	QAS	Queensland Ambulance Service
EDIS	Emergency Department Information System	RACF	Residential Aged Care Facility
EDS	Electronic Discharge Summary	ROI	Return on Investment
ENT	Ears Nose and Throat	SCT	Subacute Co-Ordination Team
EPAC	Early Pregnancy Assessment Clinic	SAFTE	Sub Acute and Fast Track Elderly
FCW	Family, Women's and Children's	TCAB	Transforming Care At the Bedside
GCHSD	Gold Coast Health Services District	TCP	Transition Care Program
GCH	Gold Coast Hospital	Tc: PAFF	Transforming Care: Patient and Family Focused
GCUH	Gold Coast University Hospital	UPNCS	Universal Post Natal Contact Service

Executive summary

This is the final report on the evaluation of the Gold Coast Hospital Avoidance Program, Home Health Link (HHL). The Gold Coast Health Service District (GCHSD) contracted Home Support Services (HSS) to establish a 'single entry point' rapid response Hospital Avoidance Program (HAP) on a pilot basis. The Hospital Avoidance Program pilot began on 1 July 2008 and is known as HHL.

The purpose of the HHL program has been to improve the performance of health services by addressing a number of key performance indicators (KPIs) specified by Queensland Health. These include reducing:

- emergency department (ED) presentations
- hospital admissions from the ED
- the average length of stay (LOS) for patients
- the readmission of complex patients, and
- the need for ambulance transfers.

In order to understand impacts in a complex and changing environment and given the variety of goals and the range of settings from which referrals can be made, HHL can be thought of as a combination of the following three separate programs:

1. **An ED avoidance program** – the aim is to reduce the number of patients that GPs and community care refer to the ED by providing home-care as an alternative.
2. **A hospital avoidance program** – the aim is to reduce the number of patients who are admitted from the ED into hospital by providing home-based care.
3. **An early discharge program** – the aim is to facilitate the early discharge of patients from hospital through the provision of home-based care.

Services have been provided by HHL as a substitution for hospital care when the service has not otherwise been available, not available quickly enough, and/or was not available at the required intensity.

Our finding is that the HHL program has 'filled a gap' by providing a technically efficient and responsive service, from a private provider based in Adelaide, South Australia. The program has accepted referrals from the initially recommended services / departments including GPs, ED and inpatient services, through the HHL liaison officers and other strategies. In addition, the HHL program has been innovative in identifying additional patient groups and services which could potentially benefit from the program, such as the Queensland Ambulance Service (QAS) and the Gold Coast Surgery Centre.

The project has been energetically delivered with a high degree of commitment and enthusiasm from those supporting this new initiative. It has been supported by a significant majority of those interviewed and this has been matched by a steady rate of referrals across a range of services. At the same time, it has also had its critics who have been vocal about what they perceive to be a poor fit between the program and existing services.

Our overall finding is that programs such as HHL have the potential to be a cost-effective way of delivering services when compared with treating the same patients in hospital. However, this potential is critically dependent on several factors:

- The right patients being selected. Referral of patients who are too sick or too well to benefit has the potential to negatively impact on program effectiveness, including cost effectiveness.

- The program being a good 'fit' with existing services, both in the hospital and in the community.
- Appropriate systems being in place to manage financial and other risks.

The fourth critical factor relates to hospital performance. By definition, a referral to a program such as HHL does not reduce pressure on a hospital if that referral comes from areas of the hospital that are already running at low occupancy rates and that are not under pressure. Likewise, a referral to a program such as HHL does not increase overall system throughput unless another patient occupies the bed that is freed up when a patient is diverted to HHL.

Our finding is that all of these issues have proved to be significant challenges for both the GCHSD and for HHL. Together, they have had a significant impact on the program's overall effectiveness and cost effectiveness during the pilot period.

The actual Return on Investment (ROI) over the last year depends on a number of assumptions that are set out in Section 4.3 (page 27). We modelled three scenarios based on different assumptions to calculate the ROI.

If it is assumed that all patients referred to HHL would otherwise have been admitted to hospital or stayed in hospital longer, our estimate is that the net cost saving is about \$500,000 per annum. This is not a cash saving to the hospital. In some cases, the services that HHL patients avoid were used to treat other patients. In other cases, this would only have been a saving if the ward/unit budget has been reduced in line with the decrease in unit activity resulting from HHL referrals. If no savings at the unit level were made, there was no net saving. Quite the reverse, HHL represented an additional cost.

There is, however, no evidence to suggest that every patient referred to HHL would otherwise have been admitted to hospital or stayed in hospital longer. Quite the reverse, qualitative data provided by clinicians interviewed as part of the evaluation suggest that, in part, the HHL program has been meeting some needs that previously went unmet. We therefore modelled two other scenarios based on different estimates of the amount of hospital care avoided. Under the most conservative of these, the net effect is that the GCHSD spent about \$750,000 more on the program than it saved on hospital costs. The middle estimate, and in our view the most realistic, is that the program has come close to breaking even (a net loss of \$59,000 or 3%).

The other important measure is the impact on hospital beds. Depending on assumptions about the number of hospital days saved, the program has freed up around 7 to 12 beds a day that could be used for other patients. These assumptions are discussed in Section 4.3 (page 27) and the full Return on Investment analysis is in Section 9 (page 77).

Based on these findings, Section 11 of this report sets out five options for the future.

- | | |
|----------|--|
| Option 1 | Do nothing |
| Option 2 | Maintain HHL as is |
| Option 3 | Maintain HHL but refine the operational detail |
| Option 4 | Maintain HHL but focus it more clearly |
| Option 5 | Mainstream |

While we do not recommend either Option 1 or Option 2, it is beyond the scope of this evaluation to recommend a preferred option. This is because the best option for the GCHSD involves consideration of factors that are broader than the future of HHL alone. The best option is the one that has the best fit with the overall strategic and operational directions of the GCHSD both in the lead up to the expanded Robina Hospital and the opening of the new Gold Coast University Hospital and beyond.

1 Introduction

The Centre for Health Service Development (CHSD) was commissioned by Queensland Health to undertake an independent evaluation of the Hospital Avoidance Program (HAP) known as Home Health Link (HHL), which has been implemented on a pilot basis in the Gold Coast Health Service District (GCHSD).

This is the third and final evaluation report. The first report, completed in December 2008, described the program and its context and summarised the implementation and available data for the program. An Interim Report was completed in May 2009. This Interim Report documented changes to the program and its context and the data analysis included a preliminary Return on Investment analysis.

Following the completion of each of these reports, a presentation was made to the GCHSD, in which the interim findings and key issues were discussed. This approach represented the formative and developmental component of the evaluation as it was intended that decision-making within the GCHSD on issues relevant to the implementation of the program and its ongoing sustainability would be informed by the available quantitative and qualitative evidence.

This final report forms the summative component of the evaluation. It includes and expands upon the material covered in the two previous reports.

1.1 Organisation of health services on the Gold Coast

With a population that is ageing and expanding rapidly, the GCHSD has to carefully plan its service development to meet the needs of the community. In advance of opening new facilities and as an alternative to hospital beds, the expansion of community based services through the HHL pilot was seen as an appropriate solution to meet the growing needs of the population.

A new 750 bed Gold Coast University Hospital is planned for 2012 (a \$1.23 billion investment). The District has disseminated a document '*Transforming Gold Coast Health 2009 – 2011: Vision and Direction, Gold Coast Health Service District*', which outlines the why, what and how of the transformation. There are four phases of the transformation program, which is now in the Implementation Phase. An additional 179 beds will also be opened in Robina by 2010 (a \$230 million investment).

However, pending the opening of these additional resources, the district was under considerable pressure and this pressure forms the background to why HHL was introduced. With a recognised bed shortage, the district had been experiencing serious bed block, ambulance ramping, problems with waiting times and bypass. Funded as a pilot program by Queensland Health, HHL was one of several strategies that the district put into place to help it better manage demand during this difficult interim period.

A key component of this evaluation has been to determine how and where HHL fits in with existing services in the GCHSD and these services were expanded and re-configured during the time of the HHL pilot. Prior to the HHL pilot, the GCHSD included the two public hospital campuses at Southport and Robina. A new 63 bed facility at Carrara Health Centre (a \$15 million investment), which provides rehabilitation and aged-care services, opened in May 2008, just weeks before the HHL pilot program began. It initially had eleven beds but, by January 2009, it progressively increased to 63 beds. A new Surgi Centre was also established at around the same time. Like HHL, Carrara and the Surgi Centre were part of the multi-pronged strategy that the district put into place to better manage hospital demand.

1.2 Organisation of the Gold Coast Hospital

A new organisational structure of the hospital was implemented on 1 July 2009. There are now twelve major management units:

Divisions

- Community, Aged Care and Rehabilitation Services (CARAS) modified by transferring out Allied Health and now called Community Subacute and Aged Services (CSAS)
- Corporate Services (renamed to – ‘People and Culture’)
- Emergency, Critical and Support Services (Specialist Outpatients Unit, Medical Imaging, Pharmacy and Pathology) (new).
- Family, Women’s and Children’s (FWC)
- Medicine
- Mental Health and Alcohol, Tobacco and Other Drugs (ATODs)
- Surgical Services (modified by transferring out Critical Care)

Clinical Professional Streams

- Medical Services
- Nursing and Midwifery Services
- Allied Health Services (new)

Departments

- Finance
- Strategic Development

There were also changes to GCHSD boundaries during the pilot. When HHL commenced, the GCHSD covered a geographical area from the State border of NSW to the Pimpama locality in the North and the Beaudesert Shire in the West and had an estimated population of 430,346. As of 1 December 2008, the geographical borders for the GCHSD, and therefore the catchment area for HHL, were expanded.

Because of the change to the boundaries, the catchment population for the program was expanded. As described later in this report, this change had an impact on the way the evaluation could be conducted.

1.3 Hospital demand management programs on the Gold Coast

The aim of the HHL pilot was to increase the organisation’s focus on patients who could safely return home earlier from an inpatient stay or could avoid being admitted into hospital altogether. The assumption was that, if extra services or a different type of service were available, additional efficiencies could be achieved.

There were a number of hospital demand management strategies (programs and projects) that were already operating on the Gold Coast and these are still in place. These are managed within different divisions of the GCHSD. There are also Non-Government Organisations (NGOs) that provide a range of related services. Some new programs and projects have been initiated over the time of the HHL pilot.

In summary form, Table 1 lists hospital demand programs and projects currently operating in the Gold Coast by their funding source (usually a GCHSD Division) classified according to their main

aims. Some programs and projects are hard to classify as they have aims that span more than one category. Programs and projects are listed under headings of three major 'sub-programs' that are used throughout this report to describe the various initiatives:

- ED (Hospital) avoidance programs and projects aim to reduce the number of ED presentations from the general community (e.g. GPs, RACFs and self referrals) by providing alternatives to ED attendance.
- Hospital (Admission) avoidance programs and projects aim to reduce the number of people who are admitted to hospital.
- Early discharge programs and projects aim to reduce length of stay in hospital, which usually consists of discharge planning to facilitate discharge from hospital and the provision of services in the community that provide a substitute for in-hospital care.

Table 1 *GCHSD funded programs by Division and primary aim*

GCHSD Division	ED (Hospital) Avoidance	Admission Avoidance	Early Discharge
CARAS/CSAS	Carrara Health Centre		
CARAS/CSAS	Home Health Link		
CARAS/CSAS	HEAL– Health Education Activity Lifestyle	CHIP - Community Hospital Interface Program	ACEIM- Aged Care Early Intervention and Management
CARAS/CSAS	Palliative Care Service		TCP - Transition Care Program
CARAS/CSAS			
CARAS/CSAS	Adult Community Health Post Acute services		SCT - Subacute Coordination Team
CARAS/CSAS	ACAT- Aged Care Assessment Team		Adult Community Health Post Acute services
CARAS/CSAS			ACAT- Aged Care Assessment Team
Medicine		DSU - Discharge Services Unit & Home Team	
Medicine	ACEIM - Aged Care Early Intervention and Management		
Medicine	Swine Flu Clinics	EDDI - Emergency Department Discharge Unit	
Surgery		Surgi Centre	
FWC	EPAC - Early Pregnancy Assessment Clinic		UPNCS - Universal Post Natal Contact Service
FWC	Maternity Home Visiting Program		Maternity Home Visiting Program
MH & ATODS	MITT - Mobile Intensive Treatment Team		
MH & ATODS	CCT - Continuing Care Team	ACT- Acute Care Team	
GCHSD funded projects		ED patient admission predictive tool	TC:PaFF - Transforming Care: Patient and Family Focused
		Inpatient Capacity Escalation and Management Strategy procedure	EDD - Estimated Discharge Date & Improving Bed Management project
			EDS - Electronic Discharge Summary project
Non GCHSD funded programs / services	Non-Government Organisations (NGOs)		
	GPs (Division of General Practice)		
	Gold Coast Primary Care Partnership Council		

The following section provides a brief description of each program or project listed in Table 1 grouped under the three 'sub-program' headings. The projects listed, though not all strictly demand management programs, are part of the Gold Coast service environment that contributes, overall, to strategies for managing demand for hospital-based services.

1.3.1 Hospital avoidance programs and projects

Hospital in the Nursing Home or Aged Care Early Intervention and Management (ACEIM)

This program is targeted towards aged care facility residents who require acute care in the ED or inpatient wards in the GC Hospital. ACEIM delivers acute care to all 60 aged care facilities within the GCHSD in the patient's/resident's own environment as an alternative to hospitalisation. It also assists in arranging the timely transfer of clients, on the acute wards, back to their residential care.

Heal – Health Education Activity Lifestyle

This is the District's Chronic Disease Management Program that targets heart failure, chronic obstructive pulmonary disease, type 2 diabetes and chronic kidney disease. There is a multidisciplinary team which is community based, with acute in reach services. It has key linkages with the Division of General Practice to work collaboratively to better manage clients in the community.

Mobile Intensive Treatment Team (MITT)

The Mobile Intensive Treatment Team (MITT) provides community-based intensive and assertive follow up care for mental health consumers with complex care needs. The level and duration of care is based on individual need.

Continuing Care Team (CCT)

The Continuing Care Teams are based in Ashmore and Palm Beach community clinics, where they provide case management services during business hours for mental health consumers with a range of biological /psychological /social needs. This care is provided for at least six months based on individual need.

Palliative Care Service

The Palliative Care Service has an inpatient unit and a community liaison service, and provides a phone assessment and referral role. It does not deliver palliative care in the home and comprehensive services are provided by NGOs (nursing, allied, nutrition, equipment, bereavement, etc).

Swine Flu Clinic

The Gold Coast opened a swine flu clinic at Robina Hospital which was then subsequently moved to the Gold Coast - Southport hospital. This clinic was part of a strategy to cope with the increase in ED presentations related to flu like symptoms in the general public, operating from end May to end July 2009. From September 2009 the District operated a mass vaccination clinic for staff and clients at most risk of this disease.

Division of General Practice

General Practice Gold Coast is a general practice member-based organisation that supports general practices to improve the health of the Gold Coast population. There are currently around 450 GPs working on the Gold Coast.

Gold Coast Primary Care Partnership Council

Funded by Queensland Health, the Gold Coast Primary Care Partnership Council is a voluntary collaboration between organisations from the government and non government sectors in order to

share information and improve coordination. The partnership is made up of a core group and a network of Advisory Groups and Steering Committees in relation to strategic priorities.

1.3.2 Inpatient admission avoidance programs and projects

Community Hospital Interface Program (CHIP)

Community Hospital Interface Program (CHIP) provides discharge planning and case management services for patients over the age of 70 in the ED. CHIP is available seven days per week, including late shifts Monday to Friday, from 7.30am to 9.30pm. Complex clients are followed up by the CHIP nurse for up to 7 days after discharge from the ED.

A concept brief was submitted for an increase in nursing services to seven days per week and an increase in the allied health hours to 7am to 9pm seven days per week. However, the proposal was not supported due to current budgetary constraints.

Early Pregnancy Assessment Clinic (EPAC)

This program was implemented by the Emergency Department in the Division of Medicine in conjunction with the Family, Women's and Children's Division. It is designed to minimise ED waiting times and facilitate appropriate care for women presenting with obstetric complications or threatened miscarriage in early pregnancy.

Emergency Department Discharge Unit (EDDI)

Emergency Department Discharge Unit (EDDI) provides discharge planning and case management services for patients under the age of 70 in the ED. The service is provided Monday to Friday by one EDDI nurse at each ED, with allied health services provided mainly by ward staff.

A business case has been put forward for funding to increase nursing services to 7am to 9pm seven days per week and to increase the allied health hours to 7am to 9pm seven days per week. However, this has been placed on hold until after the discharge services review that is currently in progress.

Surgi Centre

The Gold Coast Surgery Centre assesses whether medical and social criteria are met before a patient is considered suitable for day surgery and the emphasis is on patient wellbeing and avoidance of complications.

Acute Care Team (ACT)

The Acute Care Team provides intake, triage and acute care including crisis assessment and intervention across the two public emergency departments and the community sector for mental health clients. The services are provided 24 hours / seven days through the emergency departments and from 7am to 10pm in the community during an acute phase of between four to six weeks.

ED patient admission predictive tool

The Southport Hospital emergency department is using this tool for predicting demand for hospital beds to improve the planning and management of patient flow. This tool is being rolled out to other public hospitals in Queensland.

Inpatient Capacity Escalation and Management Strategy procedure document

The Inpatient Capacity Escalation and Management Strategy describes a procedure to be followed by all clinical units when the ED is near or has reached capacity and/or all inpatient beds are fully utilised. It includes a Capacity Alert Checklist (Pre Alert) and a Bed Management Checklist (Response).

1.3.3 Early discharge programs and projects

Discharge Service Unit (DSU), including Home Team

Discharge Service Unit (DSU), including the Home Team, organises the discharge planning of acute medical and surgical patients and provides post-acute services including wound management and parenteral therapy in the patient's home or workplace. It also provides post acute services (wound care and IV therapy) and allied health to ED patients less than 70 years.

Transition Care Program

The Transition Care Program (TCP) is designed to support eligible older people with short term therapy and/or assistance that will help them to recover to their full potential following a hospital stay. TCP provides a package of services that includes low intensity therapy (physiotherapy, occupational therapy, dietetics) as well as nursing support and/or personal care and can be delivered in either a residential or community setting.

Subacute Coordination Team (previously called the Interim Care program)

The Subacute Coordination Team supports patients waiting for a permanent residential aged care placement. It aims to care for patients in the GCHSD inpatient setting and interim residential based beds where possible, to reduce demand on acute beds in the transition into residential aged care.

Adult Community Health Post Acute services

This program supports and provides treatment to patients during the post acute phase following discharge from a public hospital by providing allied health and nursing services. The care is either provided in the home or in one of the three adult community health centres (Helensvale, Bundall and Palm Beach).

Aged Care Assessment Team (ACAT)

The Aged Care Assessment Team assists older people and their carers to decide the type and level of care that best suits their needs when they are no longer able to manage at home without assistance.

Carrara Health Centre

The Carrara Health Centre has 63 beds which supports nursing home type patients plus those who require low intensity rehabilitation, geriatric evaluation and management, and maintenance patients who are medically stable.

Universal Post Natal Contact Service (UPNCS)

Southport Hospital is a pilot site for this initiative in the Gold Coast District. Early perinatal screening is undertaken to provide referral and care pathways for pregnant women who identify substance abuse, mental health and/or psychosocial issues, including domestic violence. The postnatal component offers early support through a variety of services to all clients. These services are to be client driven and may include phone calls, home visiting and referral to Newborn and Family drop-in clinics that are co-located within all Community Child Health centres including Nerang & Coomera.

Maternity Home Visiting Program

The Maternity Home Visiting Program is a midwifery outreach support service provided to women post-labour in their homes. The service is provided seven days per week from 8am to 4pm, within a defined geographical field.

Non Government Organisations (NGOs) operating in the district

NGOs operating in the District are funded under a range of Commonwealth programs. These are mainly aged care programs offering care such as community aged care packages (CACP), extended aged care in the home (EACH) and dementia EACH. Bluecare, Spiritus and Ozcare are the main providers of nursing services on the Queensland South Coast, with a further 45 HACC funded agencies providing a range of service types.

Community aged care packages (CACP), extended aged care in the home (EACH) and dementia EACH, are provided by twenty different agencies funded for these programs. There are numerous private agencies also providing a range of in home services across the Gold Coast.

Apart from packaged care and case management, the main funding is Home and Community Care (HACC). HACC services, including community nursing and other community support services, are targeted towards persons living in the community who, in the absence of the program, are at risk of premature or inappropriate long term residential care.

While not strictly aimed at hospital demand management, these community care and support programs target frail older people and younger people with moderate to severe disabilities and provide a range of basic maintenance and support services to help them to live independently at home and in the community.

Transforming Care: PaFF (Patient and Family Focused) project

The *Transforming Care: PaFF (Patient and Family Focused)* project is one of three projects listed within Initiative 2: Excellent Customer Service Transforming Gold Coast Health 2009 – 2011. The project aims to improve the customer service provided throughout clinical and non clinical processes. This will be achieved by building a team to develop a model of care for GCHSD facilities starting with four wards in the Gold Coast Hospital (6B, 7B, 8B and 8C). The project commenced in May 2009 for a period of 12 months to May 2010, with plans to roll out across the District including the GCH, GCUH in 2012, Robina Hospital Extension and the Carrara facility, following the final pilot program evaluation. The project is managed by the Division of People and Culture.

Estimated Discharge Date & Improving Bed Management project

Estimated Discharge Date & Improving Bed Management project was implemented to improve Estimated Discharge Date (EDD) awareness and documentation, discharge process and procedures, and forward visibility of predicted bed availability and Length of Stay (LOS).

This pilot project has been completed and the reported outcomes included an increased number of patients with a current EDD and a reduction in access block. This project was managed by the Clinicians Using Lean Thinking (CULT) under the Division of Medical Services (CULT is now managed under the Division of People and Culture).

Electronic Discharge Summary (EDS) project

The Electronic Discharge Summary (EDS) project was a Queensland Health initiative. It was sponsored by the Division of Medicine and District Technology Services, in collaboration with the Gold Coast Division of General Practice that aimed to improve the timeliness, legibility and quality of information provided to a patient's treating GP post discharge.

1.4 Discharge planning in the GCHSD

The GCHSD has a number of demand management services that have a discharge planning role. In the acute hospital, DSU and allied health staff have the main discharge planning role, which includes assessing clients' needs for discharge and organising discharge care. Some divisions or services have a specific discharge planning position, such as the Universal Post Natal Contact Service.

In the emergency departments, discharge planning is primarily undertaken by CHIP, EDDI and the Acute Care team (part of the mental health service).

A new project, the Discharge Services review, was recently initiated. As part of the GCHSD Transformation Program, the Transformation Steering committee identified discharge services as an area of focus. Since then, a Discharge Transformation Team has been established, with members from GCHSD plus a consumer, GP and NGO representatives that reports to the Chief of Operations. There are a number of outcomes to be achieved by the Discharge Transformation Team including:

- Mapping of current services responsible for discharge planning
- Formulation of a clear definition of discharge planning and who is responsible for this function within the District
- Formulation of options/recommendations regarding a range of issues including which roles are required within the District to support optimal discharge functions and identification of current impediments and challenges to effective discharge planning

There are clear discharge planning policy and procedures for inpatients and ED patients, including the Discharge Inpatients Policy. The current 'Patient Discharges' procedure (GCDPRO0355v5) may be reviewed following the outcome of the Discharge Services Review project which is part of the transformation process.

1.5 Recognised gaps in GCHSD

While there was a range of hospital avoidance or discharge planning services available in the Gold Coast at the time HHL was implemented, there was reportedly a gap in the responsiveness, flexibility and range of services. For example, the majority of services only operated within standard business hours.

The key source of support for older people to remain living in the community is the HACC program. However, there are a number of policy directives that limit the ability of HACC services to be responsive to the needs of people who may be at risk of premature admission to hospital and/or require support post-discharge.

Under national HACC policy guidelines, post-acute care is a specific exclusion:

"...HACC is responsible for providing basic maintenance and support services to eligible clients who need post-acute care, while health services are responsible for providing the specialist component of post-acute care". (Commonwealth of Australia (2007) National HACC Program Guidelines, page 9)

However, the terms 'post-acute' and 'specialist component' are interpreted somewhat differently in different jurisdictions. The Queensland policy is that it is the responsibility of the referring Health Service District to provide time-limited specialist post acute care (allied health or nursing treatment related to the hospital stay) to an existing HACC client. Under the Queensland policy, the time-frame of the post acute care period is determined by each Health Service District, on a case by case basis, based on clinical need.

The Queensland policy further states that existing HACC clients will typically have their usual HACC support and maintenance services reinstated as soon as they return home from hospital after an acute illness, without having to be reassessed for eligibility. However, if the client's long term needs have changed as a result of the acute episode, the HACC service provider is to conduct a review of their need for HACC services. People who have not previously needed HACC services prior to their acute episode are assessed by a HACC service provider against HACC standard eligibility criteria and prioritised for services on the basis of relative need.

There is a perception by some on the Gold Coast that HACC services are not formally permitted to provide services in the two weeks post-discharge, unless the patient is a pre-existing client. This is not correct. HACC basic maintenance and support services (but not time-limited specialist care) can be provided to eligible HACC clients (subject to priority of access) as soon as the client returns home. There was, and still is, a perception within the GCHSD (a perception that was not subsequently supported by the evidence from HACC providers) that many HACC services had long waiting lists. The introduction of HHL sought to address these perceived gaps in service provision.

For those ineligible for HACC (people with no disabilities), there were constraints on accessing support services to facilitate early discharge from hospital. For many, the only option was to contract private support services if they wanted to be cared for in the community. Child and maternity services were available in the community, however were time-limited and confined geographically to only part of the Gold Coast region.

2 The Home Health Link program

2.1 Overview of Home Health Link

The Gold Coast Health Service District (GCHSD) contracted Home Support Services (HSS) to establish a 'single entry point' hospital avoidance pilot program, aiming to provide rapid response, short-term and goal orientated packages of home care as an alternative to routine hospital care.

This program, called Home Health Link (HHL) on the Gold Coast, is based on a similar service that has been operating in Adelaide, South Australia since 2002. Following a competitive tendering process, HSS from Adelaide was selected as the successful tenderer for the Gold Coast Hospital Avoidance Pilot Program.

The program began in July 2008 and the original plan was that it would operate as a pilot program for a period of eighteen months (until 31 December 2009). However, the end date has been extended to March 2010 to give the District sufficient time to review the results of the evaluation and to decide the future of the program.

The Hospital Avoidance Program Service Agreement between Queensland Health (GCHSD) and HSS was signed in June 2008. This agreement includes Program Principles; Program Specifications; Performance Indicators, Performance Measures, Reporting; Funding and Payment; and Form of Client Consent.

Under the contract HHL has specific reporting requirements for a number of performance measures, which are submitted quarterly, with brief monthly progress reports provided to the Steering Committee, who retrospectively monitors service utilisation and costs. The quarterly performance indicators include program responsiveness, quality and safety requirements, demand management (capacity monitoring), service collaboration and financial utilisation.

2.2 Governance of HHL

The governance of HHL is provided by the Gold Coast Health Service District as outlined in the contract. The Director of Medicine is the project clinical lead, with the Executive Directors of Community, Allied, Rehabilitation and Aged Services and Mental Health, Drug and Alcohol as the project co-sponsors.

A full time HAP Project Officer was employed in August 2007 and reports to the Executive Director CARAS who, in turn, reports to the Chief Operations Officer. The original HAP Project Officer was in the position until March 2008 and the current officer commenced in March 2008.

The committee structure governing HHL includes:

- HAP Steering Committee oversees the HHL program and it provides guidance and recommendations to the HAP Project Officer on the scope, key performance indicators.
- HAP Evaluation Subcommittee was established at the start of the program to oversee the development and implementation of the Evaluation Framework for the program and to provide guidance, advice and assistance to the external evaluators. In October 2008 the Evaluation Subcommittee was merged into the Steering Committee, resulting in some membership changes.
- HAP Implementation Subcommittee initially provided advice and guidance on the implementation of the program, and acted as a forum for representatives from the acute and community setting to work with the HAP Project Officer and HHL. In February 2009 it was disbanded. The HAP Project Officer then established meetings with different clinical services across the GCHSD to continue to provide an opportunity to review issues and progress of HHL.
- 'Service user group' meetings are now held with the managers and representatives of the following services at their already established monthly meetings: Medical/Emergency Department, Surgical, Paediatric/Midwifery, Palliative Care, Allied Health and Mental Health.

A HAP project plan was initially developed in September 2007 and has had two updates since then. The current version was developed in May 2008. It includes a communication plan, risk register and issues register. The latter two registers are tabled at the Steering Committee meetings. From April 2008 until February 2009 status reports were developed and distributed to Project Sponsor and Steering Committee members. These reports documented the program's progress primarily by listing the activities completed in the reporting month and those activities planned for the next month.

2.3 Description of the HHL program

HHL was developed to respond to the growing population demands of the GCHSD by providing rapid response home-based packages of care as an alternative to routine hospital care. The program aims to reduce emergency department (ED) presentations, reduce hospital admissions from the ED, facilitate the early discharge of inpatients through the provision of home care services, reduce or avoid the readmission of complex patients, and reduce the need for ambulance transfers.

With this variety of goals and the range of settings from which referrals can be made, HHL can be thought of as a combination of the three separate 'sub-programs', namely:

1. **An ED avoidance program** – the aim is to reduce the number of patients that GPs and community care refer to the ED by providing home-care as an alternative.
2. **A hospital avoidance program** – the aim is to reduce the number of patients who are admitted from the ED into hospital by providing home-based care.
3. **An early discharge program** – the aim is to facilitate the early discharge of patients from hospital through the provision of home-based care.

To achieve these goals, HHL is contracted to provide two basic packages of service:

- **Hospital avoidance care packages**, which are flexible, short-term packages of care that enable a person presenting to a general practice to return home safely without an ED admission. These packages are also targeted towards people who attend an ED to reduce the need for a hospital admission; and,
- **Home supported discharge packages**, involving short-term packages of services that enable the person currently hospitalised to return safely and earlier than would have otherwise been

possible to their place of residence. These packages are primarily targeted towards people who could be discharged safely from hospital if support was available, as well as at those who are at risk of hospital readmission.

The program was required to deliver a rapid-response, short-term service. Because of this, the majority of these packages of care were not to exceed seven days, but could be extended up to 14 days if required as stated in the contract with the provider. The contract states that packages can be extended when patient care is required for longer than 7 days and if the cost is more than the cost of one package.

The target group for the program included permanent or temporary residents in the GCHSD who meet at least one of the following criteria:

- At risk of presenting at the ED,
- At risk of being admitted to hospital,
- Inpatients of a public hospital, who are suitable for an early supported discharge with a level of care that can be managed at home,
- Individuals for whom the provision of home care may reduce the likelihood of readmission.

Services are provided by HHL as a substitution for hospital care when existing services are unable to provide the services necessary in the required timeframe or are not available at the required intensity. When the specific referral sources are considered together with the reason for referring to HHL, there are five populations for this program, which are as follows:

1. Hospital inpatients, including but not limited to post-natal, special care, paediatric and mental health patients
2. Patients presenting to the ED
3. Patients who would otherwise be referred to the ED by their GP, Specialist, QAS or recognised community organisations (eg Southport Watch House etc)
4. Pre-admission patients: home based pre-surgical work up prior to a planned surgery. The aim is to reduce LOS rather than avoid hospital admission
5. Existing patients of the Palliative Care and Mental Health programs. The aim is to top-up existing services for short periods such as in the terminal stage of palliative care or when a mental health patient needs more intensive care in the community to avoid admission. The goal for both these groups of patients is to avoid admission, but the goal for palliative care patients might equally be to delay admission.

Operating as HHL, HSS established a base on the Gold Coast and utilises their HSS call centre based in Adelaide, SA. The HHL program employs staff from the following disciplines: nursing (general, midwifery, paediatrics and mental health), occupational therapy, physiotherapy, and personal care workers. In addition to clinical staff, there are service support and quality assurance/improvement positions. The HSS website (<http://www.homesupportservices.com.au>) gives an overview of the business.

HHL Gold Coast was added to the service that already operates in the Adelaide region. With the call centre in Adelaide already established, HSS only needed some additional staffing and procedural changes to be able to expand into the Gold Coast. HSS has systems in place to ensure that referrals are actioned “rapidly”, operating 24 hours a day and seven days per week (24/7).

The service operates with case coordinators who manage individual patient care. The case coordinators are not only skilled in case coordination but also have a specialist area such as palliative care, mental health, maternity or generalist care.

'On-road' staff have been employed by HSS to work on the Gold Coast HHL program across a range of nursing and allied health disciplines. They are described as 'on-road staff', as they report to the case coordinators from the road after each patient visit, ensuring that the care can be managed in a comprehensive and timely manner. HHL also provides supporting services such as the rapid delivery of equipment, transportation and emergency accommodation.

Since HHL began on 1 July 2008 it has been developing and evolving to meet the requirements of the GCHSD.

Under contract, HSS has specific reporting requirements for a number of performance measures, which are submitted quarterly, with progress reports provided monthly to the Steering Committee, who then retrospectively monitor service utilisation and costs. During the pilot four quarterly reports have been submitted by HSS, with the fifth report due end October 2009 and therefore not included in this evaluation report.

Part way into the program (October 2008) the HHL Gold Coast Team Leader was relocated to the Gold Coast, to be a permanent presence on site, until the end of the pilot program. The HHL Team Leader works closely with the HAP Project Officer on a number of initiatives, including liaising with HACC services at the HACC Forums, the monthly HACC networking breakfast and the quarterly Senior Community Nursing Advisory Group meetings. In addition, the HACC Area Manager is a representative on the HHL Steering Committee.

A HHL Awareness Week was run in the final week of May 2009, with a focus on promoting awareness and understanding of the program, including, for example, a screen saver running on computers across the district, hospital foyer displays, staff quizzes with prizes and ward education presentations. The program reported that this awareness week resulted in an overall increase in staff understanding of the program and its objectives.

2.4 Description of the HHL referral process

The development and implementation of the HHL referral processes was initially the responsibility of the Implementation Subcommittee (until disbanded) and HHL, with approval by the Steering Committee.

Anyone referring to HHL needed to understand that the service provided by HHL must not duplicate existing services. A referral can be made to HHL if there is no other provider who could provide the service, or if the referral is out-of-hours or if there is a delay in the delivery of service from any other provider. The HAP Project Officer tracks each referral.

A HHL Discharge Referral Flow Chart was developed by HHL in consultation with the Steering Committee members and distributed to assist with the referral process (Attachment 1). All inpatient units have a copy of this referral flow chart located in the HHL resource folder. However not all steering committee members were in agreement about this chart. At the May 2009 meeting, a second referral flow chart prepared by DSU was discussed. A lack of agreement regarding the HHL referral process became apparent through this discussion. A meeting to resolve this issue was conducted in June 2009 with the Medicine and Community Nursing Directors, Quality representative, GCHSD Media Manager and Project Officer. It was agreed to continue with the current HHL Discharge Referral Flow Chart during the pilot phase and to review it if and when the program becomes permanent. This issue is discussed further in Section 8.4

There are three referral processes: one to avoid an ED presentation, another to avoid a hospital admission and a third to reduce length of stay. These are described in turn below.

2.4.1 Referring to avoid an ED presentation

To avoid an ED presentation, patients are referred from the community by one of the following: a GP or Specialist, Community Mental Health services, Palliative Care or ACEIM. Patients and carers in the community are not able to refer themselves to HHL, nor are NGO services able to refer to HHL. Either group needs to contact the appropriate GP who can then refer.

Although there is a community health service with a centralised intake system operating for Adult Community Health and Homecare, the Steering Committee chose not to use this existing structure for this program, as it only operates during business hours, Monday to Friday.

HHL targeted three main referral sources by which patients may avoid an ED presentation: General Practice, Queensland Ambulance Service (QAS) and community based health services.

General Practice

From the start of the program, the GP Division Manager was a member of the HHL Steering Committee and a representative on the Implementation Committee.

In August 2008, HHL started visiting GP practices to explain the program and the referral process and distributed a resource kit that included the referral flow chart and referral forms. In addition, a HHL web link was placed on the Division of GP website.

The HHL Gold Coast Team Leader, the HAP Project Officer and the GP Liaison Officer worked together to develop an electronic referral form to make the referral process much easier for GPs. GPs were then able to refer patients to HHL using a secure electronic referral system with the first electronic referral received in February 2009.

HHL continued to communicate to GPs about the program, with articles being published in the GP Newsletter (Division of Gold Coast General Practice) and GP practice visits conducted by the HHL GP liaison team (from August 2008 until February 2009). Since March 2009, the HAP Project Officer reported that all GP practices are aware of the program and have resources requesting GPs to download the electronic referral to their computers. In addition, they report that all GPs who made direct referrals to HHL have been revisited with feedback sought from the GPs regarding the HHL referral process and program. HHL have developed a database that is updated weekly to ensure timely feedback is provided to the GPs referring clients to HHL.

