1995 - 1997

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

R E P O R T

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Project Title

The development of a survey instrument to collect a national uniform database which identifies and describes present allied health hospital outpatient services by patient category, access and availability, and which can be used to inform costing studies to test alternative funding arrangements.

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THIS REPORT COMPLETES THE BRIEF
OF AN AMBULATORY CARE REFORM PROJECT.

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This report is dedicated to the customers of clinical allied health services.

Glossary of Terms

Episode of care	For the purpose of the project an episode of care contained all those occasions of outpatient service provided to the one patient by one allied health service type, for the management of one condition using one referral. It was bounded by the dates of first treatment and of discharge from care. This definition thus differed from the Casemix notion of inpatient plus continuing outpatient care constituting the episode.
Allied health	A working definition of clinical allied health professionals was proposed for the purpose of this project as: *those tertiary trained individuals other than medical practitioners, nurses, dentists and pharmacists, who act in a clinical capacity and who could enter into a care-based, and/ or primary investigative and primary diagnostic relationship with ambulant patients, be they in the public or private sector.* Clinical allied health services include Physiotherapy, Occupational Therapy, Speech Pathology, Podiatry, (Clinical) Nutrition and Dietetics, Social Work, Audiology, Psychology, Health Promotion and Orthotics.
Allied health service	The outpatient aspect of service delivered by a clinical allied health department in an acute public hospital setting.
Patient	IAn individual consuming allied health services in the public hospital outpatient setting.
Ambulant patient	For the purpose of this project, an ambulant patient was defined as a non-admitted patient (a non-inpatient), who resides outside the hospital (care-based) precinct, either at home or other residential accommodation, or in another care environment such as a hostel, nursing home or another hospital (Eager and Hindle 1994, Macnee and Penchansky 1994). The ambulant patient is one who 'travels' to the outpatients department in order to directly access services provided by outpatient-based health professionals.
Classification of allied health outpatients	Category C patients are those patients *'who consume allied health work which is a precursor or follow up to inpatient admissions'.* Category E patients are those *'whose allied health care is not related to inpatient admissions and is comparable with services available in private community settings, except to the extent that subsidies are not available for private care of this type'.* The draft paper on Ambulatory Care Reform: The Next Steps (1994).

Executive Summary

Summary of Study

This study reports on 10,095 patients who began an episode of care in at least one of 46 clinical allied health outpatient services at eight acute care public hospitals over a ten month period during 1996. Six South Australian and two interstate sites were involved (comprising five metropolitan and three country sites). The project examined:

- characteristics of allied health outpatients and episodes of care
- the nature of allied health service provision
- issues of access to, and availability of, clinical allied health services
- cost drivers of allied health services.

(Ambulant) Allied Health Outpatients

Ambulant patients were defined as non-admitted patients (non-inpatients), who resided outside the hospital (care-based) precinct, either at home or in other residential accommodation, or in another care environment such as a hostel, nursing home or another hospital (Eager and Hindle 1994, Macnee and Penchansky 1994). In this project, ambulant allied health patients 'travelled' to outpatient allied health services provided in acute care public hospitals.

Classification of Allied Health Outpatients

Allied health outpatients are currently classified as either Category C (patients who are consuming outpatient allied health services following, or prior to, an associated inpatient admission) or Category E (patients who do not have an associated inpatient admission and who are not eligible for rebates for services consumed in the private sector, that is, they are not privately insured and are not compensable). Two groups of Category E outpatients were identified in the data: Category E1 patients who did not have an associated inpatient admission and were not eligible for rebates in the private sector, and Category E2 patients, who also did not have an associated inpatient admission but who were eligible for rebates in the private sector.

Definition of Clinical Allied Health Services

Clinical allied health services were poorly defined in the literature, and in order to identify and enrol them appropriately into the project in all participating sites, a working definition was developed for clinical allied health professionals:

> *those tertiary trained individuals other than medical practitioners, nurses, dentists and pharmacists, who act in a clinical capacity and who could enter into a care-based, and/ or primary investigative and primary diagnostic relationship with ambulant patients, be they in the public or private sector.*

The clinical allied health services investigated in this project were Physiotherapy, Occupational Therapy, Speech Pathology, Podiatry, (Clinical) Nutrition and Dietetics, Social Work, Audiology, Psychology, and Orthotics and Prosthetics.

Data Collection Systems

Different allied health data collection systems were in place in the eight participating hospitals, and there was little commonality within, or across sites, on data items, data definitions, data field construction and reporting requirements. Lack of support at state health authority and hospital levels in systems implementation and enhancement, and lack of sophistication at department level in data recording, retrieval and reporting contributed to this. Considerable further input is required by both allied health and information technology personnel to establish relevant and minimum data requirements, before a 'Best Practice' allied health outpatient information system can be widely implemented.

There was no standard way in the eight participating sites of collecting information on diagnosis. Descriptors of diagnosis supplied by allied health services ranged across the underlying medical condition, presenting symptoms / problem, body part(s) affected, chronicity and severity of condition, causal agencies, and procedures. The nature and components of allied health diagnosis require review in order to develop common descriptive categories appropriate across services, and across sites.

The Survey Instrument

The relevance of the core national data items specified for allied health outpatients was considered during the development of the survey instrument. Not all these items were appropriate to the aims of the study, and additional and/ or qualifying items were required to comprehensively describe allied health patient and episode characteristics. This report recommends and defines approximately 30 relevant data items.

Episodes of Allied Health Outpatient Care

Episodes of allied health outpatient care were employed in this study to describe ambulatory allied health services. This study differed from previous ambulatory studies, which collected information on occasions of service. The notion of the episode of care underpins the ongoing and longer term nature of disease management, that is essentially the province of allied health services (World Health Organisation 1980). An episode of allied health outpatient care was defined as containing all those occasions of outpatient service provided by one allied health service type, for the one presentation of a particular condition, using the one referral.

Data on allied health outpatients were collected over a ten month period, and specific elements of the episode of allied health outpatient care were identified to ensure separation of completed and incomplete episodes. Records of patients which contained no occasion of service information were flagged, as were records of patients with information on occasions of service but no date of discharge. This identified patients who were potentially consuming ongoing allied health outpatient care (an incomplete episode) at the end of the study period. Records were also flagged of those patients who had started and completed an episode of care within the time frame of the study.

Completed episodes of care could contain one occasion of service only (the date of the occasion of service was the same as the discharge date) or they could contain multiple occasions of service (where one or more occasions of service were provided between the first date of service and the date of discharge).

Data were available on 5,207 patients who had completed at least one episode of allied health outpatient care during the period of the study. These episodes lasted from one day only, to the entire ten month study period. Discussions with allied health clinicians indicated that, for some chronic patients within life-long conditions, the episode of allied health outpatient care ended only with the patient's death.

Representativeness of Data

This project captured information on only those patients who commenced treatment at an allied health service within the time period of the study. Therefore the patient sample does not represent the entire outpatient workload of the participating services. Similar rates of patients per 1000 project hours were found per service type, irrespective of the site. There were however, significant differences between service types. These differences were ascribed to both the differential proportion of ongoing patients (on whom information was not captured) and the core business of the service. The findings are not a relative measure of the efficiency of

particular services or hospital sites, rather an example of differences between services and service delivery models.

The data represents across all sites, approximately 30-50% of the patients eligible for inclusion in the study. The exact number of eligible patients who did not participate was unable to be determined because of the variable manner in which new and returning patients were recorded, and because variable definitions of the 'returning' patient were in place. There was no reason to suspect, overall, that the data were biased by age or ethnicity, as the proportions in the data generally matched those reported from the 1991 Census.

Importance to the Community of Allied Health Outpatient Services

The importance to the community of clinical allied health outpatient services provided by public hospitals was highlighted by the age range of patients in the data set, the broad referral sources, the extent of chronicity of conditions and the many sources of income. For instance, the age of allied health patients ranged from less than one year to more than 90 years. The most common age groups were 26-39 years and 40-59 years. While overall, significantly higher proportions of women than men were enrolled in the study, this may well be an artefact of the data, as the gender imbalance did not occur consistently across services. Similar proportions overall of acute and chronic patients were enrolled in the study. Moreover, similar proportions of employed patients (self employed and PAYE), self funding patients (housepersons, retired patients and students) and Government supported patients (unemployed, sickness / disability pension, supporting parents and aged pension) were managed by the participating clinical allied health services. Referrals to allied health outpatient services were generated from within the hospital, from the community and from patients themselves.

Across all participating hospitals, clinical allied health outpatient services were consistently provided to one Category C for every two Category E patients. The same proportional trend of Category C to E patients was observed across services, with the exception of Social Work and Neuropsychology services, where the proportions were almost reversed. The availability of alternative Social Work services in the Adelaide metropolitan community suggests that Category E patients may be consuming services elsewhere. Given the lack of community based Neuropsychology service however, the findings suggest potential barriers to access to Neuropsychology services for Category E patients.

Barriers to Access

Patients, clinicians and referrers identified barriers to access to clinical allied health services. Barriers included hospital policy requiring an in-hospital medical referral before services could

be provided, the common perception of long waiting lists and restrictions on patient type and diagnoses able to be managed in the public hospital setting.

Duplication of Services

There was little duplication of services in public and community settings. The community health centres did not primarily provide hands-on management and a number of clinical allied health services were either not available at all in community health settings, or were available only in limited number of settings. While 'routine' (non-specialist) clinical allied health services were all available in the private sector, their cost was high, particularly for patients whose income source was Government funding. A number of clinical allied health services in the public hospital setting provided specialist services, dealing with multiple and complex disorders, long term conditions and conditions requiring expertise in prescribing and maintaining aids and appliances. Such services were frequently not available in the private sector because of cost and lack of available expertise over the length of the episode. Approximately five percent of patients overall consumed more than one episode of allied health outpatient care during the period of the study. Multiple episodes were consumed both within the one service and across services, this last highlighting the complex needs of clinical allied health outpatients for multidisciplinary services on the same site.

Cost Modelling

Univariate cost models were tested on data for completed episodes of care. The lack of standard allied health diagnosis descriptors precluded the application of diagnosis to the cost models, and examination was restricted to age, gender, referral mechanism, source of income, chronicity of condition, allied health classification, the availability of local treatment, the use of other outpatient services in the preceding twelve months, method of travel to the first appointment, current consumption of treatment outside the hospital, comorbidity, communication difficulties and hospital location. The dependent variables were five different proxy measures of service cost. Total time per episode of care was expressed in four ways: 30 minutes or greater, 50 minutes or greater, 70 minutes or greater and 120 minutes or greater. Occasions of service within the episode of care were expressed as one (single occasion of service episode of care) or more than one (multiple occasions of service episode).

There were significant differences between service types, using both time and occasions of service as the dependent variables in the models. This indicated that separate consideration needed to be given to each service during cost modelling exercises. Common cost drivers across services were age, country of origin, referral mechanism, chronicity of condition, source of income, hospital location, travel arrangements and use of other outpatient services.

Recommendations

A number of recommendations are made on the basis of the findings from this project, regarding the provision of clinical allied health services in South Australia.

1. Standard Data Collection

Allied health services must identify the minimum amount of data required to appropriately describe, cost and monitor service delivery. Standard definitions of data items are required within and across services, and sites. In particular, clear, agreed and implemented definitions are required of episodes of care, referral, date of first contact with the service, UR attributable time, discharge status and components of diagnosis.

Method of Data Recording

The data entry programs in use across participating sites in this project, were all purported to be specific to allied health requirements. They differed markedly in design, configuration and sophistication, and in the provision of ongoing systems support. Limitations of, and difficulties with, each program were reported by clinicians. Considerable cost had been entailed in all sites in obtaining appropriate hardware, and in purchasing, developing and implementing the programs. There appeared to be few tangible benefits for either clinicians, patients or management since the advent of systems-based data collection. Before programs for allied health services are further developed, or existing ones enhanced, it is recommended that considerable preliminary work is performed to:

- differentiate between the data requirements for inpatients and outpatients *(NB this project deals only with outpatient data items)*
- determine the requirements of ongoing allied health data collection, and the most appropriate method of meeting these requirements
- educate allied health clinicians and managers about data base management, data retrieval and reporting, where it is systems or paper-based
- educate all personnel involved in data entry about rigour in data entry
- determine appropriate data definitions, and educate all personnel appropriately
- develop and consolidate standard reporting requirements across sites and across services
- develop and implement automatic monitoring procedures.

Recommended Data Items for Comprehensive Description of Clinical Allied Health Outpatient Services *(defined in Appendix B)*

At least 30 data items are required to comprehensively describe, monitor and cost allied health outpatient services, and to define patient and episode characteristics. Nine national core data

items (underlined) are appropriate descriptors of allied health outpatient services. Definitions and specifications for the recommended data items are provided in Appendix B.

Patient Descriptors

1. UR number
2. Gender
3. Date of Birth
4. Employment/ Income status
   - income source
   - occupation
5. Country of Birth and Language spoken at home
6. Attendance within 12 months at hospital outpatient clinics
7. Post code
8. Problems with communication i.e. need for interpreter, or problems with cognition

Episode of Allied Health Outpatient Care Descriptors

9. Service Identifiers (Hospital, Allied Health Service and relevant subclinic identifiers, Campus Identifier
10. Allied Health Status
    - Association with inpatient admission
    - Compensable insurance status
    - Private extras health insurance cover
11. Hospital Diagnosis (if relevant)
12. Allied Health Diagnosis including relevant diagnosis descriptors
    - underlying condition
    - body part affected
    - severity of condition
    - presenting symptoms etc
    - comorbidity diagnosis
13. New or returning patient to this service for this condition
14. Current consumption of health services in the community
15. Knowledge of the availability of local alternative treatment and the need to pay for it
16. Prescription and cost of consumables
17. Total UR attributable time per occasion of service
18. Total number of occasions of service
    - Date of first occasions of service for this condition
    - Date of final occasions of service for this condition
19. Outcome of care
20. Referrer
21. Date of referral

22. Date of first contact with the service for an appointment for this condition
23. Usual method of transport to hospital

Data Items Specifically Related to Access to, and Availability of, Allied Health Outpatient Services

At least two-thirds of the recommended data items listed above, are specific descriptors of issues of access to, and availability of, allied health services. These include both patient and episode descriptors. It is recommended that future studies that examine issues of access to, and availability of, clinical allied health services consider employing these data items and definitions.

Patient descriptors

1. Gender
2. Date of Birth
3. Employment / Income status
    - income source
    - occupation
4. Country of Birth and Language spoken at home
5. Post code
6. Problems with communication i.e. need for interpreter, or problems with cognition

Episode of Allied Health Outpatient Care Descriptors

7. Service Identifiers Hospital, Allied health service and relevant subclinic identifiers, Campus Identifier
8. Allied Health Status
    - Association with inpatient admission
    - Compensable insurance status
    - private extras health insurance cover
9. Allied Health diagnosis including relevant diagnosis descriptors indicated in previous list
10. New or returning patient to this service for this condition
11. Current consumption of health services in the community
12. Knowledge of the availability of local alternative treatment and the need to pay for it
13. Referrer
14. Date of referral
15. Date of first contact with the service for an appointment for this condition
16. Number of occasions of service
17. Usual method of transport to hospital

Recommended Minimum Data Set

From the comprehensive list of recommended data items, a minimum set of data items was highlighted as essential for routine collection by clinical allied health outpatient service personnel. Such collection could be undertaken either on paper-based or computer systems. The availability of such data will inform day to day monitoring of patients and their conditions, the establishment of quality benchmarks of erformance, cost drivers, as well as the variability in costs associated with the delivery of allied health outpatient services. Appendix B provides the definitions and specifications for these data items.

Patient Descriptors

1. UR number *(a Key item, to which all subsequent data is attached - collected or acknowledged at each Occasion of Service)*
2. Gender *(collected once only on a Master File*
3. Date of Birth (*collected once only on a Master File)*
4. Source of Income *(collected for each Episode of Care)*

Episode of Allied Health Outpatient Care Descriptors

5. Service Identifiers (*a key data item, collected or acknowledged at each Occasion of Service)*
   - allied health service
   - subclinic identifier
   - campus Identifier
6. Allied health status *(collected for each Episode of Care)*
   - Association with inpatient admission
   - Compensable insurance status
   - Private extras health insurance cover
7. Hospital Diagnosis (if relevant) *(collected for each episode)*
8. Allied Health Diagnosis (including all relevant components)

(collected at each Occasion of Service)

9. New or returning patient to this service for this condition *(collected for each Episode of Care)*
10. Prescription and cost of consumables *(collected for each Occasion of Service)*
11. UR attributable time per occasion of service *(collected at each Occasion of Service)*
12. Total number of occasions of service (*a count of the Occasions of Service)* with descriptors for
    - Date of first occasion of service
    - Date of final occasion of service
13. Outcome of care on final occasion of service / discharge *(collected at each Episode of Care)*

2. Diagnosis

It is recommended that allied health services take immediate steps to develop standard and comprehensive descriptors of allied health diagnosis for outpatients. The range of components of allied health diagnosis described by this project need to be considered within, and across services, to highlight commonalities, and essential service-specific differences. Core business of services need to be considered during discussions on the development of standard allied health diagnosis descriptors. Without comprehensive and standard diagnosis descriptors, allied health services will not be in a position to monitor their own performance, develop clinical guidelines for quality care, implement benchmarks of quality performance or appropriately cost overall departmental service delivery.

3. Outcome of Care

There is an urgent need to develop appropriate tools for measuring outcome of care provided by allied health services. Outcome of care needs to be considered over an extended period of time (recommended 6-12 months) in order to assess the full impact of allied health services on health outcome and costs. Outcome measures therefore need to include subsequent contacts with health providers for this condition, indirect costs borne by patients and carers in managing this condition, patient, carer and referrer satisfaction with the ongoing management of this condition, and patients' functional status and quality of life over time. This study did not identify any appropriate measures of outcome currently in place.

4. Allied Health Representation

Clinical allied health services need to be appropriately represented within the allied health division in each hospital to ensure adequate recognition of the diversity of service and patient types, and core businesses. Moreover, appropriate representation is required of the entire allied health division at hospital planning and policy levels. This will ensure ongoing recognition of the role of clinical allied health services, in providing cost efficient health care to the community. It will also underpin the consistent and long term delivery of 'Best Practice' allied health outpatient care in public hospital settings.

5. Barriers to Access and Availability

Tangible barriers to equitable access to public hospital and community-based clinical allied health services were identified by all stakeholders (patients, clinicians and referrers). Public hospitals provided the best access for the entire community, despite waiting lists and required

referral mechanisms. They particularly provided specialist services for outpatients with multiple, complex and/ or long term needs. There was little evidence of duplication of public hospital outpatient services in community health settings, and there was clear evidence that the private sector could not provide long term, specialist or costly services.

In order to reduce barriers of access to allied health services, the funding of public hospital outpatient services, and the available rebates for private sector allied health services, require review. If future policy decisions restrict the availability of clinical allied health outpatient services, the availability and accessibility of allied health services in the community needs to be increased and maintained. For instance, the Medical Benefits Schedule needs to include rebates for private sector allied health services, the number and location of community health centre-based allied health services needs to increase, and the role of community health centres in providing care-based allied health services requires review. Moreover, comparisons of the cost efficiency of, and stakeholder satisfaction with, service delivery in community health centres, private practice and public hospital outpatient settings are required to ensure that funding is provided to the service delivery model which provides the most quality for the greatest efficiencies.

The usefulness of the current widely-practised requirement of a medical referral in order to access allied health outpatient services in public hospitals needs to be reviewed, with respect to costs incurred in obtaining the referral, and the primary contact nature of community-based allied health services. As an example, hospital-based allied health clinicians identified that appropriate community-based services need to be considered as an alternative for public hospital outpatients who have chronic and/ or long term problems, and who mainly require health maintenance and education.

6. Costing Services

The current model of funding allied health outpatient services in South Australia requires review. Allied health outpatient services can be linked with episodes of inpatient care, and the costs of such services should be considered in Casemix-based funding. Such outpatient attendances can continue for long after the hospital admission (as in head and neck cancer patients to Speech Pathology, or burns and hand surgery patients to Physiotherapy and Occupational Therapy). Therefore the long term costs of delivering these services and providing appropriate aids and appliances need to be taken into account.

This project identified that outpatient services that were not linked to a hospital admission comprise a range of allied health activities. These include ‘one-off’ assessments and investigations that inform subsequent health care and/ or social management strategies, health

promotion and illness prevention activities, as well as the delivery of short and long term episodes of care. The therapist time costs entailed in delivering such care varied within and across services, and therefore if allied health care is to be provided to patients who do not have an associated hospital admission, funding models should take account of the diversity of service delivery type and health outcomes.

The potential cost savings to the health system of the provision of quality long term allied health outpatient care needs to be explored.

Factors which significantly influence the costs of allied health service delivery need to be recognised and addressed at funding and policy level, with specific weightings applied to account for service availability and customer characteristics. For instance, location of service was an important cost driver, with country hospitals providing longer episodes of care than metropolitan hospitals. These findings support the important role played by hospital outpatient services in country communities, where hospital services need to address the lack of alternative clinical allied health services. The different needs of country patients, who were in general, older than city patients, and suffered more chronic conditions also need to be recognised. The lack of all clinical allied health services in country centres (for instance, Audiology and Neuropsychology) were indicative of barriers to equitable access, and suggest that country allied health practitioners need to develop different, and multiple skills in order to meet complex patient needs.

The influence on allied health therapist time of referral mechanism supports the need to educate all stakeholders and to review the policy on referral requirements. The number of occasions of service, and the UR attributable time, of the episode of care provided to self referred patients were generally fewer than if referral had come from a medical practitioner. Greater numbers are required to test this finding, as self referral was not common across all services or sites. There was clear lack of knowledge of allied health services by medical referrers, and the protective influence on therapist time of self referral suggests that the more transparent the allied health service is to customers, the more likelihood that service costs will decrease. However, standard information on diagnosis is required in order to assess its effect on referral mechanisms and costs of care.

Opportunities for co-payment for allied health outpatient services need to be explored. This project found that co-payments were already being sought for some aspects of some allied health services. Issues associated with contributions from all patients need to be considered, along with a standard and equitable system by which rebates are sought from the Medical Benefit System (MBS), private health funds and compensable agencies.

7. Conclusion

Clinical allied health outpatient services provided in an acute hospital setting play a vital role for patients of all ages, from all ethnic backgrounds and sources of income, and who have acute and chronic conditions.

Clinical allied health outpatient services provided in hospital settings are generally not duplicated in South Australian metropolitan or country communities.

Further work needs to be undertaken at individual service, and divisional levels, to more consistently describe and monitor essential elements of service delivery. Moreover, administrators and health funders need to take account of the diversity of core business of clinical allied health services, the multidisciplinary needs of patients with complex and multiple conditions, the diversity of services provided by clinical allied health services to the entire community, and the potential cost savings to be gained by quality delivery of allied health services.

Changes to service delivery models, such as devolving hospital-based outpatient services into community settings, can only occur when there is a thorough understanding of stakeholders' needs, expectations and ability to pay. Customers of clinical allied health services need to be appropriately educated and informed of changes. Planning needs to occur in consultation with all stakeholders, and ongoing administrative, funding, clinical teaching and systems support is required to support the provision of equitable, wide-ranging and long term community-based allied health care.

CHAPTER ONE

Introduction

This chapter presents the rationale and background to the study.

Study purpose

This study investigated aspects of clinical allied health outpatient services in eight Australian acute care public hospitals, with a focus on:

- patient characteristics
- characteristics of episodes of allied health outpatient care
- issues of access to, and availability of, services
- important cost drivers.

Aims of the study

1. To identify essential core data items for clinical allied health services, which could:
    - underpin a national data base of ambulatory activity, and
    - assist the development of comparative costing models appropriate to the delivery of public sector clinical allied health services
2. To develop and trial a survey instrument, using core data items. This would enable comparison across hospital sites, of:
    - the nature and type of available allied health services
    - patient characteristics
    - episode of care characteristics
    - access to, and availability of, clinical allied health outpatient services
    - cost drivers of ambulatory allied health services
3. To identify barriers to access to, and availability of, publicly funded allied health outpatient services
4. To make recommendations regarding standard data collection for, and improved practice in, allied health outpatient services.

Background to the Project

Ambulatory Care Reform Program

The pressure on hospital beds and the escalating costs of keeping an individual in hospital have encouraged a fundamental shift in health care philosophy in Australia in the last five years, to increase the provision of health care to non-admitted (ambulant) patients.

Ambulatory Activities

There is no standard description of ambulatory services provided in the public hospital setting, and in particular, no clear description of the range of ambulatory allied health services. Classifications of ambulatory activity developed for funding purposes variously describe clinics, service type and/ or diagnosis/ procedures. As an example, the draft paper on Ambulatory Care Reform: The Next Steps (1994) broadly lists the ambulatory services provided in public hospitals, with no definition of allied health services. The list includes:

- Accident and Emergency Services
    - precursor to an inpatient admission, and
    - work which is comparable with primary care provided by doctors in community settings (both private and public)
- Outpatient clinics
    - precursor or follow up to inpatient admissions, and
    - medical and allied health care which is not related to inpatient admission and which is comparable with health services performed by private practitioners in community settings ..

Allied Health Ambulatory Activities

Allied health ambulatory activities are generally described in the literature as the one service type, 'allied health'. The one study which examined component services in allied health was the Victorian Ambulatory Classification and Funding Study (Jackson et al 1996), which produced relative resource weights for non-admitted patients. It described specific allied health service types (Physiotherapy, Occupational Therapy etc) and assigned to each, specific cost weights.