Queensland Ambulance Service (QAS)

Initially, HHL investigated if the Queensland Ambulance Service (QAS) could be a key referral source to avoid an ED presentation. At that time, the ambulance protocols required ambulance officers to transport all 'call outs' to ED. However, there seemed the possibility for QAS to refer to HHL those clients who have no injury, but are at risk of presenting to the ED due to social or fall related problems.

The QAS Area Manager and the QAS Quality Manager became members of the HHL Steering Committee.

The HAP Project Officer, HHL Gold Coast Team Leader and QAS worked together from August 2008 to develop a referral trial for those clients not requiring an ED presentation but who were at risk of presenting in the future due to further falls. Initially the trial was to occur across the three QAS stations with the highest rates of falls. However when the trial commenced in May 2009 it was extended to cover the whole of the Gold Coast. The first referral from QAS was accepted to HHL in April 2009 and, by the end of August 2009, a total of 6 referrals had been made.

The HHL Gold Coast Team Leader and the Project Officer continue to work with QAS to raise awareness and promote the program to QAS road staff on the program with regular meetings and education sessions. Weekly DSS reports on suitable clients taken to the ED by QAS that could

have been directly referred by QAS are being supplied to Gold Coast QAS management staff for review. Ongoing meetings continue.

Community based health services

There are two other existing community services that also have the capacity to avoid presentation to the ED or a hospital admission. These include the Palliative Care Service and the Mental Health Service. These specialist services have an inpatient as well as a community component. HHL can provide services until the NGO services commence and/or they can provide additional services to “top up” care for existing patients and/or provide services “out of scope” of the current services.

HHL also consulted with other recognised organisations to develop specific referral procedures to avoid unnecessary ED presentation, including the Southport Watch House and other Community Mental Health services.

2.4.2 Referring from the ED to avoid a hospital admission

There were established demand management services working in the emergency departments prior to the introduction of HHL (as described in Section 1.3 above).

In addition to the ED itself, HHL targeted two main referral sources by which patients would avoid a hospital admission from the ED: CHIP and EDDI, with a particular focus on falls and back pain.

HHL liaison positions – ED specific

In early 2009 there appeared to be a reduction in the number of referrals from the ED. After discussions between ED and HHL management, it was agreed that HHL liaison staff would have an increased presence in the ED. This occurred by attendance at the weekday and weekend morning handover meetings plus rostering a HHL liaison officer on site in the evening, from 7pm to 9pm, when there are no services to assist with the discharges.

Falls

A recent review of CHIP data identified that a large number of patients over the age of 70 presented to the emergency departments triaged with a “fall” or related injury. It was felt that the program would be able to offer not only the ED, but also QAS, another option for falls or related injuries other than admission to ED or the hospital.

HHL developed a falls specific protocol which included rapid access to an occupational therapist home visit to conduct a comprehensive falls screening assessment, engage nursing or physiotherapy staff as required, and refer on to relevant services, all in the aim of preventing further admissions and call outs.

HHL in collaboration with the Project Officer and DSS developed a process whereby a daily report of all clients over 65 years discharged home from ED following a fall was generated and sent to HHL for phone follow up to determine if a referral was required.

Back pain

The HAP Project Officer and HHL staff in consultation with ED allied health clinicians identified that there was a group of clients with chronic back pain related problems who were admitted for three to five days. These patients were believed to be more suitable for home physiotherapy and medication management by HHL rather than inpatient care.

HHL and ED staff developed a back pain protocol for this referral subgroup which could be tailored to individual need. The HAP Project Officer received a weekly report from DSS on all clients accessing the ED with a back pain related problem, which was provided to key ED staff for the purpose of monitoring the uptake of this protocol and guide education requirements.

2.4.3 Referring to reduce LOS

Prior to HHL being introduced, discharge planning within the surgical and medical divisions relied on the Discharge Services Unit (DSU) for referral to short term or ongoing community services. Mental Health, Maternity and Palliative Care managed their own discharge planning.

The main reported problem with the referral process to community services prior to HHL was the delay in preferred discharge date to actual service commencement, thus resulting in a delayed discharge.

When HHL commenced, referrals were instigated by the DSU, or by individual clinical staff (across all disciplines). All clinical staff were given approval to refer directly to HHL at any time.

HHL established liaison positions to target other referral sources where LOS could be reduced. This included Special Care Nursery, Postnatal and Paediatric wards, Gold Coast Surgery Centre, Elective lower limb arthroplasty repair, Expected Date of Discharge (EDD) project, and blood transfusions in the community.

HLL liaison positions

HHL has worked hard to raise the profile of their service. It has designated liaison staff working in all areas of both hospitals to assist staff to understand the HHL service and assist with identification of eligible clients, including attending ward clinical meetings. HHL reports that the liaison role has been pivotal to the HHL pilot, as these positions have assisted in education about the program, identification of eligible clients and relationship building with the hospital and community stakeholders.

Special Care Nursery, Postnatal and Paediatric wards

From their experience in Adelaide, HSS suggested that the Special Care Nursery, the Postnatal and Paediatric wards might benefit from HHL services. These services had been actively referring clients to the HHL program. It appears that the Steering Committee had not originally conceived that these services would be a central part of the program.

Referrals from these sources were significant until recent times. With the recent introduction of the Universal Post Natal Contact Service, the discharge processes for the postnatal wards were reviewed and changed, and included a discharge planner position. Now clients receive phone contact follow up post discharge and, if it is discovered that the client requires services, then referrals are generated for the Maternity Home Visiting team or community child health centres. A referral is now made to HHL only if these services cannot attend.

Gold Coast Surgery Centre

The HAP Project Officer started working on this initiative at the program's commencement. HHL identified those DRGs for which the length of stay may be reduced if patients were offered a package of care. The intention was to substitute a potential two or three day stay with either a day procedure or overnight stay and a HHL package.

HHL is able to provide services for those at-risk clients. Education has been provided to the booking staff regarding the referral process. Referrals are to be made, on the day prior to or on the day of surgery, for those clients at risk of admission following a procedure. They may be at risk of admission due to lack of home supports, lack of transport, and/or requiring after hours post operative care including technical nursing or allied health assessment and/or care.

HHL and GCHSD staff developed a protocol for specific care provided by HHL during the post operative phase of day surgery laproscopic cholecystectomy clients. The first package of care provided to a day surgery laproscopic cholecystectomy client was in August 2009.

The HAP Project Officer and HHL staff conducted meetings with paediatric consultants and ward staff to identify paediatric clients who could benefit from HHL to facilitate early discharge. Hospital staff identified that access to rapid paediatric community care for post operative procedures, respiratory illnesses and a range of social factors would facilitate earlier than otherwise possible discharge.

Elective lower limb arthroplasty repair (Elective Orthopaedic hip and knee repair and replacement)

Towards the end of 2008, HHL and the HAP Project Officer met with the A/Director Orthopaedics to discuss the possibility of HHL involvement in facilitating early discharges for elective orthopaedic surgery. In October 2008, the HAP Project Officer convened a working group to streamline the elective orthopaedic patient journey and develop workplace guidelines for early discharge of these clients. Workplace guidelines have been developed, which include the HHL protocol as an attachment, and were awaiting sign off by the Executive Operations Team. Client information booklets have also been developed and piloted by this working group. HHL are receiving regular referrals for these clients.

Expected Date of Discharge (EDD) Project

The EDD project commenced on 1 July 2008, but it was not until March 2009 that the need was identified for HHL liaison staff to attend the morning bed management meetings to assist in identifying possible clients for discharge to the program.

Though this project has been completed, the morning bed management meetings still continue with HHL liaison staff attending. However, the discharge services review may result in changes to this process.

Blood transfusions in the community

This was identified as a possible option for clients in residential aged care facilities and the community to prevent unnecessary transport to the Gold Coast Hospital by providing the blood transfusion in the client's residence. Home Support Services have provided a similar service in Adelaide for the last six years.

At the time of this report this process has been placed on hold until the Haematology and Oncology Departments complete their current service reviews.

3 Objectives of the Evaluation and Important Methodological Issues

3.1 Evaluation framework

The evaluation of HHL involved three aspects:

1. *Formative evaluation*: the evaluation process and results were available to be used by the GCHSD to facilitate the ongoing development and improvement of the HAP during the evaluation period.
2. *Summative evaluation*: this, the final evaluation report, contains evaluation findings on the extent to which the HAP has been effective in meeting its goals.
3. *Developmental evaluation*: the evaluation provides an opportunity to increase the evaluation skills of GCHSD staff so that the GCHSD can continue to develop and improve the HAP after the evaluation is over.

Figure 1 outlines the framework that we have adopted to guide our evaluation of HHL. In essence, this framework is an examination of the impact of, and outcomes associated with, HHL on consumers, providers (i.e. GC Hospital staff, NGOs etc) and the system (i.e. structures and processes, networks, relationships).

Figure 1 Summary of the Evaluation Framework for the HAP Program

Level 1 Impact on, and outcomes for, patients/clients	
PROJECT DELIVERY What did you do?	PROJECT IMPACT How did it go?
Describe how HHL was implemented in terms of: <ul style="list-style-type: none"> • Patient uptake • Patient details – demographic, assessment • Source of referral • Reason for referral • Referrals made for ongoing services (where needed) 	Describe the impact of HHL on: <ul style="list-style-type: none"> • Patient outcomes • Appropriateness of referral
Level 2 Impact on, and outcomes for, providers	
PROJECT DELIVERY What did you do?	PROJECT IMPACT How did it go?
Describe HHL and how it was implemented. This includes describing issues surrounding governance and management.	Describe the impact on: <ul style="list-style-type: none"> • Relevant service providers • Inter-agency communication and culture • Provider experience • Referrer experience (GP, ED, discharge planners)
Level 3 Impact on, and outcomes for, the system	
PROJECT DELIVERY What did you do?	PROJECT IMPACT How did it go?
Describe HHL and how it was implemented. This includes describing issues surrounding governance and management.	Evaluate the impact on: <ul style="list-style-type: none"> • Hospital and ED activity • Number of bed days saved • Return on investment

Throughout the evaluation we have been mindful of a number of key success factors (KSFs). These are drawn from the international evidence on the factors that influence the success of

programs similar to HHL (Singh 2006). The following are the KSFs that are relevant for this evaluation:

1. Receptive context (e.g. the views of stakeholders, and in particular the other existing demand management projects)
2. Leadership (including informal leaders)
3. An understandable model for change and implementation (based on good evidence and within the local logic of service provision)
4. Adequate resources (and a perception of equity in how they are used)
5. Staff members have the necessary skills (given the scope and needs of the service population)
6. Role delineation and teamwork (an ability to resolve role confusion)
7. Systems in place that can be used for monitoring and feedback (and that are not too burdensome to maintain)
8. Demonstrable benefits of the new arrangements (based on clear and agreed indicators of change)

3.2 Methodological issues

Before describing the methodology of this evaluation in detail, we first identify and discuss several key conceptual and methodological issues that pose particular challenges for this evaluation.

3.2.1 Appropriateness of patients referred to HHL

Not all patients who are referred to and accepted into HHL will be appropriate for the program. This is an important issue because HHL should only target patients who would otherwise have presented to the ED, been admitted to a ward from the ED or would have stayed longer in a hospital bed. If the program accepts patients who do not fall into one of these three categories, then the program will be moving beyond its target population and will effectively create a new demand group.

As a consequence, one of the main objectives of this evaluation has been to determine whether the 'right' types of patients are referred and accepted into HHL. We identified four broad categories of patients who are relevant to this evaluation, which are summarised in Table 2.

Group 1 refers to patients who are suitable referrals to HHL. Group 2 refers to patients who are referred to HHL but are not appropriate for this program as they are too sick and are likely to have poor outcomes. Similarly, Group 3 refers to patients who are referred to HHL, but are not suitable as they are not sick enough. A high proportion of referrals from this group is not a good outcome as it would place unnecessary burden on HHL and will not meet the KPIs specified by Queensland Health. Finally, Group 4 refers to patients who are not referred to HHL. It has not been possible to identify this group in the context of the current evaluation, but we acknowledge that there may be some patients who are not referred to HHL but who would benefit from these services.

Table 2 *Broad categories of patients referred to HHL*

Group	Type	Implication	Outcome
1	Referred to HHL and needed these services	Suitable referral	Good
2	Referred to HHL but too sick	Likely to re-attend at ED or to be readmitted within 42 days of referral date	Very poor, delay in hospital treatment plus extra cost of HHL
3	Referred to HHL but too well	Did not need HHL	Poor, extra cost to HHL
4	Patients not referred to HHL	Some patients may have needed HHL services	Unclear

3.2.2 How much hospital activity has been avoided?

One of the challenges in the evaluation is to know if hospital has been avoided; if HHL had not been available, would the patient have visited the ED, or been admitted from the ED, or stayed in hospital for longer? In some cases this would definitely be true. However, there would be other times when admitting a patient may be a borderline decision and being able to refer to HHL has circumvented the need to make the decision. For example, the patient may otherwise have been sent home and had to manage for a day or two until existing community-based services could be provided.

We asked that, at the time of referral, the referring clinician provide an estimate of what had been avoided; a GP would estimate how many ED presentations were avoided, for a referral from the ED, the expected length of stay of an inpatient episode was to be estimated and for patients being discharged early, the likely number of extra days they would have stayed in hospital were to be estimated. Unfortunately, we were unable to obtain this information.

As an alternative, we used two methodologies. The first is that the HAP Project Officer provided overall estimates by broad referral type (see Section 4.3 for further detail). The second is that we compared the casemix-adjusted length of stay of patients referred to HHL for early discharge with the casemix-adjusted length of stay of the GCHSD (see Section 7.1)

3.2.3 Defining Outcomes

For the purposes of the evaluation, it has been necessary to define what is meant by a 'good' and 'poor' outcome for HHL. After consultation with the GCHSD, we defined a 'good' outcome as a situation where:

- The patient returns home and has no further hospital admissions or ED presentations for the same reason they had their HHL episode, within 42 days of referral to HHL,
- or*
- The patient is admitted into a residential care facility within 42 days of referral to HHL – this is a 'good' outcome because HHL provides services prior to residential care and avoids an ED visit or inpatient admission in the interim period.

The specific characteristics of a 'good' outcome vary slightly for each of the HHL components:

- **Hospital Avoidance Program** - a 'good' outcome is that a patient does not present to the ED and is not admitted to hospital (for the same reason they were referred to HHL) within 42 days of being referred to HHL.
- **ED Avoidance Program** - a 'good' outcome is that a patient does not present at the ED (for the same reason that they were referred to HHL) within 42 days of the referral date.

- **Early Discharge Component** - a 'good' outcome is that a patient does not present to the ED or have a hospital admission (for the same reason they were referred to HHL) within 42 days of the referral date.

We define a 'poor' outcome as a situation where:

- The patient has an ED presentation for the same reason as the initial referral to HHL within 28 days of discharge from HHL, or
- The patient is admitted to hospital for the same reason as the initial referral to HHL within 28 days of discharge from HHL.

3.2.4 Attribution

There have been, and will continue to be, substantial changes in the population and infrastructure of the GCHSD. For example, the population of the Gold Coast is increasing rapidly and is expected to increase by 27% over the next decade. The infrastructure of the GCHSD is expanding to meet these needs. For example, Robina Hospital opened in 2007 and the 750 bed Gold Coast Hospital is expected to open in 2012. Furthermore, there are numerous programs operating within the Gold Coast Hospital that have objectives that overlap to various degrees with HHL (e.g. CHIP, EDDI, DSU).

All of these factors have the potential to influence the Gold Coast Hospital KPIs in the absence of HHL. The challenge for the evaluation has been to, as much as possible, distinguish between the effects of HHL and other extraneous factors.

The most effective way to clearly determine whether HHL has an effect on the KPIs in the context of these other factors would have been to utilise a control group and this is an approach we investigated at some length in the early phase of the evaluation. Any control group would need to consist of patients who are similar in characteristics to the patients referred and accepted into HHL, are influenced by similar extraneous variables, and who are not referred or accepted to HHL.

The 'gold-standard' experimental approach is to use a randomised controlled trial, where participants are randomly assigned to HHL care or routine hospital care (Jaccard and Becker 1997). Given the nature and scope of HHL, it has not been feasible to conduct a randomised control trial to evaluate this program. However, we attempted to identify a naturally occurring control group for the purposes of this evaluation.

We considered several options for a control group for HHL such as a similar hospital (e.g. Logan Hospital). We also considered the use of a historical control group from the Gold Coast Hospital records. However, neither of these alternatives was ideal given the dramatic differences between individual hospitals and the drastic population changes that have occurred in recent years.

A third and more appropriate control group would be patients who reside in the Gold Coast area, but are outside the specific geographic coverage for HHL, and hence are ineligible for this program. In order to determine whether HHL ineligible patients constitute a suitable control group, we examined whether the characteristics of HHL ineligible and HHL eligible patients were similar at the baseline. If they were similar, HHL ineligible patients could represent an appropriate control group for this evaluation.

However, a complication arose when, after the implementation of the HHL program, there was a change in the boundaries of the GCHSD. These new boundaries reduced the potential control group and have defined the geographic catchment area of HHL since 1 December 2008.

After investigating all options, we concluded that there was no natural control group that could be used for the purposes of the evaluation. Instead, we adopted an approach of modelling different scenarios. These are described in Section 4.3 and Section 9.

3.2.5 Assessing patient experience

A final consideration in the design of the evaluation has been whether or not it could assess the experiences of patients who are referred and accepted into HHL. In doing so, we were aware that HHL were collecting data on patient satisfaction, and that their results would be available to us.

While patient experiences are an important part of any evaluation, lengthy discussions were held with key stakeholders as to whether or not this should be assessed in the present evaluation. Assessing patient experience in a program that has a large scope such as HHL is very difficult and we could not guarantee that the data we collected would be representative of all patients.

If such data were collected it would also be very difficult to interpret. If it were found that some patients had had a bad experience, for example, we may have learnt of something that HHL could have done better, but there would often be no way of knowing if the patient would have been better off without HHL.

As an alternative to utilising HHL's patient satisfaction data, we discussed developing and distributing our own survey to HHL patients. However, we were aware that the response rate would most likely be low, especially for groups such as mental health patients. Furthermore, the care offered by HHL is short-term and the patient is likely to receive services from a wide range of hospital staff, HHL staff and other service providers. In this context, we would effectively be examining the experience of the entire episode and would not be able to precisely differentiate between services offered by HHL and other services.

Based on feedback from key stakeholders, a decision was made to not directly assess the experiences of patients as part of this evaluation and to use the patient satisfaction data collected by HHL instead. A copy of the HHL survey instrument is included in Attachment 3 and the results are reported in Section 6.4.

4 Evaluation Methodology

To evaluate HHL, data were obtained from a number of different sources. These are described in detail below. Following those descriptions is an overview of how we analysed the data from the various sources.

Broadly speaking, there were three categories of data collected:

- Data on hospital activity collected by the Gold Coast hospital as well as HHL activity data provided by HSS,
- Reports and articles on similar programs obtained through a review of the literature, and
- Stakeholder perceptions of the HHL program obtained from interviews and focus groups.

Each of these data sources was analysed separately and the results combined to provide an overall evaluation of the program.

4.1 Data sources

Quantitative and qualitative data have been obtained from a variety of sources.

4.1.1 Hospital inpatient admissions from HBCIS

- We received data for all hospital inpatient admissions in the Gold Coast hospital between July 2003 and June 2009. The specific data items for each patient episode include MRN, age, sex, postcode, Indigenous status, campus, DRG, LOS and discharge destination.
- We also received hospital inpatient data for all patients who were referred to HHL and had an inpatient admission between January 2008 and August 2009. We received these data on a monthly basis. The specific data items for each patient episode include MRN, age, sex, postcode, indigenous status, campus, DRG, LOS and discharge destination.
- Overall summary hospital activity from 1996/97 by department and month was also provided by Decision Support Services (DSS) for the evaluation. A number of different data items were included, such as numbers of admissions, LOS, beddays, etc. Some information specific to each department was also provided, such as numbers in each triage category in the ED data.

4.1.2 Emergency Department presentations from EDIS

- We received data for all ED presentations in the Gold Coast hospital between July 2003 and June 2009. The specific ED data items for each patient episode include MRN, age, gender, postcode, campus, mode of arrival, presenting problem, time in ED and discharge destination.
- We also received ED data for all patients who were referred to HHL and had an ED presentation between January 2008 and June 2009. We received these data on a monthly basis. The specific ED data items for each patient episode include MRN, age, gender, postcode, campus, mode of arrival, presenting problem, time in ED and discharge destination.

4.1.3 Referrals to HHL

The HAP Project Officer provided weekly summaries of referrals to HHL as well as unit record files detailing patient HHL UR, Gold Coast MRN, referral source, referral date, admission and discharge dates to HHL and to the hospital (for the episode preceding their HHL admission), as well as whether the patient was admitted to the program and whether a single or a double package was provided. Decision Support Services (DSS) within the GCHSD provided data on any ED presentations or inpatient episodes of those patients since 1 January 2008.

4.1.4 Other data from the Gold Coast

The HAP Project Officer sends daily bed occupancy reports and other routine summaries of activity and financial information. Summary activity data were also provided by DSU and ACEIM. We have not analysed or reported on these additional data items. However, they have been used to guide our understanding and thinking about the program and our evaluation analysis.

4.1.5 HHL client profile and services

HSS provided data files on all patients referred to HHL. The data items include MRN, sex, date of birth, referral source, services provided by HHL (by type, description and duration), functional assessment items, and services referred to after discharge from HHL. For patients referred to, but not accepted into HHL, HSS provided us with basic demographic information (e.g. age, sex) and the reasons each patient was not accepted into the program.

We also requested additional data items that were specific for each of the three HHL components:

- *ED Avoidance component* - we requested that several data items be collected from GPs referring patients to HHL. These included estimates of the numbers of ED presentations and hospital admissions each patient would have had if HHL were not available. The reasons the patient would have presented to the ED or been admitted to hospital if HHL were not available were also requested.
- *Hospital Avoidance component* - we requested that data be collected from ED staff on the estimated number of bed days each patient would have had if HHL had not been available. We also requested that ED staff be asked to provide the reasons why each patient would have been admitted to hospital from the ED if HHL had not been available.
- *Early Discharge component* - we requested that data be collected from staff referring to HHL on the estimated numbers of additional inpatient bed days each patient would have had if the program had not been available. We also requested that the referring staff member be asked to indicate the reasons why the patient would have remained in hospital if HHL were not available.

The main reason for collecting this information was to obtain an estimate of the hospital activity that was saved as a result of the referral to HHL, chiefly for the analysis to assess the return on investment. It was understood that the data would be subjective and, for some patients, inaccurate. However, for other patients, an experienced clinician would be able to make quite an accurate estimate of the likely trajectory of a patient's use of the hospital.

Unfortunately, these data items could not be provided. As a result, we utilised an alternative method for estimating the hospital activity saved, and this is described in more detail in Section 4.3 on Return on Investment.

4.1.6 Other data from HSS

HSS prepare quarterly activity reports for the GCHSD and these have also been provided to us. We have also received data from HSS from their patient and referrer satisfaction questionnaires.

4.1.7 Literature review

We undertook a 'rapid review' as distinct from a systematic review (Watt, 2008a; Watt, 2008b). In doing so, we drew on our knowledge of the literature and previous literature reviews we have undertaken, specifically the SAFTE program in NSW, a review of community health services, a review of hospital demand management models, a review of effective interventions for carers and a review of home care.

Hospital avoidance is a complex issue involving many different types of services and many different types of patients, resulting in a considerable body of literature. For this review we concentrated on literature reviews, including systematic reviews, rather than evidence from individual studies. In addition, we included references to literature outside the narrow confines of 'hospital avoidance' where we believe this is appropriate to provide some context for decisions that the Gold Coast Health Service District will have to make about future services.

4.1.8 Consultations with key stakeholders

We conducted meetings and interviews with key stakeholders in the GCHSD throughout the course of the evaluation. These were critical as they provide an insight into different perceptions about HHL. A range of views about the program was obtained from interviews and focus groups held at the beginning, during the course of and at the end of the program.

4.2 Analysis of activity data

The first step in the analysis of the activity data was to describe the delivery of HHL, using a combination of data provided by HSS and the GCHSD. This involved describing:

- The total number of patients referred to and accepted into HHL broken down by referral source (i.e. hospital, GPs and the ED),
- The total number of referrals and the total number of packages received,
- The total number of patients referred to, but not accepted into HHL and the reason they were not admitted,
- The average length of stay (LOS) for patients in HHL,
- The time between referral to HHL and the provision of services,
- The services provided by HHL,
- The discharge destination of HHL clients, and
- The services referred to on discharge

Furthermore, for the patients who are referred and accepted into HHL it also includes:

- Basic demographic characteristics (i.e. age, sex, place of residence),
- Functional profile,
- Reason for referral,
- Referral source,
- Reason for acceptance into HHL,
- Diagnostic information, and
- Whether they presented at ED or were admitted for the same reason within 42 days of admission to HHL.

The second step of the evaluation involved an assessment of the impact of HHL on patients, carers, providers and the system. The analyses predominantly involved statistical analysis of quantitative data from a range of sources including ED and hospital inpatient data (EDIS and HBCIS respectively) and data collected by HHL. The DRGs preceding the HHL referral were investigated for those patients who were discharged from hospital early. Overall trends in admissions and occupied bed days were plotted with sentinel events marked (commencement of HHL, Surgi Centre opening and beds opening at Carrara). By combining the data from all these sources, estimates of the bed days saved by referrals to HHL and by patient transfers to Carrara were made.

4.3 Return on investment methodology

Only direct costs and benefits (savings) to the GCHSD are included in the Return on Investment (ROI) reported in Section 9. The ROI is the “return” (incremental gain) from an action divided by the cost of that action:

$$\text{ROI} = \frac{\text{savings} - \text{costs}}{\text{costs}}$$

The benefits are:

- a. Reduced presentations to EDs for HAP clients
- b. Reduced admissions for HAP clients
- c. Reduced inpatient days for HAP clients

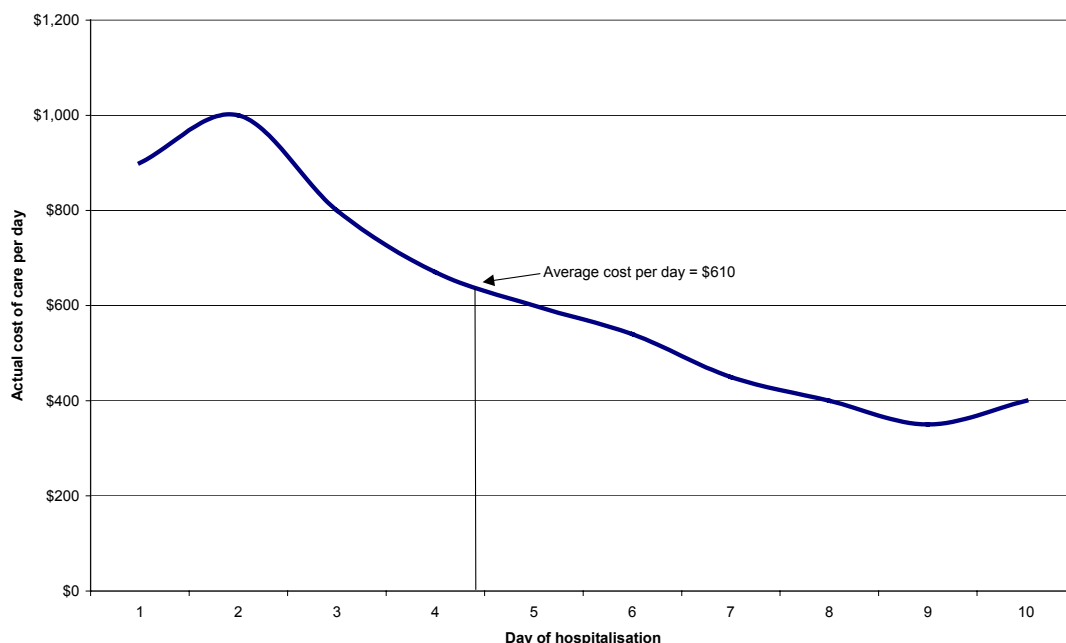
The cost benefit in this case takes into account the costs (the funding of HHL) and the savings (a – c above).

It is necessary to make assumptions about the number of days as an inpatient and the number of ED presentations that are likely to have been avoided as no information about these is currently collected. For a referral from a GP, it was assumed that, at most, one ED presentation was avoided. For a referral from the ED, the average length of stay for an episode of care in the Gold Coast Hospital was used to estimate the number of days avoided. For patients who were discharged early from an inpatient unit, the HAP Project Officer estimated the number of extra days that patients were likely to have stayed, had HHL not been available. The HAP Project Officer provided the proportions of patients who would have stayed 1 day, 2 days, 3 days, etc longer. These were used to estimate the number of days saved by an early discharge to HHL from the various wards of the hospital.

It is also necessary to make assumptions about cost of the hospital care that was avoided. For referrals from the ED, an estimate of the full average daily cost for care on an acute ward (excluding operating theatre and intensive care) was used.

Estimating the cost of hospital care avoided by an early discharge, however, is more complex. An early discharge from a hospital ward saves days at the end of the patient’s episode of care. As illustrated in Figure 2 below, the actual cost for an inpatient bed day varies by the day. The first days for an acute inpatient admission are the most expensive and then gradually decline, with the cost increasing slightly at the end of the episode as the patient is prepared for discharge. In this example, the patient is in hospital for 10 days at a total cost of \$6,110 or an average of \$611 per day. However, the actual cost per day varies from \$1,000 on day two (when the patient undergoes most diagnostic procedures) to \$350 on day nine.

Figure 2 A typical cost curve for a medical admission



This has important implications for calculating the Return on Investment (ROI) for the program, particularly for patients who are referred to HAP in order to reduce their length of stay. The ‘saved’ days at the end of the admission do not represent a saving of \$610 per day. Rather, the ‘saving’ occurs at a marginal cost and not at the full average cost. Consistent with the Queensland funding policy, bed days saved by reducing length of stay have been costed at the marginal cost of 60% of the Queensland casemix price in the ROI analysis.

Similarly, the marginal cost of a single presentation at the ED is less than the full average ED attendance cost as there are infrastructure and other fixed costs of running an ED regardless of the number of attendances on any one day. Based on our previous research, the marginal cost to see an individual patient is estimated to be 20% of the full daily average cost. This is similar to the variable ED payment in the Queensland funding model.

As well as the characteristics of the patient, circumstances within the hospital also have an impact on what savings have been made. For example, the Pre-admission Clinic can refer patients to HHL for a pre-operative work-up, such as a bowel preparation prior to a colonoscopy, in the patient’s home. In this case, the HHL referral would save one night in hospital – the night before the operation. If the procedure is undertaken late in the day, HHL could also be called in to assist the patient going home on the same day.

However, this is only a saving at the full average rate if there are no spare beds on the ward. If there are vacant beds, the saving from such a referral is minimal and is significantly less than the marginal bed day rate¹. It may also be a disadvantage to the patient who may miss out on learning he or she needs additional care from other tests that would routinely be applied on the ward. For the same reason, if ED demand is low, a HHL referral to avoid the ED may not represent any significant saving at all.

In the majority of economic analyses, for a program to be considered a success, the savings must be greater than, or equal to, the cost. However, with HHL it is possible that the program may be judged a success even if the short-term costs exceed the short-term savings. For example, a reduction in waiting lists may be judged to be more important than a “loss” on the Program.

¹ In this case, there are no savings in terms of staff costs because the need for medical, nursing and ancillary staff (eg, cleaning staff) on the ward is not affected by the presence or absence of one extra patient. There are also no savings in overhead costs such as power. The only (very modest) savings are in goods and services and pharmacy.

Table 3 summarises the costing method used in this ROI analysis.

Table 3 Costing method used in ROI analysis

Referral type	Basis of costing
GP referrals - ED avoidance	Marginal cost of an ED attendance (not admitted, triage category 4)
Inpatient avoidance - ED referrals	Full average cost of an inpatient bed day excluding the cost of any surgical procedures and time in intensive care
Inpatient avoidance – Community mental health	Full average cost of a mental health inpatient bed day
Inpatient avoidance – Day surgery and outpatients	Marginal cost of an inpatient bed day
LOS reduction – Medical and surgical	Marginal cost of an inpatient bed day
LOS reduction - Paediatrics	Marginal cost of an inpatient bed day
LOS reduction - Midwifery	Marginal cost of an inpatient bed day
LOS reduction - Mental health	Marginal cost of an inpatient bed day
LOS reduction – Special Care Nursery	Marginal cost of an inpatient bed day
LOS reduction - Other	Marginal cost of an inpatient bed day

Referrals from September 2008 to August 2009 inclusive were used in the ROI analysis. An adjustment was made for re-referrals and clients who were readmitted into hospital or re-presented at the ED within 28 days of discharge from HHL for a related problem to that which occasioned their episode of care with HHL. An exception was made for palliative care patients and others returning for routine treatment, such as renal dialysis. For patients re-presenting to the hospital, no hospital savings have accrued. Instead, this group of patients received both a HHL service and a (delayed) hospital service. The result is an estimate of the number of clients who received services from HHL and appear to have avoided some time in hospital or the ED.

As discussed elsewhere in this report, there is no real evidence in relation to the hospital-based services that HHL clients may actually have utilised if they had not been referred to HHL. For this reason, three different scenarios based on assumptions about the percentage of clients who have genuinely avoided hospital care have been modelled. These assumptions have been guided by estimates made by clinicians during the interviews conducted as part of the qualitative aspect of the evaluation and by research findings elsewhere.

Using these assumptions, the expected amount that the hospital would save over a year was calculated. From this, the net effect on the GCHSD was calculated by subtracting HHL expenditure for the same period (\$2,269,400 for a total of 3,242 HHL packages). This figure excludes the cost of the HAP Project Officer employed by the GCHSD and other costs (eg, legal and financial services) incurred by the GCHSD. It also excludes the up-front payment of \$200,000 paid to HHL for initial one-off establishment costs. This initial up-front payment was excluded to give the best estimate of the likely ROI of options after the pilot period of the program is over.

This costing methodology also assumes that ward occupancy is maximally efficient regardless of any decreased admissions or reduced patient stays. That is, if ward occupancy is below accepted average occupancy benchmarks, internal ward-based savings are made. As just one example, paediatrics had a low occupancy rate prior to, and during, the HHL pilot program. In this circumstance, no 'savings' occur in paediatrics from HHL referrals unless ward costs are reduced in line with decreased activity arising from the referral of early discharge patients to HHL. Quite the reverse, in this situation the HHL service represents a net increase in costs for the GCHSD as it is both funding the ward at existing levels as well as funding the additional cost of the HHL service.

4.4 Methodology for interviews

Consultations were held with key stakeholders throughout the program, mainly in the form of individual or small group interviews, plus focus groups.

For the interviews, a list of key stakeholders was obtained primarily from the HAP Project Officer, using a purposive sampling approach to identify people to interview and included additional people not in the original list. Purposive sampling seeks to identify those who can provide the most information and in this case was guided by the need to obtain data on three types of issues:

1. issues identified in the terms of reference for the evaluation;
2. issues raised in the first and interim evaluation reports;
3. issues that had arisen during preliminary data analysis for the interim and final evaluation reports.

The net effect of this is that there was also an element of theoretical sampling in this approach. In theoretical sampling the decision about who to interview is based on concepts or themes derived from the data with the aim of reaching data saturation.

The result is that the sample of people interviewed was not representative of all those employed by the health service or even all those who have dealings in some way with HHL. Rather the best source of data was located (in the form of those interviewed) to answer the questions formulated. The goal was to consult with key stakeholders and informants who were identified as having views that reflect wider perspectives and who could contribute to the analysis of HHL.

All interviews were conducted by one or two of our evaluation team with most interviews involving two members. A semi-structured approach to the interviews was adopted using an interview guide and extensive note taking (see Attachment 4). The notes were typed up to facilitate analysis.

For each series of interviews conducted during the course of the program, data analysis commenced as soon as the first interviews were completed and used the technique of constant comparison throughout the remaining interviews, facilitated by having two interviewers present as much as possible. This meant that the first few interviews followed the interview guides closely but as issues emerged a more unstructured approach was used for some of the subsequent interviews to explore these issues further. Analysis was framed by what was known from the literature on organisational change, adoption of innovations and the emerging discipline of implementation science. A particular theoretical framework was used to conceptualise the term 'integration' which had been found useful in previous work on evaluating changes in health services.