Ambulatory Care Reform Program

The program of Ambulatory Care Reform was embarked upon in 1993 when the States and Commonwealth agreed to:

- move towards standardised definitions and information systems to allow consistent and comparative reporting on the population's health status, hospital products and costs
- work towards establishing uniform data bases on outpatient services that address access and equity issues, and also issues concerned with the interface between hospital funding and the Medicare Medical and Pharmaceutical Benefits Schedules
- clarify links between different service providers and explore the desirability of establishing national guidelines for appropriate levels of access for outpatient services
- analyse the above, to consider the possible transfer of functional responsibility for aspects of outpatient services to the Commonwealth.

Currently, financial responsibility for ambulatory services is divided between the Commonwealth, and the states and territories. The Commonwealth provides medical benefits for services delivered by medical practitioners in private practice, and for pharmaceuticals distributed by community pharmacies. There is no such funding provision for private sector allied health services. Ambulatory services provided in public hospitals are funded by state governments under responsibilities set out under the Medicare Agreements, which require services to be provided without charge.

Aims and Objectives of the Ambulatory Care Reform Program

The objective of the Ambulatory Care Reform program was to develop an agreed conceptual framework for the operation of hospital-related ambulatory services, with the aims of:

- improving the continuity of patient care by encouraging coordination of services from hospital into the community
- taking account of costs of different service models
- safeguarding teaching and research
- reducing incentives for under or over provision of services, and
- continuing the tradition of convenient patient access to a broad range of services.

The Ambulatory Care Reform grants initiatives, which have funded over seventy projects since 1994, were developed from concerns that *ad hoc* local changes to the delivery of care may not be in the best interests of patients, and may not bring about sought-after cost efficiencies. As

the health system in Australia operates within defined resources that cannot be expected 'to increase significantly in real terms' (National Health Information Agreement 1993), pragmatic information about health services, consumers, and models of service delivery is required so that available funds are equitably and responsibly dispensed.

Ambulatory Patient Classification

Ambulant (non-admitted) patients reside at home, in other residential accommodation, or in care, such as hostel or nursing home accommodation (Eager and Hindle 1994, Macnee and Penchansky 1994). They 'travel' to health services (in this study, to acute public hospital outpatient services). Ambulant allied health patients are currently defined in the Draft Paper on Ambulatory Care Reform: The Next Steps (1994) as Category C:

> *'who consume allied health work which is a precursor or follow up to inpatient admissions';*

and Category E:

> *'whose allied health care is not related to inpatient admissions and is comparable with services available in private community settings, except to the extent that subsidies are not available for private care of this type'*

Service Delivery Settings and Models

The Ambulatory Care Reform grants have funded projects on allied health ambulatory services provided in public hospital outpatient settings, day hospitals and community health centres, and in domiciliary care. Different service delivery models have been reported in these projects, for instance, the traditional medical model (where a referral is required from a medical practitioner), managed care and multi-disciplinary models, and the model in which the allied health provider is the primary contact.

The traditional medical referral model continues to be the most common, particularly in public hospitals. This model defines the referring doctor as the 'gatekeeper', who determines the type and amount of health care consumed by the patient (Tomes and Ng 1995). This model is implemented on the premise that patients do not have the necessary understanding of health care to direct appropriate choices and consumption (Phillips et al 1995).

Further research is required to determine other models of delivery of allied health services, and to compare models with respect to costs, efficiency of service delivery, consumer satisfaction or long term health outcomes. Moreover, the ways in which users of allied health services obtain information and make decisions regarding consumption of health care requires further

investigation to ensure equity of access, and to highlight opportunities for increased stakeholder input to ensure improved delivery of health services.

Defining Allied Health

The Problem

There was no standard working definition of allied health to guide this project. This lack was highlighted during the drive to recruit appropriate allied health services into the project at the Royal Adelaide Hospital (RAH), the primary site of the Ambulatory Care Reform grant. The services comprising the RAH Allied Health and Medical Sciences Committee included Nuclear Medicine, Clinical Nutrition and Dietetics, Speech Pathology, Radiography, Medical Illustration, Psychology, Pharmacy, Health Promotion, Physiotherapy, Library Services, Audiology, Occupational Therapy, Podiatry, Biomedical Engineering, Social Work, Orthotics and Prosthetics, and Clinical Photography.

Review of Definitions

The term allied health was first used by the US Department of Health Education and Welfare in 1966, when describing health care professionals in legislation addressing workforce shortages in the health field. The use of the term has been widespread since then without a clear definition. Boyce (1996) suggests that the current lack of definition reflects the diversity of work roles, titles, work status and nature of professional interactions. While the Institute of Medicine-National Academy of Sciences (IOM-NAS) Committee, studying the role of allied health personnel in 1988, declared that:

> *"there was no consensus about which disciplines constitute allied health",*

there have been numerous attempts to clarify membership. For instance, American allied health professions were described by the Pew Health Professions Commission, USA (1992) as:

> *'all those health related disciplines with the exception of nursing...., medicine, dentistry, veterinary medicine, optometry, pharmacy and podiatry'.*

However, American descriptors of allied health services cannot be readily adopted for Australian use (National Allied Health Casemix Committee 1994) because of 'substantial differences' in the delineation of professions and the organisation and delivery of services. For instance, the exclusion of Podiatry from the Pew Commission list of allied health professionals probably reflects the surgical focus of podiatrists in the USA, a focus not currently shared by podiatrists in Australia.

The National Health Data Dictionary (1993) defines Australian outpatient allied health services largely by exclusion:

> *'including all occasions of service to non-inpatients where services are provided at units/clinics providing treatment/ counselling to patients but excluding Accident and Emergency services, dialysis, pathology, radiology and organ imaging and endoscopy and related procedures'.*

On the other hand, the Australian Council of Allied Health Professionals, which represents a large number of allied health professions, provides a definition based on education, and service delivery type and model:

> *'encompassing the occupations providing clinical, diagnostic and resource services integral to the health system. Allied health professionals may be employed in public or private hospitals, community health centres, private practice, business or the government sector and all hold an occupation specific tertiary qualification. Depending on the environment, the clinical and diagnostic allied health professions may work on referral from a medical practitioner or other allied health professionals or may be primary contact practitioners.'*

Most commonly, Australian clinical allied health professionals are described by list. This serves only to narrow the choice of practitioners, and provides no clear process for identifying relevant others. Eager and Hindle (1994) list allied health services as:

> *'audiologists, dietitians, occupational therapists, orthotists, physiotherapists, psychologists, radiographers, social workers, speech pathologists and technicians'*

while Selby Smith and Crowley (1995) report them as:

> *'optometrists, physiotherapists, radiographers, podiatrists, occupational therapists, speech pathologists and dietitians'.*

Eager and Hindle (1994) make a distinction between clinical, and ancillary clinical allied health services, by defining ancillary clinical allied health services as those which:

> *'support the provision of care by medical and nursing staff. Ancillary clinical services include imaging, pathology and pharmacy services'.*

Education

A wide range of educational settings and requirements for allied health courses have been described by the USA Committee on Allied Health Education and Accreditation of the American Medical Association (CAHEA), where allied health courses in the USA range from certificate courses to post graduate courses and doctorates. The proliferation of courses for Australian health practitioners in the past decade indicates a similarly diverse range of training opportunities. There is no comprehensive information on Australian allied health education. Furthermore, there is no specific training for Australian allied health managers, either discipline-specific or divisional. Qualifications range from none (on-the-job training) to post graduate studies in business, marketing and/ or health administration. The lack of specific education in allied health practice, marketing, outcome measurement, information systems and business management potentially disempowers allied health leaders, clinicians and patients (Boyce 1966).

Primary Health Care Responsibilities and Opportunities

The Pew Health Professions Commission (1992) described the responsibility of allied health professionals as:

> *'prevention, identification, monitoring, and evaluation of diseases and disorders; health promotion; rehabilitation; health systems management; and dietary and nutrition services'.*

This description concurs philosophically with South Australian Health Commission Primary Health Policy (1989), which, in part, states that:

> *'..... a strong and comprehensive health care network at the primary level of the health system (i.e. the first level of the health system) should act as an effective "gatekeeper" to the more technical and costly referral services in the hospital and specialist sectors of the health system'.*

Private Sector Rebates for Private Patients

Allied health professionals can act in a primary health care capacity in the private sector, and members of the public can self refer. There is no Medicare rebate for private sector allied health services, regardless of referral source, age, disability or level of income. Medicare rebates are provided for Pathology, Radiology and Pharmacy services only if there is a referral (prescription) from a medical practitioner, a situation which reinforces the hierarchical medical model of allied health service delivery.

Private health insurers partly rebate attendance at selected private allied health services only if patients are insured for ancillary (extras) benefits. Patients are responsible for the difference in fee and rebate (the gap payment) which can be up to 60% of the fee. The amount of rebate varies between funds, and most funds place limits on the amount refunded per service type per member in twelve months. Some health funds will not reimburse the patient without a medical practitioner's referral.

Private Sector Rebates for Compensible Patients

The Department of Veterans Affairs provides a pre-set rebate of fees for eligible veterans who attend selected private allied health services. Similarly, state workers' compensation and accident transport authorities provide a set fee rebate for eligible clients to receive selected private allied health services. These rebates are generally less than the recommended fee for service, and there are various policies at state level regarding funding of the gap by patients. Compensable bodies also monitor, and place restrictions on, the amount and type of service received, and have in the past enacted legislative requirements of a doctor's referral before benefits can be paid to either the patient or the allied health practitioner. There appears however, to be an increasing flexibility in these requirements, and there is a move towards less reliance on medical practitioners to act as 'gatekeepers', and greater demand on individual professions to negotiate protocols and fees with the jurisdictions.

Service Delivery Models in Public Hospital Outpatient Settings

In public hospital ambulatory care settings, the traditional medical model is usually in place. There may be long term restrictions on the availability of public hospital allied health services (due to limited staff, equipment and/ or space), and therefore this 'gatekeeping' mechanism may be encouraged by some services simply to monitor and regulate the usage of heavily subscribed, or costly, diagnostic or treatment services.

Rebates for public sector allied health services are determined at state level, and are delivered via yearly block hospital grants. Funding for ambulatory services is delivered indirectly to the allied health department via budgetary arrangements made within the hospital. The agreement

between the South Australian Health Commission and the metropolitan Adelaide public hospitals weights outpatient allied health services at 68% of the agreed occasion of service rebate, this weighting being established in the 1990 Ambulatory Encounters Study (Flinders Medical Centre).

Primary Care Service Provision in Public Hospital Outpatient Settings

On this basis, allied health outpatient services offer a less costly option than medical outpatient services. Coupled with the preventative and/ or health promotion philosophy that underpins many allied health activities (Pew Health Commission 1992), allied health services should have a clear primary health care role. However, it is often difficult for public hospital allied health professionals to fulfil this role because of constraints imposed by in-house referral requirements, and funding arrangements. These provide little incentive for efficiencies, entrepreneurial activities or service quality, such as the implementation of clinical guidelines and/ or clinical indicators (Collopy 1990). The occasion of service funding model under-funds some allied health services, as the flat rebate takes no account of differential lengths of occasions of service. While this effect may well be 'averaged out' over the allied health services at administrative and finance levels, its influence is obvious at service level. Allied health practitioners can also, in a limited capacity, act as primary contact practitioners within the hospital setting, establishing direct contractual and even financial relationships with patients. Service delivery mirrors that of the private sector, where referrals are accepted from private individuals and community health practitioners. This model is usually implemented for particular diagnoses or speciality services.

The Role of Allied Health: Service Focus

A way of describing the role of allied health services is to underpin it by the disease process, defined as impairment, disability and handicap by the World Health Organisation (WHO).

IMPAIRMENT:	*'..... any loss or abnormality of psychological, physiological or anatomical structure or function'.*
DISABILITY:	*'..... any restriction or lack (resulting from impairment) or ability to perform a task or activity in the manner or within the range considered normal for a human being'.*
HANDICAP:	*'..... a disadvantage for a given individual resulting in an impairment for a disability, that limits or prevents the fulfilment of a role that is normal (depending on age, sex, social and cultural factors) for that individual.'*

These definitions provide a conceptual model of the role of allied health in the management of disease, differentiating it from the contribution of the medical and nursing professions. These professions are believed to focus generally on the early management of disease (the impairment phase), while allied health services aim to minimise the long term effects (disability and handicap) of the disease. It therefore follows that as the early management of disease concludes, the intensity of allied health involvement with the patient increases as the rehabilitation phase commences. The notion of long term allied health involvement with the disease process suggests that to define allied health solely from the acute care environment is inappropriate, and to determine costing models only on acute disease management may not reflect the totality of allied health involvement or outcomes of care.

Developing a Working Definition of Clinical Allied Health Services

In attempting to define clinical allied health services for the purpose of this project, multifaceted inclusion criteria were developed to identify individuals who:

- are not general practitioners, medical specialists or nurses
- are not technicians, or those who provide an ancillary service
- are directly responsible for the delivery of clinically-based, care-related services
- have at a minimum, tertiary training (an undergraduate degree)
- provide recognised primary health care in the private sector.