Invitations to be interviewed were mostly sent by email, followed up with either phone or face to face contact. Over 65 people were interviewed during the course of the evaluation, with about two-thirds interviewed over the phone and one-third consulted face-to-face. Interviewees came from all clinical divisions within the health service, including clinicians and all levels of management (nurse unit managers, department managers, divisional managers and executive managers) plus from general practice, NGOs and HSS.

The strength of the evidence for the evaluation has been assessed based on standard methods of triangulation². Information received during the evaluation was classified as 'qualitative evidence' if it became a theme that recurred across several interviews. One-off comments made in a single interview did not meet this criterion.

The evidence was regarded as strong if it was assessed as 'dependable' or 'consistent' (corresponding to the notion of 'reliability' in quantitative research) and 'valid'. Consistency or reliability was assessed by verification of the information through examination where possible of raw data, themes and process notes. Interview questions were assessed for face validity based on the evaluation team's knowledge and experience in evaluating change in health services and the knowledge of survey and questionnaire design. In addition, documentary and data analysis was conducted through review of key documents and reports gathered during the course of the evaluation. This allowed the team to verify or alternatively question any inconsistencies that arose during interviews with previously reported information. As a final check the interview data was analysed using Leximancer document mapping software, which had been used successfully in previous evaluations.

² Triangulation refers to the use of multiple methods in a particular research project or evaluation. The idea here is that the limitations of one approach are compensated by the strengths of another in such a way that a more complete and informative picture emerges of the area being addressed. Liangputong Rice and Ezzy (1999) neatly summarise four types of triangulation:

- Data Source Triangulation, involving multiple data sources, information should be elicited from all the different interest groups or associations involved with the project being evaluated.
- Methods Triangulation, combining varieties of methods such as focus groups, telephone surveys and in depth interviews.
- Researcher Triangulation, using a number of different researchers in the evaluation to provide different perspectives.
- Theory Triangulation which draws on a number of theoretical perspectives to provide new insights.

(Planning and Evaluation Wizard, South Australian Community Health Research Unit, Flinders University, Adelaide available at: http://som.flinders.edu.au/FUSA/SACHRU/PEW/pep_eval_sw_triang.htm accessed 12 May 2009.

5 Results - findings from the literature on hospital avoidance

5.1 Background

The following summary of the literature focuses on:

1. ED avoidance programs which aim to reduce the number of ED presentations from the general community (e.g. GPs, nursing homes and self referrals) by providing alternatives to ED attendance.
2. Admission avoidance programs that aim to reduce the number of people who are admitted to hospital.
3. Programs that aim to reduce length of stay in hospital, which usually consists of discharge planning to facilitate discharge from hospital and the provision of services in the community that provide a substitute for in-hospital care.

Individual programs may involve only one of these, a combination of (1) and (2), or all three. Hence, although the evidence is presented here in discrete sections there is considerable overlap. We also make reference to programs that aim to prevent deterioration in health status to avoid the need for treatment of an acute episode of illness, e.g. case management and geriatric assessment, which we characterise as admission avoidance programs.

For this review we have concentrated on literature reviews, including systematic reviews, rather than evidence from individual studies. In addition, we have included references to literature outside the confines of 'hospital avoidance' where we believe this is appropriate to provide some context for decisions that the Gold Coast Health Service District will have to make about the design of service models as new facilities come on-line. There will be a series of related strategic decisions for the District in the future about the relationships between an array of 'out-of-hospital' services including acute care and rehabilitation in the community, models for discharge planning from specialist services as well as models for severe chronic disease management in the community.

In the Gold Coast context, as is the case in any area with pressure on in-patient and emergency department facilities, hospital avoidance is a complex issue. It involves many different types of services and many different types of patients and various reviews of the effectiveness of interventions and program evaluations have resulted in a considerable body of literature. It is important to note at the outset that, for complex interventions such as hospital avoidance programs, there are several well-understood problems and important caveats for both reviewers and readers that go along with any attempt at making summary statements based on interpreting the evidence in the literature:

- There are very few instances of comparing 'like-with-like', and it becomes very difficult to isolate what may be the key ingredients that make a particular intervention work, or not work. For example, in a systematic review of hospital avoidance (which included 10 studies) patients were transferred home from the emergency department in seven of the studies and referred directly by a primary care doctor in three studies. In four of the studies care was provided by a hospital outreach team, in three studies by a mix of outreach and community staff and in three studies by general practitioners and community nursing staff. Access to physiotherapy was included in six studies, occupational therapy in four studies, a social worker in six studies and a speech therapist in three studies (Shepperd et al. 2008).
- Although it is generally preferable to rely on the synthesis of findings to be found in literature reviews, rather than the results from one study, there is a basic paradox - the more rigorous the reviews, the more studies are excluded, resulting in some reviews only including a small number of studies. Because of the complex nature of interventions to avoid hospital admission

or facilitate early discharge the results from randomised trials almost inevitably produce inconclusive results and it is not surprising that reviews which try to synthesise the results of these trials are also inconclusive (Mistiaen, 2007).

- Typically, reviews of the evidence report methodological problems with the studies that have been included, making it difficult to interpret the results. A systematic review of evidence to inform health policy will necessarily involve consideration of quantitative and qualitative evidence. However, the methods for synthesising both types of evidence are relatively undeveloped, with most approaches designed for either quantitative or qualitative data, rather than a combination of the two (Mays et al. 2005; Pope and Mays, 2009).

In a situation like this, ‘proof’ that a particular intervention ‘works’ is simply not forthcoming and policy decisions have to be made based on the ‘balance of probabilities’ that an intervention is worthwhile, which inevitably includes some consideration of local factors such as the hospital and community health context and the division of responsibilities between private, public and non-government providers.

5.1.1 Government initiatives

‘Hospital in the Home’ (HiTH) programs have been increasingly trialed and implemented in a number of countries including Australia, the US and the UK. The 2007 report by Booze Allan Hamilton on emergency departments in NSW provides a useful summary of the various demand management / hospital avoidance strategies being employed in Australia (Booze Allan Hamilton, 2007).

There are a relatively large number of hospital demand management strategies that are currently managed within different Divisions of the District as well by other organisations (see Section 1). These programs listed in our description of the Gold Coast service context cover the usual range of diversity of programs described in other States.

5.1.2 The UK experience

In the UK the term ‘intermediate care’ is used to describe services that ‘bridge the gap’ between acute hospital and primary and community care. The criteria for intermediate care are:

- The target group is people who would otherwise face unnecessary prolonged hospital stays, or inappropriate admission to acute in-patient care, long term residential care, or continuing in-patient care;
- Service provision is based on a comprehensive assessment, resulting in a structured individual care plan;
- There is a planned outcome of maximising independence and typically enabling patients/users to resume living at home;
- Services are time-limited, normally no longer than six weeks and frequently as little as 1-2 weeks or less;
- Care involves cross-professional work, with a single assessment framework, single professional records and shared protocols (Barton et al., 2006).

Intermediate care includes a variety of service models:

- **Rapid response** – designed to prevent avoidable admissions by providing rapid assessment/diagnosis and rapid access on a 24-hour basis to short-term nursing/therapy support and personal care in the patient’s own home;
- **‘Hospital at home’** – intensive support in the patient’s own home to avoid an acute admission or enable earlier discharge from hospital;

- **Residential rehabilitation** – a short-term program of therapy and enablement in a residential setting for people who are medically stable;
- **Supported discharge** – a short-term period of nursing and/or therapeutic support in a patient's own home, typically including a package of home care support;
- **Day rehabilitation** – a short-term program of therapeutic support, provided at a day hospital or day centre. May be used in conjunction with other forms of intermediate care (Barton et al., 2006).

The results of a systematic review of the evidence concluded that intermediate care services are not generally associated with adverse outcomes or improvements in health status and have a variable effect on length of inpatient stay. Large cost savings have not been demonstrated (Barton et al. 2006).

One relevant issue raised by the UK review is the extent to which intermediate care is providing an *additional* service and the extent to which it is providing a *substitute* service. Questions about what would have happened to patients if intermediate care had not been available found that, for supported discharge cases, about a third would not have had their stay extended, and a quarter would have been sent home. Similarly, about one third of admission avoidance cases would have been admitted to hospital and a quarter would have remained at home (Barton, 2006). The authors concluded that:

'The effectiveness of interventions to improve the speed and quality of discharge or to avoid admission altogether will depend to a large extent on the broader service context in which they take place. Interventions that are shown to work well in areas with well-resourced and efficient community support services may have little or no impact where these services are inadequate or lacking' (Barton et al., 2006).

5.1.3 The New Zealand experience

A report to the New Zealand Minister for Health reports on the work undertaken by the Canterbury Community Care Trust which is a consortium involving, amongst others, Pegasus Health, which is a Primary Health Organisation set up in 1992 to support general practice. There is a contract between the local District Health Board and the Trust for the provision of services that include:

- Two teams of rapid response nurses providing acute community nursing, with some specialised services, and a 60-90 minute response time
- A five-bed observation unit associated with a 24 hour surgery, offering a suitable venue for 3-4 hour periods of observation and treatment, including after-hours care
- Education and training of staff in order to ensure they are equipped to provide safe and effective acute services, with a focus on clinical areas like anaphylaxis, electrocardiogram interpretation, and acute infections
- Rapid diagnostics in primary care, such as tests for deep vein thrombosis or pulmonary embolism with a needle-to-result time of 40-60 minutes.

The contract includes additional funding up to \$NZ300 per patient for 'enhanced primary care treatment' to keep patients out of hospital which is often tied to the use of agreed clinical pathways. Two examples are treatment of deep vein thrombosis, which is estimated to prevent approximately 1,000 visits per year to ED, and treatment of cellulitis, with an estimated 700 visits to ED prevented per year.

This New Zealand model is credited with helping to stem the growth in ED presentations, increasing the acuity of patients presenting to ED (as measured by triage category) and resulting in an admission rate from the ED to inpatient wards that is one of the highest in the country (Working Group for Achieving Quality in Emergency Departments 2008).

Beyond the findings from one model, there are also higher level considerations when taking into account the New Zealand experience. There are significant differences in the context of the Canterbury Community Care Trust and the Australian service context. In particular New Zealand does not have a universal health insurance scheme equivalent to Medicare that covers GP services and related allied health services and as a consequence does not have the same potential for care planning and developing a multidisciplinary approach.

A very recent report (Smith and Cumming, 2009) provides a timely review of the New Zealand experience with primary health organisations (PHOs). It synthesises the lessons emerging from five projects funded by District Health Boards New Zealand and the Ministry of Health as part of their Joint Work Program on the implementation of the Primary Health Care Strategy (PHCS). The paper explores what has inhibited and facilitated progress as the basis for setting out the issues facing PHOs:

“...implementation of the PHCS has been more successful in relation to reducing the cost of access to care and increasing utilisation of primary care services, whilst struggling to bring about desired changes in terms of extending primary care service provision at the practice level and enabling better integration of a diverse range of primary and community health services accessed by consumers.”

The report emphasises the systemic challenges facing strategies like hospital avoidance, which are essentially examples of “devolved models of flexible and integrated primary care funding ... within an appropriate framework of accountability and governance.”

“Work is needed at a national and local level to reframe the relationship between government and general practice and to further develop clinical engagement and leadership within PHOs.

In order to better co-ordinate care at a patient level, integrated patient management IT systems are required, along with an exploration of new ways of investing in primary and community health care facilities.

There is a need for more extensive and co-ordinated development of management and leadership in primary care, and across primary/secondary care, at both regional and national levels.”

The authors conclude that PHOs are constrained in their ability to bring about significant change to the model of service delivery in primary care to achieve the PHCS aims “which to date remain largely unrealised.”

“In particular, PHOs need to be given the levers and incentives to work with the local health community (e.g. practices, NGOs, allied health providers, DHB, management services organisations, IPAs [independent practitioner associations]) to extend, strengthen and better co-ordinate primary care services in a manner that continues to address inequalities in health and to improve the overall health of the population.”

(Smith and Cumming, 2009. p.2)

5.2 General overview of the hospital avoidance literature

The most recent, and comprehensive, publication of direct relevance to hospital avoidance on the Gold Coast is the systematic review of the secondary literature on hospital avoidance and discharge programs commissioned by the Government of South Australia (Kumar, 2005), subsequently published as a journal article (Kumar and Grimmer-Somers, 2007), and two recent Cochrane reviews of ‘hospital at home’ services, one focused on hospital avoidance (Shepperd et al., 2008) and one focused on early discharge (Shepperd et al., 2009).

The review by Kumar and Grimmer-Somers (2007) identified a lack of studies involving the comparison of an intervention group with a control group (whether randomised or not) and a 'lack of consistent and accurate costing analysis'. Most of the 48 publications included in the review reported studies targeting older people, with nearly half reporting on work in the UK. The publications reported on 57 different interventions, with the most common being generic discharge planning (16), hospital at home, and home-based care (9), community-based services (8), short-stay/early discharge (4), home visiting (3), multidisciplinary strategies (3) and different forms of communication (3) (Kumar and Grimmer-Somers, 2007). The evidence for hospital avoidance programs was contained in 17 publications included in the review, were mainly concerned with avoiding admission to hospital after presentation to an emergency department, with the following results:

“Nine (53%) demonstrated evidence for increased effectiveness, nine (53%) demonstrated evidence for increased patient-centred outcomes, six (36%) provided evidence of increased safety, and five (29%) provided evidence for increased efficiency (decreased costs). Higher costs were reported in two studies (12%). No poor outcomes (harm) were reported for health outcomes (effectiveness), patient safety or patient-centred outcomes.” Kumar and Grimmer-Somers, 2007, p. 41

It was concluded that 'the evidence for effectiveness of hospital avoidance and discharge programs was equivocal with strong evidence confined to specific models of interventions for specific diagnostic groups' (Kumar, 2005, p. 5) with a caution that lack of evidence of effectiveness does not necessarily indicate that such programs are not effective, but rather reflect deficiencies in the available evidence.

The review highlighted that only a small number of studies had been undertaken in Australia, with 'very limited' involvement of general practice (Kumar, 2005, p 3; Kumar and Grimmer-Somers, 2007). Consistent with other reviews of the literature, the review identified that patients and carers were generally satisfied with home-based care.

The South Australian review of the literature provides a useful 'state of the evidence' as at June 2005 (when the review was undertaken). Our review has focused on evidence that has been reported since then, or evidence not included in the South Australian review.

5.3 Emergency Department avoidance

The growth in acute admissions is primarily due to increases in medical rather than surgical admissions (Anderson et al., 2001). Increases in medical admissions are largely outside the control of health services as they are largely driven by the increasing numbers of elderly people, changes in socio-economic status and changing patterns of societal care (Anderson et al., 2001).

An enormous range of ED attendances are identified in the literature as being non-urgent or inappropriate, ranging from 6% to 80%, but this variability is not surprising, given that definitions rely on implicit and subjective judgements (Cooke et al., 2004). There is no valid and reliable 'gold standard' method for defining appropriate attendances at emergency departments and therefore there is no way to compare the effectiveness of different interventions to reduce ED attendances that may be considered inappropriate (Richardson et al., 2006). Not surprisingly, this has resulted in wide variations in the estimates of ED attendances that are considered to be appropriate (Hider, 1998).

Previous research by the current evaluators sought the views of patients who could potentially have been treated in primary care, and asked them about why they attended emergency departments rather than their general practitioner. It concluded that patients attend emergency departments for appropriate reasons (Siminski et al., 2005).

Even if the number of patients presenting to ED who could be treated appropriately by their GP is quite large, it is still a relatively small number in comparison to the number of patients presenting

to their GPs. One estimate is that, for every one patient who could have gone to their GP but attended an ED instead, 33 people go to a GP (Siminski et al., 2005). In 2007/08 the number of Medical Benefits Schedule (MBS) services by GPs working in the Gold Coast Division of General Practice district was 2.75 million, compared to approximately 90,000 ED presentations (in total) in the same time period.

Given that most people needing primary care go to an appropriate place for their treatment, the evidence indicates that interventions to reduce low-acuity presentations to EDs have not been effective (Forero and Hillman, 2008).

A review of the bed and patient management literature identified that emergency admissions from nursing homes make a small contribution to demand for acute beds. Although there may be some benefit in seeking to improve the ability of these facilities to treat acute illness, there is no evidence that the majority of these admissions are preventable or unwarranted (Dwyer and Jackson, 2001).

A retrospective study of 541 nursing home residents presenting to an emergency department in Western Australia concluded that 'the majority of ED presentations by aged care residents were considered to be appropriate, but there was scope for improvement in coordinating care between the hospital ED and residential care institutions' (Finn et al., 2006, p 325). Research in Canada came to a similar conclusion (Jensen et al., 2009).

The evaluation of the NSW SAFTE Care Program, also carried out by the current evaluators, was also focussed on ED avoidance strategies and concluded that selecting the right patients is fundamental to the success of these types of programs, and that the features of a hospital avoidance service should include:

- Early detection of problems and the ability to rapidly respond
- Resources to provide a comprehensive package of care and support services, and diagnostic and clinical care are needed
- Need for flexibility to enable clients to access services wherever they present in the health system
- Services should have the following elements: multidisciplinary team; work in partnership with the broader community care sector; preventative health and/or rehabilitative focus and established links with potential referrers (Westera et al., 2007).

5.4 Admission avoidance

The literature on hospital at home services which aim to avoid hospital admission (referred to as 'admission avoidance hospital at home', as distinct from 'early discharge hospital at home') by taking referrals from ED or primary care, has been the subject of a recent systematic review which included 10 studies, of which seven involved referral from EDs.

The review, which excluded obstetric, paediatrics and mental health, found no evidence to suggest that admission avoidance hospital at home leads to outcomes that differ from inpatient hospital care. It is not known which people would most benefit from hospital at home services to avoid hospital admission. When the costs of informal care were excluded admission avoidance hospital at home was less expensive than admission to an acute hospital ward (Shepperd et al., 2008).

A systematic review of patterns of use, adverse outcomes, and effectiveness of interventions for older adults attending emergency departments concluded that:

Overall, there is a general consensus that the current disease-oriented and episodic models of emergency care do not adequately respond to the complex care needs of older patients experiencing multiple and often interrelated medical, functional, and social problems. Successful management of acute and chronic health concerns of

older persons requires models of care that emphasize continuity, comprehensiveness, and integration of services (Aminzadeh and Dalziel, 2002, p 244).

An in-depth study of a hospital in the nursing home program in Queensland found that the total time for an episode of care was the same between those enrolled in the program and a control group, but the former spent less time in hospital (average of one day compared to four days). The total cost of an episode of care was cheaper for those enrolled in the program (Crilly, 2007).

A national workshop on the minimisation of hospital admissions for the elderly sponsored by the Department of Health and Ageing in 2005 identified the lack of consistent and reliable identification of candidates for hospital avoidance as a major barrier. It also noted that Australia has '(a) laborious manual processes of organising services with the large numbers of community service providers, (b) inefficient manual processing of referral requests, (c) inefficient sometimes non-existent tracking of service delivery to ensure that patients, particularly those with high risk conditions, have been attended to in a timely manner' (Soar et al., 2007, p 2).

The ED avoidance and admission avoidance programs referred to above focus on providing services to patients within an acute episode of illness. It is useful to consider what the literature has to say about other programs which either directly or indirectly seek to avoid hospitalisation, including:

- Primary prevention programs to increase overall health and wellbeing and reduce the likelihood of chronic disease.
- Primary intervention and management programs for those with chronic disease, including programs that promote self-management.
- Comprehensive geriatric assessment and management programs.
- Alternatives to admission such as geriatric day hospitals and community-based palliative care (Siggins Miller, 2003).

A systematic review of demonstration projects testing innovative models of care for the elderly in developed countries concluded that community-based care can impact favourably on rates of institutionalisation and costs. The features of an effective integrated system of care are a single entry point system; case management, geriatric assessment and a multidisciplinary team; and use of financial incentives to promote downward substitution (Johri et al., 2003).

In Australia, the term 'transitional care' is used for services that provide short-term (up to 12 weeks) care at the conclusion of an inpatient hospital stay for older people requiring support and management to restore function and finalise long-term care arrangements. It therefore has some elements of what is described in the UK as intermediate care. The results of trials in Australia of transitional care have been inconclusive regarding the efficacy of the program, with little evidence to support improved patient outcomes (Gray et al., 2008).

Comprehensive geriatric assessment services based in outpatients and/or primary care or a home care setting have been shown to reduce emergency department attendances (McCusker and Verdon, 2006).

Prevention programs which have been found to increase the general health of elderly people and reduce admissions to hospital include vaccination (influenza and pneumococcal pneumonia) and falls prevention (Siggins Miller, 2003). Visiting elderly people at home, either as a preventative measure or as follow up after hospital discharge, has been shown to have positive effects on physical, social, and mental health, knowledge, and service use. There may also be benefits for unplanned admissions. Most of these studies involved home visiting as an 'extra' service rather than substituting home visits for care in other locations (Singh, 2006).

In summary, there is consistent evidence that home visits to the elderly can reduce nursing home admissions and that nursing home admissions may be reduced to a greater extent with a greater number of visits. Home visiting programs have the potential to be cost-effective due to the low cost compared to long-term institutional care (Elkan and Kendrick, 2004).

Roberts and Mays (1997) in their systematic review of 33 studies including expansion of primary care (8 studies); reorganising primary care (9 studies) and integration of primary and hospital care (3 studies) found that the majority of studies identified marked reductions in emergency department utilisation following an expansion in primary care provision.

Peer-led self management programs, which focus on self management strategies rather than specific illnesses, can improve how people feel about their condition and some clinical outcomes, particularly in arthritis, diabetes, heart disease, hypertension, asthma, chronic obstructive pulmonary disease, and stroke. There is little empirical evidence regarding the impact of self management strategies on unplanned admissions or length of hospital stay (Singh, 2006).

5.5 Reducing length of stay

5.5.1 Discharge planning

The recently updated Cochrane systematic review on discharge planning included a meta-analysis of five trials recruiting elderly medical patients that failed to detect a difference for the primary measures of outcome of length of stay and readmission to hospital within three months of discharge. The authors of the review concluded that the impact on readmission rates, hospital length of stay, health outcomes and cost of discharge planning that occurs while a patient is in hospital is uncertain.

These uncertain results are mitigated by the likelihood that the development of a discharge plan is usually part of a broader package of care, making it difficult to isolate the effect of discharge planning alone (Shepperd et al., 2009a). The issue may not be discharge planning *per se* but its component parts and how they are assembled. The possible components of discharge planning have been well summarised by a report from Princess Alexandra Hospital, Brisbane:

- Use of discharge risk screening tools
- Multidisciplinary team meetings or rounds
- Discharge planning protocols
- Educational interventions
- Discharge care plans
- Discharge coordinators/planners
- GP input into discharge planning
- Nurse-led discharge
- Patient self management teaching or coaching
- Augmented hospital-primary care communication
- Post-discharge home visits
- Post-discharge telephone follow-up
- Nurse-led intermediate care units.

This report was based on a review of the literature on discharge planning and support, and concluded that self-management interventions have the most consistent and robust evidence of positive effects, but that this is limited to effects on readmissions. Multidisciplinary teams or

rounds may be effective, but more evidence is required and other interventions have little or no evidence of benefit (Scott, 2008).

In reaching a similar set of conclusions, based on ten years of research and involving a mix of systematic reviews and primary studies, Mistiaen (2007) summarised the evidence by stating that:

“Problems after discharge do exist; informational needs and problems in daily activities are the most prominent.

Patients with (a high risk for) problems after discharge can be identified early after admission; hereto several easy-to-use instruments exist.

Telephone follow-up of patients after discharge does not show any measurable favourable effect, although patients may experience it as helpful.

Discharge interventions are only shown to be effective to a limited extent.

There is some evidence that some interventions may have a positive impact; particularly those with educational components and those that combine pre-discharge and post-discharge interventions’ (Mistiaen, 2007, p 251).

In drawing out the implications of this review (which was part of the presentation of an academic thesis) the author concluded that this set of findings presents a predicament for health professionals in a situation where the evidence about ‘what works’ is lacking, but the evidence for what patients ‘need’ is well recognised (Mistiaen, 2007).

Discharge arrangements for older people, provided across the hospital–community interface, are associated with a reduction in readmission rates (Ali and Rasmussen, 2004; Parker, 2005), but are not associated with shorter length of inpatient stay (Parker, 2005). These conclusions are based on two extensive reviews of the literature with, for example, one of the reviews including 71 studies, with the main intervention types being comprehensive discharge planning, comprehensive geriatric assessment, discharge support arrangements and education interventions (Parker 2005).

Another common approach to discharge planning is case management while patients are in hospital. In their meta-analysis of 12 studies into the effect of hospital-based case management Kim and Soeken (2005) found that, overall, hospital-based case management interventions were not effective in reducing length of stay and readmission.

Although universal case management has not been shown to delivery benefits, it may support better use of acute beds for care of the frail elderly (Dwyer and Jackson, 2001). In their systematic review of 15 clinical trials of nurse-assisted case management to hospital discharge of elderly patients to other settings, Chiu and Newcomer (2007) found that 8 of the 15 interventions showed reduced hospital readmission rates and/or fewer hospital days.

5.5.2 Early discharge to hospital in the home

The evidence on early discharge to hospital at home services has been the subject of a recent systematic review which included 26 studies (excluding obstetric, paediatrics and mental health). The authors found insufficient evidence of economic benefit or improved health outcomes of early discharge to hospital at home services.

Overall, hospital at home appears to result in increased patient satisfaction, and the little data available on carer burden indicate no self-reported increase in the experience of burden (Shepperd et al., 2009). Of the studies included in the review, 13 involved hospital outreach services, 9 community-based services and 4 coordinated services involving hospital-based and community-based services. In each study the care provided by the intervention was primarily nursing, but with additional care sometimes being provided by care assistants or home helps. In

14 studies specialist nurses were employed, physiotherapy in 15 studies, occupational therapy in 15 studies, social work in 5 studies, speech pathology in 4 studies and a dietician in 2 studies. The diversity of these interventions means that the results to be achieved by a particular intervention in a particular context are likely to vary considerably.

5.6 The issue of early detection and patient selection

Much of the discussion regarding hospital avoidance and length of stay reduction centres on the issue of appropriateness: the appropriateness of attendance at an emergency department and the appropriateness of admission to hospital. This discussion is usually framed around what is inappropriate rather than what is appropriate. Judgements about what is considered to be inappropriate typically occur after the event. Any strategies to 'avoid' attendance at an ED or admission to hospital are based on two fundamental assumptions:

- That it will be possible to identify the conditions in real time;
- That these conditions could have been treated earlier by community-based services (Westera, et al., 2007).

Events can be judged as more likely to occur when judgements are made in hindsight and hindsight also enhances a sense of control that would not have been apparent at the time decisions are made. Early detection is the key concept, followed by timely and relevant intervention (Westera et al., 2007). It is difficult to design a system that can do both effectively.

The question of what might be an avoidable admission can be considered from a number of perspectives. Muenchberger and Kendall (2008) undertook a systematic review of published papers that identify significant predictors of hospitalisation and concluded that hospitalisation results from the complex interplay of factors at three levels:

- Individual level factors e.g. age (increasing age equates with increased likelihood of hospitalisation), socioeconomic status, race and ethnicity, social support, use of medications, health status,
- Health system factors e.g. prior hospitalisation, availability of health services, coordination or integration of primary care services, support for self management.
- Environmental factors e.g. atmospheric conditions, local geography (Muenchberger and Kendall, 2008)

These factors are not independent, interacting in ways that are not well understood, making it difficult to intervene with strategies to avoid admission except for interventions for which there is good evidence of effectiveness e.g. patient self management. The list of factors provides some clues for investment of resources e.g. to improve coordination and integration of primary health care.

From a clinical perspective, avoidable hospitalisations are defined as 'a range of conditions for which hospitalisation should be able to be avoided because the disease or condition has been prevented from occurring, or because individuals have had access to timely and effective primary care' (Page et al., 2007, p xi).

Ambulatory care-sensitive (ACS) conditions are a sub-set of avoidable hospitalisations 'for which hospitalisation is considered potentially avoidable through preventive care and early disease management, usually delivered in a primary care setting, for example by a general medical practitioner, or at a community health centre' (Page et al., 2007, p xi). Admissions resulting from these conditions are about 9% of total hospital admissions in Australia, almost two-thirds of which are for chronic conditions. The five conditions with the highest admission rates are diabetes complications, chronic obstructive pulmonary disease, angina, dental conditions and congestive heart failure, respectively.

These ACS conditions can be classified as:

- Vaccine-preventable: Influenza and pneumonia, other vaccine preventable.
- Chronic: diabetes complications, nutritional deficiencies, iron deficiency anaemia, hypertension, congestive heart failure, angina, chronic obstructive pulmonary disease, asthma.
- Acute: dehydration and gastroenteritis, convulsions and epilepsy, ear, nose and throat infections, dental conditions, perforated/bleeding ulcer, ruptured appendix, pyelonephritis, pelvic inflammatory disease, cellulitis, gangrene (Page et al., 2007).

This approach to early detection and patient selection has planning implications beyond any single program. It suggests decision-making at the District level could include the mapping of all the current services targeted at ED and hospital avoidance and reducing length of stay to identify the extent to which different services in the Gold Coast are targeted at this set of ACS conditions. Planning could examine the pattern of usage of hospital services by people with these conditions across all programs, to look at what they have in common and the characteristics of those who can be shown to have benefitted most across the range of programs.

5.7 Conclusion

The current literature on hospital avoidance and reducing length of stay is considerable, and growing, but much of it is not useful for informing policy decisions, particularly the evidence regarding the effectiveness or otherwise of particular interventions, which tends to be equivocal.

Complex interventions like hospital avoidance programs are very dependent on the context within which they operate, including the availability of other services. However, it is reasonable to draw the following conclusions from the literature:

- Programs providing hospital in the home type services have been around for a long-time, are now accepted practice, achieve similar outcomes to hospital services and are well-received by patients.
- The cost effectiveness of hospital in the home services has not been well established. Cost effectiveness is critically dependent on the extent to which programs achieve a reasonable level of capacity. If such a level of capacity is not reached it is quite likely that the program will be more costly than hospital-based care
- Hospital avoidance programs vary considerably in terms of staffing, governance, model of care and client group. It is quite likely that no two programs and their service settings are alike. The literature is of little use in deciding what particular configuration of services will work in a particular set of circumstances.
- On the basis of the current evidence, assumptions about the numbers of ED presentations or hospital admissions that can be avoided should be treated with caution. It is much easier to make judgements about 'avoidability' in retrospect, than it is in real time.
- There is good evidence about the factors that increase the likelihood of patients presenting for hospital treatment and the clinical conditions that are amenable to avoidance strategies. Both have the potential to guide decisions about which services to provide and which patients to target.
- There is more scope to reduce the use of hospitals by those with a chronic illness and the elderly, than it is for younger people and acute conditions.
- Interventions such as discharge planning, case management, self management strategies, home visiting of the elderly, comprehensive geriatric assessment and the enhancement of continuity in primary care all have the potential to reduce hospital admissions.

This summary reinforces the caveats presented at the beginning of this section, where it was noted that in areas of service provision such as the focus of the current evaluation, the 'proof' that a particular intervention 'works' may not be forthcoming. Nevertheless, policy and service planning decisions still have to be made. It is inevitable that local planning factors in the hospital, community health and primary care context, as well as the most effective division of responsibilities between private, public and non-government providers, need to be taken into account.

6 Results - HHL activity

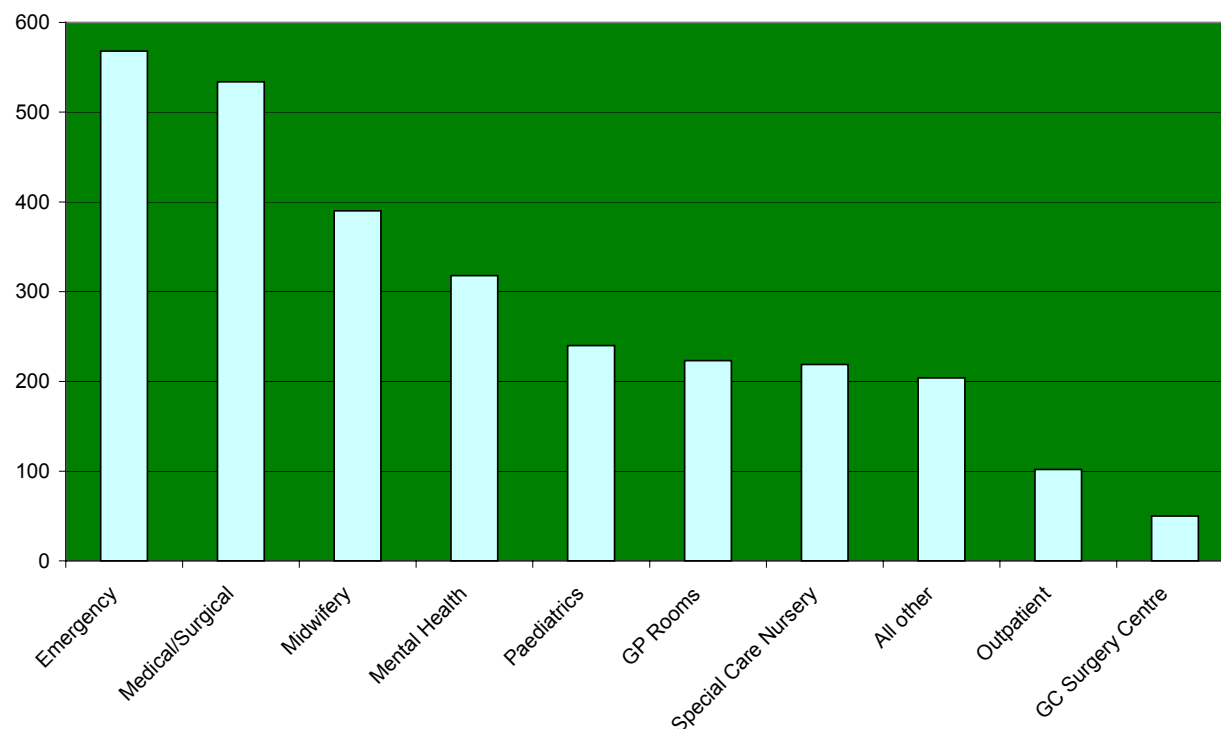
The available data have been analysed to provide a picture of HHL. Included in the analyses presented below are referral patterns over time, a description of the HHL clients and the services provided to them and a summary of the impact of the program as reflected in quantitative data.

6.1 Referrals over time

Since HHL was introduced, there has been a steady increase in the number of sources of referral to the program. Data on the numbers of referrals per referral source from September 2008 to August 2009 were examined and the graphs below show the numbers and the patterns of referrals over that time. The first two months of the program (July and August 2008) are excluded from this series as the program was in its establishment phase during that period.

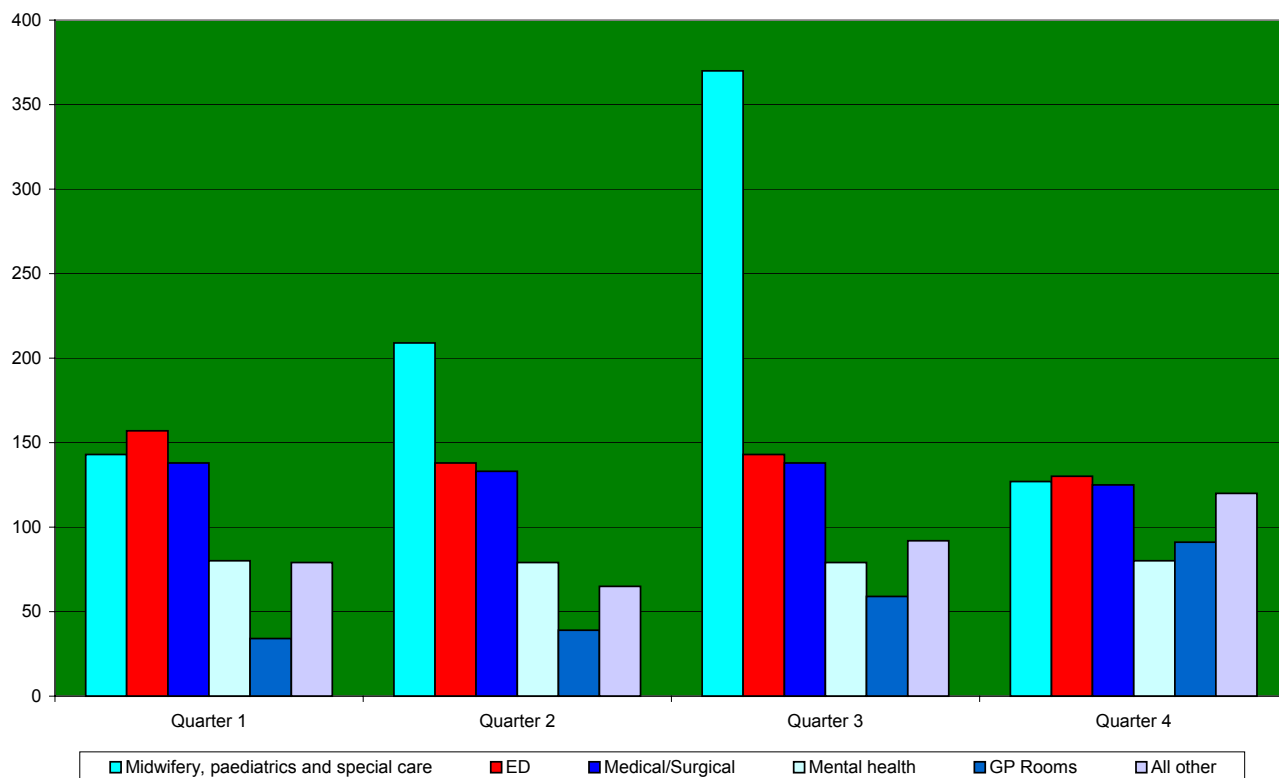
In Figure 3 all referrals over the twelve month period have been plotted by referral source. The referral source categories have been ordered by frequency of referrals over the year.