Following wide consultation with clinicians, Steering and Reference Committees, a draft working definition of clinical allied health professionals was proposed as:

> *those tertiary trained individuals other than medical practitioners, nurses, dentists and pharmacists, who act in a clinical capacity and who could enter into a care-based, and/ or primary investigative and primary diagnostic relationship with ambulant patients, be they in the public or private sector.*

Allied health services were subsequently classified on the basis of this definition. The placement of Social Work services however, remains unclear. The core business of Social Work potentially positions Social Workers as either primary or clinical ancillary service providers.

Clinical primary

Clinical ancillary

Support / technicians

Physiotherapy

Pathology

Biomedical Engineering

Occupational Therapy

Radiology
Medical Illustrations
Speech Pathology
Pharmacy
Library Services
Audiology
Chaplaincy

Psychology

Nutrition & Dietetics

Social Work
Podiatry
Orthotics & Prosthetics

Stakeholders and customers

Stakeholders in (customers of) allied health services are the focus of this study. They are best defined in the Glossary of Terms from the National Allied Health Best Practice Industry Report (1996) as:

> *'anyone who comes in contact with the output or product of our work. There are both internal and external customers. Internal customers are those people within your organisation which come in contact with your work and include support staff and colleagues. External customers include patients, their carers and outside organisations that you may come in contact with'.*

Stakeholders in allied health encompass both internal and external customers, including the patient and family (or carer), the referrer, other health services involved in the patient's care, and the funding bodies. While this report identifies a number of previously undescribed features of allied health services, still more needs to be known about individuals who consume ambulatory allied health services, and about available, and required services. Information that would enhance understanding of allied health service delivery includes clearer description of individual patient needs, and those of the carer, patient's socio-economic status, their ability to access alternative services (i.e. those provided in the private sector), their likely long term health status (with, and without allied health care), and their ability to contribute practically, financially and materially to their long term health care.

Methods of describing service consumption

The terminology applied to hospital contacts is variable, and requires clarification in the light of the approach taken in this study.

Occasions of Service

Service delivery in an outpatient setting has traditionally been recorded and considered as single contacts, called occasions of service. As previously described, current outpatient funding arrangements in South Australia are per occasion of service, where there is an agreed rate of reimbursement between hospital and funding authority, with specific weightings applied for particular outpatient services. This project however, proposes the use of the term 'episode of allied health outpatient care' in order to link related outpatient occasions of outpatient service that are provided in the one allied health department, for one patient, for one particular condition/ diagnosis.

Episodes of Care

Traditionally, the term 'episode of care' has applied only to the inpatient length of stay, which is completed upon separation from hospital. Recently the literature has discussed the extension of the use of the term 'episode of care' to include relevant outpatient services that are consumed following the hospital separation (Douglas et al 1996, Duckett and Jackson 1993). This definition of ‘episode of care’ could therefore be appropriate to Category C patients (those allied health outpatients who are consuming care following, or prior to, a hospital admission), should information on their hospital admission be readily available. The ‘bundling’ of outpatient services with an associated inpatient admission encompasses the notion that this gives a more accurate picture of overall costs, both to the system and to the patient.

Ambulatory Encounters

An alternative attempt to ‘bundle’ services together was made in the Victorian Relative Cost Weights study (1996), which described outpatient ‘encounters’ per occasion of service, as the primary medical outpatient attendance plus related occasions of ancillary clinical allied health services such as radiography, imaging and pharmacy attendances.

Episodes of Allied Health Outpatient Care

The approach taken in this project, that is, to group related occasions of outpatient clinical allied health service (those provided in the one allied health department to the one patient for the one condition) into ‘episodes of allied health outpatient care’, adheres to the notion of the long term

involvement of allied health practitioners in the management of disease processes. Moreover, this concept promotes an overview of patient care that looks beyond single outpatient contacts, where clinical guidelines underpin the provision of quality and cost-efficient care (ACHS Clinical Indicators: A Users Manual (1991), ACHS Hospital Wide Medical Indicator Data (1993), ACHS Hospital Accreditation Guidelines, EQuiP(1996)). This approach represents a philosophical move away from the accepted manner of collecting data on ambulatory patients, that is, short term, cross-sectional data collection that provides a snap-shot of activity unrelated to individual patient outcomes. Rather, this project sought to follow individual patients from the beginning to the end of their outpatient allied health 'episode' of outpatient care, in order to describe service usage, and to relate it to important cost drivers. Episodes of allied health outpatient care were anticipated to comprise one or more occasions of service, with the episode terminated by the date of final service, that is, 'separation' from the outpatient allied health service.

Cost Drivers

Ambulatory services are unlike those associated with inpatient care, this last being increasingly defined by critical pathways, an expected length of stay, identifiable and quantifiable variants which are known to impact on the length of stay (and therefore the cost of the admission), and a quantifiable outcome upon hospital separation (Zander 1994).

Dependent Variables

There are a number of ways in which the costs entailed in the delivery of allied health services can be quantified, and there is no one agreed method. The dependent variable in previous cost modelling studies of ambulatory encounters was basic doctor time (excluding non-contact patient attributable time) with various augmentations for ancillary clinical services and surgical procedures (Ambulatory Casemix in Australia: Summaries of Relevant Classification Systems 1995). Measures of allied health service costs in previous studies have included the hourly cost of individual therapist time, the average hourly cost of therapist time over the entire service (taking account of different therapist pay scales and inpatient as well as outpatient activity), the average hourly cost of all staff in the department (including clerical personnel, aides), departmental salary costs plus hospital overheads, and departmental salary costs weighted by consumables supplied to patients in that department.

Independent Variables

The cost drivers of public hospital allied health outpatient services have not been comprehensively tested. A number of factors have been proposed, but not tested, as cost drivers of allied health care (Grover and Grimmer 1993, Schuringa et al 1994), including:

- the allied health service type and its core business
- patient characteristics such as age, insurance/compensibility status, income, communication ability and referral mechanisms
- episode characteristics, such as waiting time, the presence of comorbidities, the patients' disorder and its severity / chronicity
- the experience of the service provider, and
- the needs of the patient, family and/ or carer.

Data collection

Current Information

Technology

There are currently no standard methods employed in Australia of describing or measuring inpatient and outpatient allied health services, recording data about these services, or reporting on them. Individual allied health departments in individual hospitals record various information using a range of manual and/ or computer systems, and there is little cohesion in the way that data are defined, recorded or interpreted. Data are variously used for individual departmental, and hospital, management purposes, and therefore it provides little assistance in the development and implementation of health policy at either state or Commonwealth level. Many allied health services lack direct links with the information systems in their hospital, and there is little concerted support from state health authorities on system implementation and enhancement. Moreover, the reporting requirements of state health authorities are such that there is little incentive to record information other than 'heads through the door'. Given the lack of specific training for allied health divisional managers, the leadership that could insist on the implementation of specific data recording standards for reporting and negotiating purposes cannot be anticipated in all sites.

Future System

Implementation

Rather than *ad hoc* implementation and/ or development of new information systems for allied health, it appears that the first step is to make concerted efforts to understand the needs of all stakeholders in allied health services, both in inpatient and outpatient settings. These needs

should be considered pragmatically with respect to the accuracy and costs of therapists recording data on a daily basis, and the costs entailed in, and benefits derived from, retrieving and reporting on the data. Moreover, opportunities for time and cost saving need to be identified by minimising duplication with other existing hospital systems and in providing sufficient support for therapists to contribute efficiently and effectively to the collection of meaningful health information.

Key points

1. Clinical allied health outpatient services are provided in a range of settings by a range of practitioners with different educational backgrounds. There is no standard way of defining allied health services and hence there is no standard contingent of allied health services in every public hospital. There is no specific training for allied health leaders, and hence there are no required qualifications for allied health managers.
2. The core business of allied health services, the way in which services are delivered and the stakeholders of allied health services have not to date, been well described. Issues lacking clear definition include referral requirements, the role of allied health professionals in different service delivery settings, the appropriateness of environments in which, and the service delivery models under which, allied health care is delivered, and the relative benefits of allied health care compared with other forms of management.
3. Allied health outpatient services in South Australia are funded under an occasion of service model, where reimbursement for metropolitan hospital-based services is at 68% of the occasion of service funding. No account is taken of the clinician time spent during the provision of care.
4. There are no agreed descriptors for clinical allied health, for instance characteristics of patients, episodes of care, workload or service delivery. Not only are few standard data items collected by clinical allied health outpatient services, but there is also little cohesion between services, or within hospitals, in the way in which data are reported, interpreted, compared and used for negotiation purposes.

CHAPTER TWO

METHOD

Time frames and tasks

This project was conducted in four stages over eighteen months. between August 1995 and March 1997.

Stage 1: August 1st, 1995 to November 1st, 1995

The first stage aimed to:

1. develop a definition of clinical allied health services
2. identify and liaise with potential participating sites, identifying key personnel for future reference
3. develop the study methodology and the strategies for data collection
4. obtain approval for the study from the Royal Adelaide Hospital Human Research and Ethics Committee
5. conduct preliminary studies at the Royal Adelaide Hospital, of outpatients of clinical allied health services, and therapists providing those services
6. identify and define the data items (additional to those in the National Data Dictionary) that were required to describe clinical allied health outpatient services
7. construct the draft survey instrument and identify the most appropriate avenues of collecting data items
8. develop a generic data base to underpin the survey instrument, which involved
    - developing a familiarity with the constructs of hospital-supported (and allied health in particular) data collection systems
    - recruiting a programmer with the appropriate skills to amalgamate data from several sources.

Stage 2: November 1st, 1995 to February 1st, 1996

The second stage aimed to:

1. pilot the draft survey instrument in participating Royal Adelaide clinical allied health outpatient departments
2. analyse the pilot data to determine its quality, the efficacy of the instrument, the quality of the data base design and the potential for reporting
3. make necessary modifications to the survey instrument, the data collection process and the data base
4. facilitate the enrolment of secondary sites into the project.

Stage 3: February 1st, to November 30th, 1996

The third stage (the main study) aimed to:

1. collect data using the revised survey instrument in eight sites within metropolitan and country regions of South Australia, and inter-state
2. generate interim reports for each participating hospital, providing a profile of the characteristics of allied health outpatients, service usage and episodes of allied health outpatient care.

Stage 4: December 1st, 1996 to February 28th, 1997

The fourth stage aimed to:

1. conduct the analysis to:
    - describe patient and episode characteristics
    - determine differences between sites, and between services, in patient and episode characteristics
    - identify cost drivers of services
    - identify and define essential core data items for allied health outpatient services
2. generate final reports for each participating hospital that provided a profile of allied health outpatients, episodes of care and service delivery
3. report to the Commonwealth on the findings
4. recommend a framework for future costing studies.

Study Design

Preliminary Investigations

The preliminary investigations conducted during Stage 1 specifically aimed to establish:

- the core business of clinical allied health services at RAH
- the level of clerical support available to facilitate project aims
- the constructs of the information system used by RAH allied health clinicians, and definitions of data items routinely collected
- the needs and expectations of the study of:
  - the participating allied health professionals
  - medical administrators and policy/ planning personnel
- the needs and expectations of allied health outpatients of allied health outpatient services

The selection of participants in described in Section 2.3. The general structure of questions asked of allied health clinicians is listed in Appendix 2, the information and consent form provided to patients and the general questions asked of outpatients are also listed in Appendix 2.

Study

The pilot study conducted during Stage 2, collected data from six participating departments at the Royal Adelaide Hospital for approximately six weeks during November and December 1995 (Physiotherapy, Occupational Therapy, Speech Pathology, Neuropsychology, Audiology and Clinical Nutrition and Dietetics). The items in the draft survey instrument used in the pilot study were identified from the literature and from preliminary project discussions. The pilot study instrument contained all possible survey items, and the usefulness of each item was assessed on feedback from patients, clinicians and clerical support staff, and on the findings of the pilot study. The items in the pilot (draft) survey instrument are listed in Appendix 2 of this chapter and are discussed in Appendix B.

Main Study

The main study collected data from new and returning former patients to forty-six allied health services at eight hospital sites over a ten month period during 1996, using the revised survey instrument (modified from the pilot study findings).

The main study involved six South Australian hospitals (four metropolitan, two country) and two interstate sites (one metropolitan, one country). A summary of the participants and the period

of data collection during 1996 is provided in Figure 2.1. The confidentiality of participating sites is preserved by the use of codes. Table 2.1 lists the participating clinical allied health services per hospital site.

The Final Survey Instrument

The data items in the revised survey instrument are listed in Appendix 2 of this chapter. The method of administration of the final survey instrument was tailored to the needs of each participating site. A standard manual questionnaire collected patient characteristics in all sites. This is provided for reference in Appendix C (at the end of this report). The way in which episode-related items were collected depended on the information systems and clerical support in place in each site. Appendix D provides examples of the service- and site-specific discharge summaries for collecting manually recorded episode characteristics. A summary of the ways in which services supplied data to the project is provided in Appendix E.