Figure 3 All referrals to HHL September 2008 to August 2009



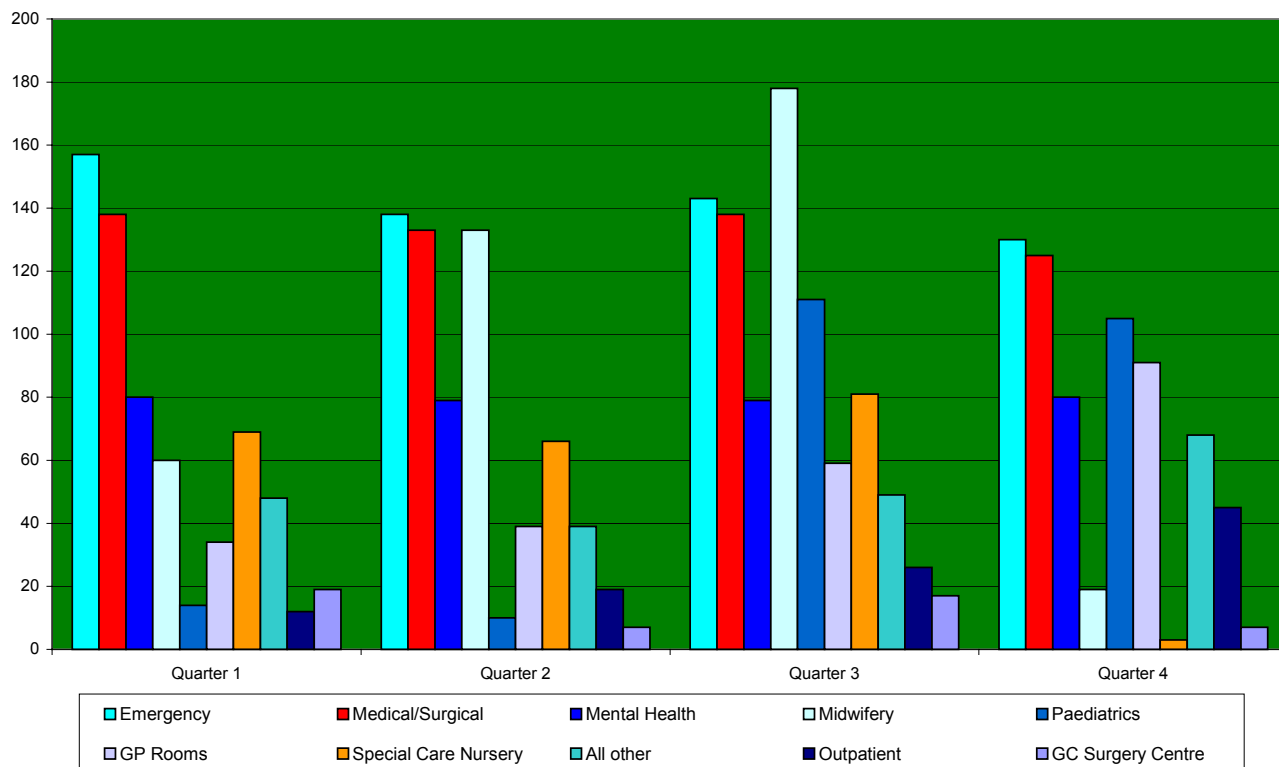
These same data are presented by 3 month period in Figure 4. In the third quarter (March to May 2009) referrals from paediatrics, midwifery and special care nursery represented over 40% of all referrals to the program. Referrals from these sources reduced by 65% in the following quarter. This was due to Southport Hospital becoming a pilot site for the new Universal Post Natal Contact Service (UPNCS). As previously described, the postnatal component of this service offers early support through a variety of services to all clients. These services may include phone calls, home visiting and referral to Newborn and Family drop-in clinics that are co-located within all Community Child Health centres including Nerang & Coomera.

Figure 4 Referrals by type



More detailed referral source information is provided in Figure 5. It can be seen that the major change during 2009 was a significant increase in referrals from maternity, special care nursery and paediatrics. Maternity and special care nursery referrals then fell dramatically in the last quarter, with maternity referrals falling from 178 in the third quarter to 19 in the fourth and special care nursery from 81 to 3. Paediatrics remained constant during the last two quarters.

Figure 5 Referrals by type (more detail)



GP referrals also built up during 2009 while referrals from ED, medicine/surgery and mental health remained constant.

Figure 6 Percentage referrals in 2009 compared to 2008

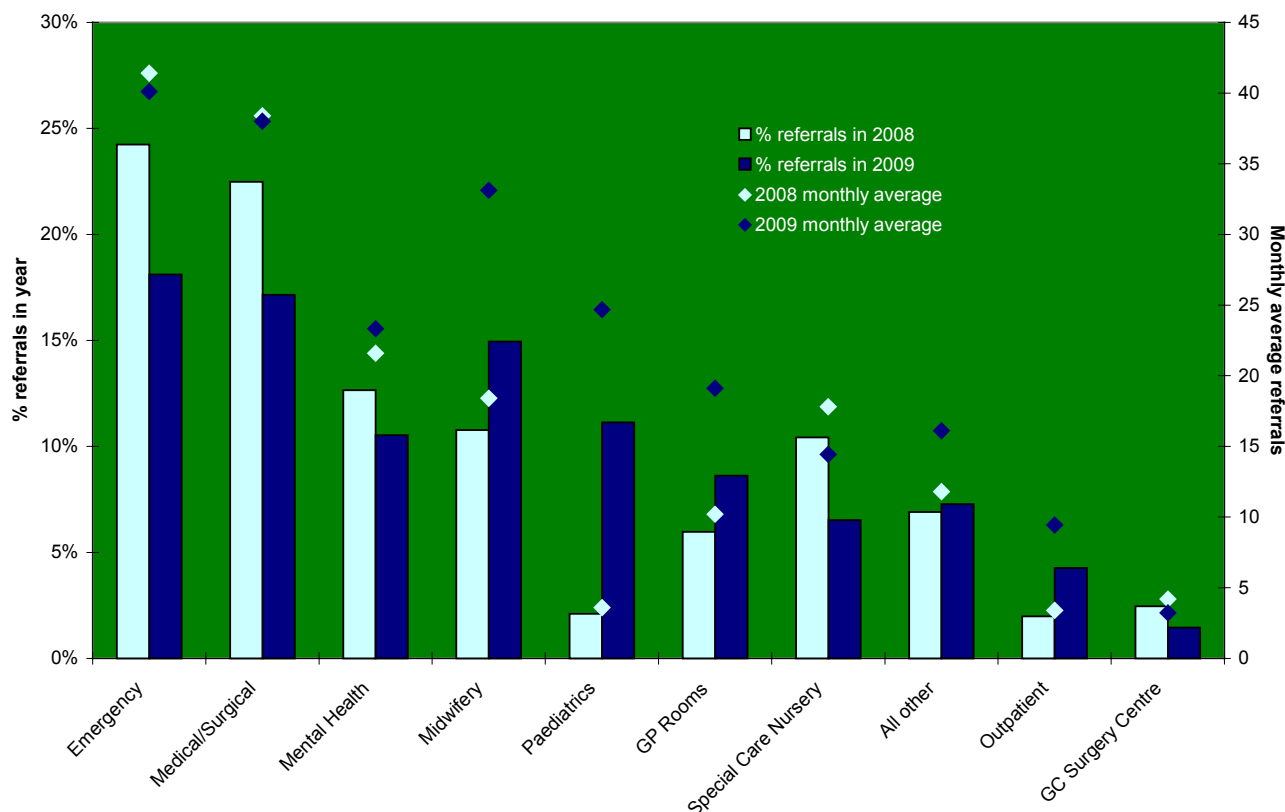


Figure 6 summarises how the referral profile changed between 2008 and 2009. In percentage terms, there has been a reduction of referrals from ED, medicine and surgery, mental health and special care nursery with an increase from maternity, paediatrics, GP rooms and outpatients. However, in terms of average referrals per month, ED, medicine/surgery and mental health remained constant throughout the series.

The change in patterns of referrals over the year reflects the ‘wrap around’ nature of the program. Referrals from maternity and special care nursery are the best example. HHL received significant referrals from this source up until the maternity service established its own alternative service. From that point, referrals to HHL virtually ceased.

6.2 Profile of HHL clients and services provided to them

As discussed in Section 4.1, data from both HSS and the GCHSD have been used to build a profile of the clients who have utilised HHL services. For data items that were only available for activity during 2009, summary statistics have been calculated using available data and are presented as an estimate of the full time period.

The number of clients admitted to HHL between 1 September 2008 and 31 August 2009 is shown in Table 4 together with the average age and the percentage male and female by referral source. Approximately 3% of admitted clients were reported as coming from a culturally and linguistically diverse (CALD) background. The referrals from midwifery and the ‘other’ category comprised a higher than expected proportion of CALD clients (5.4% and 7.2% respectively). Also included in the data set was a field indicating whether a client identified as being from an Aboriginal or Torres Strait Islander (ATSI) background. This was completed for 87% of admitted clients. Overall, approximately 0.5% identified as ATSI. However, with almost 2% of the group, ATSI clients were over-represented amongst mental health clients.

Table 4 *Number of referrals and profile of clients admitted to the HHL program*

Referral Type	N	Average age	Percentage female	Percentage male
Emergency	513	67.0	62	38
Medical/Surgical	503	70.7	56	44
Midwifery	381	27.5	100	0
Paediatrics	272	4.6	44	56
Special Care Nursery	217	1.7	56	44
GP Rooms	197	54.1	60	40
Mental health Inpatient	188	45.2	58	42
Other	187	65.6	53	47
Outpatient	99	29.4	44	56
Mental Health Community	98	60.4	60	40
GC Surgery Centre	42	63.6	45	55
Total	2,697	45.0	61	39

A complete functional profile was collected on 510 clients admitted to HHL. More than 85% of these clients were referred to the program through the ED, a GP or from the medical or surgical wards of the Gold Coast Hospital. The nine-item tool used to assess the HHL participants was designed to give an overview of the functional independence of a person and is used by HACC as a routine screening assessment to determine eligibility for HACC services.

In Table 5, the distribution of scores of HHL clients is provided. The functional profile of two other potentially comparable groups is also provided. One set of scores has been collected on applicants for the NSW Home Care program (Stevermuer et al., 2003), which provides domestic assistance, personal care and respite care for frail older people and people with disabilities. The other set describes the participants of the SAFTE program in NSW (Westera et al., 2007), a NSW ED avoidance initiative (see Section 5.3).

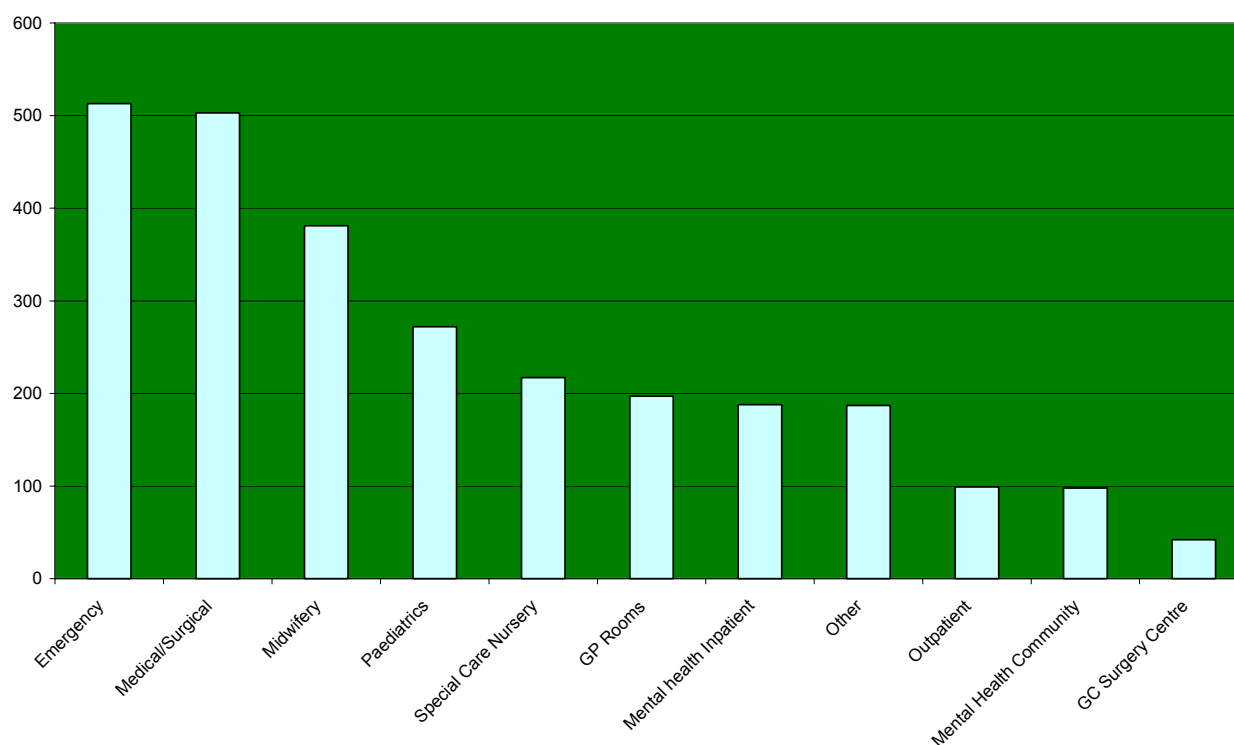
Overall, HHL clients have better functional abilities than their counterparts in the two NSW programs. They are more independent in activities of daily living and have fewer cognitive and behavioural problems.

Table 5 *Functional profile of HHL, SAFTE and Home Care clients*

Question	HHL	SAFTE	Home Care
Can you do housework?			
Without help	9.1%	7.7%	1.4%
With help	43.4%	46.7%	62.8%
Cannot do	47.5%	45.6%	35.9%
Can you get to places out of walking distance?			
Without help	23.0%	16.3%	28.2%
With help	71.1%	70.2%	65.8%
Cannot do	5.9%	13.5%	6.0%
Can you go out shopping?			
Without help	17.0%	10.6%	15.3%
With help	54.7%	51.2%	51.6%
Cannot do	28.3%	38.1%	33.1%

Question	HHL	SAFTE	Home Care
Can you take your own medicine?			
Without help	74.3%	51.2%	59.0%
With help	22.0%	37.9%	30.9%
Cannot do	3.8%	10.8%	10.1%
Can you handle your own money?			
Without help	72.1%	44.0%	51.2%
With help	20.4%	37.9%	31.9%
Cannot do	7.5%	18.1%	16.9%
Can you walk (indoor mobility)?			
Without help	51.5%	76.5%	46.6%
With help	44.0%	20.1%	46.6%
Cannot do	4.6%	3.4%	6.8%
Can you take a bath or shower?			
Without help	51.7%	47.6%	53.6%
With help	42.6%	39.5%	41.2%
Cannot do	5.7%	12.9%	5.1%
Memory problems / confusion			
No	77.4%	55.3%	73.9%
Yes	22.6%	44.7%	26.1%
Behavioural problems			
No	91.9%	82.2%	87.5%
Yes	8.1%	17.8%	12.5%

The following graph shows the number of admissions to the HHL program by referral source. This includes only clients who were admitted for services rather than all referrals. As noted previously, there have been substantial changes in the referral patterns over the life of the program. For a time, midwifery was providing the most admissions to HHL. However, over the full year, the ED, followed closely by medical and surgical wards, provided the most referrals for patients who were subsequently admitted to the program.

Figure 7 *Number of admissions to HHL September 2008 – August 2009*

Of the referrals received between September 2008 and August 2009, 2,697 resulted in an admission to HHL. These referrals were for 2,298 unique clients and the total number of packages provided was 3,267. In Table 6 this information is provided by type of referral. Some clients were referred at different times from more than one source. If a client requires more care than can be provided in seven days, and if there are no services available for HHL to refer the client on, he or she will remain in the program and be provided with a double package. Overall, a double package was provided for 570 (21%) HHL admissions. The distribution of double packages across the various referral types is presented in Figure 8.

Table 6 *Number of HHL admissions and packages by referral type*

Referral Type	Number of admissions	Number of double packages	Total number of packages
Emergency	513	91	604
Medical/Surgical	503	94	597
Midwifery	381	34	415
Paediatrics	272	54	326
Special Care Nursery	217	20	237
GP Rooms	197	56	253
Mental health Inpatient	188	91	279
Other	187	43	230
Outpatient	99	37	136
Mental Health Community	98	48	146
GC Surgery Centre	42	2	44
Total	2697	570	3267

Figure 8 Number of single and double packages by referral type

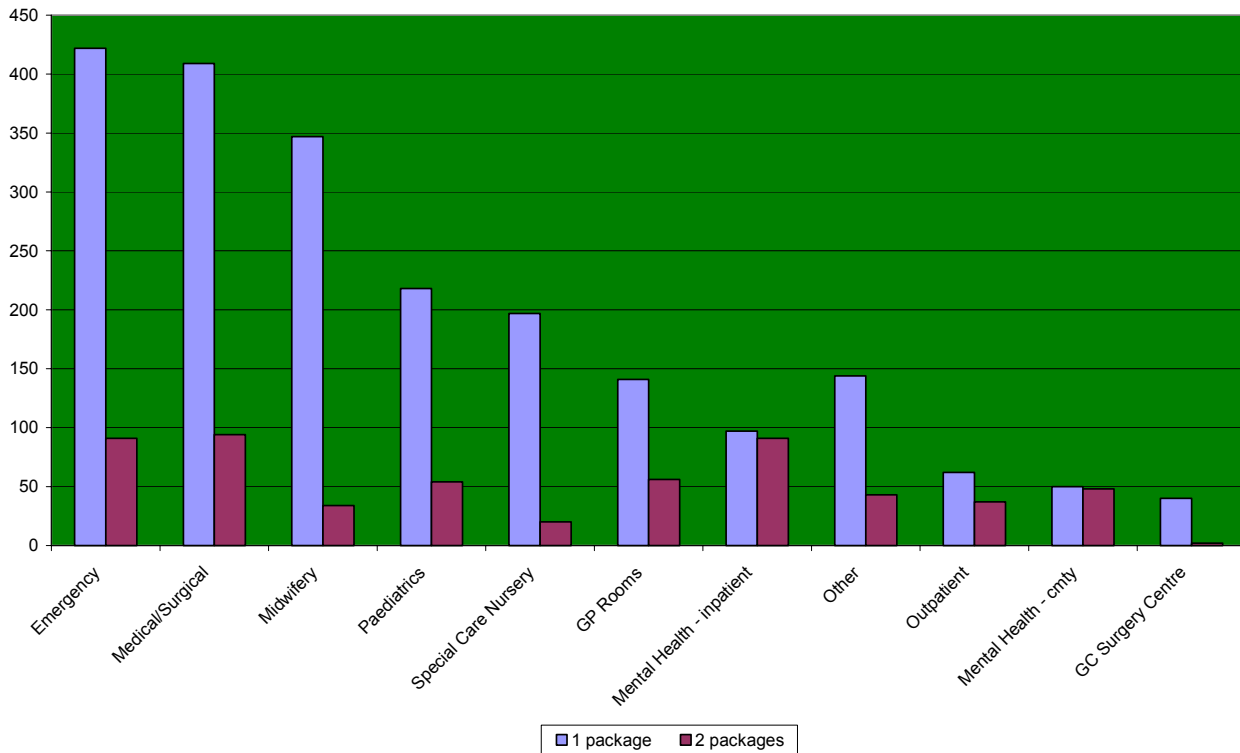


Figure 9 summarises total HHL patients, referrals and packages. As shown in this figure, 2,039 patients (89%) were referred only once to HHL. Of this group, 1,715 (75% of all patients) received only one package or 52% of all HHL packages while 324 patients (14% of all patients) received a double package. A total of 259 patients (11%) were referred to HHL more than once. These 11% of patients received 28% of all packages. This includes 24 patients who received 8% of all HHL packages.

Figure 9 HHL patients, referrals and packages

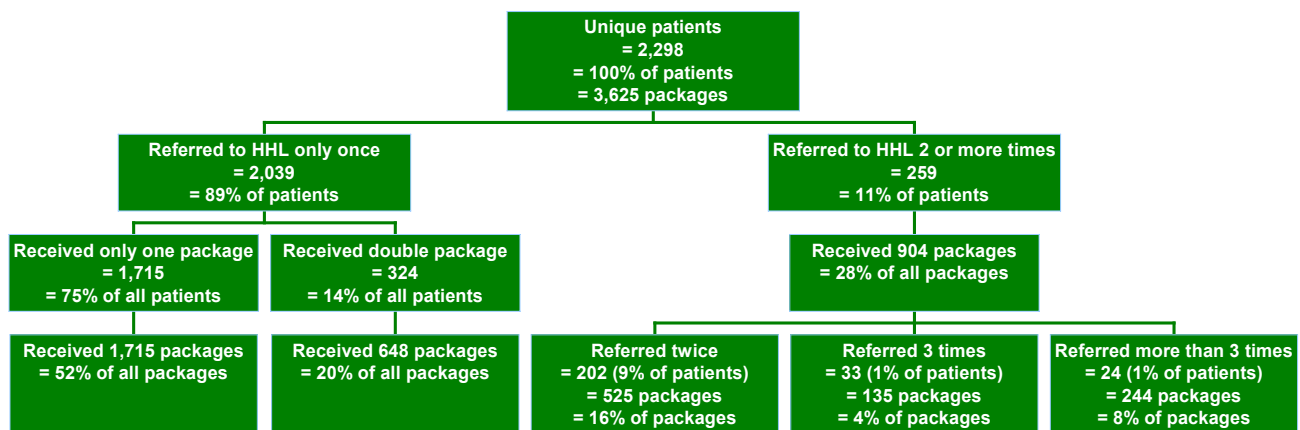
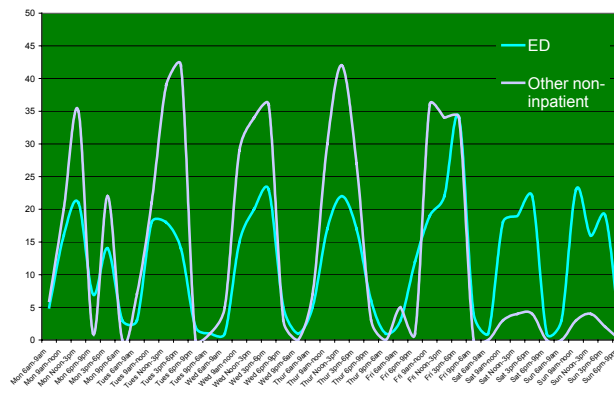
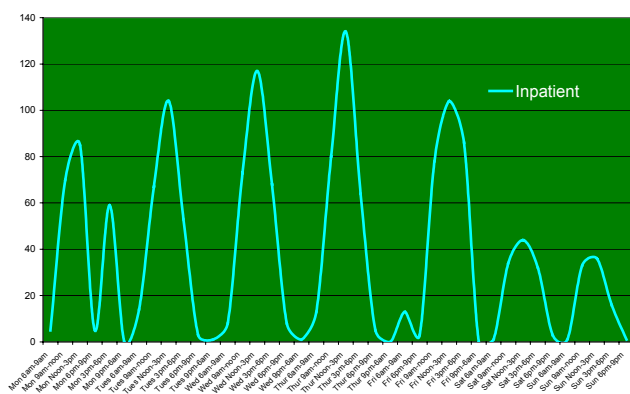
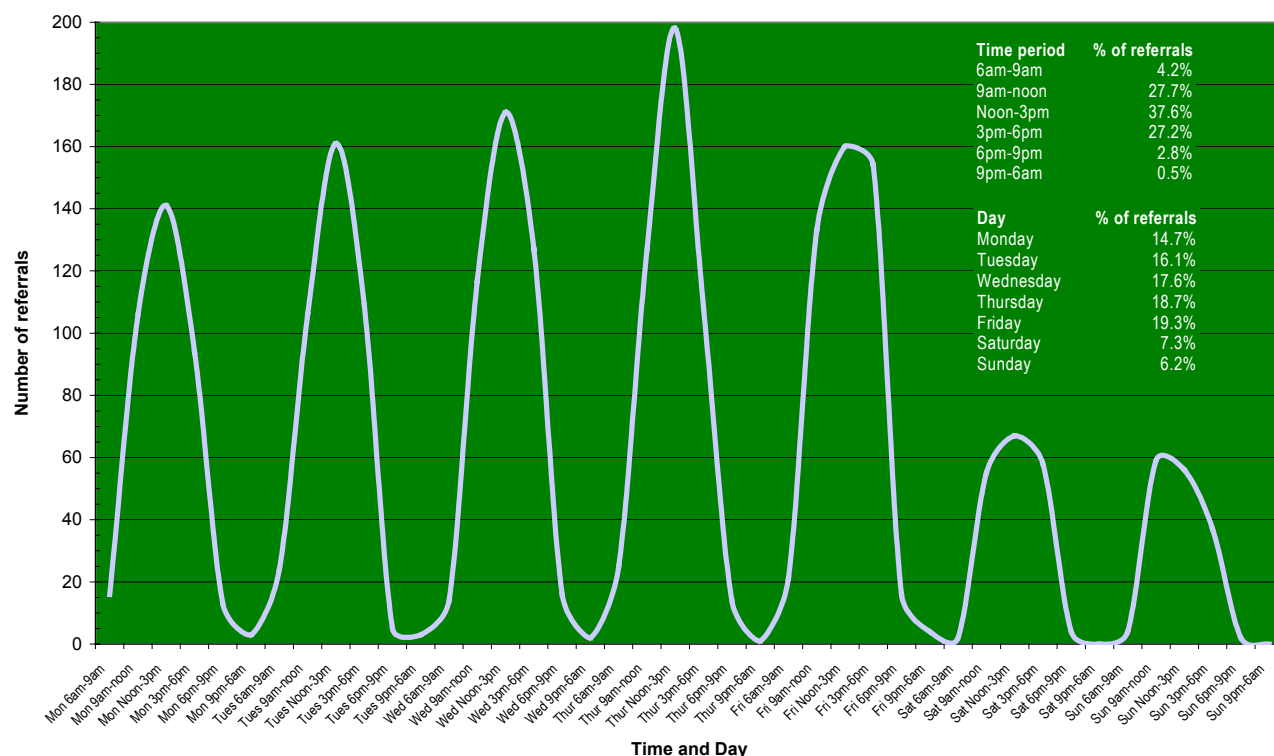


Figure 10 shows when referrals were made by time period and day of the week. A key feature of the program is its 24/7 availability. However, as this graph demonstrates, the significant majority of referrals were made on weekdays between standard business hours. Only 3% of referrals were made after 6pm in the evening and only 14% on weekends. The GCHSD report that the operational hours of inpatient discharge services cease at around 3.00pm, meaning that about 30% of referrals to HHL are made when discharge services are not available.

The smaller graphs in this figure show the same information but this time separated into early discharge admission referrals (on the left) and hospital avoidance referrals (on the right). While the number of referrals differ, the pattern is similar for all groups.

Figure 10 Time and day of referral to HHL



Some details of HHL admissions are provided in Table 7. The average length of stay varied from 4.1 days for those who were referred from the GC Surgery Centre to 11 days for mental health referrals. The longer lengths of stay are reflected in higher numbers of double packages. There is an important policy question regarding double packages. Provision of double packages was initially intended to be available only for extreme cases. At a rate of 21%, the number of double packages is high for something that had been expected to occur only rarely.

The time between referral and admission to the program was calculated. As can be seen from these data, HHL is not only being used as a fast-response, immediate service delivery program. Some clients are pre-booked when it is known ahead of time that HHL services will be required and there is no alternative service provider available.

Table 7 *Details of HHL admissions January – March 2009*

Referral Type	No. referrals admitted to HHL	ALOS (days)	Days from referral to HHL admission	No. referrals resulting in 2 packages	Percentage resulting in 2 packages
Emergency	513	7	0.3	91	17.7%
Medical/Surgical	503	7	0.8	94	18.7%
Midwifery	381	7.2	0.2	34	8.9%
Paediatrics	272	7.6	0.3	54	19.9%
Special Care Nursery	217	8.1	0.2	20	9.2%
GP Rooms	197	8.3	1.2	56	28.4%
Mental Health inpatient	188	10.3	1.4	91	48.4%
Other	187	6.9	2.6	43	23.0%
Outpatient	99	8.2	2.4	37	37.4%
Mental Health community	98	11.1	1.1	48	49.0%
GC Surgery Centre	42	4.1	1.3	2	4.8%
Total	2697	7.7	0.8	570	21.1%

A number of clients were referred to the program on more than one occasion. In Table 8 the number of times each unique patient/client was referred to the program is shown with the total number of packages. It will be seen that 2,039 clients (89%) were referred only once to the program. These clients received a total of 2,363 packages, or 72% of all packages provided. The remaining 11% of clients received 28% of all packages provided. This includes paediatric patients for whom a special arrangement was made. They received a large number of referrals and packages because the only alternative for them was to remain in hospital indefinitely. There is no suggestion that these were inappropriate referrals but they do impact on the total number of packages received.

Table 8 *Total number of referrals, clients and packages admitted to HHL Sep 2008 – Aug 2009*

Number of referrals	Number of clients	Total packages
1	2,039	2,363
2	202	525
3	33	135
4	11	61
5	3	23
6	5	46
≥7	5	114
Total	2,298	3,267

HHL provides a variety of services. They are recorded against each referral in a text field. Sometimes a similar service is called a couple of different things. We have attempted to unify the nomenclature and then to group the services into categories. These groups are:

- Accommodation
- Assessment
 - Home assessment
 - Nursing assessment
- Allied health services
 - Allied health service

- Nutrition assessment/education
 - Occupational therapist
 - Physiotherapy
- Case coordination
- Community health services
 - Childcare
 - Client support/education
 - Domestic assistance
 - Home maintenance/modifications
 - Industrial clean
 - Meals/food service
 - Other community service
 - Personal care assistance
 - Social support
- Equipment
- Mental health services
 - Drug and alcohol service
 - Mental health service
- Nursing care services
 - Bowel management/education
 - Catheter management
 - Chronic disease management/education
 - Continence management/education
 - Diabetes management/education
 - Eye care
 - General nursing
 - IV management
 - Medication management/education
 - Monitor vital signs
 - Paediatric nursing
 - Pain management/education
 - Palliative care/education
 - PEG care
 - Respiratory care/education
 - Stomal care/education
 - Urinary management/education
 - Wound management/education
- No nursing care required
- Postnatal care
- Transport
- Other
 - Other
 - Interpreting service
 - Specialist

It is possible that for some clients, not all services provided are recorded. However, we believe that the records would be sufficiently complete to give an overview of the types of services provided to the different referral groups. In Figure 11 the relative distributions of the types of intervention are presented by referral type. The percentage of clients who have at least one of these interventions is presented by intervention group in Table 9.

Figure 11 Proportion of referrals receiving different service types

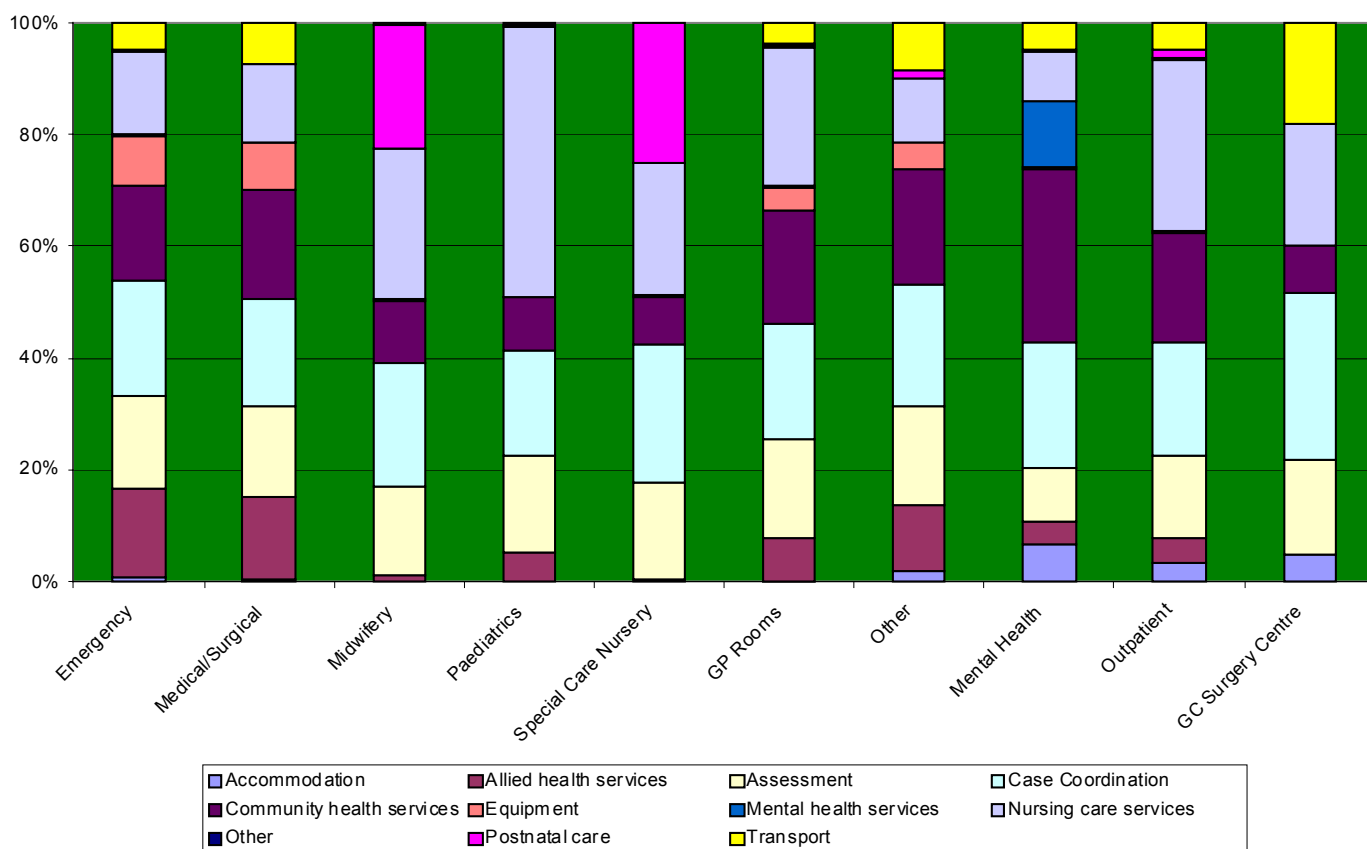


Table 9 Percentage of HHL admissions who received each service type

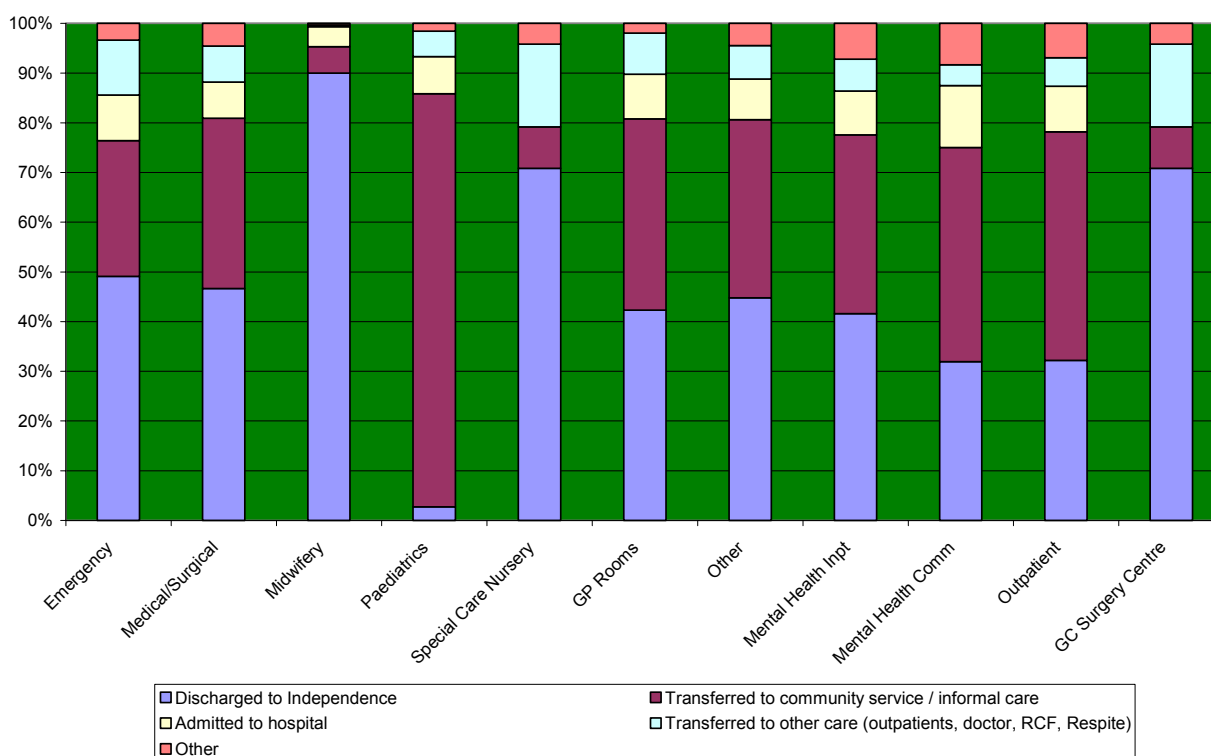
Service Type	Percentage
Nursing care services	22.7%
Case Coordination	20.9%
Community health services	16.9%
Assessment	16.1%
Allied health services	8.4%
Postnatal care	5.0%
Transport	3.8%
Equipment	3.7%
Mental health services	1.3%
Accommodation	1.1%
Other	0.2%

The discharge destinations of HHL clients were grouped into categories. The resulting percentages are presented in Table 10 and Figure 12. Of the patients admitted to hospital, 28% were planned admissions, 19% were unplanned admissions that were related to the HHL admission and 53% were unplanned but unrelated to the reason for the HHL admission. Only the unplanned admissions that were related to the HHL admission are used in the Return on Investment analysis reported later in Section 9.