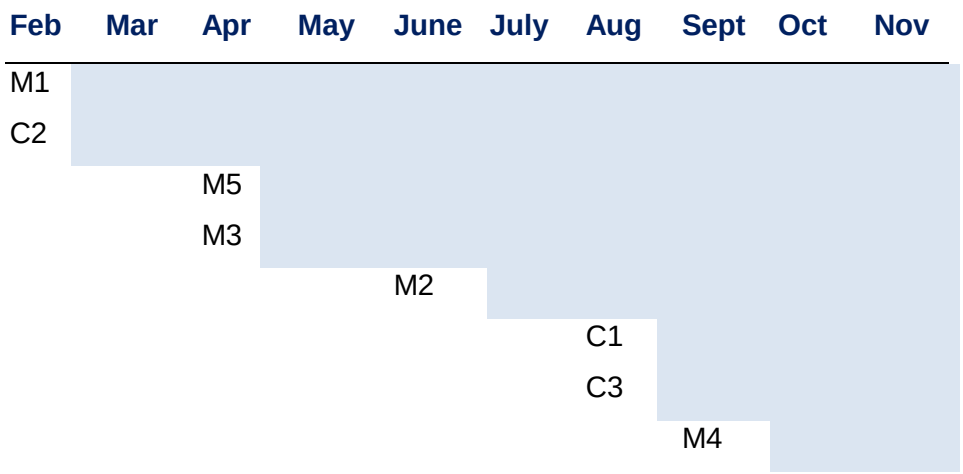

Figure 2.1. The time period of data collection per hospital site

Table 2.1 Participating outpatient (OP) services per hospital site

M1	M2	M3	M4	M5	C1	C2	C3
PT	PT	PT	PT	PT	PT	PT	
OT	OT	OT	OT	OT	OT	OT	OT
SP	SP	SP	SP	SP	SP	SP	SP
NP							
Aud	Aud	Aud					
CN	CN	N	CN			CN	CN
Pod	Pod	Pod	Pod				Pod
	SW	SW	SW	SW		SW	SW
		Orth		Orth			
Total number of OP services							
7	**7**	**8**	**6**	**5**	**3**	**5**	**5**

Key:

PT= Physiotherapy	OT = Occupational Therapy
SP = Speech Pathology	NP = Neuropsychology
Aud = Audiology	CN or N = (Clinical) Nutrition & Dietetics
SW = Social Work	Orth = Orthotics
Pod = Podiatry	

Secondary Studies

During the same time period as the main study, four short term cross-sectional secondary studies were undertaken.

Referrers to Clinical Allied Health Services

Referrers to clinical allied health services at the Royal Adelaide Hospital were surveyed by written questionnaire, to determine their level of knowledge of these services, their need to know more about them, their recent usage of them and their comments regarding issues of access to, and the availability of, services. The methodology and findings of this study are reported in Chapter Eight.

Community Health Centres

Community health centres in the Adelaide metropolitan region were surveyed by written questionnaire, to determine the nature of clinical allied health services provided at each centre and restrictions imposed on access to these services. The methodology and findings of this study are reported in Chapter Nine.

Private Practitioners Services

Private allied health practitioners were surveyed by written questionnaire, using a case history that was provided by the head of the relevant clinical allied health service at the Royal Adelaide Hospital (RAH). The aim of this study was to determine the availability and cost of treatment in the private sector for specific patient types/ conditions. The heads of the RAH allied health services described a typical difficult-to-manage patient to their service. This study is reported in Chapter Ten.

Departmental Workloads

Heads of each of the participating allied health departments were requested to supply information on workloads, and recent changes to, and restrictions imposed on, their services within the last twelve months. This study is reported in Chapter Six. Patient numbers were standardised per service, and per site, by taking account of available hours for outpatient services and the number of weeks of participation in the project.

Participants in the Project

Selecting Hospital Sites

An overview of clinical allied health outpatient services provided in South Australian acute public hospitals was a required outcome of this project. In order to facilitate regional comparisons between patient characteristics, service delivery types and service usage, both metropolitan and country sites were required. Survey items and the mechanisms of data collection were validated by comparison with interstate sites. Selection bias could not be avoided when recruiting participating hospitals. The Royal Adelaide Hospital was the recipient of the grant, and therefore was the primary site of data collection. Moreover, participation by other hospitals was on a volunteer basis, or by invitation. The three remaining major acute care hospitals in the Adelaide metropolitan region requested the opportunity to discuss participation in the project, and all agreed to participate for variable time periods. While the study was underway, three smaller hospitals and one chronic-care hospital also requested the opportunity to participate in data collection. These requests could not be accommodated because of restrictions on project time, staffing and finance, and because the focus of the project was on acute-care hospitals.

One South Australian country site requested the opportunity to participate in the study prior to its commencement, and did so from the beginning of the data collection period. Three other country sites were invited to participate at the beginning of the study, and one of these sites accepted the invitation.

Four interstate sites were identified as potential participants in the project, based on

- previous successful participation in data collection exercises
- the interest of staff and/ or management in participation
- comparable allied health services/ service provision, and /or patient numbers, to the South Australian sites.

Two of the four invited interstate sites participated in the project.

The location of participating South Australian hospitals limits the external generalisability of the study findings. However, the items in the survey instrument are considered to be appropriate for use in any Australian site, as testing to date has identified those items which may require modification to meet specific local needs or environmental dictates. These are reported in Chapter Three.

Selecting Clinical Allied Health Services

The working definition of clinical allied health professionals, established for the purpose of the project, identified nine clinical allied health services appropriate to the brief of this project:

Clinical Nutrition
Speech Pathology
Psychology
Audiology
Physiotherapy
Podiatry
Occupational Therapy
Social Work
Orthotics and Prosthetics

Participation by clinical allied health services in the project was on a volunteer basis in all sites. All clinical allied health services at each hospital were invited to participate in the project (total 49). An issue identified early in the project was the lack of consistency in composition of the 'allied health' team in each site, where a service deemed to be a clinical allied health service in one hospital may not have been considered so by hospital management in another. This was particularly evident in the case of Audiology and Psychology services. Only three services refused outright to participate. Three also withdrew within the time period of the study, one each from a metropolitan, a regional South Australian and an interstate site. The head of each participating service was asked to sign a consent form at the beginning of the period of participation. This document is Appendix 2.

Selecting Patients

Preliminary Investigations

Patients, the service from which they were seeking allied health care and the day, were chosen at random. All current patients of clinical allied health outpatient clinics were eligible to participate in the preliminary investigations, and no patient who wished to participate was excluded.

Pilot and Main Study

The same inclusion criteria were applied in both the pilot and main studies. Information was required on all new patients who had never consumed this allied health service at this site, and returning patients (who had previously completed an episode of care at this allied health service at this site). This information identified the start of new episodes of clinical allied health outpatient care. Eligible participants were all presumed to have a new referral.
Patients who did not wish to, or were unable to, participate in the study by completing the manual questionnaire were identified by the therapist or receptionist, who allocated the patient's identifier to a blank form, and briefly explained the non-participation.

Based on findings of the pilot study, data collection from patients who were willing to complete the questionnaire, but unable to do so, was addressed by:

- requesting an accompanying family member, support person or carer to complete the questionnaire for the patient
- requesting the therapist or receptionist to complete as many data items as possible on behalf of the patient, and leaving blank those items for which the response could not be elicited
- requesting an interpreter to assist in questionnaire completion.

Data Analysis

Data analysis, undertaken in Stage 4, aimed to:

- describe and compare the characteristics of outpatients across hospitals, and across allied health services
- describe the characteristics of episodes of allied health outpatient care, including:
  - the number of occasions of service and UR attributable total time per episode of allied health outpatient care
  - the range and frequency of conditions managed by each allied health service, and
  - the average therapist time associated with diagnosis.
- investigate cost drivers of allied health outpatient services (using total time, and the number of occasions of service, per completed episode of allied health outpatient care as dependent variables). Proposed cost drivers were:
  - age and gender
  - category of allied health outpatient
  - chronicity of condition
  - income source
  - referral mechanism
  - method of travel to the hospital
  - the presence of a comorbidity
  - communication difficulties
  - location of hospital
  - patients' country of origin.

Chapter THREE

Preliminary findings and data validation

Findings from preliminary investigations

Core Business and Service Delivery

Clinicians and managers of allied health services perceived the core businesses of clinical allied health services to be assessment, investigation, diagnosis, reporting, the provision of care based management over both short and long term time frames, the delivery of health promotion and primary health care activities, and the organisation and coordination of care and support services. Multidisciplinary service delivery was considered to be a feature of public hospital clinical allied health services, and differences between services, in both philosophy and service delivery, were highlighted. The nature of service delivery and the extent to which each core business was practised differed between services. Concerted attempts had been made to clarify core business and allied health activities using the SA Allied Health Activity Tree (1995), and data were collected in a number of South Australian sites using this coding system. There was variability in the interpretation of the coding system.

Hospital policy required an in-house medical practitioner (based on wards or in outpatient clinics) to refer patients to all clinical allied health services.

There were variable within-department policies with respect to identifying and charging compensible and privately insured patients. It was commonly felt that more clerical support was required in order to consistently identify these patients and to generate accounts. Furthermore, revenue should be returned to the particular allied health services, and not to general hospital revenue.

Data Management

Data recording had evolved in an *ad hoc* fashion, despite concerted and long term divisional efforts to standardise data items, fields and codes on the in-house data recording system. Such evolution of system usage was attributed to a lack of administrative support for system implementation, a lack of sophistication by clinicians in data recording, and a lack of direction from health funders and planners regarding appropriate reporting requirements. There was moreover, variable implementation of benchmarking procedures and ongoing quality improvement activities within services, using available systems information. There was scepticism regarding computer data recording, with complaints from staff such as unfamiliarity with keyboards making data entry a chore, time taken away from clinical work for data entry, lack of understanding of reasons for data entry and lack of evidence of outcome of data entry.

Patients

New patients (that is, those who had not previously attended the allied health service) often seemed to have little understanding of why they were presenting for care. They were frequently acting on advice from several different health practitioners seen in a number of different health settings. Overall, patients appeared to take little responsibility in decision-making regarding their consumption of care, and seemed to be passive recipients of the available services. Exceptions to this were observed in the group of patients who were attending a service for a particular reason, for instance for specialist treatment that was not available in the community.

Patients who had attended the service previously however, praised the care that they had received, and the outcomes of that care. Returning patients expressed a sense of ownership of the Royal Adelaide Hospital, with many older patients having attended this hospital all their lives for all aspects of health management.

Pilot study findings

Participants

558 patients participated in the pilot study, while a further four patients refused to answer the questionnaire. On this basis, ten months of data collection were expected to provide approximately 4000 patients from a hospital of this size. No participant attended more than one allied health outpatient service during the time period.

Completeness of Responses

Seventy-nine of the questionnaires were returned in an incomplete state. The most incomplete questionnaire item was that of chronicity, from which 75 responses (13% total) were missing.

Outcomes of Pilot Study

1. Feedback from staff in the participating allied health services, identified that:
    - there was a variable level of clerical and clinical staff support to assist patients who had difficulty in completing the questionnaire (difficulty was experienced by 10%-50% patients across services)
    - there was a need to define campuses, and clinics operating within the one allied health service
    - there was a need to translate the manual questionnaire into key languages
    - accurate and pedantic instructions needed to be provided to staff to ensure appropriate identification of patients and accurate collection of data on episodes of care
    - a considerable level of ongoing support was required in each service from the project team to ensure appropriate data collection
    - patients took approximately 15 minutes to complete the questionnaire
2. The pilot data enabled calculation of the length of data collection required to obtain a sufficient sample size for the main study. It also provided the opportunity to examine the accuracy of patient responses regarding recent inpatient admission, and attendance at other outpatient clinics within the last twelve months (the findings are reported in Section 2.3).
3. The survey instrument was modified and enhanced, by:
    - eliminating redundant and inaccurate questions
    - identifying more accurate sources of information
    - clarifying variably interpreted items
        - compensible and private insurance status
        - previous use of other outpatient hospital departments
        - outpatient attendance linked to an inpatient admission
        - reasons for current and previous attendances at an allied health service
    - reducing the receptionist questions to UR Number, and date of first treatment, and where it was not recorded by the therapist, the date of referral
    - asking the patient additional questions regarding:
        - point of referral

- previous attendance at this allied health outpatient clinic (justification for these modifications, and data item specification is provided in Appendix B)

4. The ways in which episode-related information was recorded by therapists was defined, including definitions and locations of data items and opportunities for error and delay in data entry. The variability in the methods of recording episode-related data across sites is reported in Appendix E).

Validation of Patient Responses

The accuracy of patient responses was verified from the pilot study data by comparing patient answers to specific data items with extracts from the RAH Patient Master Index.