Table 10 Discharge destination of HHL referrals

Referral Type	Discharged to Independence	Transferred to community service / informal care	Admitted to hospital	Transferred to other care (outpatients, doctor, RCF, Respite)	Other	Total
Emergency	49.1%	27.3%	9.2%	11.0%	3.4%	100%
Medical/Surgical	46.7%	34.2%	7.3%	7.3%	4.5%	100%
Midwifery	90.0%	5.3%	4.0%	0.3%	0.3%	100%
Paediatrics	2.8%	83.1%	7.5%	5.1%	1.6%	100%
Special Care Nursery	70.8%	8.3%	0.0%	16.7%	4.2%	100%
GP Rooms	42.3%	38.5%	9.0%	8.3%	1.9%	100%
Other	44.8%	35.8%	8.2%	6.7%	4.5%	100%
Mental Health Inpatient	41.6%	36.0%	8.8%	6.4%	7.2%	100%
Mental Health Cmty	31.9%	43.1%	12.5%	4.2%	8.3%	100%
Outpatient	32.2%	46.0%	9.2%	5.7%	6.9%	100%
GC Surgery Centre	70.8%	8.3%	0.0%	16.7%	4.2%	100%

Figure 12 Discharge destination of HHL referrals

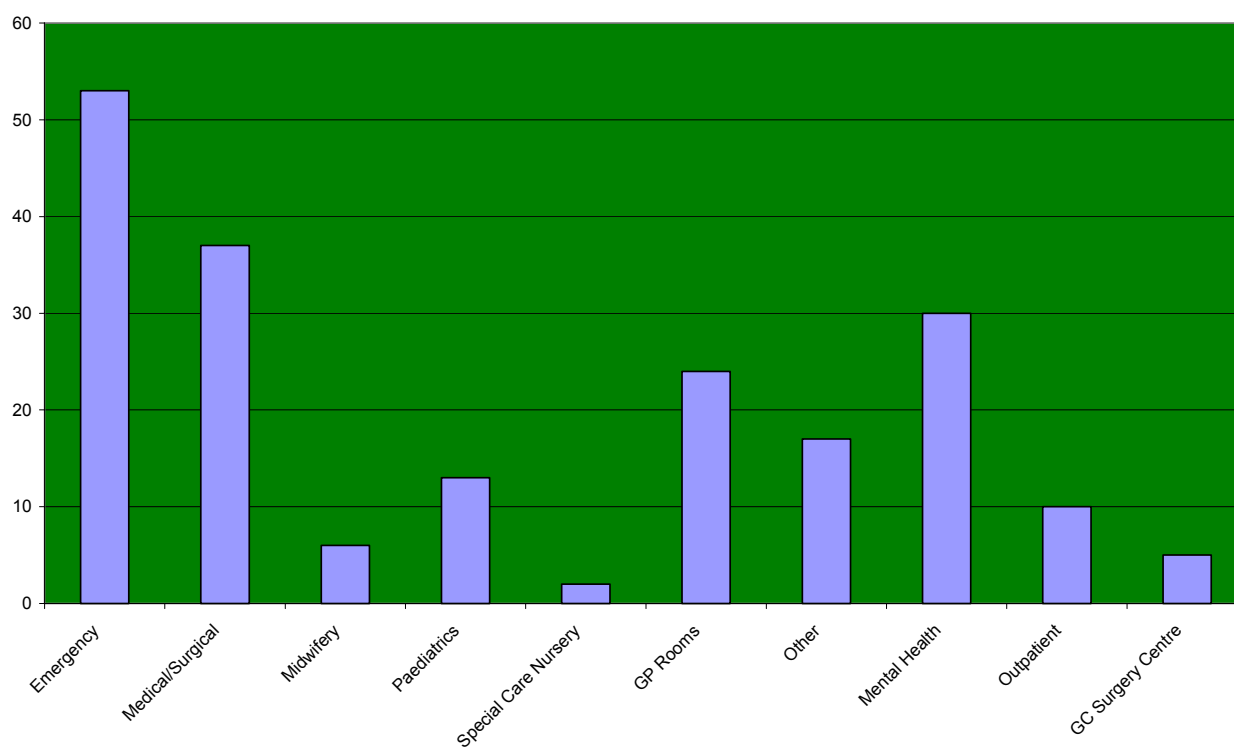


Between 1 January 2009 and 31 August 2009, more than 2,000 referrals were made to HHL. Of these, 197 were not accepted into the program. The reasons for not accepting these referrals are provided in Table 11 and the numbers from each type of referral source who were not accepted are displayed in Figure 13. Overall just under 8% of referrals were not accepted, but this rate varied from 1.4% when the referral came from the Special Care Nursery to 17.2% of referrals from the Gold Coast Surgery Centre.

Table 11 Reason referral not accepted into HHL

Reason referral not accepted by HHL	Percentage
No need identified/problem resolved	24.1%
Client remained in hospital	17.0%
Client refused treatment	13.7%
Client already receives services required	10.8%
Client admitted to hospital prior to service provision	9.9%
Outside geographic catchment	8.0%
Outside Program Guidelines	3.8%
Outside Program guidelines- inappropriate request	3.3%
Outside program guidelines- functionally unsafe	2.4%
Outside program guidelines- medically unsafe	1.4%
Client not contactable (escalated)	0.9%
Client deceased	0.5%
Directed to more appropriate service provider	0.5%

Figure 13 Number of referrals not accepted by referral type January – August 2009



6.3 HHL discharge audit

The HAP Project Officer conducted an audit of 128 HHL discharge summaries that aimed to review referral management including the time of referral and interventions provided by HHL.

The results revealed that:

- 58/128 of the referrals were received by HHL after hours
- 20/128 of these referrals were provided with double packages.

Prior to the audit, clarification had been requested for some specific referrals. In particular, the questions 'Was this early discharge?' and 'Why not Discharge Services?' were raised about some of the referrals. For others, the HHL episode appeared not to have worked. In the audit report, referrals were discussed under these three themes.

The audit report concluded that, of the 128 referrals reviewed, none was appropriate for ACEIM. The report also concluded that any referrals to HHL for wound care or IV therapy (services provided by the existing Home Team) were either outside the Home Team's geographic boundary or required other services as well.

The report stated that as a result of this audit HHL have reviewed and updated the discharge summary to reflect the interventions provided, goal outcome, discharge reason (including planned and unplanned readmissions) and referrals made to other community services.

6.4 Satisfaction with HHL

HHL conducted two types of satisfaction surveys during the year that are part of its reporting requirements.

Patient satisfaction

HHL conducted a patient satisfaction survey from January to March 2009. Of the 108 respondents, 97 (90%) reported that they found HHL to be excellent, while 11 (10%) rated HHL services as good. The majority of patients (94 or 87%) responded that HHL was preferable to being in hospital, with 8 (7%) respondents preferring hospitalisation and 6 (6%) not answering.

Respondents rated the care they received as excellent (95), very good (12) or good (1), and 100% of respondents would have HHL services again. Only one respondent reported that his/her discharge from HHL was not adequately planned.

Referrer satisfaction

HHL also conducted a referrer satisfaction survey, with the results reported in December 2008. There were 90 surveys sent with a 33% response rate. The respondents were mainly from a public hospital (18) or mental health (7), with three from a community group and one GP. Those respondents, who are a hospital referrer, were in the following roles - RN (11), Allied Health (8), Discharge Planner (6) or Doctor (2). In total, 27 of the respondents have been referring either 1-5 or 6 -10 patients per month to the HHL program. Respondents had been referring patients to the HHL program for either more than four months or between three and four months.

When seeking information about HHL, the information sources that have been utilised (in order) are liaison staff, patient brochures, case coordinators and resource folders, with only one person accessing the web site.

About a third of the respondents said 'Yes' to the question 'Is there part of the service you believe could improve HHL care?' Although more details were requested from those who responded with a 'Yes', unfortunately any suggestions that were made were not provided in the report.

Most of respondents (about 80%) commented on the positive aspects of HHL.

Accessibility of resources after hours

Availability of services

Prompt service (same day or next)

They cover the non-HACC eligible clients (three separate comments on this)

Professionalism of liaison staff

7 Results - impact of HHL as seen in hospital activity data

Table 12 shows trends in ED presentations in recent years. ED presentations have increased by nearly a third since 2005/06, with a significantly increase occurring after the opening of the ED at Robina. At the same time, the percentage of patients admitted (but not the raw number) has actually been decreasing.

Given the small scale of the HHL program, it has not made any discernible impact on either ED attendances or admissions via the ED, if for no other reason that the number of referrals to the HHL program is simply too small. In total, there were 261 GP referrals for 210 patients in the period September 2008 and August 2009. The EDs at Southport and Robina had 106,154 attendances in the same period. These 210 patients represented 8.1% of HHL referrals but only 0.2% of ED attendances in the year. During the same period, there were an estimated 2.75 million GP attendances.

Table 12 ED presentations 2005 to 2009

Year	ED presentations	Number admitted	% admitted
05/06	63,275	18,892	29.9%
06/07	68,630	19,011	27.7%
07/08	90,285	21,940	24.3%
08/09	106,154	22,921	21.6%

An alternative measure of the impact of the program is the estimated number of beddays saved and this is discussed below as well as in Section 9.

Since the introduction of HHL and a number of other demand management strategies, the performance of the hospital campuses on the relevant key indicators has been good and this is reflected in Figure 14. This figure shows trends in admissions and occupied bed days between July 2007 and August 2009 and the key events relating to the three major District demand management strategies implemented in 2008 – the opening of the Carrara Health Service, the establishment of HHL and the opening of the Gold Coast Surgicentre.

There has been a steady increase in admissions during the whole period. In the first half of the 2008 calendar year there was a steady increase in occupied bed days. The trend then reversed until September when it rose again before a further marked decrease in November, with occupied bed days reaching their lowest point in December 2008. November 2008 was the first time since July 2007 that the number of occupied bed days fell below the level they had been twelve months before.

However, in January 2009 the number of occupied bed days reverted to the level it had been in the previous January. In March 2009 the number of occupied bed days rose sharply again before falling the following month and it has hovered around the April level for the rest of the series.

Figure 14 Trends in admissions and occupied bed days July 2007 to August 2009

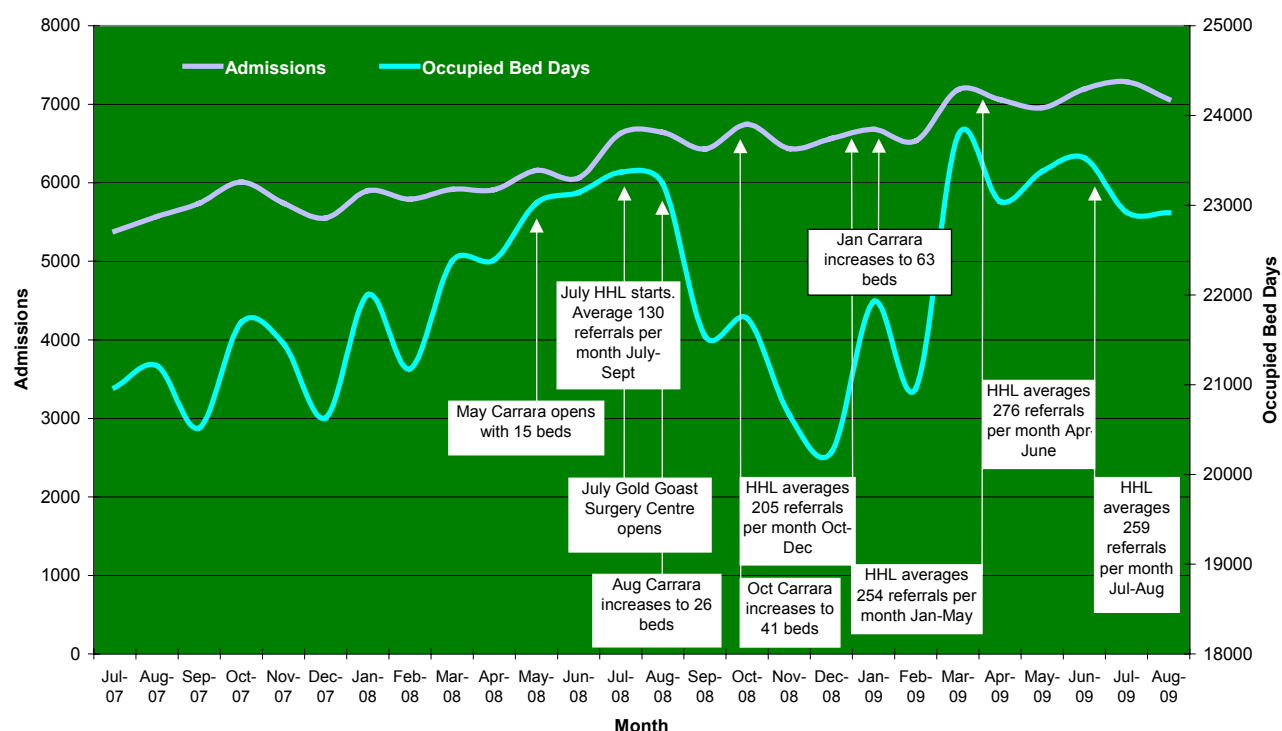


Figure 15 provides more detail by showing bed occupancy rates by division. The Division of Medicine experienced the most improvement in occupancy rates with a continuous fall from 95% to 79% occupancy between July and December 2008. The Community, Allied and Oral Health and the Family, Women’s and Children’s divisions also showed an improvement during the last six months of 2008. While bed occupancy in the Surgery and Mental Health divisions varied from month to month, there was no trend toward lower bed occupancy during this six month period.

Further analysis (not reported here) identified that a significant proportion of the improvement in bed occupancy rates in the Division of Medicine occurred in the Neurology and Cardiology Unit. The coronary care units at both hospitals also experienced a decline in occupancy rates in this period. None of these units made a significant number of referrals to HHL during this period.

Figure 15 Bed occupancy rates by Division

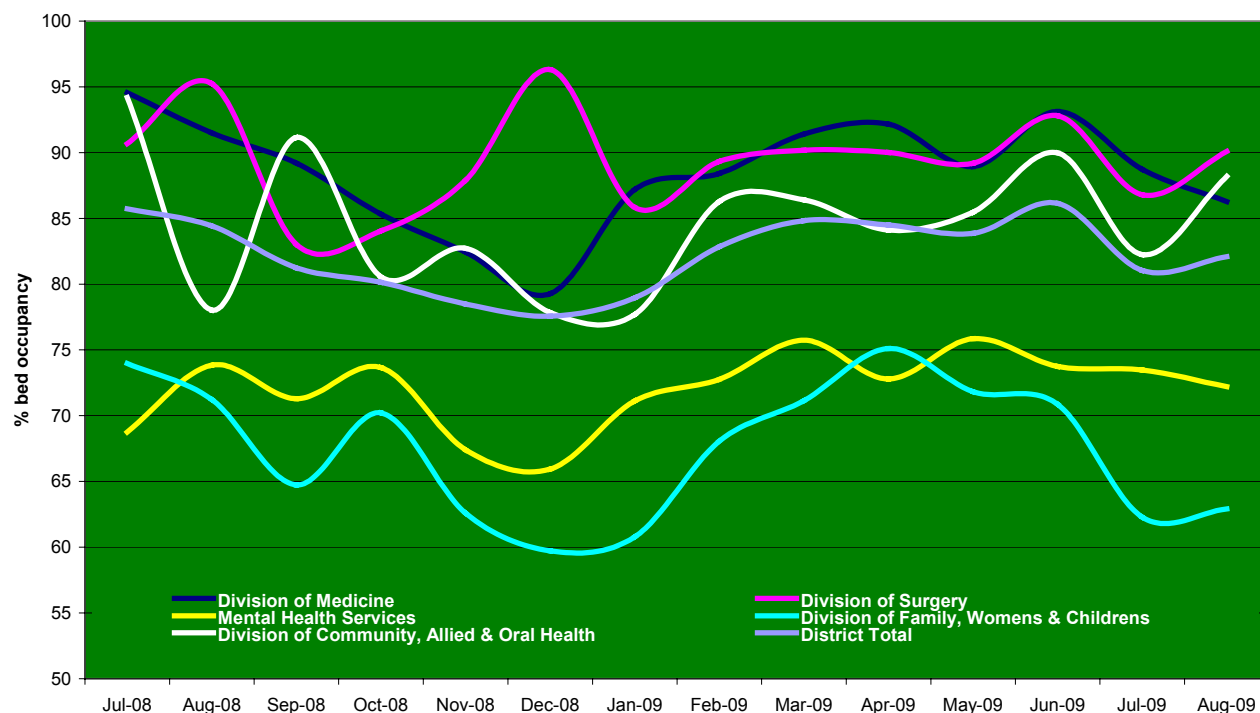


Figure 16 *The relationship between district bed occupancy, HHL referrals and the availability of beds at Carrara*



Figure 16 shows the relationship between District bed occupancy rates, referrals to HHL (the left graph) and bed days at Carrara Health Service (the right graph). The white line in both graphs shows bed occupancy rates by month between July 2008 and August 2009. The blue line shows utilisation of HHL and Carrara Health Services respectively. It will be seen that there was a significant reduction in bed occupancy rates between July and September 2008, after which bed occupancy went up and down. During these three months, the new Surgicentre opened and activity at both HHL and Carrara built up.

The HHL program accepted 322 referrals in its first 3 months (July – September 2008), including 280 referred by the ED for hospital avoidance or by the wards for early discharge. Depending on assumptions about how long these patients would have stayed in hospital without the HHL service, this effectively freed up 5 to 9 medical and surgical beds per day in the first three months of the program (see Section 9 for further information on these assumptions). This allowed for an increase in acute care throughput (approximately 140 acute patients in the first three months).

In parallel, the opening of the Carrara Health Service had an immediate effect on bed availability at the other campuses, with bed numbers increasing to 20 in July and 26 in August. These 20-26 beds were occupied by patients who stayed an average of 30 days. These patients would previously have been cared for at the Gold Coast and Robina campuses. This freed up 20 to 26 beds at the Gold Coast and Robina campuses that could then be used for acute patients staying much shorter periods (an average of 3.4 days) and allowed for an increase in acute care throughput (approximately 580 acute patients in the first three months).

Based on these analyses, our conclusion is that HHL played an important role in improving patient throughput and decreasing occupancy during the period. However, the opening of the Carrara Health Service had a much bigger impact.

As we noted above, this improvement in bed occupancy rates was not sustained and by the first quarter of 2009 occupancy levels had returned to the levels experienced in July and August 2008. This coincided with the period when the Carrara Health Service opened all of its beds and also reached high bed occupancy levels. By February 2009, the Carrara Interim Care Unit had an occupancy rate of 90% and the Carrara Rehabilitation Unit was at 80% occupancy. During the same period, referrals to HHL remained fairly constant. Our interpretation is that, by early 2009, the Carrara Health Service had absorbed the backlog, reached its own capacity and was no longer able to make a difference to the bed pressure at the other hospital campuses. Further discussion of what changes in District performance can be attributed to HHL is included in Section 9.

7.1 Hospital admissions prior to referral to HHL

We were able to link the HHL record with the hospital inpatient admission that preceded it for 1,640 HHL referrals. Table 13 shows the DRGs with 20 or more HHL referrals. The full list of

DRGs for patients referred to HHL is included in Attachment 2 with the same information included. Across all DRGs, patients referred to HHL stayed in hospital about 0.94 days longer than the casemix-adjusted GCHSD average. This is not surprising as straightforward patients would have been less likely to be referred to HHL.

Table 13 *DRG of hospital episode preceding HHL admission*

DRG + Description	Number	Average LOS HHL referral	Average LOS GCHSD
O60B - Vaginal Delivery W/O Catastrophic or Severe CC	125	2.3	2.3
O01C - Caesarean Delivery W/O Catastrophic or Severe CC	67	3.8	3.4
P67C - Neonate, AdmWt > 2499 g W/O Significant O.R. Procedure W Other Problem	54	6.0	4.6
Z60A - Rehabilitation W Catastrophic or Severe CC	46	28.1	23.9
O60C - Vaginal Delivery Single Uncomplicated W/O Other Condition	40	1.5	1.6
P66C - Neonate, AdmWt 2000-2499 g W/O Significant O.R. Procedure W Other Problem	39	12.4	11.9
U63B - Major Affective Disorders Age <70 W/O Catastrophic or Severe CC	35	21.5	15.7
P67D - Neonate, AdmWt > 2499 g W/O Significant O.R. Procedure W/O Problem	34	3.2	2.1
P67B - Neonate, AdmWt > 2499 g W/O Significant O.R. Procedure W Major Problem	32	11.1	6.7
U67Z - Personality Disorders and Acute Reactions	30	9.3	6.0
I75B - Injury to Shoulder, Arm, Elbow, Knee, Leg or Ankle Age >64 or W CC	28	2.9	2.7
I04Z - Knee Replacement and Reattachment	26	7.5	6.9
E70B - Whooping Cough and Acute Bronchiolitis W/O CC	23	3.3	2.4
D63B - Otitis Media and URI W/O CC	20	1.9	1.4
Z64A - Other Factors Influencing Health Status	20	5.3	11.2

Table 14 shows the Major Diagnostic Category (MDC) preceding the HHL admission. Over 50% of all patients fall into just four MDCs – pregnancy and childbirth, musculoskeletal system, newborns and mental health. This is a very different profile from the early stages of the program when medical and surgical discharges represented a higher proportion.

Table 14 *Major Diagnostic Category of hospital episode preceding HHL admission*

MDC	Total	% of total
MDC 14 Pregnancy, childbirth and the puerperium	295	18.0%
MDC 08 Diseases and disorders of the musculoskeletal system and connective tissue	224	13.7%
MDC 15 Newborns and other neonates	222	13.5%
MDC 19 Mental diseases and disorders	137	8.4%
MDC 04 Diseases and disorders of the respiratory system	135	8.2%
MDC 23 Factors influencing health status and other contacts with health services	84	5.1%
MDC 05 Diseases and disorders of the circulatory system	81	4.9%
MDC 06 Diseases and disorders of the digestive system	67	4.1%
MDC 01 Diseases and disorders of the nervous system	64	3.9%
MDC 22 Burns	57	3.5%
MDC 03 Diseases and disorders of the ear, nose, mouth and throat	51	3.1%
MDC 09 Diseases and disorders of the skin, subcutaneous tissue and breast	47	2.9%
MDC 10 Endocrine, nutritional and metabolic diseases and disorders	42	2.6%
MDC 11 Diseases and disorders of the kidney and urinary tract	33	2.0%
MDC 18 Infectious and parasitic diseases	17	1.0%

MDC	Total	% of total
MDC 20 Alcohol/drug use and alcohol/drug induced organic mental disorders	16	1.0%
MDC 07 Diseases and disorders of the hepatobiliary system and pancreas	12	0.7%
MDC 16 Diseases and disorders of the blood and blood forming organs and immunological disorders	9	0.5%
MDC 02 Diseases and disorders of the eye	7	0.4%
MDC 13 Diseases and disorders of the female reproductive system	6	0.4%
MDC 17 Neoplastic disorders (haematological and solid neoplasms)	6	0.4%
MDC 21 Injuries, poisoning and toxic effects of drugs	5	0.3%
MDC 12 Diseases and disorders of the male reproductive system	4	0.2%
Pre-MDC	13	0.8%
Error DRGs	6	0.4%
Total	1640	100.0%

7.1.1 Readmissions and re-presentations after a HHL package

HBCIS and EDIS data were used to assess the rate of readmissions or re-presentations at the ED within 28 days following discharge from a HHL package.

For each HHL client, a history of his or her contact with the GCHSD by way of inpatient admissions or ED presentations was obtained. Records from EDIS, HBCIS and HHL were all merged and arranged chronologically for each patient. Anyone who had an inpatient record or an ED presentation during the 28 days following their HHL admission was examined in detail to assess whether the readmission or re-presentation was for the same problem that led to their contact with HHL.

For many clients, there was insufficient information to be sure whether the subsequent hospital activity was for the same reason or not. For some other clients, it was clear that the HHL admission was a precursor for a hospital admission or a procedure conducted in the outpatients department. Other clients were referred by Palliative Care, had chronic conditions or re-presented for ongoing treatment, such as renal dialysis, while others attended the ED for a prearranged session for a variety of reasons, such as a review of their progress or to have their plaster renewed. None of these was regarded as a readmission for the same reason.

Overall, the readmission rate was assessed to be just over 7%. Within the referral groups, this rate varied from less than 1% for Special Care Nursery referrals to more than 16% for inpatient mental health referrals. This readmission information data have been used to inform the analysis regarding the Return on Investment in Section 9.

8 Results – provider perceptions

This section of the report provides an insight into provider perceptions about the HLL program. These are the views of those providers working during the introduction and establishment of the program.

As with the introduction of any new program, where it has to both ‘form’ and ‘perform’, there was a period of time before HLL reached ‘steady state’. During this time, staff who could potentially refer to the program had to become familiar with HLL and how it fitted in amongst existing services. There was also the need for ongoing education about HLL provided by its staff to assist with this. In some senses the program has still not reached a steady state because of its ‘wrap around’ nature (see Section 6.1).

In conducting stakeholder consultations with hospital and HLL staff, general practitioners and NGO representatives, questions were structured around a number of themes. A summary and an analysis of the discussions held in the consultations are presented below under these same themes.

8.1 Questions of outcomes and attribution

GCHSD has approached demand management as a system wide or complex intervention, recognising that multiple strategies are required to generate sustainable improvements in organisational performance. Complex interventions are needed to address ‘wicked problems’.

‘Wicked problems often crop up when organizations have to face constant change or unprecedented challenges. They occur in a social context; the greater the disagreement among stakeholders, the more wicked the problem. In fact, it’s the social complexity of wicked problems as much as their technical difficulties that make them tough to manage. Not all problems are wicked; confusion, discord and lack of progress are telltale signs that an issue might be wicked.’ (Camillus 2008, p 100)

During the course of the consultations many parallel initiatives that GCHSD has in train to assist with demand management were described by multiple participants.

Initiatives mentioned include:

- The phased opening of the 63 bed sub acute unit at Carrara from May 2008 to January 2009
- The opening of the Surgical Centre from July 2008
- The Expected Date of Discharge project from July 2008
- The initiative by the Division of Medicine to closely manage patient flow, particularly through nursing and the use of Bed Manager software
- The focus on episode of care changes for patients transitioning from acute to sub-acute care
- Changes in discharge practices (AM as opposed to PM discharge focus in surgical wards)
- Policy changes such as the implementation of financial penalties and/or incentives by Queensland Health to encourage health districts to meet key emergency department and elective surgery performance targets from July 2008
- Statements by the new Director- General that every mother must have contact with the health service in her first week after discharge from hospital.
- Internal changes (e.g. scope of hours, resources) to pre-existing programs such as the Discharge Services Unit, Home Team, ACEIM, CHIP, EDDI, maternity early discharge program etc.
- Post Universal Post Natal Contact Service initiative for maternity services.

Consequently attribution of HHL's impacts (especially in the longer term) to the direct effects of demand management is difficult to confirm.

8.2 Integration with existing services

There are many references in the literature to terms such as integration, continuity, coordination and 'improving links' but little consensus on what these terms mean. The most useful conceptualisation that the evaluation team has found is the work of Leutz who examined a range of 'integration efforts' and then proposed five laws of integration:

- You can integrate all of the services for some of the people, some of the services for all of the people, but you can't integrate all of the services for all of the people
- Integration costs before it pays
- Your integration is my fragmentation
- You can't integrate a square peg and a round hole
- The one who integrates calls the tune (Leutz 1999).

Leutz refers to three different levels of integration – linkage, coordination and full integration. Linkage refers to the relationships between systems that serve whole populations without relying on any special attention to the links, but rather a shared understanding of when, for example, to initiate a referral to another agency. Coordination by contrast requires structures and individuals with specific responsibility to 'coordinate', with the majority of the work undertaken by separate structures within existing systems. Full integration is more likely to occur when resources from multiple systems are pooled. The operational differences between the three levels of integration are illustrated by what happens to the flow of information. With linkage, information is provided when asked for and asked for when needed; coordination requires information sharing to be defined with reports provided routinely; full integration relies on a common record that is used as part of daily practice (Leutz 1999).

What emerged from the consultations was that the introduction of HHL has largely relied on establishing links between HHL and existing services, primarily through the presence of HHL liaison staff. In some parts of the organisation this has been highly effective, often this is predicated by whether or not the liaison staff member has worked within GCHSD previously and is 'known' to staff and to what degree the liaison officer is 'visible'. Some liaison officers have particularly high visibility (mental health, midwifery and paediatrics) and variously attend bed management meetings, multi-disciplinary team meetings, patient handover sessions etc. This high degree of visibility appears to be associated with a similar degree of acceptability of the HHL employee by the GCHSD staff in that particular clinical area. The issue of trust and feeling 'comfortable' with the HHL service appears to be an important precondition for acceptance and integration.

There has been little in the way of system wide coordination and no full integration. For most providers the HHL program is fairly peripheral to their normal work e.g. the emergency departments at the two campuses see about 300 patients a day but only refer, at most, 1-2 patients per day to HHL.

8.3 Partnerships between acute, primary and community service providers

One of the aims of the evaluation was to identify if the program has integrated well and improved partnerships within and between acute, primary and community care sectors in the GCHSD. Many departments and divisions had pre-existing partnerships that were forged around other initiatives or issues of common interest. For some parts of the organisation the HHL program has provided a higher level of interaction between the acute, primary and community care sectors, particularly for paediatric services. This service already had established links with the community based child

and family health teams. Whilst it is not possible to say whether the partnerships have improved a precursor to any improvement could logically be seen to be higher levels of interaction and this has occurred as evidenced by the increasing referrals from these services to HHL.

There has been competition and conflict between HHL and some (but certainly not all) pre-existing providers of early discharge and hospital avoidance programs which has been exacerbated by lack of shared understanding of, and agreement about, the referral process. This has impacted adversely on the relationship between several individuals and services within the Division of Medicine and what is now the Division of Community Subacute and Aged Services. This was been due to a combination of factors, primarily perceptions that:

- There are competing views on how the HAP should be implemented
- Previous history relating to responsibility for early discharge and hospital avoidance programs within the GCHSD has continued to impact on relationships and misunderstandings
- A perceived lack of clarity around key program processes such as referral and feedback systems
- The interplay of differing personalities exacerbating communication problems.

Several respondents cited an unintended and positive consequence of the program was that NGOs within the GCHSD were more responsive than they had been prior to the introduction of HHL. This view is not shared by the NGOs. HACC agencies received extra funding at about the same time that HHL was established to expand their services to HACC eligible clients. Their perception is that this allowed them to increase their total HACC client base, with the typical response time of a day or two remaining unchanged from prior to the introduction of HHL.

Although initially supportive of the HHL program, staff working in community NGOs believed that the relationship between their organisations and the program had deteriorated since its early positive beginnings. Their perception was that this was due to a lack of formal communication about key issues such as the HHL referral policy and procedures, individual client cases and changes in the referral rates to some NGOs. The net effect is that NGOs are less supportive of the program than they had been at the beginning.

8.4 Structures, systems and guidelines in place to support the program

There has been ongoing confusion about the Discharge Referral Flow Chart for referring patients to HHL during 'business hours', Monday to Friday. For a small number of interviewees, the referral pathway is clear and has been that way since the program began. But for most people, the pathway is confusing, not only the content and structure of the pathway but also the mechanism by which the pathway was formally approved by the organisation. This issue was first raised (according to the project issues register) by staff from DSU and ACEIM in July 2008. It was noted as resolved but with a note to 'continue to monitor' in August 2008.

The main attempt to clarify this issue is the memo from the Chief Operations Officer to executive staff dated December 2008. This states that clinical staff can refer directly to HHL at any time. This simple, and very clear, directive has not been accepted by some staff.

A review of documentary sources confirms that a process was established by the steering committee to deal with major issues. All issues are logged by the HHL Project Officer who is then responsible for attempting to resolve these. If they cannot be resolved, they are then escalated to the Steering Committee and/or project sponsors. If the problem is resolved prior to the next steering committee meeting, the issue is still included on the project issues register but it is recorded as 'closed'. The mechanism for resolving these issues appears to rest with the Steering Committee. When the program was first initiated two sub-committees were set up - an evaluation committee and an implementation committee. The implementation committee attempted to resolve differences in professional opinion about aspects of program delivery, however this

committee was disbanded. The records of meeting attendance show that only approximately 50% or less of members regularly attended.

The terms of reference of the Steering Committee states that:

'The purpose of this steering committee is to oversee the Hospital Avoidance Program and offering guidance and advice for achieving the program's objective of effective demand management with hospital avoidance and post acute care services.

The Steering Committee will also oversee the development and implementation of the Evaluation Framework for the Hospital Avoidance Program providing guidance, advice and assistance to the external evaluators to ensure the success of the evaluation.' (Gold Coast Health Service District, 2009a)

These terms of reference depict an 'advisory' role as opposed to a 'management' role. This has been supported from information gathered during interviews where various individuals, departments or divisions who have not agreed with a resolution of this committee have felt open to challenge it. This has led to some stakeholders not accepting the 'umpire's decision' on issues such as the referral process, as they do not accept the Steering Committee as the 'umpire'. However, the two project sponsors sit on the Steering Committee and, as the project sponsors, are the decision-makers. That said, not everyone has agreed with, or accepted, some decisions that have been made. The issue of direct clinical referrals to HHL is an example of this.

8.5 Referral patterns

We asked questions about what types of patients were referred to HHL and what would happen to those patients if HHL did not exist. For those working in critical care areas and medical/surgical wards HHL is fairly peripheral to their day-to-day activity. For example, Southport Emergency Department has an average of approximately 180 attendances a day but only refers about 1-2 patients per day to HHL. The medical and surgical wards at Southport and Robina also refer only 1-2 patients per day to HHL. There has been a much stronger focus on discharge support referrals rather than hospital avoidance referrals. GPs refer very few patients. The lower than expected rate of referrals from GPs is similar to the experience of the SAFTE Care Program in NSW (Westera, Stevermuer et al. 2007).

Referrals are categorised both by HHL and the GCHSD into 'avoidance packages' and 'supported early discharge packages' based solely on the source of referral. For example, all referrals from emergency departments are assumed to have avoided an admission. We are not alone in not accepting this assumption. As one example, an experienced clinician we interviewed estimated that only about 50% of referrals from the emergency department avoided an admission.

HHL was repeatedly referred to as a 'gap filler', with a small number of interviewees characterising HHL as being an 'in-between' service or a service that 'wraps around' existing services. There is a wide range of existing hospital avoidance and early discharge services in acute care, maternity, mental health, palliative care and residential aged care with varying degrees of restrictions either in terms of time (Monday - Friday), geography, age or capacity. The unrestricted nature of the HHL program has resulted in the program extending into areas that were not priority targets at the start, primarily paediatrics, maternity and special care nursery. Almost all this work is discharge support and has mainly been well received by the staff members who work in those areas. However, as described elsewhere, there have recently been operational changes in maternity and special care nursery services that has resulted in a significant decrease in referrals.

Counterfactual (what would staff do with current referrals if HHL did not exist)

When asked what would happen to the patients currently referred to HHL if the program did not exist, a consistent range of responses was provided:

- patients would be referred to pre-existing hospital services and have to wait

- patients would be referred to NGOs and have to wait
- patients would be kept in hospital or ED longer
- patients would be admitted
- patients would be sent home in sub-optimal conditions
- patients would fall through the cracks.

8.6 Cost of the program and views about ongoing funding

There was general, although by no means universal, support for the program to be funded on an ongoing basis. Those departments that have used the program the most were more enthusiastic than others. However, this was largely an 'early discharge' rather than a hospital avoidance perspective i.e. most of the usage has been for discharge support.

Interviewees were less enthusiastic when the proposition was put that funding would have to come from the health service budget rather than being allocated from Queensland Health, with suggestions that the funding could be put to other uses or to enhance existing services and that there was a need to demonstrate outcomes before a decision was made. The majority of interviewees focused on the cost of the program as opposed to the financial benefits that might accrue from early discharge and hospital avoidance.

In our assessment, at a financial level there have been two different models trying to work together, the fee-for-service model of HHL and the 'capped' cost control model of the health service. This has been of significant concern to a number of staff and represents an example of what Leutz would describe as trying to integrate a square peg with a round hole. Several respondents expressed concern about the flat fee of \$700 per package of care and questioned whether this represented value for money. These personnel did not appear to understand the fixed costs that underpin the infrastructure of the program and commented that a fee of \$700 was expensive for some of the less complex services delivered. It was surprising that interviewees did not recognise that the 4000 care packages have been funded for a defined period (up until 31 December 2009) and if they are not utilised it is unlikely that the project funds will be able to be redirected elsewhere.

One interviewee raised the strategic issue of funding models in the context of the growing emphasis in Queensland Health on casemix funding where budget allocations are linked to activity. They emphasised the strategic importance of linking funding for HHL to measures of patient activity also recognising the need for measures of patient outcomes.

Others consulted felt that the future program needed to get the 'best bang for the buck'. They felt that HHL funding may be best spent on admission avoidance in the EDs. For early discharge and hospital avoidance 'sub-programs', it was suggested that it may be better to review processes and explore options to enhance current service providers.

8.7 Factors that facilitate or inhibit implementation of the program and ongoing sustainability

Implementation

Implementation has been described as the 'weakest link' in turning proposals for change into reality (Bevan, Ham et al. 2008). Achieving good outcomes requires an effective program that has been well implemented, represented schematically in Table 15.

Table 15 Interaction of program effectiveness and implementation effectiveness

		Effectiveness of implementation	
		Effective	Ineffective
Effectiveness of the program	Effective	Effective implementation Good outcomes	Ineffective implementation Poor outcomes
	Ineffective	Effective implementation Poor outcomes	Ineffective implementation Poor outcomes

Adapted from Fixsen et al (2005).

It has been suggested that there are six discernible stages of implementation:

- Exploration and adoption.
- Program installation
- Initial implementation.
- Full operation
- Innovation
- Sustainability

Full operation is achieved when the program becomes ‘accepted practice’, referrals are taking place in accordance with the agreed inclusion/exclusion criteria, the program is supported by management and the context within which the new program is operating has adapted to the presence of the new program. One test of full operation is the extent to which a new program is integrated with existing programs. Most evaluations of new programs occur during initial implementation rather than full operation (Fixsen, Naoom et al. 2005).

An alternative way of thinking about implementation is the concept of ‘implementation fidelity’ which is about the degree to which something has been implemented rather than the stage of implementation. For HHL this refers to the extent to which the program has adhered to what was intended i.e. is the content, frequency, coverage and duration of the program consistent with what was intended? (Carroll, Patterson et al. 2007). In the absence of good information about the stage of implementation or the degree to which a program has been implemented, judgements about reported outcomes are problematic.

The HHL program commenced implementation on 1 July 2008, six weeks after the tender to deliver the program was awarded to Home Support Services. Those we interviewed fell into two schools of thought. A significant group felt that this period of time was too short, not allowing for planning and implementation of a full range of change management activities to prepare for the new program. Another group felt that internally there had been lots of discussion, pre-planning and stepping out of the anticipated project several months before it started. In addition there had been a considerable lag time between when the idea was first discussed and the program ultimately commenced. This in part explains the plethora of other initiatives (previously identified) that started at a similar time. The GCHSD had major ‘access’ pressures in 2007/08 and the prospect of the new University hospital was still over five years away. In this situation innovative interventions to manage demand would be appealing.

Program characteristics

The HHL program can be considered as just another demand management program, introduced into a complex mix of existing programs. However, several features of the program make it quite different to anything previously experienced by the GCHSD:

- the fee-for-service funding system,

- one fee no matter what the range of services provided,
- a private for-profit provider, with staff working under very flexible employment conditions and
- an open system of referral with no clinical or time-of-day restrictions.

The program has interfaced with existing services in many and varied ways, requiring change at the level of individuals, groups or teams, and the organisation. The need to consider change at various levels e.g. the individual, the team, the organisation, the broader context; is emphasised in the literature (Ferlie and Shortell 2001; Iles and Sutherland 2001). Such a multi-level approach, if it is not to be haphazard and unproductive, implies the need for some degree of organisation and planning. A recent large-scale empirical study of organisational change in health care has identified 'a coherent change strategy' as playing a key role in progressing service improvement (Fitzgerald, Ferlie et al. 2007).

Interviewees indicated that consultation with various stakeholders took place about whether to have a program like HHL and our own review of documentation confirms that this is the case. However, many people indicated that they did not understand how the change would be implemented. Put simply, for many key stakeholders there was no explicit model of change.

Complex interventions in service organisations have been conceptualised as having a 'hard core' (the key elements of the innovation) and a 'soft periphery' (the organisational structures and systems required for full implementation). The ability of the 'soft periphery' to adapt is a key attribute of an innovation (Greenhalgh, Robert et al. 2004). There appears to have been an assumption that HHL would commence providing services and that existing services would remain unchanged. This was a somewhat naive assumption. It is likely that implementation would have gone more smoothly if more attention had been paid to the 'soft periphery'.

The program was expected to have an impact across the whole organisation and yet the change management strategies adopted were program-specific rather than an organisation-wide strategy that was led by the whole executive. While the program team has devoted considerable time to change management, they focused (as was their role) on the 'hard core' rather than the 'soft periphery'. In this context, it is not surprising that the majority of interviewees felt that resistance to change from personnel already offering services in the early discharge/hospital avoidance space could have been anticipated.

The primary objective of the HHL program is to reduce unnecessary hospitalisation by either hospital avoidance or early discharge. That was how the program was marketed to providers. Based on our interviews and other sources of data, our view is that the balance between hospital avoidance and early discharge has been different to what had been expected. Nearly two thirds (64%) of all referrals have been for early discharge, which is a much higher percentage than had been expected. Just over a third of referrals have been for hospital avoidance - 7.7% of referrals were from GPs for ED avoidance and 28.5% from the ED for admission avoidance.

Diffusion

The emphasis on early discharge during the last year may have been a developmental necessity as the diffusion of any innovation does not occur at uniform pace amongst all stakeholder groups. In our experience in other clinical redesign and hospital avoidance initiatives, considerable time (two to three years) is often required to fully implement community based programs.

Within the social science literature, there is a large body of work on the diffusion of innovations that has evolved since the 1940s (Rogers 1983). This theory considers the adoption of innovations among individuals and organisations. The diffusion model occurs through a five-step decision-making process:

- researchers acquire knowledge about the proposed clinical change
- the individual clinician is persuaded about the advantages of the innovation

- the clinician engages in activities that will lead to a choice about adopting or rejecting the innovation (e.g. reading, attending workshops, communicating with individuals who have experience in the field)
- the innovation is incorporated into the daily activity of the clinician and
- the clinician seeks reinforcement about the innovation decision (e.g. discussion and comparison with peers) (Sanson-Fisher 2004, p 4).

Rogers defines the rate of adoption as the relative speed with which members of a social system (like the GCHSD) adopt an innovation. Individuals and organisations will move through the decision process at different rates, depending upon whether they are innovators or early or late adopters. Other factors influencing acceptance include promotion by influential role models, the degree of complexity of the change, compatibility with existing values and needs, and the ability to test and the modify the new procedure before adopting it (Sanson-Fisher 2004).

It is not entirely unexpected that hospital staff have responded most quickly to the early discharge opportunities provided by HHL. This is the type of intervention they are more familiar with. If the program continues, consistent effort will be needed to broaden the uptake of the hospital avoidance opportunities that HHL offers. Whilst considerable work was done with the Queensland Ambulance Service (QAS) to allow direct referrals of appropriate patients by QAS, only 6 referrals from QAS were received from the first referral in April 2009 through to the end of August 2009. Further sustained effort will be needed with individual practices and GPs to stimulate referrals from this sector if the number of referrals are to increase to a point that they can make a material impact on ED activity.

Facilitating factors

During the interviews a range of factors were consistently identified that facilitated implementation:

- clarification of how this new program would interface with other existing programs
- the presence of HHL on the ward – having the liaison persons in the hospital and identifying patients who could be referred to the service plus the ongoing interaction between program representatives and GCHSD staff
- responsiveness – the immediate service response helps with referrals
- the wide range of services provided and capacity to deliver
- the trust that developed once successes were experienced.

Inhibiting factors

A range of factors were also consistently identified that inhibited implementation:

- organisational readiness; the limited lead in time impacted on the ability to bring those providing services in related service areas, on side
- ongoing confusion about referral pathways
- the lack of feedback on patients in certain clinical areas³
- the seven day limit of the package
- pre-existing organisational culture
- the lack of integration of related services
- the pilot nature of the program with no certainty of ongoing funding.

³ HHL discharge summaries are filed in the client notes within a month of discharge from HHL and direct feedback is available from liaison staff if staff request it

Research focusing on the longer-term impact and effect of discrete and time limited health improvement projects or pilots has raised important questions in the literature about their potential spread and sustainability (Kuipers, Humphreys et al. 2008). The common problems of running pilots and demonstrations are that the changes are local and small scale and rely on larger scale systems to take up and maintain the lessons that are demonstrated. There is often no incentive for clinicians (including GPs) to change long established referral pathways as the 'pilot' program may not be permanent and clinicians will have to return to the old way of doing things once the pilot phase is over.

8.8 Program impact

The two main measures of program impact during the pilot period have been hospital admissions and length of stay. Typically there are three types of indicators:

- A small number of indicators that are good measures.
- A larger set of indicators that are imperfect measures but for which data are available. These measures are liable to generate false positives and false negatives.
- Additional indicators for which there is no useful source of data (Bevan and Hood 2006).

The current indicators for the HHL program, and indeed hospital demand strategies, are limited. Our interviews elicited a range of views about how the HHL program is helping to 'plug the gaps' in the present somewhat disjointed configuration of demand management programs. If the program is to continue it may be worth considering the development of a more sophisticated set of indicators, not just about HHL but about all similar programs operating in the GCHSD. The most frequently reported quality indicators in the literature on hospital avoidance and discharge programs are (in order of frequency) efficiency, effectiveness, patient-centredness, safety, timeliness and equity (Kumar and Grimmer-Somers 2007).

HHL has been extensively marketed to GPs. A referral by a GP requires the GP to make decisions about matching their patients' needs with the services available. If the program continues, there would be value in marketing the program to GPs within a broader avoidable admissions strategy that identifies specific diagnoses that are amenable to this type of intervention, as has been done in New South Wales where the following diagnosis related groups have been targeted:

- Cellulitis (DRG: J64B)
- Community acquired pneumonia (DRG: E62C)
- COPD (DRG: E65B)
- Bronchitis and asthma (DRG: E69C)
- Red blood cell disorders and Transfusions (DRG: Q61C)
- DVT (DRG: F63B)
- Urinary tract infections (DRG: L67C)
- Acute non-surgical pain (musculotendinous disorders) (DRG: I71C)
- Chest pain (DRG: F74Z)
- Seizure (DRG: B76B)
- Headache (DRG: B77Z)
- Gastroenteritis (DRG: G67B)

These DRGs were selected based on:

- Clinical justification for treating low complexity, acute medical conditions in alternative care settings other than inpatient hospital beds, by services such as Community Acute Post Acute Care Services, Hospital in the Home and other hospital avoidance strategies.
- Diagnostic related groups with greater than 4,000 admissions per year across NSW requiring a length of stay of 2 days or less (NSW Health 2008).

8.9 Changes in service delivery and access to home support for clients

A recently updated Cochrane systematic review on discharge planning includes a meta-analysis of five trials recruiting elderly medical patients that failed to detect a difference for the primary measures of outcome of length of stay and readmission to hospital within three months of discharge. The authors of the review concluded that the impact of discharge planning that occurs while a patient is in hospital is uncertain. These results are mitigated by the fact that the development of a discharge plan is usually part of a broader package of care, making it difficult to isolate the effect of discharge planning alone (Shepperd, Parkes et al. 2009). The issue may not be discharge planning *per se* but its component parts and how they are assembled. The possible components of discharge planning have been well summarised by Ian Scott from Princess Alexandra Hospital, Brisbane:

- use of discharge risk screening tools
- multidisciplinary team meetings or rounds
- discharge planning protocols
- educational interventions
- discharge care plans
- discharge coordinators/planners
- GP input into discharge planning
- nurse-led discharge
- patient self management teaching or coaching
- augmented hospital-primary care communication
- post-discharge home visits
- post-discharge telephone follow-up
- nurse-led intermediate care units.

Scott concluded that self-management interventions have the most consistent and robust evidence of effect but that this is limited to effects on readmissions. Multidisciplinary teams or rounds may be effective but more evidence is required and other interventions have little or no evidence of benefit (Scott 2008).

A timely review of discharge planning is already underway. Such reviews can benefit from being framing as a project to improve continuity of care and redesign services to improve the patient journey through the health system. The literature indicates that cost saving should not be the main driver of any such review: costs saved in one sector from early discharge programs should be balanced by expenditure in another sector (Kumar and Grimmer-Somers 2007).

8.10 Strengthened capacity - improvements to coordination and continuity of care

One of the requirements for the evaluation of the HHL program was to 'assess if the program has strengthened acute, primary and community sector capacity'. In this context, 'capacity' implies more than just provision of a 24/7 service. One of the key requirements of HHL was referred to in the project documentation as 'capacity to ensure immediate and secure patient identification,

communication, coordination and information sharing between the referrers, the single entry point, and providers of care packages'. For the purposes of our evaluation, we interpreted the term 'capacity' as referring to not only 24/7 access but also to coordination and continuity.

There is a lack of agreement about what is meant by the term 'continuity' and various terms such as continuum of care, coordination of care, discharge planning and case management, can be used synonymously. Different providers will have different perspectives on what is meant by continuity but there are two common themes that distinguish continuity from other healthcare attributes - care of an individual patient and care delivered over time. Both are necessary but not sufficient to ensure continuity (Haggerty, Reid et al. 2003). What is meant by continuity in practice is best summarised by the following quote:

'For patients and their families, the experience of continuity is the perception that providers know what has happened before, that different providers agree on a management plan, and that a provider who knows them will care for them in the future. For providers, the experience of continuity relates to their perception that they have sufficient knowledge and information about a patient to best apply their professional competence and the confidence that their care inputs will be recognised and pursued by other providers. The experience of continuity may differ for the patient and the providers, posing a challenge to evaluators' (Haggerty, Reid et al. 2003, p 1221).

We did not explore the issue of continuity in any great depth during the interviews but none of the data we collected indicated that continuity of care had improved as a result of the introduction of HHL. This is not meant to imply that there was not continuity within the different parts of the patient journey from admission through to discharge and care in the home, but rather that there do not appear to be sufficient mechanisms in place to ensure continuity across the different parts.

8.11 Ways in which the program might be improved

Key stakeholders made the following suggestions about ways in which the program might be improved:

- Develop a greater sense of trust in the program
- Develop a 'one stop shop' that all referrals should go through. Options include the DSU or HHL taking on the role of triaging patients to appropriate services and the expansion to include services that currently do not go through the DSU
- Implement a tiered approach to funding
- Provide more information and education about the program (particularly for resident medical officers)
- Address conflicts between staff where they exist
- Provide more information about individual patient clinical management and patient outcomes after referral to HHL
- Sustain communication between HHL staff and hospital staff, including face-to-face meetings
- Rework the referral form to make it less time consuming to complete
- Remove the 7-day limit for HHL packages.

The most consistent message across all interviews has been the importance of formal, pro-active and sustained communication over all phases of a new initiative (pre planning, start up and during the implementation and maintenance phase). This is a key factor in facilitating program sustainability. In addition, a consistent issue raised by interviewees regarding improvement related to the funding model. There was almost universal support for a tiered approach to funding the program, with differences of opinion about the number of tiers. Suggestions included two

(simple and complex), three (based on price and scale of service delivery) to a sophisticated model more akin to a casemix classification.

8.12 What was learnt

Most of the answers to this question related to what people had learnt about HHL:

- the services HHL provides
- the advantages of having so many services under one umbrella
- that it took some time to feel 'comfortable' about referring to the program
- that government and non-government agencies can work well together to improve outcomes
- that there is another way of doing things and
- that the uptake of the program has been different to what was originally intended (e.g. the significant growth in packages for mothers, babies and children).

Two consistent themes throughout the interviews relate to the influence of context and the role of leadership. These are discussed in the following paragraphs.

8.13 Receptive context

Reference to the influence of 'context' occurs repeatedly in the literature. This includes the idea that what works in one context may not work in another (Dopson, FitzGerald et al. 2002); that implementation may be more context-dependent for some interventions than for others (Øvretveit 2004); or that some contexts may be more receptive to change than others (Pettigrew, Ferlie et al. 1992; Greenhalgh, Robert et al. 2004). What works in Adelaide will not necessarily work on the Gold Coast. Context is not simply a backdrop to practitioners and what they do but interacts with individuals and the systems in which they work (Fitzgerald, Ferlie et al. 2007). Context needs to be managed and developed with the same focus and attention as the program itself.

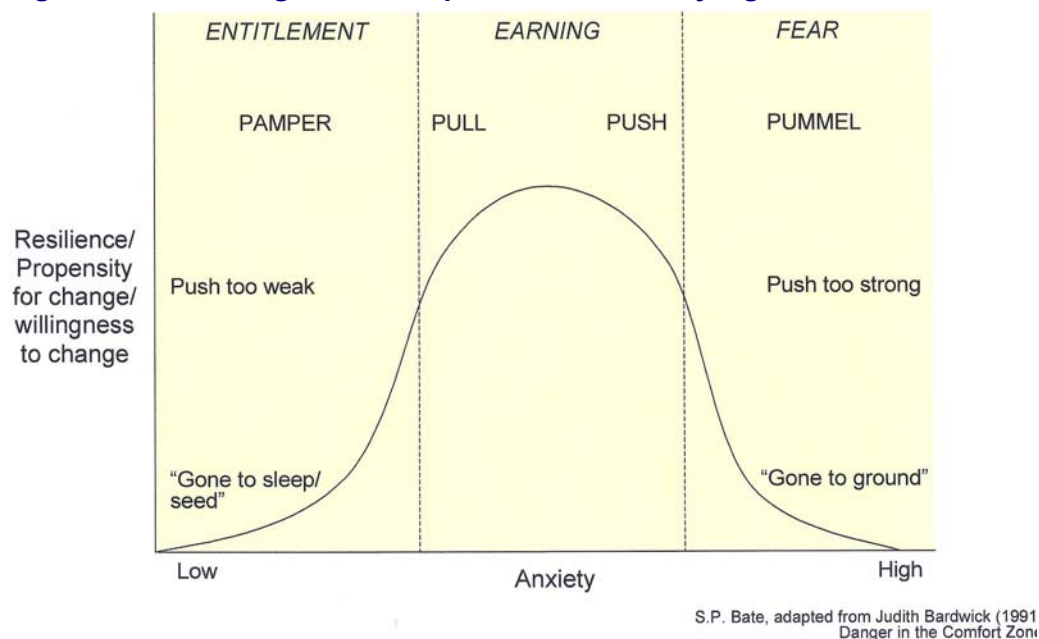
A receptive context for change can include things such as having a clear strategic vision; visionary staff in pivotal positions; a climate conducive to experimentation and risk taking; and the capacity to absorb new knowledge (Greenhalgh, Robert et al. 2004). Other researchers have identified factors (which are not discrete but highly inter-correlated) such as environmental pressure; simplicity and clarity of goals and priorities; cooperative inter-organisation networks; relationships between managers and clinicians; and quality and coherence of policy (Pettigrew, Ferlie et al. 1992).

Based on our interviews some of these elements have been in place. But others needed more attention, particularly cooperative inter-organisation networks, simplicity and clarity of goals and priorities (which have been clear to some but certainly not to all) and quality and coherence of policy.

Leadership

The role of leadership in driving change involves a delicate balancing act. If you do not push hard enough people 'go to seed' in their comfort zone and avoid change. If you push too hard, people 'go to ground' and do not change. Neither end of the scale is conducive to successful change. A useful illustration of this is provided in Figure 17.

Figure 17 *Change leadership: a matter of fine judgment*



The aim is to go for the middle style where people feel the need to strive, have ambition and stay focused on performance. Our interviews indicated a variety of responses across the organisation, with some embracing the change resulting from the HHL program but with a mix of 'gone to seed' and 'gone to ground' responses in some quarters. There is evidence indicating that work to reduce resisting forces is more effective than efforts to increase driving ones (Iles and Sutherland 2001) and our judgement, based on the interviews, is that more could have been done in this regard.

There appears to be general recognition that stronger leadership that worked together in certain levels of the organisation may have facilitated the resolution of conflict. This may have been manifested through a strong statement of support for HHL at various organisational levels or via a more visible commitment to optimise implementation by dealing effectively with pockets of resistance.

8.14 *Early discharge or hospital avoidance?*

Early discharge and hospital avoidance programs traditionally focus on complex medical patients and/or older patients with multiple health and social needs. This is not the patient group that has generated most referrals in HHL. Several reasons emerged during the interview process to explain this. The Division of Medicine and the Emergency Department have a long history of involvement in early discharge and hospital avoidance programs (although these are not 24/7) and already had several mechanisms in place to manage these patient groups. There were well-established referral pathways and a sense of loyalty to these long standing programs.

Other areas of the hospital not routinely supported by these initiatives proved to be 'early adopters' with maternity, special care nursery and paediatrics (previously only serviced by a limited maternity early discharge program) identifying a range of patients suitable for referral. These grew as they experienced positive impacts on patient flow and good parental feedback. However, in the case of maternity and special care nursery, referrals to HHL declined after maternity put its own service in place.

Another frequently cited issue relates to the perception of what constitutes 'appropriate' referrals. This view was very much influenced by the clinical domain of the interviewee. For example, several staff members who worked mostly with acute medical or surgical patients argued that certain clusters of these patients stood to benefit most from the additional support that HHL could provide and that packages should be directed to these high need patients. However interviews

with staff working in the clinical domain of paediatrics/neonates produced a quite different view as to what constituted an 'appropriate' referral.

An example that came up on several occasions was the use of HHL to weigh a baby. The paediatric staff described the ongoing workload created for ward and outpatient staff by a 'failure to thrive' baby and the importance of supporting the parents' confidence in feeding and managing the baby's growth and development. A key aspect of this care was the ability to weigh the baby in the first two to three days post discharge from hospital. These 'weighing visits' also provided an opportunity to assess the home environment of the baby and how the parent(s) were coping and to ensure appropriate referrals were in place for child and family health and the GP. These interventions help the family stay on track. Whether or not they avoided a hospital readmission or an outpatient clinic visit is a moot point.

An unexpected pattern began to emerge in the last half of the pilot in relation to GP referrals. This involved patients who had already had a HHL package for early discharge, with the GP ordering a second package the following week. In the case of these 55 GP referrals, the distinction between early discharge and hospital avoidance was effectively blurred. This is not surprising as 'early discharge' and 'hospital avoidance' are hospital-centric concepts and the GP's main interests are in meeting the needs of their patients by utilising whatever services are on offer.

8.15 Primary and community health capacity

One of the goals of HHL was to build primary and community health capacity. This is not something that happens suddenly or (as indicated previously) is easy to discern. Achievement of this goal will be through incremental steps. There is logic in the view that was expressed by several interviewees that the first step on the capacity building development pathway is improving early discharge initiatives. The program can then be extended into the wider community to generate true hospital avoidance. The program now requires sustained effort in this area to shift the implementation focus to hospital avoidance. It is hospital avoidance that offers the highest potential return on investment. At the same time it should be recognised that there is no holy grail for hospital avoidance.

We have identified a perceived schism between hospital avoidance and early discharge/discharge planning with discharge planning seen as the province of existing hospital services. This is part of what appears to be a wider issue about where ambulatory services sit within GCHSD.

9 Results – Return on Investment

A key question in the evaluation of HHL is whether it has proved to be good value for money. In the absence of firm evidence on how many hospital ED attendances and bed days have actually been avoided, it is necessary to make a number of assumptions. Accordingly, in this section we report on the results of three different scenarios that have been modelled based on different assumptions. These are the same scenarios used in our interim report but with further detail added.

Scenario One

Scenario One is a conservative estimate of the number of referrals who would otherwise have used GC services:

- 30% of GP referrals avoided an ED presentation. While the other 70% may have needed services and support, they would not actually have attended the ED if the HHL program was not available,
- 50% of ED referrals genuinely avoided an inpatient episode. This figure of 50% is based on our key stakeholder interviews with ED staff who made referrals to the program.
- Likewise, 50% of referrals from the Gold Coast Surgery Centre, community mental health and outpatients genuinely avoided an inpatient episode, and
- 60% of inpatients would have stayed in hospital longer.

Scenario Two

Scenario Two is a moderate estimate of the number of referrals who would otherwise have used GC services:

- 80% of GP referrals avoided an ED presentation. This figure of 80% is based on the results of a similar program in New South Wales,
- 75% of ED referrals genuinely avoided an inpatient episode,
- Likewise, 75% of ED referrals and referrals from the Gold Coast Surgery Centre, community mental health and outpatients genuinely avoided an inpatient episode, and
- 89% of inpatients would have stayed in hospital longer. This figure of 89% is based on the results of a clinical audit of a similar program in South Australia.

Scenario Three

Scenario Three assumes that all referrals would otherwise have used GC services:

- 100% of GP referrals avoided an ED presentation,
- 100% of ED referrals and referrals from the Gold Coast Surgery Centre, community mental health and outpatients genuinely avoided an inpatient episode and
- 100% of inpatients would have stayed in hospital longer.

The results for the three scenarios are presented below.

9.1 ED avoidance – GP referrals

In total, there were 252 GP referrals for 197 patients at a total HHL package cost of \$176,400 in the twelve month period. The overall impact on ED activity was negligible with the EDs at Southport and Robina having 108,505 attendances in the same period. These 252 referrals

represented 7.7% of HHL referrals but only 0.18% of ED attendances in the year. During the same period, there were an estimated 2.75 million GP attendances.

Table 16 summarises the ROI for these 197 patients referrals and further detail is presented in Table 26, Table 27 and Table 28.

The savings under all three scenarios are modest (ranging from just \$2,916 to \$9,720) and the ROI is a significant net loss ranging from -\$166,680 to -\$173,484. This is not surprising. At \$700 per package, the HHL option is approximately twice the cost of the full average cost of an ED attendance or nearly nine times more than the marginal cost. A further reason is that 64 HHL packages ordered by GPs were for patients who had already had a HHL package for the same health problem. In some cases, the GP ordered a second package immediately after ordering the first. In other cases, the patient had been discharged from hospital with a HHL package and the GP then ordered a second package the following week.

There is a possibility that some of these 197 patients may not only have attended the ED but also been admitted to a hospital bed. However, this is not likely. The available evidence suggests that patients sick enough to require admission bypass their GP and present directly to ED. Indeed, less than 5% of ED attendances are GP referred, with close to 95% of ED patients self-referring. Further, patients requiring inpatient admission typically require specialist medical input and diagnostics that are not provided as part of the HHL package. For these reasons, the ROI is based on avoided ED attendances only.

Table 16 ROI for GP referrals for ED avoidance

Cost of HHL packages for GP referrals		\$176,400
	Savings	Net savings/loss
Scenario 1	\$2,916	-\$173,484
Scenario 2	\$7,776	-\$168,624
Scenario 3	\$9,720	-\$166,680

The obvious issue that arises from these results is whether GP referrals could be expected to increase given sufficient time and whether this would subsequently improve the ROI. GP referrals to Gold Coast EDs represent only a very small percentage of ED attendances (less than 5%) and only about 30% of these are classified as Triage 4 or 5. They are also more likely to be admitted than patients who self-refer to the ED. This utilisation pattern suggests that the potential pool of referrals from GPs for ED avoidance is always going to be modest with no real potential to reduce ED attendances in any significant way.

This conclusion is supported by GP practice informants interviewed as part of the evaluation. Their uniform perception is that GPs only refer to ED if they perceive that the patient will need admission or if the patient requires urgent specialist input. Their view is that the program has more potential in the area of supported early discharge rather than in ED avoidance. This again suggests that, while the total quantum of GP referrals may continue to slowly increase, the number of possible GP referrals to HHL for genuine ED avoidance (and the resultant impact on the EDs) will always remain modest.

9.2 Inpatient avoidance – ED referrals

In total, there were 603 referrals to HHL at a total HHL package cost of \$422,100 in the twelve month period from the two EDs at Southport and Robina. These ED referrals represented 18.5% of all HHL referrals. As shown in Table 17 below, the ROI is positive under all scenarios, with net savings of between \$155,236 and \$732,571 depending on the scenario.

This is largely because the savings of a completely avoided admission are at the full average cost rather than the marginal cost for most other referral types. These ‘savings’ are not, of course, a cash saving to the GCHSD. Rather, the program freed up between two to four beds a day that

could then be occupied by other patients. Further detail is provided in Table 26, Table 27 and Table 28.

Table 17 ROI for ED referrals for inpatient avoidance

Cost of HHL packages for ED referrals		\$422,100
	Savings	Net savings/loss
Scenario 1	\$577,336	\$155,236
Scenario 2	\$866,004	\$443,904
Scenario 3	\$1,154,671	\$732,571

9.3 Inpatient avoidance - community mental health

In total, HHL provided 146 packages to patients referred by community mental health referrals to HHL at a total HHL package cost of \$102,200 in the twelve month period. These referrals represented 4.5% of all HHL referrals. As shown in Table 18, the ROI is positive under two scenarios. However, this analysis includes only the cost of the HHL package, with the cost of community mental health services provided to the patient during the same period excluded from the analysis.

Table 18 ROI for other referrals for inpatient avoidance

Cost of HHL packages for community mental health referrals for inpatient avoidance		\$102,200
	Savings	Net savings/loss
Scenario 1	\$86,179	-\$16,021
Scenario 2	\$129,269	\$27,069
Scenario 3	\$172,359	\$70,159

9.4 Inpatient avoidance – day surgery and outpatients

In total, HHL provided 180 packages to patients referred by these sources at a total HHL package cost of \$126,000 in the twelve month period. These referrals represented 5.5% of all HHL referrals. As shown in Table 18, the ROI is negative under all scenarios. Scenario 3 assumes that all of these referrals would otherwise have been admitted as an overnight patient, with 45% admitted for one day and 55% admitted for two.

Table 19 ROI for referrals from day surgery and outpatients for inpatient avoidance

Cost of HHL packages for day surgery and outpatient referrals for inpatient avoidance		\$126,000
	Savings	Net savings/loss
Scenario 1	\$37,953	-\$88,047
Scenario 2	\$56,930	-\$69,070
Scenario 3	\$75,907	-\$50,093

9.5 Length of stay reduction – medical and surgical

In total, HHL provided 597 packages to patients referred from the medical and surgical wards at a total HHL package cost of \$417,900 in the twelve month period. These referrals represented 18.3% of all HHL referrals and were for 503 different patients. As shown in Table 18, the ROI is negative under all scenarios, in large part because 84 patients re-attended the hospital or were readmitted to HHL within 28 days for the same health problem. In these cases, the GCHSD paid for both the HHL package and the hospitalisation. The most optimistic scenario, Scenario 3, assumes that all of these net 419 patients would otherwise have stayed in hospital with 45% staying one extra day, 35% staying two extra days and 20% staying an extra three days. Referrals to the HHL program potentially freed up one medical/ surgical bed a day that could then be used to treat other patients (see Table 26, Table 27 and Table 28).

Table 20 ROI for referrals from medical and surgical wards for LOS reduction

Cost of HHL packages for medical and surgical referrals for LOS reduction		\$417,900
	Savings	Net savings/loss
Scenario 1	\$203,257	-\$214,643
Scenario 2	\$301,498	-\$116,402
Scenario 3	\$338,762	-\$79,139

9.6 Length of stay reduction – paediatrics

In total, HHL provided 326 packages to patients referred from paediatrics at a total HHL package cost of \$228,200 in the twelve month period. These referrals were for 272 patients and represented 10% of all HHL referrals. In total, there were 37 re-presentations to hospital or readmissions to HHL with 28 days of being discharged by HHL. As shown in Table 18, the ROI is negative under three scenarios. Scenario 3, the most optimistic scenario, assumes that all of these referrals would otherwise have stayed in hospital with 55% staying one extra day, 35% staying two extra days and 10% staying an extra three days.

Table 21 ROI for referrals from paediatrics for LOS reduction

Cost of HHL packages for paediatric referrals for LOS reduction		\$228,200
	Savings	Net savings/loss
Scenario 1	\$94,456	-\$133,744
Scenario 2	\$140,110	-\$88,090
Scenario 3	\$157,427	-\$70,774

9.7 Length of stay reduction – maternity

In total, HHL provided 415 packages to patients referred from obstetrics at a total HHL package cost of \$290,500 in the twelve month period. These referrals represented 13% of all HHL referrals. As shown in Table 18, the ROI is negative under all three scenarios. Scenario 3, the best case scenario, assumes that all of these referrals would otherwise have stayed in hospital with 55% staying one extra day and 45% staying two extra days.

Table 22 ROI for referrals from midwifery for LOS reduction

Cost of HHL packages for midwifery referrals for LOS reduction		\$290,500
	Savings	Net savings/loss
Scenario 1	\$145,946	-\$144,554
Scenario 2	\$216,486	-\$74,014
Scenario 3	\$243,243	-\$47,257

9.8 Length of stay reduction – mental health

In total, HHL provided 279 packages to patients referred from mental health for LOS reduction at a total HHL package cost of \$195,300 in the twelve month period. These referrals represented 8.5% of all HHL referrals. As shown in Table 18, the ROI is positive under all three scenarios. Scenario 3 assumes that all of these referrals would otherwise have stayed in hospital with 55% staying an extra three days, 10% staying an extra five days and 35% staying seven extra days.

Table 23 ROI for referrals from mental health for LOS reduction

Cost of HHL packages for mental health referrals for LOS reduction		\$195,300
	Savings	Net savings/loss
Scenario 1	\$199,614	\$4,314
Scenario 2	\$296,094	\$100,794
Scenario 3	\$332,690	\$137,390

9.9 Length of stay reduction – Special Care Nursery

In total, HHL provided 237 packages to patients referred from the Special Care Nursery for LOS reduction at a total HHL package cost of \$165,900 in the twelve month period. These referrals represented 7% of all HHL referrals. As shown in Table 18, the ROI is negative under the first two scenarios but close to break even point under Scenario 3. Scenario 3 assumes that all of these referrals would otherwise have stayed in hospital with 35% staying an extra day, 45% staying an extra two days and 20% staying three extra days.

Table 24 ROI for referrals from Special Care Nursery for LOS reduction

Cost of HHL packages for Special Care Nursery referrals for LOS reduction		\$165,900
	Savings	Net savings/loss
Scenario 1	\$94,316	-\$71,584
Scenario 2	\$139,903	-\$25,997
Scenario 3	\$157,194	-\$8,706

9.10 Length of stay reduction – other

In total, HHL provided 230 packages to patients referred by other sources for LOS reduction at a total HHL package cost of \$161,000 in the twelve month period. These referrals represented 7% of all HHL referrals. As shown in Table 18, the ROI is negative under all three scenarios. Scenario 3 assumes that all of these referrals would otherwise have stayed in hospital with 35% staying an extra day, 45% staying an extra two days and 20% staying three extra days.