Outpatient Clinic Attendances

Outpatient clinic attendance data were compared in two ways with an extract from the Patient Master Index. A dichotomous variable was developed, where a score of one was assigned where one or more outpatient clinics were reported and/ or recorded, and a score of zero was assigned for no outpatient clinic attendances reported and/or recorded. The actual number of different clinics reported and recorded was also investigated.

Method of Analysis

Kappa scores and percent agreements were used to compare the dichotomous forms of the data. Overall agreement between the actual number of different clinics reported, and recorded, was examined using independent two tailed *t*-tests. The effects of age and chronicity of condition on agreement were then investigated. The dichotomous forms of the data were stratified by age, and also by chronicity of condition, and the agreement within each stratum compared. Multiple ANOVA and linear regression models were constructed to examine the effects of age and chronicity of condition on the agreement between the actual number of clinics reported and recorded. Correction using the Bonferoni method was applied in the case of the measure of chronicity of condition, where agreement across ten independent categories was being examined. Age was interpreted as age group for the ANOVA procedures, and ordinally for linear regression procedures.

Results

The most frequently reported chronicity category was the one of ‘more than five years’, which contained 26% respondents, and 56.5% sample reported suffering their condition for longer than six months.

Patients were divided into age groups of less than 40 years (young), 40-59 years (middle) and 60 years or older (old), based on data analysis presented in the Australian Bureau of Statistics Health Survey of Musculoskeletal Conditions (1991). Approximately one third of patients fell into each age group (36%, 31% and 33% respectively).

The frequency distribution of patients per age group and chronicity category is provided in Table 3.1. Testing, using a chi square procedure, provided no evidence of an association between age and chronicity of condition *(p > 0.10).*

Table 3.1. The frequency distribution of age of patients and chronicity of condition for which allied health treatment was being sought

	less than 40 years	40 - 59 years	60 years or older	Total
less than one week	17 (3%)	6 (1%)	6 (1%)	29 (5%)
2-3 weeks	22 (4%)	17 (3%)	2 (0.5%)	41 (7.5%)
one month	17 (3%)	15 (3%)	10 (2%)	42 (8%)
2-3 months	30 (5%)	16 (3%)	33 (5.5%)	79 (13.5%)
4-6 months	16 (3%)	18 (3%)	19 (3.5%)	53 (9.5%)
7-11 months	11 (2%)	16 (2.5%)	9 (1.5%)	26 (6%)
approx 12 months	10 (2%)	10 (2%)	10 (2%)	30 (6%)
1-2 years	16 (3%)	12 (2%)	17 (3%)	45 (8%)
3-5 years	23 (4%)	14 (2.5%)	23 (4%)	60 (10.5%)
over 5 years	39 (7%)	49 (9%)	55 (10%)	143 (26%)
Total	**201 (36%)**	**173 (31%)**	**184 (33%)**	**558 (100%)**

Unadjusted Data

There was a fair level of agreement (Richman et al 1980) between the dichotomous interpretations of patient responses and hospital records (Kappa = 0.51 (SE 0.04)). 71% sample supplied answers that were corroborated by the hospital records. This group comprised patients who reported attending outpatient clinics and for whom a hospital record was found, and patients who did not report attending an outpatient clinic and for whom no hospital record was found.

On the other hand, 26% of the sample reported no hospital outpatient clinic attendance, while hospital records of at least one attendance in the last twelve months were found for them. The remaining 3% of the sample reported at least one hospital outpatient clinic attendance, while no corroborating hospital record was found.

Patients significantly under-reported the number of different clinics they had attended in the preceding twelve months (*t*-statistic = 6.9 (*p<0.01*)). The mean number of clinics reported by

patients was 0.7 (SD 1.1), while the mean number of clinics recorded by the hospital was 1.3 (SE 1.4). The hospital records indicated that the highest number of different outpatient clinics attended by respondents in the previous twelve months was eleven (attended by 2% sample). 21% sample (that is, 117 patients) attended three or more different clinics during this period. Three different clinics was chosen as a marker of high usage, this being the mean hospital-recorded usage, plus one standard deviation.

Influence of Age and Chronicity

Neither age nor chronicity of condition significantly influenced the level of agreement between patient reports and hospital records. Using the dichotomous form of the data, less agreement was observed for the older age group (Kappa score of 0.44 (SE. 0.07) than for the young and middle age groups (Kappa scores respectively, 0.53 (SE 0.05) and 0.59 (SE 0.07). Percent agreement for the young age group was 72.7%, for the middle age group, 76.5%, and for the old age group, 64.5%. The differences in agreement in age strata were not significant at the five per cent level.

Kappa scores ranging from 0.3-0.5, and per cent agreements ranging from 60% -75% were found for strata of chronicity of condition. There were no significant differences in stratum agreement for chronicity of condition. Patients significantly under-reported the number of different outpatient clinics attended, when compared with the hospital records. Multiple ANOVA models confirmed the significant difference between patient and hospital reports of the number of clinic types *($p<0.001$)* , but identified no independent or combined effect on agreement of age or chronicity of condition ($p > 0.20$ in all instances). Correction using the Bonferoni method did not influence the significance of the findings for chronicity of condition.

The mean number of clinics reported by patients and recorded by the hospital, are presented in Fig. 3.1 (per age group) and in Fig. 3.2 (per chronicity level). The lack of confounding influence of age and chronicity on patient reporting continued to be observed in the linear regression models. The r^2 outputs from the stepwise models are reported in Table 3.2 as evidence of the non-significant confounding effects.

Table 3.2 The r^2 output of linear regression models describing the effect of age and chronicity of condition, on the association between hospital records and patient reports, of the number of different clinics attended

	r^2	*p value*
unadjusted	0.23	*0.0001*
adjusted by age	0.20	*0.0001*
adjusted by chronicity	0.22	*0.0001*
adjusted by independent effects of age and chronicity	0.18	*0.001*
adjusted by independent, and combined, effects of age and chronicity	0.18	*0.001*

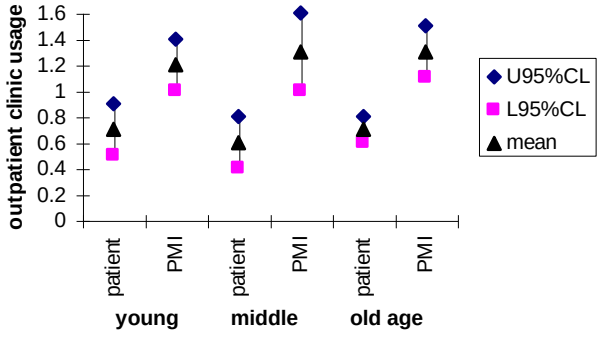

Figure 3.1 Means and confidence limits of usage of outpatient clinics for patient report and hospital record, by age groups

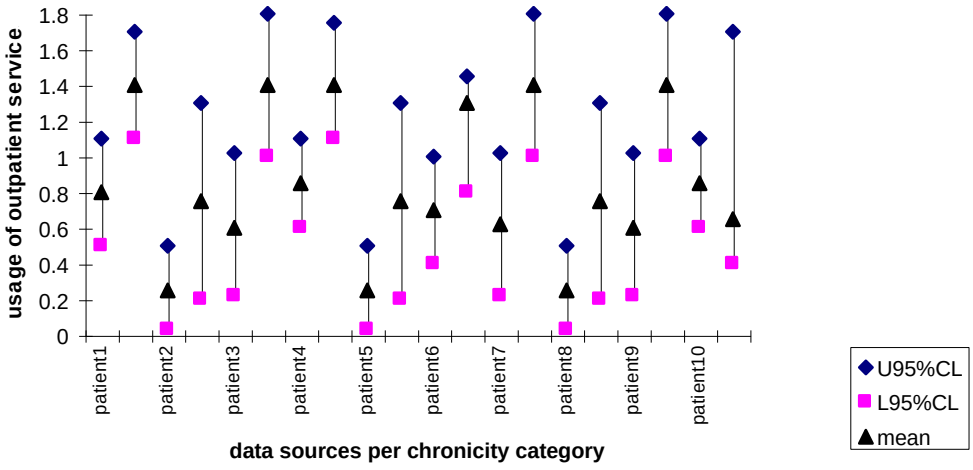

Figure 3.2.Means and confidence limits of usage of outpatient clinics for patient report and hospital record, by chronicity categories

Inpatient Admissions Linked to Allied Health Outpatient Attendances:

Patient recall of inpatient episodes linked to allied health outpatient attendances was examined, again using the pilot data. Inpatient attendances identified by the Patient Master Index (PMI) report were matched on dates, and where possible, on diagnosis, to the patient attendance at allied health outpatient clinics.

If the patient data and the PMI reports were compared for the actual day of attendance at the allied health outpatient clinic, there was a 67.7% agreement between them. Comparing responses and hospital records subsequent to the date of attendance at the allied health outpatient clinic lowered the percent agreement to 54.7%.

This was explained by the diagnostic nature of some allied health outpatient services, where attendance at the service informed subsequent services. It was further explained by the day surgery nature of some 'inpatient' episodes. While these are recorded as inpatient episodes on the PMI, patients may not recognise them as such. Thus there were discrepancies between the patient reports and PMI reports, which were generally found where the patient was hospitalised following attendance at the allied health outpatient clinic.

Conclusion on Patient Recall

Patients had fair to moderate reliability to recall previous attendances at outpatient clinics at the Royal Adelaide Hospital, and to identify that their outpatient allied health attendance was linked to an inpatient admission. As this information could not be readily extracted from the PMI at the Royal Adelaide Hospital at the time of the study, it was presumed that this may also be the case in all other participating sites. Therefore, for ease of data collection, the patients' responses to the questions of category of outpatient attendance and previous attendance at the outpatient allied health clinic were accepted as fair to moderately reliable.

Summary of modifications to the survey instrument

The Content of the Revised Instrument

The modifications made to the draft survey instrument following the pilot study are described in detail in Appendix B. Redundant draft items were identified and excluded from the revised instrument. Other items were excluded because they did not contribute to the aims of the project, or because they were inaccurate. Others were modified in wording or in the method of administration, or clarified with therapists who already collected them, and additional items were developed to ensure that the aims of the study were met.

Specifications

Recommended specifications and conditions were developed for each of the revised survey items. The items in this survey instrument require further testing in other Australian sites to verify the findings on patient and episode characteristics. The testing undertaken in this project delivers a draft survey instrument that could underpin future costing studies. The recommended specifications are provided in Appendix B.

Coding Responses

Specific code lists were developed prior to the study to collect information on well defined data items, such as private health insurance, methods of travel, source of income and chronicity of condition. These lists are provided in the body of Appendix B. Other data items on less well understood or defined issues collected text information. The responses are reported in the Addendum to Appendix B. This information will assist future studies conducted in South Australia on referral sources to allied health, health services concurrently consumed in the community and compensability status of allied health outpatients.

Data validation

Data Entry Accuracy

311 patient records were reinserted in batches into a 'yet-to-enter' pile of forms, in order that the accuracy of the data enterer accuracy could be assessed. The data enterer was blinded to this exercise. The period of data entry chosen for validation occurred during the last three months of the study, when approximately 400 forms per week were being entered. Errors due to pressure of work and fatigue were anticipated. Comparison of the matched forms found no errors either in data entry or in coding, an indication of the accuracy of the data enterer.

Data Base Uniformity

The completed Excel data sets for each participating hospital were checked for errors by the Project Manager before they were amalgamated with the computer-generated files. Error checking involved matching the content of the field with the expected content, and standardising the way in which text diagnoses were recorded (i.e. standardising spelling, and the order of words, and the way in which specific conditions were recorded). A second level of checking occurred via stringent default rejection markers set within the SAS amalgamation programs. These markers were key indicators of accuracy of dates and field contents to identify aberrant data.

Investigating the Losses to the Sample

The lack of uniformity in data definitions produced difficulties when estimating the extent of losses to the project. In particular the nature of the definitions of 'returning patient' and 'discharge' were variably interpreted, precluding immediate identification of 'returning' patients who should have been enrolled into the study, but were not approached to do so.

The percentage of new patients per service, and per site, who were not enrolled in the study were investigated by counting the number of designated 'new patients' in the data base whose first occasion of service post dated the date on which the site commenced participation in the project. This was estimated at between 5 - 20% of the total enrolled patient sample, per site.

Of the 'returning' patients who were not enrolled into the study, a proportion would have been consuming allied health care prior to the date of commencement of the site in the project, and therefore were not of interest to the project. Where possible, patients were discarded from the count if the first identified date of occasion of service predated the date of enrolment of the site into the project. The remainder of the non-enrolled 'returning' patients were therefore considered to be loses to the project. This was estimated as ranging from 10%-30% of the total patient sample across sites.

Validation checks on the two groups of 'returning' patients were conducted, by calculating artificial means of all the dates of occasions of service. The mean dates of both groups were compared. The group of 'returning' patients which had been discarded as of no interest to the project, consistently showed earlier mean dates of occasion of service than the group that had been retained. Moreover, the mean date for this group was consistently earlier than the date of the commencement of each service into the project. This supported the likelihood that the discarded group were of no interest to the project.