Table 25 ROI for other referrals for LOS reduction

Cost of HHL packages for other referrals for LOS reduction		\$84,700
	Savings	Net savings/loss
Scenario 1	\$86,833	-\$74,167
Scenario 2	\$72,361	-\$88,639
Scenario 3	\$144,722	-\$16,279

9.11 Overall ROI results

Table 26, Table 27 and Table 28 below provide more detail about each scenario.

Table 26 *Return on investment analysis for Scenario 1*

Referral type	Total packages (Sept 08-Aug 09)	Total HHL admissions (Sept 08-Aug 09)	Less re-admission to HHL within 28 days for same problem	Less hospital readmissions and ED presentations within 28 days	Net referrals
GP referrals - ED avoidance	252	197	64	13	120
Inpatient avoidance - ED referrals	603	513	13	40	460
Inpatient avoidance – Community mental health	146	98	34	3	61
Inpatient avoidance - Day surgery and outpatients	180	141	29	6	106
LOS reduction – Medical and surgical	597	503	26	58	419
LOS reduction - Paediatrics	326	272	24	13	235
LOS reduction - Midwifery	415	381	10	20	351
LOS reduction - Mental health (inpatient)	279	188	10	31	147
LOS reduction - Special Care Nursery	237	217	2	2	213
LOS reduction - Other	230	187	1	7	179
Grand Total	3265	2697	213	193	2291
Referral type	Assumption about units of services avoided	Assumption about percent avoided	Unit cost	Annual savings	Beds saved @ 90% occupancy
GP referrals - ED avoidance	1.0	30%	\$81	\$2,916	0
Inpatient avoidance - ED referrals	3.3	50%	\$770	\$577,336	1.8
Inpatient avoidance – Community mental health	3.9	50%	\$725	\$86,179	0.3
Inpatient avoidance - Day surgery and outpatients	1.6	50%	\$462	\$37,953	0.2
LOS reduction – Medical and surgical	1.8	60%	\$462	\$203,257	1.1
LOS reduction - Paediatrics	1.5	60%	\$462	\$94,456	0.5
LOS reduction - Midwifery	1.5	60%	\$462	\$145,946	0.8
LOS reduction - Mental health (inpatient)	4.6	60%	\$492	\$199,614	1.0
LOS reduction - Special Care Nursery	1.5	60%	\$492	\$94,316	0.5
LOS reduction - Other	1.8	60%	\$462	\$86,833	0.5
Saving				\$1,528,806	6.6
Program cost				\$2,285,500	
Net Savings				-\$756,694	
ROI				-33%	

Table 27 *Return on investment analysis for Scenario 2*

Referral type	Total packages (Sept 08-Aug 09)	Total HHL admissions (Sept 08-Aug 09)	Less re-admission to HHL within 28 days for same problem	Less hospital readmissions and ED presentations within 28 days	Net referrals
GP referrals - ED avoidance	252	197	64	13	120
Inpatient avoidance - ED referrals	603	513	13	40	460
Inpatient avoidance – Community mental health	146	98	34	3	61
Inpatient avoidance - Day surgery and outpatients	180	141	29	6	106
LOS reduction – Medical and surgical	597	503	26	58	419
LOS reduction - Paediatrics	326	272	24	13	235
LOS reduction - Midwifery	415	381	10	20	351
LOS reduction - Mental health (inpatient)	279	188	10	31	147
LOS reduction - Special Care Nursery	237	217	2	2	213
LOS reduction - Other	230	187	1	7	179
Grand Total	3265	2697	213	193	2291
Referral type	Assumption about units of services avoided	Assumption about percent avoided	Unit cost	Annual savings	Beds saved @ 90% occupancy
GP referrals - ED avoidance	1.0	80%	\$81	\$7,776	0
Inpatient avoidance - ED referrals	3.3	75%	\$770	\$866,004	2.8
Inpatient avoidance – Community mental health	3.9	75%	\$725	\$129,269	0.4
Inpatient avoidance - Day surgery and outpatients	1.6	75%	\$462	\$56,930	0.3
LOS reduction – Medical and surgical	1.8	89%	\$462	\$301,498	1.6
LOS reduction - Paediatrics	1.5	89%	\$462	\$140,110	0.7
LOS reduction - Midwifery	1.5	89%	\$462	\$216,486	1.2
LOS reduction - Mental health (inpatient)	4.6	89%	\$492	\$296,094	1.5
LOS reduction - Special Care Nursery	1.5	89%	\$492	\$139,903	0.7
LOS reduction - Other	1.8	50%	\$462	\$72,361	0.4
Saving				\$2,226,430	9.6
Program cost				\$2,285,500	
Net Savings				-\$59,070	
ROI				-3%	

Table 28 Return on investment analysis for Scenario 3

Referral type	Total packages (Sept 08-Aug 09)	Total HHL admissions (Sept 08-Aug 09)	Less re-admission to HHL within 28 days for same problem	Less hospital readmissions and ED presentations within 28 days	Net referrals
GP referrals - ED avoidance	252	197	64	13	120
Inpatient avoidance - ED referrals	603	513	13	40	460
Inpatient avoidance – Community mental health	146	98	34	3	61
Inpatient avoidance - Day surgery and outpatients	180	141	29	6	106
LOS reduction – Medical and surgical	597	503	26	58	419
LOS reduction - Paediatrics	326	272	24	13	235
LOS reduction - Midwifery	415	381	10	20	351
LOS reduction - Mental health (inpatient)	279	188	10	31	147
LOS reduction - Special Care Nursery	237	217	2	2	213
LOS reduction - Other	230	187	1	7	179
Grand Total	3265	2697	213	193	2291
Referral type	Assumption about units of services avoided	Assumption about percent avoided	Unit cost	Annual savings	Beds saved @ 90% occupancy
GP referrals - ED avoidance	1.0	100%	\$81	\$9,720	0
Inpatient avoidance - ED referrals	3.3	100%	\$770	\$1,154,671	3.7
Inpatient avoidance – Community mental health	3.9	100%	\$725	\$172,359	0.6
Inpatient avoidance - Day surgery and outpatients	1.6	100%	\$462	\$75,907	0.4
LOS reduction – Medical and surgical	1.8	100%	\$462	\$338,762	1.8
LOS reduction - Paediatrics	1.5	100%	\$462	\$157,427	0.8
LOS reduction - Midwifery	1.5	100%	\$462	\$243,243	1.3
LOS reduction - Mental health (inpatient)	4.6	100%	\$492	\$332,690	1.7
LOS reduction - Special Care Nursery	1.5	100%	\$492	\$157,194	0.8
LOS reduction - Other	1.8	100%	\$462	\$144,722	0.8
Saving				\$2,786,693	11.9
Program cost				\$2,285,500	
Net Savings				\$501,193	
ROI				22%	

9.12 Summary of ROI by referral type

Table 29 summarises the ROI as a percentage for each referral type and lists the referral types in order of ROI. Overall, referrals to HHL from the ED for admission avoidance represent the best percentage ROI and GP referrals the poorest ROI. The referral types that avoided an inpatient admission altogether had the best ROI. Given their longer lengths of stay, mental health LOS reduction referrals also represent a good ROI.

Table 29 Summary of net savings/loss as a percentage by type

Referral type	Cost	Scenario 1	Scenario 2	Scenario 3
Inpatient avoidance - ED referrals	\$422,100	37%	105%	174%
LOS reduction - Mental health (inpatient)	\$195,300	2%	52%	70%
Inpatient avoidance - Community mental health	\$102,200	-16%	26%	69%
LOS reduction - Special Care Nursery	\$165,900	-43%	-16%	-5%
LOS reduction - Midwifery	\$290,500	-50%	-25%	-16%
LOS reduction – Medical and surgical	\$417,900	-51%	-28%	-19%
LOS reduction - Paediatrics	\$228,200	-59%	-39%	-31%
Inpatient avoidance - Day surgery and outpatients	\$126,000	-70%	-55%	-40%
LOS reduction - Other	\$161,000	-46%	-55%	-10%
GP referrals - ED avoidance	\$176,400	-98%	-96%	-94%
Total	\$2,285,500	-33%	-3%	22%

Table 30 shows the same information but this time in terms of dollars saved or lost. The referral types are listed in order of ROI according to Scenario 2. In terms of dollars, ED referrals for inpatient avoidance represent approximately 40% of all gross savings followed by mental health referrals (just under 20% of gross savings). Under Scenario Two, these referral sources also had the best net ROI with all other referral types representing a net cost rather than a saving. The results in this table are particularly important in considering future options for the program.

Table 30 Summary of net savings/loss in dollars by type

Referral type	Costs	Scenario 1	Scenario 2	Scenario 3
Inpatient avoidance - ED referrals	\$422,100	\$155,236	\$443,904	\$732,571
LOS reduction - Mental health (inpatient)	\$195,300	\$4,314	\$100,794	\$137,390
Inpatient avoidance - Community mental health	\$102,200	-\$16,021	\$27,069	\$70,159
LOS reduction - Special Care Nursery	\$165,900	-\$71,584	-\$25,997	-\$8,706
Inpatient avoidance - Day surgery and outpatients	\$126,000	-\$88,047	-\$69,070	-\$50,093
LOS reduction - Midwifery	\$290,500	-\$144,554	-\$74,014	-\$47,257
LOS reduction - Paediatrics	\$228,200	-\$133,744	-\$88,090	-\$70,774
LOS reduction - Other	\$161,000	-\$74,167	-\$88,639	-\$16,279
LOS reduction – Medical and surgical	\$417,900	-\$214,643	-\$116,402	-\$79,139
GP referrals - ED avoidance	\$176,400	-\$173,484	-\$168,624	-\$166,680
Total	\$2,285,500	-\$756,694	-\$59,070	\$501,193

The overall ROI varies under each scenario. Under Scenario 2 (which we consider to be the most realistic) the program has come close to breaking even. Depending on the assumptions, the net results are estimated as:

- Scenario 1 - -33% or - \$756,694
- Scenario 2 – -3% or -\$59,070
- Scenario 3 – +22% or \$501,193

It is important to note that the results reported here are not cash savings to the hospital. While some patients have been kept out of a hospital bed, other patients have been admitted to that same bed. The district has been running at around 85% occupancy for most of the last year. Successful hospital avoidance does not necessarily mean that beds will be empty. Rather, a successful hospital avoidance program is also one that allows a hospital bed to be used by another patient.

Accordingly, the final column in Table 26, Table 27 and Table 28 shows the estimated beds saved by referrals to HHL based on 90% bed occupancy rates. Depending on the scenario, the number of beds saved varies from 7 to 12 beds a day.

In interpreting these figures it is important to consider the original goals of the program, which were to relieve pressure on the EDs and wards of the two hospitals. In relation to the EDs, the overall volume of GP referrals to HHL has been so small that the program has had no material effect on them, with HHL referrals from this source representing just 0.18% of ED attendances during the same period.

In relation to the wards, while the hospitals overall are running at high occupancy rates, this is not the case for all specialities. In particular, mental health, paediatrics, maternity and Special Care Nursery have consistently experienced much lower bed occupancy rates than medicine and surgery and, in reality, no ward 'savings' were accrued in these cases. This is not taken into account in the ROI analysis. However, it is an important issue in considering the future of the program.

10 Discussion

In many ways the HHL program has been a success. It has provided a service that has filled many of the gaps that were formerly reported in the existing suite of hospital and community services. Responses have been rapid and the program has provided a range of service types to suit a variety of clients. However, some significant weaknesses have also been identified.

This section of the report discusses the impact of, and outcomes of, the program at three different levels – patients, providers and system – with the next section outlining options for the future.

10.1 Impacts on, and outcomes for, clients (patients and carers)

10.1.1 Changes in service delivery and access to home support for clients

Between September 2008 and August 2009, HHL delivered 3,267 packages of care to 2,298 different clients. A profile of these HHL clients and an overview of the services provided to them was reported in Section 6.2.

HHL also refer onto other providers, many of whom provide support to continue to maintain clients in their home. Of the 2,352 referrals HHL received between January and August 2009, 310 were referred on to community care.

A stay in hospital was the only alternative for many, but not all, of this group. Clearly for this group, the introduction of HHL has meant that there has been an expansion in the range of available services and a genuine alternative to being admitted to, or remaining in, hospital.

HHL conducts satisfaction surveys for both patient and referrers. As presented in Section 6.4, patients and referrers have been satisfied with the services received from HHL.

10.1.2 Patient outcomes

Patient outcomes were not measured directly but some proxy measures are available. In total, the 2,298 patients who received a HHL package had 193 re-presentations to hospital for the same health problem that had triggered the HHL referral. The overall re-presentation rate was just over 7%. Within the referral groups, this rate varied from less than 1% for Special Care Nursery referrals to more than 16% for inpatient mental health referrals.

Over 250 patients received two or more HHL packages, including 57 who received three or more packages. The maximum received was 28 packages but this paediatric case was an exception.

The other proxy measure is discharge destination at the end of the HHL episode. In total, 38% of clients were discharged to full independence and a further 17% to informal care. Only 13% were referred for ongoing community services.

10.2 Impacts on, and outcomes for, providers

Since its inception, HHL has successfully tapped into a labour force that has not been available to the GCHSD. This has been a significant achievement in an area with established workforce shortages.

Staff working in community NGOs were initially very supportive of the program, particularly because of its rapid response capacity and because it could service those not eligible for other programs such as HACC. Much of that support has continued through the life of the program. However, concerns began to arise in 2009 when a number of their existing clients were referred by the hospital wards and ED to HHL rather than back to their existing NGO service provider. They

reported that they have raised these concerns and provided the detail of these cases but have not received any feedback. The net effect is that some support for the program has been lost.

However, the HHL Project Officer has a different perspective. She indicated that she was only notified of four cases of referral to HHL of existing NGO clients, that each of these cases was investigated and that a meeting was organised with the NGO and HHL Team Leader to discuss the issue. She also reported that HHL has regular meetings with NGO's.

In general, hospital staff reported that they are satisfied overall with HHL and, in some areas, HHL is valued highly. Liaison officers have assisted other staff come to understand and trust the program, particularly in areas where they have high visibility. In particular, maternity and paediatric services have made good use of the program.

However, this view was usually tempered with comments about the shortcomings of the program or the way it fits with existing services. For those who have liked the program, their enthusiasm waned a little when it was suggested the GCHSD would have to provide the ongoing funding if the program is to continue.

Not all staff have been equally positive about either the program or how it has been implemented and managed. There were differing views amongst interviewees regarding the extent to which HHL has integrated into the mix of services that were already available on the Gold Coast.

To many clinicians, HHL has been just a small program and fairly peripheral to their core activities. For others, there is a perceived overlap with their own responsibilities and there is a degree of resentment around, not what the program has to offer, but the way it has been implemented and some of the details of the referral process. Indeed, there has been a degree of conflict between HHL and some (though by no means all) other providers of early discharge/hospital avoidance programs.

Part of the conflict seems to stem from where HHL sits within the divisional structure of the hospital. HHL is administered by CSAS while some (but not all) other early discharge/hospital avoidance programs are administered by other divisions. In particular, the DSU is managed within another Division. There have also been issues in relation to how some managers work together.

It is fair to say that, to some extent, the implementation of the HHL program has exacerbated existing tensions between some departments and individuals in the GCHSD. These tensions are not a reflection on the HHL program per se. Rather, they reflect more broadly on the way some parts of the organisation have historically functioned.

Whatever option is chosen for the future (see Section 11), it will be essential for the GCHSD to achieve more effective integration that brings together the internal management of all hospital discharge and demand management services and that creates a single intake system for all referrals requiring home support. This would not only be more efficient, it would also make it easier for groups such as GPs to navigate their way through the system.

Linked to this, there is a need in future for clearer separation of the roles of discharge planning and service provision. HHL is an external service and, if the program continues, it should not have a role in either case finding or discharge planning. Likewise, there is a good case to separate out the discharge planning and post-acute service roles of the current DSU.

Determination of more effective governance arrangements that both improve service integration and reduce staff tensions form a significant challenge for the future. The recently established discharge transformation project team that has members from the GCHSD plus consumer, GP and NGO representatives is the appropriate group to take this forward.

10.3 Impacts on, and outcomes for, the system

10.3.1 Rapid response capacity

One of the reasons for implementing the HHL program was to provide a fast-response service. Hospital staff reported that, prior to HHL, there was often a delay of several days before existing community services on the Gold Coast would be able to take on a client and this was reported as adding to the hospital's problem of too often reaching capacity. There is a perception among some hospital staff that, since HHL commenced operation, there has been an improvement in the response time of some HACC agencies.

HACC agencies see this differently. HACC agencies received extra funding at about the same time that HHL was established. This allowed them to increase their total client base, with the typical response time of a day or two remaining unchanged.

HACC and other community agencies freely acknowledge that they do not have the capacity for a rapid (within hours) response. However, their perception is that, with earlier and more effective discharge planning, the number of patients requiring services within hours of discharge could be minimised. They cited the example of the late Friday afternoon discharge and made the point that most of these could have been anticipated a day or two earlier, allowing services to be put in place in an orderly fashion.

That said, the community sector recognises that it is not geared up to rapidly respond to referrals for inpatient avoidance from the ED and that there are still limits around the time some services can be accessed and in the clients they are able to assist. There is also a recognition of the valuable role that a service such as HHL can play in caring for those not eligible for programs such as HACC and for those who become unwell while holidaying on the Gold Coast.

While HHL was established to fill a short-term gap until other community services could be made available to the patient, this is not always what has occurred in practice. Two examples illustrate this point. The first is the significant number of patients receiving two or more HHL packages. The second is the issue of the wards being allowed to refer only to HHL or to the DSU rather than existing community services, which has resulted in some patients being referred to HHL rather than back to their existing service provider.

If the program continues, better systems will be required to ensure that patients are only referred to the program if they are not able to be referred to (or back to) existing mainstream services. Better systems will also be required to ensure that patients are referred onto other appropriate services and that the number of double packages is minimised.

10.3.2 Cost of the program

The results of an analysis of the Return on Investment (ROI) were presented in Section 9. The conclusion is that, under a number of different assumptions, HHL has the potential to provide good value for money. However, we believe that the most realistic conclusion is the program has broken even during the pilot period.

In considering the future, one option is to continue the HHL program but make it more efficient. For example, as discussed in Section 6.2, around 90% of referrals to HHL occur Monday to Saturday between 9am and 9pm. This suggests that one possibility would be reduce the service to these hours, with HHL patient back-up outside these hours being provided by the hospital. This can be expected to marginally reduce the cost that the GCHSD pays for the call centre and case management service. However, in our assessment, the best opportunities for improved efficiencies lie not in these types of changes but in better and more targeted patient selection and in a more sophisticated payment model (see next two sections).

A broader issue is that, as part of considering options for the future, there would be value in the GCHSD investigating the value for money for all hospital demand management strategies in the GCHSD, and not just HHL. For example, asking the question ‘what is the most cost-efficient way to deliver the specific services that are being provided?’ could lead to a scenario where it would be hypothetically more cost-effective to expand an in-house service rather than to continue with HHL. Likewise, some services provided by other hospital demand teams within the GCHSD may well be more effectively provided through a model such as HHL.

This evaluation has been concerned only with the HHL program rather than the broader range of strategies that the district has in place. But these types of analyses could and should ideally be done before a decision is made about the ongoing future of the program and before the establishment of any other hospital demand management strategy.

This further analysis is particularly important in the light of the changes in referral patterns over the life of the program. The relative costs and outcomes of alternative service delivery models for particular target groups needs to be assessed. In some cases it may be better to expand existing capacity rather than establish another separate service. HHL may be found to be a better alternative, if for no other reason than the industrial and logistical difficulties of attempting to achieve the flexible arrangements that HHL has been able to introduce.

The strategic importance of linking funding to evidence from measures of patient activity implies the need for robust data for demonstrating changes on measures of patient outcomes, something that is mostly not available either from HHL or from the other hospital demand management strategies that are in place. This is a longer term agenda that also needs to be addressed.

When the issue of value for money was raised in the interviews, the majority of interviewees focused on the cost of the program as opposed to the financial benefits that might accrue from early discharge and hospital avoidance. As described in the results section, there was general, although by no means universal, support for the program to be funded on an ongoing basis, with those departments that have used the program the most being more enthusiastic. They expressed some support for funding the program into the future, but were less enthusiastic when it was suggested the money may have to come from the Gold Coast budget.

If the program is to continue, ongoing funding will have to come from the health service budget rather than being allocated separately from Queensland Health. Given this, the opportunity cost for the Gold Coast in continuing the program in its current form is that it will forego the opportunity to use these funds to enhance existing services (such as existing early discharge programs) or to invest equivalent funding in other services.

Section 11 sets out options for the future. The comparative costs and potential outcomes of each option will need to be considered in the decision-making about the next stages of the program.

10.3.3 Financial risk management and patient selection

If the program is to become mainstream, the protocols for patient selection will have to be carefully considered. As the review of the literature indicates (see Section 5), hospital avoidance programs can be cost-effective, but only if the right patients are selected. Selecting patients who are too sick or too well to benefit significantly reduces program effectiveness.

A key risk management is thus to identify who is best placed to select the patients that would most benefit from HHL. A further issue is to determine how they will be held to account for the financial impact of their decision. This is particularly problematic when considering referrals from the community as they are currently processed. Under the pilot model, a GP refers a patient to HHL and HHL decides whether or not to accept them as a client. Neither the GP nor HHL is financing the care. The cost is carried by the GCHSD yet it has no say in the decision.

As a corollary, a key issue is how GCHSD will know after the evaluation is completed whether the patients referred to the HHL or whatever replaces it would have otherwise had an ED attendance or hospitalisation or whether it has identified a new demand group. This issue is discussed further under the issue of governance below.

10.3.4 Payment model

A fundamental tension for the program since its inception is that there are two different models trying to work together, the fee-for-service model of HHL and the 'capped' cost control model of the health service. As we have already noted, this is of concern to many key stakeholders and represents an example of trying to integrate a square peg with a round hole.

An important issue for the future is the nature of the payment system. The current model is that HHL receives a flat fee of \$700 for every referral accepted, and this amount doubles if the client requires more complex care that will take more than seven days. Some clients require only a fairly simple intervention, such as assisted transport home. Others are very complex and may need much more, such as 24 hour per day nursing. The rationale behind the flat fee for service is the 'swings and roundabouts' argument; some referrals are easy and some complex, but in the end they should balance one another out.

However, flat fee for service funding models can create perverse incentives for providers to only accept the simple cases or, alternatively, the referrers' selecting only the most complex cases. The important point is that every funding model creates its own incentives, both positive and negative.

The current funding model has contributed to significant staff concern about whether a flat fee of \$700 represents value for money. Many key stakeholders we interviewed simply do not accept that the initial premise of 'swings and roundabouts' is correct. We understand that perception, particularly because of the large number of clients who have received multiple packages. A 'swings and roundabouts' model can only work if the financial risks are fairly shared between the parties.

That is not what has occurred during the pilot period. If the package of care that the client receives is low cost (eg, transport home), the provider receives a fee of \$700. If the package of care that the client needs costs more than \$700, a second package is approved. In some cases, the second package commenced within 7 days of the first.

The effect of this arrangement is that, throughout the pilot, the GCHSD has carried a disproportionate share of the financial risk. This has occurred because provision for it was built into the initial contract with the service provider. The contract states that a package can be extended up to 14 days if:

- patient care is required for longer than 7 days
- the cost is more than the cost of one package.

By the inclusion of these criteria, the GCHSD agreed to substantially carry the financial risk. It is therefore no surprise that this is what has occurred.

A schedule of fees, with different items for different kinds of packages, would be more appropriate and it is recommended that the GCHSD look to introduce such an approach into any future contract. This would resolve several issues that have arisen to date, would ensure that the services actually provided are appropriately funded and that the value for money of the program is more apparent.

10.3.5 Primary and community health capacity

The HHL program, by the introduction of new pathways and its additional resources, has added capacity to the acute, primary and community sectors. In many instances it has provided a good and useful service that would not otherwise be available. It has also demonstrated what can be achieved with a model that allows service providers to ‘think outside the square’. For example, the ability to transport people home, organise emergency accommodation and respond rapidly on late Friday afternoons has been highly appreciated.

Approximately 13% of HHL referrals were referred onto other community services in 2009. In some cases, HHL has strengthened the capacity of the community sector by maintaining these patients until these services could take over. However, community care agencies also provided the evaluation team with examples of patients who were already on their books and who had been referred by the hospital (either ED or ward) to HHL rather than re-referred back to them. As can be expected when introducing a range of interventions, there has been a perception of overlap and some duplication. Greater clarity and a wider knowledge of processes around referral processes, both in relation to HHL and more generally, would assist in clarifying any residual issues of role delineation and avoid these types of situations.

There is logic in the views expressed by several interviewees that the first step on the capacity building development pathway is to first improve early discharge initiatives. This could then be extended from discharge planning into the wider community to generate true hospital avoidance strategies, but currently the GCHSD requires sustained effort in this area to shift the focus to genuine hospital avoidance.

Routine and systematic hospital avoidance processes linked to effective primary care offer the highest potential return on investment in the longer term but getting to that point will take time. In most cases, effective hospital avoidance strategies need to be implemented several months or years before the patient is likely to require hospitalisation and not just days before. This requires a significant and sustained commitment to prevention and early intervention, including effective primary care.

10.3.6 Location of care to shift from acute to the primary and community sectors

Unlike some hospital avoidance and early discharge programs operating elsewhere in Australia, the HHL program does not include either GP or specialist medical services in its core set of services. However, under its service agreement, HLL is able to purchase GP services if required. The data we received from HHL indicated that no GP services were purchased during the evaluation period, suggesting that the patient’s general practitioner or medical specialist provided their medical care.

Given the known shortage of general practitioners on the Gold Coast, not all patients are able to easily access a GP at short notice. The implication is that patients referred to the program need to be largely medically stable, particularly as the program is meant to be focused on rapid response short term services. A further issue is that the reason patients are typically admitted to hospital is because they require specialist medical, not GP, care. The obvious implication is that, if the goal is to substitute community care for hospital care, specialist medical care needs to be available in the community.

This suggests that one of the options for the future is to implement a more comprehensive Hospital in the Home program that has the capacity to provide acute care (including specialist medical care) for some conditions in a patient’s home. This option is discussed further in Section 11.

10.3.7 Factors that facilitate or inhibit implementation of the program and ongoing sustainability

From the beginning, systems were established to manage the program, and in turn, to facilitate changes to enable the HHL program to be implemented. Some of these included a project officer, an implementation group, a steering committee and liaison positions. Extensive consultations were undertaken with key stakeholders within the district prior to and during the implementation phases, as evidenced by the formal meetings and minutes provided to the evaluation team.

Nevertheless, our overall assessment is that, in the implementation of HHL, insufficient attention has been given to change management at the organisation-wide level, especially planning for resistance to change. There appears to have been an assumption that the program would fit in with existing services, with just a bit of tweaking around the edges. An explicit and documented change management strategy driven by the district executive team rather than by one or two individuals may have assisted in anticipating and managing resistance.

Even though there has been no evidence of a clear model for organisation-wide change, many good strategies have been effectively implemented. In interviews with staff, they identified a number of aspects of the implementation that they believe have helped to make it successful. These include the quick response, the wide range of services, the capacity to deliver, the high degree of visibility of HHL staff and the trust resulting from a successful referral.

Factors that have inhibited the program's implementation were also discussed in the interviews. Suggestions include communication issues (feedback about clients, confusion about referral pathways) and features of the program itself – the seven-day limit and the fact that it is a pilot with no guarantee of ongoing funding. In the case of a small number of referral agents, one unsuccessful referral has been enough to inhibit further referrals from that source. This is not surprising during a pilot period of a new model of care.

Some key stakeholders consulted suggested that the organisation was not ready – that the implementation was too rushed and that it was always going to be difficult to implement because of the pre-existing organisational culture. Other stakeholders had a completely opposite view.

An example of the ongoing differences in some areas is that some interviewees stated that the program has been successful because there was clarity about how the program was to interface with other programs. Others stated that lack of clarity around the referral process and the lack of integration of related services were factors that inhibited the successful implementation of the program.

To a large extent, the success of any program depends on getting the interface right between planners and providers and this is a bigger issue than just getting procedures and discharge planning roles commonly understood. Opportunities for better team work should be continually sought and encouraged.

In Section 8.7 of this report, a number of preconditions for the sustainability of HHL were suggested. In summary, they hinge on clear communication about what the program involves and the implications of its implementation. Further, there must be a clear understanding of existing systems and the way the new program will interface with them. People affected by the new program should be included from the start of the development of the program, through its implementation to its evaluation.

10.3.8 Structures, systems and guidelines in place to support the program

A range of structures and systems have been in place to support the program:

- HAP Project Officer;

- HHL Steering Committee, with risk and issues registers;
- HHL Implementation committee (now disbanded);
- HHL Team Leader located on the Gold Coast;
- Weekly and Quarterly Reports; and
- Other ad hoc reporting such as exceptions and readmissions.

The main guideline developed for the HHL program has been the HHL flow chart. However, one of the major causes of conflict within the hospital has been the process of referring clients to HHL. From the early days of the program, a flow chart of the referral process was displayed in wards and provided to other potential referrers. The DSU subsequently presented a second flow chart of the referral process to the Steering Committee. This led to fundamental misunderstandings and disagreements about some details of the referral process emerging among some members.

What has become clear is that there needs to be greater clarity around the discharge process, the discharge roles of all relevant staff and the actual model of discharge planning that the GCHSD supports and wishes to promote. If possible, this should be agreed and clearly articulated in a collaborative way with key staff both to clarify their roles and to promote more positive working relationships. One of the key tensions over the last year has been that HHL and DSU both regard themselves as discharge planners as well as service providers and this is one of the issues that will need to be resolved in considering options for the future.

There are other staff in the hospital who also plan patient discharges in accordance with GCHSD policy. An example is staff on the ward. The GCHSD adopted a Patient Discharge Procedure in April 2006 that states that ward staff in acute medical/surgical areas cannot make direct referrals to NGOs. In practice, it appears that this policy was only partially implemented, with ward staff continuing to refer patients back to NGO service providers if they were already in receipt of community care. In our consultations with the NGOs, they suggested that this arrangement worked well. In 2009, the 2006 policy was implemented in full, with the wards now able to refer directly only to HHL or to DSU, including for patients already in receipt of community care. The perception of the NGOs is that this has resulted in a lack of continuity of care and a lack of consumer choice.

We have already suggested that it is time to consider bringing all discharge planning and other hospital demand management services under the one policy framework and potentially one organisational structure. It is also time for the GCHSD to review and document referral processes beyond HHL, with different pathways mapped out for those patients already in receipt of community care versus those who are not.

If a decision is made to continue the HHL program, it will need a manager at the GCHSD end. This position should sit within the integrated organisational structure suggested above. It will be required to monitor the progress of the program, ensuring, amongst other things, that appropriate patients are referred, that second packages are delivered when and only when necessary, that information about HHL clients is fed back to the referral source via the patient's records and that HHL clients are referred on to other services when they are available.

There are several broader questions that will need to be addressed before this program or any that replaces it is effectively integrated into the hospital's suite of demand management programs:

- What should be the criteria for selecting the patients who would benefit from this program?
- Who is best placed to select the patients that would most benefit?
- Who should hold and manage the budget?
- How are referring staff and agencies held to account for the financial impact of their decision?
- Who follows up to make sure that the appropriate service has been delivered?

- Who would be responsible for measuring the patient outcomes that are achieved?

Developing a policy framework and an organisational structure that provides the right system to address these questions is a fundamental challenge for the GCHSD into the future.

11 Options for the future

The results of this evaluation suggest options for the future. Each is discussed in turn.

Option 1 Do nothing

Under this option, the GCHSD would let the HHL contract lapse and not pursue other strategies to better manage hospital demand.

In reality, this is not a viable option. The catchment population of the GCHSD is growing and ageing and hospital demand will only increase. Doing nothing is not an option.

Option 2 Maintain HHL as is

The conclusion from this evaluation is that this is also not a viable option. While the program has achieved a great deal, it is not sufficiently targeted nor risk managed to continue as it is and its governance is not sufficiently integrated with other hospital demand management systems (eg, discharge planning) that the district has in place. It will not be positioned into the future to achieve the goals of the GCHSD at a reasonable price if it simply continues as is.

Option 3 Maintain HHL but refine the operational detail

Under this option, HHL would continue but its operations would be refined in line with the findings of this evaluation as discussed in Section 10. Key among these are:

- More targeted patient selection
- Better financial risk management including a scaled set of fees and more explicit criteria and approval process for patients who may be eligible to receive more than one HHL package
- A more integrated policy and governance structure that brings together the internal management of HHL and hospital discharge services and that creates a single intake system for all referrals requiring home support. Determination of the best governance arrangements should be considered by the discharge transformation project team that is currently working to map current responsibilities for discharge planning, formulate a clear definition of discharge planning and identify how this function is best addressed within the District
- Linked to this, clearer definition and separation of the roles of discharge planning and service provision. HHL is an external service and should not have a role in either case finding or discharge planning. Likewise, there is a good case to separate out the discharge planning and post-acute service roles of the current discharge planning unit.

Further detail on other operational refinements that should be considered was discussed in Section 10.

Option 4 Maintain HHL but focus it more clearly

As the discussion in Section 10 and the Return on Investment analysis indicates (see Section 9), the program has been more successful in some areas than others. In addition to implementing changes as proposed under Option 3, Option 4 involves using these results to focus the program into those streams where it has been most successful in terms of meeting its specified goals that relate to reducing pressure on the hospitals. This could potentially involve several configurations:

- Focus the HHL program on ED referrals for admission avoidance and, potentially, supported early discharge for general medical and surgical patients.

- In the process, shift the focus of the program from being largely reactive as it is at present to being a proactive program that actively targets ‘frequent flyers’ and those patients with health conditions that, according to the best available evidence, can be effectively treated in the community.
- This could include expansion of the program to include virtual acute inpatient beds in the community as per acute Hospital in the Home (HiTH) initiatives elsewhere. This would require the HHL program to include medical, diagnostic and pharmaceutical services as part of its core service provision. Under this expanded model, patients on the program would be formally admitted to a virtual hospital bed in the community and the care would be classified (and potentially funded) by AR-DRG.
- In relation to mental health (both admission avoidance and supported early discharge), the HHL program should complement the services provided by the GC community mental health service. This implies that there is a clear specification of the services that should be provided by the GC community mental health service and that funding for community mental health services is matched to that specification. Other required services could then be contracted to HHL.
- The volume of maternity, paediatric and mental health services has been sufficient (at least at certain times) to suggest that it is possible to stream these patients to expanded separate early discharge programs for each group. As has recently occurred with maternity, each program would be provided out of, and integrated into, the hospital paediatric and mental health service streams to ensure continuity of care between the hospital and home settings.
- Another option would be to maintain one program (such as HHL is at present) but to allocate a HHL budget to each clinical stream. Each clinical stream would then be free to either purchase services from HHL or, alternatively, provide them in-house or purchase them from elsewhere using their allocated budget. The advantage of this approach is that it aligns budget and patient selection responsibilities, thus creating incentives for clinical units to make cost effective and accountable referral decisions.
- As the volume of community services increase, a review of inpatient bed requirements would be warranted with some inpatient resources potentially shifted to fund the community programs.

Option 5 Mainstream

Option 5 involves closing HHL as a separate program and mainstreaming its functions:

- Establishment of an acute care community team (HiTH program) that works out of the ED and that accepts referrals from both the ED and GPs and provides acute care in the patient’s home. The HiTH program could be managed as part of the ED/medical stream or managed as part of CARAS. As per Option 4 above, the HiTH program could provide virtual acute inpatient beds in the community with the service staffed by medical, nursing and allied health staff and with diagnostic and pharmaceutical capacity. Under this option, NGOs would provide the required social and home support and, depending on capacity and existing funding streams, there would be separate funding agreements for this purpose.
- A hospital early discharge program for medical and surgical patients. Under this option, NGOs would also provide the required social and community support. The ComPacks Program in NSW is one such model. It contracts with NSW Community Options to provide a case management and brokerage service for each patient for up to 6-8 weeks post discharge (see <http://www.archi.net.au/e-library/build/moc/compacks>).
- As per Option 4 above, separate programs for maternity, paediatrics and mental health, each linked to the appropriate inpatient services and each supported by NGOs as required.

While we do not recommend either Option 1 or Option 2, it is beyond the scope of this evaluation to recommend a preferred option. This is because the best option for the GCHSD involves consideration of factors that are broader than the future of HHL alone. The best option is the one that has the best fit with the overall strategic and operational directions of the GCHSD both in the lead up to the expanded Robina Hospital and the opening of the new Gold Coast University Hospital and beyond.

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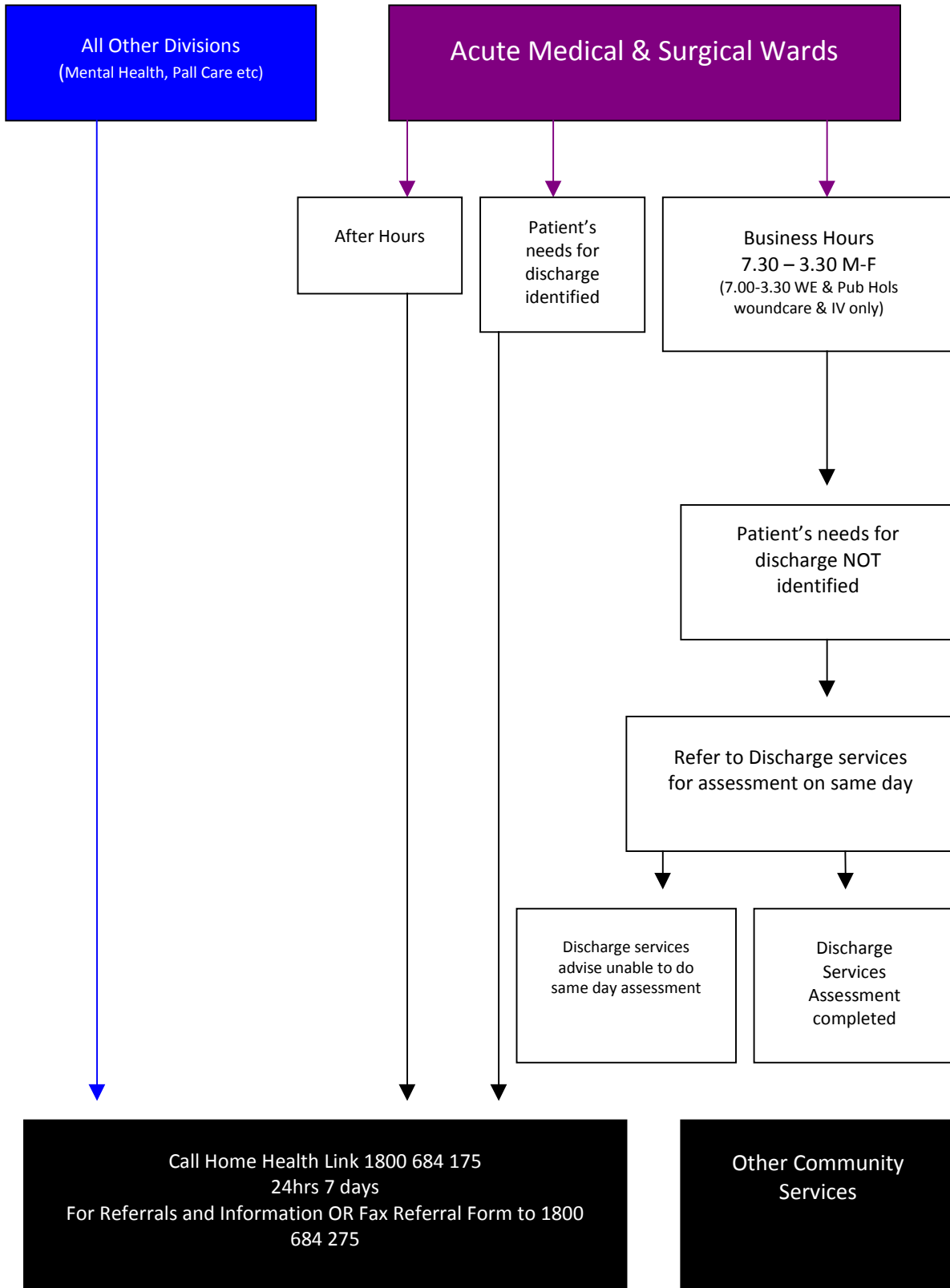
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Attachment 1

Discharge Referral Flow Chart



Attachment 2

DRG of hospital episode preceding HHL admission

DRG + Description	Number	Average LOS HHL referral	Average LOS GCHSD
O60B - Vaginal Delivery W/O Catastrophic or Severe CC	125	2.3	2.3
O01C - Caesarean Delivery W/O Catastrophic or Severe CC	67	3.8	3.4
P67C - Neonate, AdmWt > 2499 g W/O Significant O.R. Procedure W Other Problem	54	6.0	4.6
Z60A - Rehabilitation W Catastrophic or Severe CC	46	28.1	23.9
O60C - Vaginal Delivery Single Uncomplicated W/O Other Condition	40	1.5	1.6
P66C - Neonate, AdmWt 2000-2499 g W/O Significant O.R. Procedure W Other Problem	39	12.4	11.9
U63B - Major Affective Disorders Age <70 W/O Catastrophic or Severe CC	35	21.5	15.7
P67D - Neonate, AdmWt > 2499 g W/O Significant O.R. Procedure W/O Problem	34	3.2	2.1
P67B - Neonate, AdmWt > 2499 g W/O Significant O.R. Procedure W Major Problem	32	11.1	6.7
U67Z - Personality Disorders and Acute Reactions	30	9.3	6.0
I75B - Injury to Shoulder, Arm, Elbow, Knee, Leg or Ankle Age >64 or W CC	28	2.9	2.7
I04Z - Knee Replacement and Reattachment	26	7.5	6.9
E70B - Whooping Cough and Acute Bronchiolitis W/O CC	23	3.3	2.4
D63B - Otitis Media and URI W/O CC	20	1.9	1.4
Z64A - Other Factors Influencing Health Status	20	5.3	11.2
E65B - Chronic Obstructive Airways Disease W/O Catastrophic or Severe CC	19	4.8	4.4
J64B - Cellulitis (Age >59 W/O Catastrophic or Severe CC) or Age <60	19	2.3	2.9
I68B - Non-surgical Spinal Disorders W/O CC	17	2.1	2.7
O01B - Caesarean Delivery W Severe CC	17	4.7	5.0
U61A - Schizophrenia Disorders W Mental Health Legal Status	17	22.5	33.9
I03C - Hip Replacement W/O Catastrophic or Severe CC	16	7.1	5.8
U61B - Schizophrenia Disorders W/O Mental Health Legal Status	15	20.4	20.3
I68C - Non-surgical Spinal Disorders, Sameday	14	1.0	1.0
A06Z - Tracheostomy or Ventilation >95 hours	13	5.4	25.9
O60A - Vaginal Delivery W Catastrophic or Severe CC	13	3.2	3.5
U63A - Major Affective Disorders Age >69 or W (Catastrophic or Severe CC)	13	19.5	11.3
X60B - Injuries Age >64 W/O CC	13	2.2	2.2
K60B - Diabetes W/O Catastrophic or Severe CC	12	3.2	3.4
K62C - Miscellaneous Metabolic Disorders Age <75 W/O Catastrophic or Severe CC	12	5.3	2.1
X60A - Injuries Age >64 W CC	12	4.3	4.6
Z60B - Rehabilitation W/O Catastrophic or Severe CC	12	17.6	29.5
E69C - Bronchitis and Asthma Age <50 W/O CC	11	1.9	1.5
F62B - Heart Failure and Shock W/O Catastrophic CC	11	4.1	4.1
P66B - Neonate, AdmWt 2000-2499 g W/O Significant O.R. Procedure W Major Problem	11	20.1	20.4
P66D - Neonate, AdmWt 2000-2499 g W/O Significant O.R. Procedure W/O Problem	11	9.6	5.1

DRG + Description	Number	Average LOS HHL referral	Average LOS GCHSD
E62C - Respiratory Infections/Inflammations W/O CC	10	4.2	3.1
P65C - Neonate, AdmWt 1500-1999 g W/O Significant O.R. Procedure W Other Problem	10	20.3	18.8
X62A - Poisoning/Toxic Effects of Drugs & Other Substances Age >59 or W CC	10	8.9	4.2
D11Z - Tonsillectomy and/or Adenoidectomy	9	1.0	1.0
E65A - Chronic Obstructive Airways Disease W Catastrophic or Severe CC	9	6.7	7.8
G67A - Oesophagitis, Gastroent & Misc Digestive System Disorders Age>9 W Cat/Sev CC	9	7.1	4.9
G67B - Oesophagitis, Gastroent & Misc Digestive System Disorders Age>9 W/O Cat/Sev CC	9	2.4	1.7
O61Z - Postpartum and Post Abortion W/O O.R. Procedure	9	1.7	1.9
E75B - Other Respiratory System Diagnosis Age >64 or W CC	8	2.9	2.4
F73B - Syncope and Collapse W/O Catastrophic or Severe CC	8	2.0	1.5
I13C - Humerus, Tibia, Fibula and Ankle Procedures Age <60 W/O Cat or Sev CC	8	8.1	4.6
J65A - Trauma to the Skin, Subcutaneous Tissue and Breast Age >69	8	1.5	2.5
O02B - Vaginal Delivery W O.R. Procedure W/O Catastrophic or Severe CC	8	2.4	2.9
P65D - Neonate, AdmWt 1500-1999 g W/O Significant O.R. Procedure W/O Problem	8	21.9	18.8
U62A - Paranoia & Acute Psych Disorder W Cat/Sev CC or W Mental Health Legal Status	8	29.9	18.6
U64Z - Other Affective and Somatoform Disorders	8	14.1	9.3
X60C - Injuries Age <65	8	4.0	1.5
D61Z - Dysequilibrium	7	1.1	1.9
E62A - Respiratory Infections/Inflammations W Catastrophic CC	7	11.6	8.3
E62B - Respiratory Infections/Inflammations W Severe or Moderate CC	7	8.0	5.0
I05Z - Other Major Joint Replacement and Limb Reattachment Procedures	7	2.7	3.6
I74B - Injury to Forearm, Wrist, Hand or Foot Age >74 or W CC	7	1.7	2.3
I74C - Injury to Forearm, Wrist, Hand or Foot Age <75 W/O CC	7	1.9	1.3
L61Z - Admit for Renal Dialysis	7	1.0	1.0
P67A - Neonate, AdmWt > 2499 g W/O Significant O.R. Procedure W Multi Major Problems	7	8.7	6.5
B76B - Seizure W/O Catastrophic or Severe CC	6	5.2	2.2
F74Z - Chest Pain	6	8.7	1.4
I01Z - Bilateral or Multiple Major Joint Procedures of Lower Extremity	6	9.8	8.3
I03B - Hip Replacement W Cat or Sev CC or Hip Revision W/O Cat or Sev CC	6	12.8	11.2
I08B - Other Hip and Femur Procedures W/O Catastrophic or Severe CC	6	17.7	8.7
I19Z - Other Elbow or Forearm Procedures	6	1.5	2.4
O01A - Caesarean Delivery W Catastrophic CC	6	7.3	7.1
V61Z - Drug Intoxication and Withdrawal	6	19.2	9.0
901Z - Extensive O.R. Procedure Unrelated to Principal Diagnosis	5	14.2	9.8
B63Z - Dementia and Other Chronic Disturbances of Cerebral Function	5	6.0	12.6
B81B - Other Disorders of the Nervous System W/O Catastrophic or Severe CC	5	3.4	3.1
C62Z - Hyphema and Medically Managed Trauma to the Eye	5	1.0	1.5
F62A - Heart Failure and Shock W Catastrophic CC	5	8.6	7.9
H08B - Laparoscopic Cholecystectomy W/O Closed CDE W/O Cat or Sev CC	5	5.0	1.8

DRG + Description	Number	Average LOS HHL referral	Average LOS GCHSD
L63C - Kidney and Urinary Tract Infections Age <70 W/O Catastrophic or Severe CC	5	4.4	2.1
O02A - Vaginal Delivery W O.R. Procedure W Catastrophic or Severe CC	5	3.0	3.5
T60A - Septicaemia W Catastrophic or Severe CC	5	23.8	8.9
X62B - Poisoning/Toxic Effects of Drugs & Other Substances Age <60 W/O CC	5	10.8	1.7
B70C - Stroke W/O Catastrophic or Severe CC	4	6.8	5.0
B71B - Cranial and Peripheral Nerve Disorders W/O CC	4	2.8	1.4
B76A - Seizure W Catastrophic or Severe CC	4	6.0	6.7
B80Z - Other Head Injury	4	1.0	1.3
E41Z - Respiratory System Diagnosis W Non-invasive Ventilation	4	5.8	7.9
E60B - Cystic Fibrosis W/O Catastrophic or Severe CC	4	8.8	8.6
E71B - Respiratory Neoplasms W Severe or Moderate CC	4	5.5	7.0
E72Z - Respiratory Problems Arising from Neonatal Period	4	15.5	17.9
F60A - Circulatory Disorders W AMI W/O Invasive Cardiac Inves Proc W Cat or Sev CC	4	9.0	7.9
F60B - Circulatory Disorders W AMI W/O Invasive Cardiac Inves Proc W/O Cat or Sev CC	4	2.0	2.7
F71B - Non-Major Arrhythmia and Conduction Disorders W/O Catastrophic or Severe CC	4	1.8	1.7
F73A - Syncope and Collapse W Catastrophic or Severe CC	4	2.5	4.7
G11B - Anal and Stomal Procedures W/O Catastrophic or Severe CC	4	2.0	1.6
G70B - Other Digestive System Diagnoses W/O CC	4	1.5	1.5
I63Z - Sprains, Strains and Dislocations of Hip, Pelvis and Thigh	4	2.0	4.0
I75A - Injury to Shoulder, Arm, Elbow, Knee, Leg or Ankle Age >64 W CC	4	6.5	10.4
I75C - Injury to Shoulder, Arm, Elbow, Knee, Leg or Ankle Age <65 W/O CC	4	2.8	1.9
I77B - Fractures of Pelvis W/O Catastrophic or Severe CC	4	14.0	7.2
K60A - Diabetes W Catastrophic or Severe CC	4	9.5	9.3
K62A - Miscellaneous Metabolic Disorders W Catastrophic CC	4	6.5	7.0
K62B - Miscellaneous Metabolic Disorders Age >74 or W Severe CC	4	3.8	2.6
L63B - Kidney and Urinary Tract Infections Age >69 or W Severe CC	4	4.5	4.0
M04B - Testes Procedures W/O CC	4	1.3	1.2
P65B - Neonate, AdmWt 1500-1999 g W/O Significant O.R. Procedure W Major Problem	4	25.3	22.8
U62B - Paranoia & Acute Psych Disorder W/O Cat/Sev CC W/O Mental Health Legal Status	4	22.5	14.8
V60B - Alcohol Intoxication and Withdrawal W/O CC	4	1.8	1.6
B64B - Delirium W/O Catastrophic CC	3	9.7	5.6
B77Z - Headache	3	4.0	1.9
B81A - Other Disorders of the Nervous System W Catastrophic or Severe CC	3	3.7	6.8
D63A - Otitis Media and URI W CC	3	5.3	2.8
E02C - Other Respiratory System O.R. Procedures W/O Catastrophic or Severe CC	3	1.0	1.8
E67A - Respiratory Signs and Symptoms W Catastrophic or Severe CC	3	11.7	4.3
E67B - Respiratory Signs and Symptoms W/O Catastrophic or Severe CC	3	3.3	1.4
E75C - Other Respiratory System Diagnosis Age <65 W/O CC	3	2.0	1.4
F10Z - Percutaneous Coronary Intervention W AMI	3	10.7	3.6

DRG + Description	Number	Average LOS HHL referral	Average LOS GCHSD
F12Z - Cardiac Pacemaker Implantation	3	3.0	3.8
F63B - Venous Thrombosis W/O Catastrophic or Severe CC	3	3.7	2.5
G02A - Major Small and Large Bowel Procedures W Catastrophic CC	3	13.7	16.2
G07B - Appendicectomy W/O Catastrophic or Severe CC	3	4.3	2.5
G69Z - Oesophagitis and Misc Digestive System Disorders Age<10	3	4.7	1.7
G70A - Other Digestive System Diagnoses W CC	3	7.3	4.2
I08A - Other Hip and Femur Procedures W Catastrophic or Severe CC	3	15.3	15.9
I10B - Other Back and Neck Procedures W/O Catastrophic or Severe CC	3	5.0	4.5
I13B - Humerus, Tibia, Fibula and Ankle Procedures Age >59 W/O Cat or Sev CC	3	10.7	6.9
I18Z - Other Knee Procedures	3	3.0	1.6
I20Z - Other Foot Procedures	3	3.0	2.8
I69A - Bone Diseases & Spec Arthropathies Age >74 W Catastrophic or Severe CC	3	5.7	10.3
I69B - Bone Diseases & Spec Arthropathies Age >74 or W (Catastrophic or Severe CC)	3	5.0	4.4
I76B - Other Musculoskeletal Disorders Age >69 or W CC	3	1.7	1.9
J11Z - Other Skin, Subcutaneous Tissue and Breast Procedures	3	2.3	1.4
J60A - Skin Ulcers	3	3.7	15.2
K61Z - Severe Nutritional Disturbance	3	16.0	9.4
L65B - Kidney and Urinary Tract Signs and Symptoms W/O Catastrophic or Severe CC	3	4.0	1.8
L67C - Other Kidney and Urinary Tract Diagnoses W/O Catastrophic or Severe CC	3	3.7	1.9
O66A - Antenatal & Other Obstetric Admission	3	11.0	1.9
P63Z - Neonate, AdmWt 1000-1249 g W/O Significant O.R. Procedure	3	36.7	29.6
P64Z - Neonate, AdmWt 1250-1499 g W/O Significant O.R. Procedure	3	23.7	22.4
Q60C - Reticuloendothelial and Immunity Disorders W/O Cat or Sev CC W/O Malignancy	3	2.0	1.3
T63B - Viral Illness Age <60 W/O CC	3	2.0	1.5
U60Z - Mental Health Treatment, Sameday, W/O ECT	3	1.0	1.0
U65Z - Anxiety Disorders	3	11.3	7.2
V62A - Alcohol Use Disorder and Dependence	3	7.7	5.7
W61Z - Multiple Trauma Without Significant Procedures	3	14.7	8.2
X63A - Sequelae of Treatment W Catastrophic or Severe CC	3	5.3	7.9
X63B - Sequelae of Treatment W/O Catastrophic or Severe CC	3	2.0	2.3
B02C - Craniotomy W/O CC	2	7.0	7.5
B06B - Procs for Cerebral Palsy, Muscular Dystrophy, Neuropathy W/O Cat or Sev CC	2	1.5	1.5
B70A - Stroke W Catastrophic CC	2	7.5	13.6
B71A - Cranial and Peripheral Nerve Disorders W CC	2	15.5	6.8
C16B - Lens Procedures, Sameday	2	1.0	1.0
D62Z - Epistaxis	2	2.0	1.6
D64Z - Laryngotracheitis and Epiglottitis	2	2.0	1.2
D66B - Other Ear, Nose, Mouth and Throat Diagnoses W/O CC	2	2.5	1.5
E66B - Major Chest Trauma Age >69 or W CC	2	3.5	3.7
E70A - Whooping Cough and Acute Bronchiolitis W CC	2	5.5	3.5

DRG + Description	Number	Average LOS HHL referral	Average LOS GCHSD
F14C - Vascular Procs Except Major Reconstruction W/O CPB Pump W/O Cat or Sev CC	2	3.5	2.1
F15Z - Percutaneous Coronary Intervention W/O AMI W Stent Implantation	2	3.5	1.9
F65A - Peripheral Vascular Disorders W Catastrophic or Severe CC	2	7.0	8.0
F66A - Coronary Atherosclerosis W CC	2	3.0	2.8
F69B - Valvular Disorders W/O Catastrophic or Severe CC	2	1.5	1.9
F71A - Non-Major Arrhythmia and Conduction Disorders W Catastrophic or Severe CC	2	6.0	5.1
F75A - Other Circulatory System Diagnoses W Catastrophic CC	2	5.5	7.6
G06Z - Pyloromyotomy Procedure	2	4.0	4.3
G42A - Other Gastroscopy for Major Digestive Disease	2	4.5	5.2
G44C - Other Colonoscopy, Sameday	2	1.0	1.0
G45A - Other Gastroscopy for Non-Major Digestive Disease	2	3.5	3.3
G46B - Complex Gastroscopy W/O Catastrophic or Severe CC	2	6.5	3.7
G46C - Complex Gastroscopy, Sameday	2	1.0	1.0
G60A - Digestive Malignancy W Catastrophic or Severe CC	2	7.5	10.2
G66B - Abdominal Pain or Mesenteric Adenitis W/O CC	2	1.0	1.3
G68A - Gastroenteritis Age <10 W CC	2	1.5	2.0
G68B - Gastroenteritis Age <10 W/O CC	2	3.0	1.6
H61A - Malignancy of Hepatobiliary Sys,Panc (Age>69 W Cat or Sev CC) or W Cat CC	2	19.5	8.4
H63A - Disorders of Liver Except Malig, Cirrhosis, Alcoholic Hepatitis W Cat/Sev CC	2	17.0	6.1
I16Z - Other Shoulder Procedures	2	1.5	1.4
I30Z - Hand Procedures	2	1.0	1.6
I60Z - Femoral Shaft Fractures	2	10.0	13.7
I68A - Non-surgical Spinal Disorders W CC	2	10.0	7.9
I71B - Other Musculotendinous Disorders Age >69 or W CC	2	9.5	2.1
I72B - Specific Musculotendinous Disorders Age <80 W/O Cat or Sev CC	2	2.5	2.4
I73C - Aftercare of Musculoskeletal Implants/Prostheses Age <60 W/O Cat or Sev CC	2	1.5	3.1
I76A - Other Musculoskeletal Disorders Age >69 W CC	2	1.5	4.2
I78A - Fractures of Neck of Femur W Catastrophic or Severe CC	2	13.0	18.6
I78B - Fractures of Neck of Femur W/O Catastrophic or Severe CC	2	1.5	5.9
J09Z - Perianal and Pilonidal Procedures	2	1.0	1.3
J63Z - Non-Malignant Breast Disorders	2	6.5	2.3
J65B - Trauma to the Skin, Subcutaneous Tissue and Breast Age <70	2	1.5	1.4
J67A - Minor Skin Disorders	2	2.0	2.9
L03A - Kidney, Ureter and Major Bladder Procedures for Neoplasm W Cat or Sev CC	2	7.5	8.7
L41Z - Cystourethroscopy, Sameday	2	1.0	1.0
P62Z - Neonate, AdmWt 750-999 g	2	28.5	28.5
P66A - Neonate, AdmWt 2000-2499 g W/O Significant O.R. Proc W Multi Major Problems	2	10.0	10.8
Q60A - Reticuloendothelial and Immunity Disorders W Catastrophic or Severe CC	2	4.0	6.2
R61A - Lymphoma and Non-Acute Leukaemia W Catastrophic CC	2	14.5	11.6
R61B - Lymphoma and Non-Acute Leukaemia W/O Catastrophic CC	2	3.0	4.4

DRG + Description	Number	Average LOS HHL referral	Average LOS GCHSD
T60B - Septicaemia W/O Catastrophic or Severe CC	2	7.0	4.1
T61A - Postoperative & Post-traumatic Infections Age >54 or W (Cat or Sev CC)	2	3.0	8.6
V60A - Alcohol Intoxication and Withdrawal W CC	2	10.5	4.9
W02Z - Hip, Femur and Limb Procs for Multiple Significant Trauma, incl Implantation	2	27.5	21.7
X06B - Other Procedures for Other Injuries W/O Catastrophic or Severe CC	2	9.0	2.5
Z61Z - Signs and Symptoms	2	1.5	3.1
Z64B - Other Factors Influencing Health Status, Sameday	2	1.0	1.0
963Z - Neonatal Diagnosis Not Consistent W Age/Weight	1	49.0	25.0
B02B - Craniotomy W Severe or Moderate CC	1	15.0	12.1
B03B - Spinal Procedures W/O Catastrophic or Severe CC	1	11.0	6.2
B05Z - Carpal Tunnel Release	1	1.0	1.1
B06A - Procs for Cerebral Palsy, Muscular Dystrophy, Neuropathy W Cat or Sev CC	1	11.0	23.8
B64A - Delirium W Catastrophic CC	1	19.0	8.7
B66A - Nervous System Neoplasm W Catastrophic or Severe CC	1	7.0	10.9
B66B - Nervous System Neoplasm W/O Catastrophic or Severe CC	1	9.0	5.1
B67A - Degenerative Nervous System Disorders W Cat or Sev CC	1	20.0	10.6
B67B - Degenerative Nervous System Disorders Age >59 W/O Cat or Sev CC	1	6.0	5.0
B67C - Degenerative Nervous System Disorders Age <60 W/O Cat or Sev CC	1	25.0	2.4
B70B - Stroke W Severe CC	1	3.0	7.2
B72B - Nervous System Infection Except Viral Meningitis W/O Cat or Sev CC	1	2.0	5.0
B75Z - Febrile Convulsions	1	1.0	1.4
B78A - Intracranial Injury W Catastrophic or Severe CC	1	13.0	11.5
B79Z - Skull Fractures	1	12.0	2.6
D09Z - Miscellaneous Ear, Nose, Mouth & Throat Procedures	1	1.0	1.1
D12Z - Other Ear, Nose, Mouth & Throat Procedures	1	2.0	1.3
D14Z - Mouth and Salivary Gland Procedures	1	1.0	1.5
D40Z - Dental Extractions and Restorations	1	1.0	1.1
D65Z - Nasal Trauma and Deformity	1	10.0	1.4
D67A - Oral and Dental Disorders Except Extractions and Restorations	1	1.0	2.5
E40Z - Respiratory System Diagnosis W Ventilator Support	1	21.0	8.1
E61B - Pulmonary Embolism W/O Catastrophic or Severe CC	1	6.0	4.9
E64Z - Pulmonary Oedema and Respiratory Failure	1	4.0	4.8
E68Z - Pneumothorax	1	45.0	3.4
E69A - Bronchitis and Asthma Age >49 W CC	1	10.0	4.8
E69B - Bronchitis and Asthma Age >49 or W CC	1	3.0	2.0
E71A - Respiratory Neoplasms W Catastrophic CC	1	11.0	8.8
E73B - Pleural Effusion W Severe CC	1	13.0	7.2
E74C - Interstitial Lung Disease W/O Catastrophic or Severe CC	1	3.0	2.7
F08A - Major Reconstruct Vascular Procedures W/O CPB Pump W Catastrophic CC	1	11.0	18.4
F14B - Vascular Procs Except Major Reconstruction W/O CPB Pump W Sev CC	1	1.0	3.4

DRG + Description	Number	Average LOS HHL referral	Average LOS GCHSD
F20Z - Vein Ligation and Stripping	1	1.0	1.0
F42A - Circulatory Disorders W/O AMI W Invasive Cardiac Inves Proc W Complex DX/Pr	1	4.0	4.5
F61Z - Infective Endocarditis	1	71.0	29.2
F63A - Venous Thrombosis W Catastrophic or Severe CC	1	3.0	6.3
F65B - Peripheral Vascular Disorders W/O Catastrophic or Severe CC	1	4.0	2.2
F66B - Coronary Atherosclerosis W/O CC	1	2.0	1.3
F69A - Valvular Disorders W Catastrophic or Severe CC	1	8.0	3.8
F72A - Unstable Angina W Catastrophic or Severe CC	1	4.0	3.5
F72B - Unstable Angina W/O Catastrophic or Severe CC	1	1.0	1.9
F75C - Other Circulatory System Diagnoses W/O Catastrophic or Severe CC	1	1.0	2.5
G04B - Peritoneal Adhesiolysis Age >49 or W CC	1	17.0	4.4
G05A - Minor Small and Large Bowel Procedures W CC	1	28.0	11.3
G08A - Abdominal and Other Hernia Procedures Age >59 or W (Cat or Sev CC)	1	3.0	2.6
G09Z - Inguinal and Femoral Hernia Procedures Age>0	1	2.0	1.3
G11A - Anal and Stomal Procedures W Catastrophic or Severe CC	1	3.0	6.8
G42B - Other Gastroscopy for Major Digestive Disease, Sameday	1	1.0	1.0
G44A - Other Colonoscopy W Catastrophic or Severe CC	1	5.0	8.6
G62Z - Complicated Peptic Ulcer	1	11.0	6.5
G66A - Abdominal Pain or Mesenteric Adenitis W CC	1	4.0	2.7
H60A - Cirrhosis and Alcoholic Hepatitis W Catastrophic CC	1	11.0	12.8
H61B - Malignancy of Hepatobiliary Sys,Panc (Age>69 W/O Cat or Sev CC) or W/O Cat CC	1	5.0	4.7
H62A - Disorders of Pancreas Except for Malignancy W Catastrophic or Severe CC	1	10.0	8.5
I23Z - Local Excision & Removal of Internal Fixation Device Excl Hip and Femur	1	1.0	1.1
I27B - Soft Tissue Procedures W/O Catastrophic or Severe CC	1	6.0	2.8
I28A - Other Connective Tissue Procedures W CC	1	11.0	23.3
I64A - Osteomyelitis W CC	1	15.0	17.8
I66A - Inflammatory Musculoskeletal Disorders W Cat or Sev CC	1	1.0	10.1
I69C - Bone Diseases & Spec Arthropathies Age <75 W/O Catastrophic or Severe CC	1	1.0	2.4
I70Z - Non-specific Arthropathies	1	3.0	3.4
I71A - Other Musculotendinous Disorders Age >69 W CC	1	5.0	3.5
I71C - Other Musculotendinous Disorders Age <70 W/O CC	1	1.0	1.4
I77A - Fractures of Pelvis W Catastrophic or Severe CC	1	18.0	12.5
J06A - Major Procedures for Malignant Breast Conditions	1	16.0	2.2
J07B - Minor Procedures for Non-Malignant Breast Conditions	1	1.0	1.1
J12C - Lower Limb Procs W Ulcer/Cellulitis W/O Cat CC W/O Skin Graft/Flap Repair	1	4.0	10.4
J62A - Malignant Breast Disorders (Age >69 W CC) or W (Cat or Sev CC)	1	5.0	9.7
J64A - Cellulitis Age >59 W Catastrophic or Severe CC	1	5.0	10.4
J68A - Major Skin Disorders	1	2.0	5.8
K03Z - Adrenal Procedures	1	22.0	15.7

DRG + Description	Number	Average LOS HHL referral	Average LOS GCHSD
K09Z - Other Endocrine, Nutritional and Metabolic O.R. Procedures	1	50.0	9.6
K64A - Endocrine Disorders W Catastrophic or Severe CC	1	4.0	7.9
L02A - Operative Insertion of Peritoneal Catheter for Dialysis W Cat or Sev CC	1	43.0	42.0
L60A - Renal Failure W Catastrophic CC	1	30.0	13.0
L60B - Renal Failure W Severe CC	1	14.0	8.0
L60C - Renal Failure W/O Catastrophic or Severe CC	1	1.0	4.1
L63A - Kidney and Urinary Tract Infections W Catastrophic CC	1	9.0	11.6
L67A - Other Kidney and Urinary Tract Diagnoses W Catastrophic CC	1	8.0	13.2
L67B - Other Kidney and Urinary Tract Diagnoses W Severe CC	1	4.0	5.7
N04Z - Hysterectomy for Non-Malignancy	1	4.0	3.2
N07Z - Other Uterine & Adnexa Procedures for Non-Malignancy	1	1.0	1.2
N09Z - Conisation, Vagina, Cervix and Vulva Procedures	1	1.0	1.1
N10Z - Diagnostic Curettage or Diagnostic Hysteroscopy	1	1.0	1.1
N61Z - Infections, Female Reproductive System	1	1.0	1.6
N62B - Menstrual and Other Female Reproductive System Disorders W/O CC	1	1.0	1.2
O04Z - Postpartum and Post Abortion W O.R. Procedure	1	14.0	3.1
O66B - Antenatal & Other Obstetric Admission, Sameday	1	1.0	1.0
P06B - Neonate, Adm Wt > 2499 g W Significant O.R. Proc W/O Multi Major Problems	1	8.0	5.7
P61Z - Neonate, AdmWt < 750 g	1	13.0	13.0
Q61A - Red Blood Cell Disorders W Catastrophic CC	1	24.0	9.7
Q61B - Red Blood Cell Disorders W Severe CC	1	4.0	3.7
Q61C - Red Blood Cell Disorders W/O Catastrophic or Severe CC	1	1.0	1.6
Q62Z - Coagulation Disorders	1	1.0	3.1
R03A - Lymphoma and Leukaemia W Other O.R. Procedures W Catastrophic or Severe CC	1	14.0	7.3
R63Z - Chemotherapy	1	1.0	1.0
T01B - O.R. Procedures for Infectious and Parasitic Diseases W Severe or Moderate CC	1	62.0	13.1
T01C - O.R. Procedures for Infectious and Parasitic Diseases W/O CC	1	10.0	7.3
T61B - Postoperative & Post-traumatic Infections Age <55 W/O Cat or Sev CC	1	6.0	5.7
T62A - Fever of Unknown Origin W CC	1	3.0	3.0
T62B - Fever of Unknown Origin W/O CC	1	2.0	1.7
U66Z - Eating and Obsessive-Compulsive Disorders	1	21.0	37.3
V62B - Alcohol Use Disorder and Dependence, Sameday	1	1.0	1.0
X05Z - Other Procedures for Injuries to Hand	1	1.0	2.6
Z60C - Rehabilitation, Sameday	1	1.0	1.0
Z63A - Other Aftercare W Catastrophic or Severe CC	1	5.0	11.5

Attachment 3

Home Support Services Patient Survey Form

1. Overall I found Home Health Link services to be:

Excellent Very Good Good Poor Very Poor

2. Was Home Health Link preferable to being in Hospital?

Yes No

3. Was the care you received?

Excellent Very Good Good Poor Very Poor

3a. Any Comments or Suggestions:

4. Did you have contact with the Office Staff?

Yes No

4a. If yes did you find their assistance to be:

Excellent Very Good Good Poor Very Poor

5. Would you be happy to have Home Health Link services again?

Yes No

5a. Any Comments or Suggestions:

6. Did you find that your discharge from Home Health Link care was adequately planned?

Yes No

6a. Any Comments or Suggestions:

7. Is there anything you believe could improve Home Health Link Care?

Yes No

7a. Any Comments or Suggestions:

8. Approximately how many visits did you receive from Home Health Link?

1-5 6-10 11-15 16-20 Above 20

9. How did you hear about Home Health Link service?

The Hospital Your Doctor Liaison Nurse Other (please specify)

10. The Suburb you live in (Optional): _____

11. Your Name (Optional): _____

Thank You, please give this completed questionnaire to one of our staff members or return via post.

Attachment 4

Key stakeholder interview questions

Interviews with key stakeholders used a semi-structured approach based on the questions below. Data analysis commenced as soon as the first interview was completed using the technique of constant comparison throughout the remaining interviews. The early interviews followed the interview guide closely but as issues emerged a more unstructured approach for some of the subsequent interviews was used to explore these issues further.

1. What is your overall view about how the Home Health Link (HHL) program has been working in 2009? Issues to be aware of when listening to responses (and prompting) include:
 - integration of the program with existing services
 - partnerships between service providers
 - structures, systems and guidelines in place
 - changes in service delivery and access to home support for clients
 - cost of the program
2. What types of patients do you refer to HHL?
 - Has this changed over the course of the program?
 - Are any patients who might benefit from the program not being referred? If so, why?
3. If the HHL program did not exist what would you do with the patients you are now referring to HHL?
 - those referred by someone in the community e.g. GP, mental health service
 - those referred by someone in ED
 - those referred by someone in the hospital
4. What has changed since the HHL program was introduced?
 - What, if anything, has been achieved?
 - What problems have there been, if any?
 - How, if at all, has the program improved the capacity of the health service to improve coordination and continuity of care?
5. We are interested in understanding what factors facilitate or inhibit the take up of the program and its ongoing sustainability. What are your views?
6. Do you have any evidence about the impact of the HHL program on patient outcomes? (ask for copy of any evidence)
 - What would be the best evidence of the program being effective?
7. How do you think the program could be improved?
8. What have you learnt from your involvement with the HHL program?

Concluding questions

9. Do you have any comments about whether the HHL program should be funded on an ongoing basis?
10. Do you have any final comments on the program or how it is working?

Questions for specific departments / positions:

11. Emergency Department:

- What types of patients do you refer to HHL and has this changed over the course of the program (ED referrals average 1-2 per day)?
- How many of the ED referrals do you think avoid an admission?

12. Paediatrics & Special Care Nursery – what types of patients do you refer to HHL and has this changed over the course of the program (paediatric and SCN referrals have been increasing since Feb 2009)?

13. Medical/surgical stakeholder(s) - what types of patients do you refer to HHL and has this changed over the course of the program (medical/surgical referrals fluctuate month to month with no upward trend)?