ChAPTER FOUR

Patient and episode characteristics per Hospital

This chapter reports on the main study. Data were collected on a total of 10,095 patients. 5,207 of these patients had completed at least one episode of allied health outpatient care. This chapter describes characteristics of patients and episodes of care across sites, and compares site and service-specific rates of patients enrolled during the main study. The raw data (expressed as percentages for relative comparison) are reported in the Appendix to this chapter.

Rates of patient enrolment

Per Site Rate of Patients per 1000 Project Hours

Patient numbers were standardised across participating hospitals by adjusting them by the average UR attributable outpatient hours per week and the number of weeks of participation in the project. This took account of those services which began data collection later than others, or completed data collection earlier than others, as well as the average weekly staff hours for outpatient care. The standardised rate of enrolment reflects only a proportion of the total number of outpatients being managed by each allied health service, as no account was taken of the ongoing patients on whom no data were collected.

The total number of hours of participation in the project were first calculated for each service. The total available weekly UR attributable outpatient hours per service took account of the number of staff and the number of hours that each staff member provided an outpatient service. The hours could be provided simultaneously or in series (that is, therapists working together, or in separate time slots). For instance, 20 outpatient hours per week could be provided by one therapist working for the entire 20 hours, or 10 therapists working for two hours each in the week.

Hospital totals were then calculated by summing the project hours for each participating service.

The total number of patients contributed by each hospital was divided by the total project hours for that hospital, and this was expressed as the rate of enrolment of new and returning patients per 1000 project hours. Where information on hours of available treatment was not able to be obtained from a participating service, the number of patients contributed by that service, and the participating project weeks for that service, were subtracted from the hospital total before the calculations were made.

The total average UR attributable outpatient hours per week, the number of weeks of participation of each hospital, the total project hours and the rate of enrolled patients per 1000 project hours are listed per participating hospital in Table 4.1. High rates may indicate:

- greater compliance with data collection
- a faster throughput of patients (that is, proportionately not as many ongoing patients to new/returning patients)
- more group or class activity (enabling more patients to be seen at once) and/ or
- the supply of more outpatient than inpatient services, that is, a comparatively small inpatient load.

On the other hand, as well as poor compliance with data collection, low rates of participation may indicate:

- those services which supply more inpatient than outpatient services
- those services which are understaffed
- those services which have high numbers of occasions of service within an episode of care, or which provide long occasions of service
- those services which have distant campuses, involving travel time, preparation time and time consumed by non-attendees at these campuses.

Table 4.1: Standard rates of participation per hospital

Hospital Code	Total hours/ week OP service	Number services w/o information on hours	Weeks of participation of the site	Rate of enrolled patients per 1000 hours
M1	501	0	43	142
M2	572	1	26	125
M3	334.5	3	35	129
M4	230	1	13	126
M5	294	2	35	52.5
C1	303	1	17	119
C2	278	1	43	84.0
C3	111.75	0	17	186

Relative Contributions to Total Data from Individual Allied Health Services

The percentage opportunity for each allied health service to contribute to the hospital total was calculated as the percentage of the total available UR attributable hours supplied by each allied health service to the hospital total. This figure was compared with the actual percentage contribution of patients from that service to the total number of patients for the hospital. This provided early evidence of:

- variability across services and sites in time spent per occasion of service
- under-recruitment of patients into the project
- higher proportions of ongoing patients (on whom this project did not collect data) than new / returning patients
- particular efficiencies in patient management.

The relative contribution of allied health services to the hospital total is outlined in Table 4.2, where, for each allied health service, the opportunity *(op)* for outpatient enrolment (available service hours as a percentage of the hospital total project outpatient hours) is compared with the percentage contribution to the total number of patients in that hospital *(pt)*. The findings presented in this section will be discussed in more detail in later chapters.

Table 4.2: Opportunity for patient enrolment compared with percentage contribution.

		M1	M2	C1	M3	C2	M5	C3	M4
Physiotherapy	op	53.1%	42.6%	45.3%	50.8%	2.2%	N/R	51.4%	65.2%
	pt	*54.9%*	*49.2%*	*68.9%*	*51.9%*	*1.9%*	*48.5%*	*61.3%*	*80%*
Occupational Therapy	op	13.2%	19.6%	7.7%	22.3%	16.4%	34.7%	7.3%	N/R
	pt	*5.0%*	*12.5%*	*4.8%*	*8.1%*	*7.8%*	*7.3%*	*5.2%*	*12.8%*
Speech Pathology	op	11.3%	12.2%	6.4%	N/R	49.3%	47.6%	25.6%	34.8%
	pt	*7.8%*	*5.5%*	*4.6%*	*6.4%*	*13.9%*	*11.4%*	*14.7%*	*7.2%*
(C)Nutrition & Dietetics	op	7.6%	6.5%	1.9%	3.8%	5.6%		14.6%	
	pt	*4.4%*	*10.8%*	*6.4%*	*5.7%*	*8.9%*		*16.5%*	
Audiology	op	4.2%	4.2%		3.9%				
	pt	*17.5%*	*7.9%*		*15.1%*				
Neuropsychology	op	4.2%							
	pt	*3.1%*							
Podiatry	op	6.4%	14.6%	38.6%	19.1%	26.3%			
	pt	*7.3%*	*13.2%*	*4.3%*	*7.2%*	*68.3%*			
Social Work	op		N/R	N/R	N/R	0.01%	17.6%	0.9%	
	pt		*0.9%*	*11%*	*0.2%*	*0.4%*	*32.6%*	*2.3%*	
Orthotics	op				N/R		N/R		
	pt				*7.4%*		*0.2%*		

N.B: N/R = no response

Gender and age characteristics

Gender differences were anticipated in those hospitals which provided child and maternity services (where more women than men would be expected to consume services). Maternity/ child services were provided in six of the eight sites. In all but one site, more women than men were enrolled, although the one site where more men than women were enrolled, provided child and maternity services. The proportion of women to men is illustrated in Figure 4.1. The higher proportion of women who consumed allied health services in this study may be an artefact of the data, or evidence of selection bias. It may also be indicative of the current community focus on women's health issues, and the overt support for women to seek health services. Women may also find it easier to access services that are mainly open only during working hours.

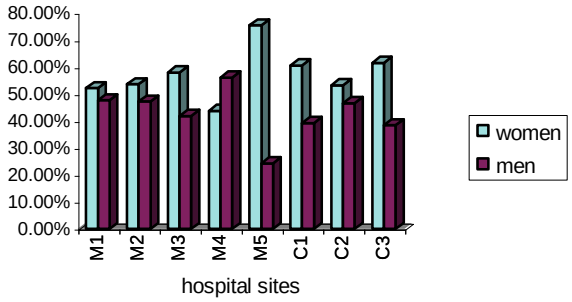

Figure 4.1. The proportion of women and men consuming outpatient allied health services per site

Age Groups

Age was divided into seven categories, to describe the needs of particular age groups in the community.

1 small children, (aged five and under [including babies and toddlers])
2 children (6-16 years)
3 young adults (17-25 years)
4 young/middle adults (26-39 years)
5 middle aged adults (40-59 years)
6 old adults (60-74 years)
7 elderly adults (75+ years)

The distribution of patients in these age groups is reported in the Appendix to this chapter. The 40-59 year age group contributed the highest percentage of patients in four of the five

metropolitan sites, while the 60-74 year age group contributed the most patients in two of the three country sites. For reporting purposes in this chapter, the patients under 40 years of age were combined into one group, the 40-59 year old group was retained and patients older than 60 years were combined into one group. These groupings are graphed in Figure 4.2, which illustrates the importance of allied health outpatient services to the entire community. The generally older outpatients in country hospitals is an indication of the lack of alternative community services. For instance, in the metropolitan area, older patients can be treated outside the public hospital system (in day facilities, community health services or by domiciliary care), while public hospitals in the country need to address the absence of such services.

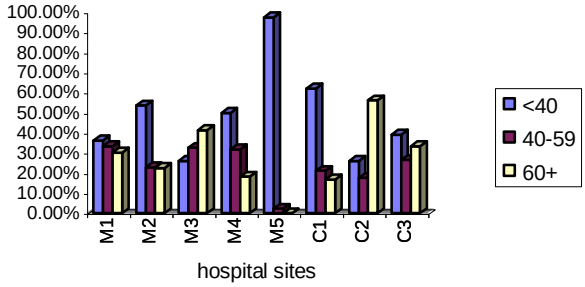

Figure 4.2: Broad age categories of patients per hospital site

Gender Specific Mean Age per Hospital

Women were older than men in all hospital sites, with this difference being significant at *p<0.1* in seven of the eight sites (determined by independent *t*-tests). Mean age per gender (± Standard Deviation) is reported in Table 4.3, with the associated *t*-test statistics and *p* values.

Table 4.3: Gender - specific mean age per hospital

	women	men	*t*-test statistic	*p value*
M1	50.7 years ± 17.7	45.2 years ± 17.6	8.2	*<0.001*
M2	40.1 years ± 23.2	33.7 years ± 23.7	5.7	*<0.001*
M3	54.3 years ± 17.8	51.9 years ± 18.3	2.5	*<0.05*
M4	41.4 years ± 20.5	38.3 years ± 19.6	1.84	*0.06*
M5	23.1 years ± 10.5	6.7 years ± 6.1	32.1	*<0.001*
C1	36.7 years ±19.9	34.3 years ± 21.8	1.5	*0.12*
C2	58.2 years ± 23.9	47.4 years ± 30.8	4.4	*<0.001*
C3	48.1 years± 21.8	37.7 years + 26.3	3.9	*<0.001*

Classification of allied health outpatients

Outpatients to allied health services are currently classified as Category C (who have an associated inpatient stay) and Category E (who do not have an associated inpatient stay and are not eligible for rebates for private sector treatment). Category E status is therefore defined by information on associated inpatient admission, ancillary private health insurance and eligibility for compensation. Preliminary analysis of the data from this study identified a sub-classification of Category E outpatients. These patients had no associated inpatient admission, but were eligible for rebates in the private sector. Category E patients were therefore classified in all subsequent reporting as:

- E1 (true category E patients, by definition)
- E2 (those patients without an inpatient association but who were eligible for private sector rebates).

The percentage of patients in each allied health category, per hospital site, is listed in Table 4.4.

Table 4.4: Allied health outpatients classification per hospital

	Category C	Category E1	Category E2
M1	35.2%	49.1%	15.7%
M2	25.8%	48.1%	26.1%
M3	27.2%	58.2%	14.6%
M4	37.6%	50.2%	12.2%
M5	50.1%	33.4%	16.5%
C1	23.3%	58.3%	18.3%
C2	7.9%	65.2%	26.9%
C3	11.1%	67.3%	21.6%

The majority of patients in each institution were Category E1, an indication that each hospital in this sample played an important role in managing community-based (i.e. non-hospital-related) patients. There was an average over all hospitals of approximately 5% patients with an eligibility for compensation, and 15% patients who carried private extras (ancillary) health insurance. The country hospitals (two in particular) reported a much lower percentage of Category C patients than the metropolitan based hospitals. This possibly reflects the generally outpatient-focused nature of allied health service provided in the country. Moreover, the higher proportion of insured / compensible patients in the country samples suggests the lack of private or non-hospital (community-based) allied health services in the local area. The distribution of patients by compensibility and insurance status is provided in the Appendix to this chapter.

Mechanism of referral

Mechanisms of referral to the allied health services in public hospitals were elicited by asking patients the question 'Who suggested you attend this clinic?' It was suspected from preliminary investigations that patients have variable understanding of public hospital processes, and therefore the question was phrased to identify the primary source of the referral suggestion, rather than the point of actual referral. Thus, in those hospitals where an in-house medical referral is required prior to the delivery of allied health services, the answers to this question will differ from the perception of policy makers, administrators and allied health professionals themselves, and from the hospital records of referral source. The referral mechanisms defined under 'other' option involved referral from community health centres, day care centres, other hospitals, outreach centres and country centres. The distribution of data in each of the categories of referral mechanisms is listed in the Appendix to this chapter.

A summary table of referral mechanisms is provided in Table 4.5, categorising referral sources as within-hospital (ward, outpatient clinic, allied health practitioner), community-based (GP, specialist, community-based allied health practitioner, other), self referral and no clear referral source (don't know). There is an obvious difference between two country sites, and the metropolitan sites, where the country sites are primarily supported by community-based referrals, and the metropolitan sites are primarily supported by hospital-based referrals. Of particular interest was the generally higher proportion of self referrals in country sites. The same pattern of referral mechanism per hospital site continued to be observed in strata of allied health outpatient classification (Category C and E) (reported in the Appendix to this chapter).

Table 4.5: Percent of overall referral mechanisms per hospital

	M1	M2	M3	M4	M5	C1	C2	C3
within hospital	68.4%	51.3%	63.0%	44.6%	36.6%	43.8%	8.2%	3.8%
community	29.1%	41.9%	31.6%	51.0%	47.5%	44.4%	61.3%	87.8%
self referred	1.4%	5.1%	1.9%	3.6%	9.0%	10.6%	29.6%	7.8%
don't know	1.1%	1.7%	3.3%	0.7%	6.9%	1.2%	1.0%	0.6%

Source of income / employment

Source of income involved ten elements in the survey item, these being listed in Chapter 3. For the purpose of reporting, data were amalgamated into three broad categories of income source:

1. employed patients (including self employed and PAYE)
2. patients who were self supporting but non income earning (home duties, students and self funding retirees)

3. patients assisted by the Government (unemployed, sickness/disability, aged pensioner, young homeless/ supporting parent and other [including prisoners, dependent spouse rebate, carers pension etc]).

Table 4.6 details the percentage of patients per hospital in these broad categories of source of income. The raw data are reported in the Appendix to this chapter. Similar proportions were observed across hospitals, identifying that clinical allied health services in public hospitals are not just consumed by individuals from non-wage earning backgrounds. Moreover, the higher proportion of self-funding and Government supported patients in the two country sites probably reflects the older age range of these patients.

Table 4.6: Percent of overall patients, source of income

	M1	M2	M3	M4	M5	C1	C2	C3
wage earning	31.1%	32.0%	21.5%	42.4%	47.3%	44.1%	47.3%	23.9%
self funding, no wage	36.0%	27.2%	18.5%	21.9%	28/5%	23.7%	28.5%	33.2%
Government support	32.9%	40.8%	60.0%	35.9%	24.2%	32.2%	24.2%	42.9%

The nature of the employment of wage-earning individuals was recorded in the eight broad Australian Standard Classification of Occupation categories (1984), and are listed per hospital in the Appendix to this chapter. There was no evidence of differences between employment categories in consumption of outpatient care. There were also no differences in the source of income across the allied health outpatient classifications (Category C, E1 and E2).

Chronicity of condition

Information on the chronicity of the condition, for which treatment was being sought, was collected in ten elements in the survey item. These were designed to capture information about the serial progression of disease (WHO Definition 1980). These ten elements of chronicity were listed in Chapter 3, and the raw data are reported in the Appendix to this chapter. For the purpose of this report, the raw data were summarised as broad categories of chronicity:

- six months and less (defined by NH&MRC (1993) as acute)
- six months but less than 12 months (border-line chronic)
- more than 12 months (chronic).

The data are graphed per hospital in Figure 4.3. Acute and chronic patients were treated in similar percentages in all hospitals, refuting the long held belief that allied health outpatient services in public hospitals deal only with chronic conditions.

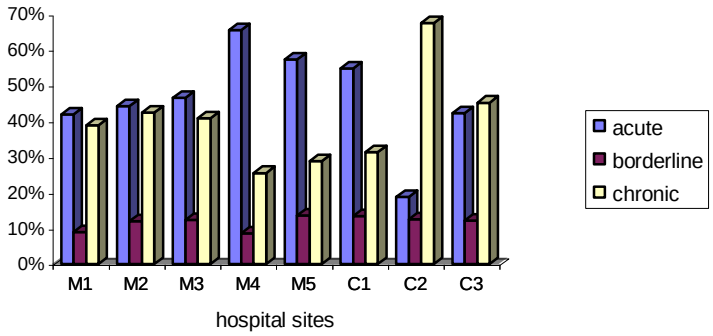

Figure 4.3: Broad categories of chronicity of condition per hospital site

Referral Mechanisms of Acute Conditions

The referrers of acute conditions were identified in order to determine whether the responsiveness of allied health services to acute conditions was evident to community-based referrers. In one city site, and in two country sites, the community referrers generated the bulk of acute patient referrals, while in the remaining sites, hospital-based referrals continued to be the norm (following the trend identified for referrals overall). This perhaps indicates different relationships between allied health services and community referrers in different sites, and/ or the lack of other community-based services. The percentage of referrals for acute patients per hospital site is reported in Table 4.6.1.

Table 4.6.1: Referrers of acute conditions

	M1	M2	M3	M4	M5	C1	C2	C2
hospital	76.5%	53.8%	70.8%	50.8%	17.9%	52.9%	9.1%	4.8%
community	22.9%	40.9%	28.4%	42.6%	71.8%	43.7%	84.8%	92.9%
self	0.6%	5.2%	0.8%	6.6%	10.3%	3.4%	6.1%	2.4%

EPISODES OF ALLIED HEALTH OUTPATIENT CARE

At any point during the study, episodes of care were beginning for some patients, were ongoing for others and were being completed for the remainder. Components of allied health outpatient episodes of care were explored as a way of defining the nature of episodes of allied health outpatient care.

1. Ongoing episodes were marked by:

    a) new and returning patients, registered in the project, for whom there was no information yet on any occasion of service for their current condition
    b) new and returning patients, registered with the project, for whom there was information on at least one occasion of service for this condition, but for whom no date of discharge had been recorded.

2. Complete episodes were marked by:

    a) new and returning patients, registered with the project, who consumed one occasion of service and were discharged on the same day
    b new and returning patients who consumed multiple occasions of service following enrolment into the project, and for whom an appropriate date of discharge was recorded.

The percentage of patients with these markers are reported per hospital in Table 4.7.

Table 4.7: Episodes of care components per hospital

		M1	M2	M3	M4	M5	C1	C2	C3
incomplete	patient info. only	11.6%	20.8%	17.8%	19.9%	43.0%	28.9%	13.9%	6.6%
episode	ongoing episode	19.5%	29.0%	27.3%	31.0%	17.2%	37.9%	66.6%	44.3%
completed	single O/S	9.5%	15.1%	3.6%	12.0%	6.3%	18.7%	0.3%	4.3%
episode	multiple O/S,	59.4%	35.1%	51.4%	37.1%	33.5%	14.5%	19.2%	44.8%

Explanation of Table

Table 4.7, Row 1 reports the percentage of registered only patients for whom there was no information on occasions of service (O/S). Reasons for this lack were proposed as:

- no UR number assigned to the occasion of service information, or to the patient (manual) form, precluding linkage of patient and episode data
- patients who attended a group session (class), where the occasion of service may not have been assigned to an individual UR number, rather to the occasion of service for the group

- error in data entry by therapists (i.e. occasion of service information assigned in error to another UR number)
- delay in data entry (where the patient has been enrolled into the project and data on the first occasion of service had not been recorded by the therapist by the end of the project).

NB Collection of data from patients ceased on 30th November, 1996 and receipt of occasions of service data and extraction of data files ceased on 7th January 1997 to allow for tardy data entry and end of year file revisions and updates.

Row 2 describes those registered patients (1b) for whom there was matching relevant occasion of service information (O/S). As of the end of the project, these patients were within an episode of care, that is, they had not been discharged.

Row 3 describes the registered patients who consumed care and were formally discharged on the same day. The date of the occasion of service (O/S) was the same as the date of discharge.

Row 4 describes the registered patients who consumed more than one occasion of service [O/S] following their first date of service, as for whom a formal date of discharge was recorded.

Previous use of clinical allied health outpatient services

Patients were asked whether they had ever previously attended this clinical allied health service. No attempt was made to determine whether previous attendance was for the same condition (reasons for this were provided in Chapters Two and Three). The accuracy of patient's recall could not readily be verified, and it was assumed that patients were as accurate in their recollection of previous attendance as they were of attending outpatient clinics at the Royal Adelaide Hospital within the last twelve months (that is, moderately accurate) (reported in Chapter Three). The percentage of patients who had previously attended an allied health outpatient service in each hospital is reported in Table 4.8. The percentage of returning patients was consistent for all but two of the three country hospitals (average 22.8%). Few other options for publicly funded clinical allied health services were available in the country and therefore the higher percentage of returning patients was expected to be higher than in metropolitan sites.

Table 4.8: Patients previous attendance at the allied health clinic

	M1	M2	M3	M4	M5	C1	C2	C3
Previous attendance	27.4%	21.1%	37.0%	19.1%	15.6%	16.9%	50.1%	41.0%
No previous attendance	69.7%	76.6%	60.2%	70.8%	84.0%	52.9%	48.7%	58.1%
Don't know	2.9%	2.3%	2.8%	10.1%	0.4%	30.2%	0.4%	0.9%

Use of hospital outpatient clinics within the last twelve months

Patients were asked for the number of different types of outpatient clinics that they had attended within the last twelve months, at the public hospital from which they were seeking allied health care. This question was aimed at determining in some sense, the role played by the public hospital allied health outpatient clinics in overall health care. The average Australian has at least one medical consultation per year (General Practice in Australia 1996), and as the outpatient clinics at the public hospitals offer mainly medical consultations/ services, usage of public hospital outpatient clinics by allied health outpatients does not appear to be higher than general population use. The percentage response is reported in Table 4.9, and the average number of different clinics attended (by those patients who attended at least one clinic) is reported in Table 4.9.1.

Table 4.9: The percentage of patients attending different types of outpatient clinics in previous 12 months

	M1	M2	M3	M4	C1	C2	M5	C3
none	46.9%	52.8%	43.4%	58%	66.6%	71.4%	55.7%	64.6%
1 clinic	40.1%	39.9%	45.2%	37.9%	29.3%	23.2%	36.4%	31.8%
2 clinics	8.6%	5.4%	7.5%	3.9%	3.9%	4.6%	4.6%	2.7%
3 clinics	3.0%	1.4%	2.3%	0.2%	0.1%	0.6%	2.2%	0.6%
4 clinics	1.0%	0.3%	0.9%	0.0%	0.1%	0.0%	0.8%	0.0%
5 clinics	0.3%	0.1%	0.5%	0.0%	0.0%	0.0%	0.1%	0.0%
6 clinics	0.1%	0.1%	0.1%	0.0%	0.0%	0.2%	0.1%	0.0%
7+ clinics	0.05%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.3%

Table 4.9.1: Average number of different clinics attended (±Standard Deviation) [for those patients who attended at least one clinic in the previous 12 months]

	M1	M2	M3	M4	M5	C1	C2	C3
mean	1.34 ±0.6	1.28 ±0.8	1.27 ±0.7	1.10 ±0.9	1.06 ±0.2	1.14 ±0.6	1.14 ±0.5	1.31 ±0.8

Travel

Patients were asked to describe the main way(s) in which they travelled to attend their first allied health outpatient appointment. Common travel methods were listed in the survey item, and additional information on other methods of transport was collected from the patients during the survey (these were reported in Chapter Three). This information was requested as a way of quantifying the indirect costs (those borne by the patient) that were associated with attending allied health services at public hospitals. For the purpose of this report, Table 4.10 presents summaries of the most common methods of travel to hospital. The raw data are reported in the Appendix to this chapter.

Summary Transport Methods

1	passive public	bus, tram, train, ferry, aeroplane etc
2	passive private	driven by someone else/ taxi/private bus
3	single mode transport	walked/bicycle/motor bike/gopher/wheelchair etc
4	hospital supported	hospital transport/private car, free hospital parking
5	private transport 1	private car, private car park, metered parking
6	private transport 2	private car, unmetered parking

Table 4.10: Percent of patients using transport methods

Key to transport methods	M1	M2	M3	M4	M5	C1	C2	C3
1	33.2%	22.7%	14.4%	2.8%	11.6%	12.9%	6.8%	6.2%
2	28.4%	49.1%	36.5%	41.7%	22.8%	32.1%	41.5%	33.1%
3	8.1%	6.3%	3.7%	9.4%	1.7%	6.8%	6.7%	1.2%
4	9.3%	1.2%	38.6%	4.7%	15.7%	4.2%	33.5%	59.5%
5	18.7%	3.5%	3.0%	24.1%	19.3%	40.9%	4.0%	0.0%
6	1.7%	17.2%	3.8%	17.3%	28.9%	3.1%	7.5%	0.0%

Ethnicity and language

The percentage of patients for whom Australia was the country of origin (birth) is reported in Table 4.11. For patients in all hospitals, Australia was the most commonly reported country of origin. The number of other countries of origin reported by patients per hospital is listed in the same table. The percentage of patients who spoke English at home is reported in Table 4.11.1., per hospital, again with the number of other languages reported in the data listed for comparison. The raw data (describing the country, the language and the percentage of patients that reported them) are provided in the Appendix to this chapter.

Table 4.11: Country of origin

	M1	M2	M3	M4	M5	C1	C2	C3
Australia	57.0%	72.5%	58.5%	79.6%	83.7%	82.2%	74.8%	84.3%
Number of other countries reported in the data	75	54	54	31	48	37	19	11

Table 4.11.1: Languages spoken at home

	M1	M2	M3	M4	M5	C1	C2	C3
English	79.6%	92%	76.9%	96.5%	93.4%	96.6%	94.9%	99.4%
Number of other languages reported in the data	52	38	39	12	32	18	8	2

Patient location

Post code of patients was collected as a way of examining service availability and access issues. Maps of post code locations per hospital were used to demonstrate the distance that patients travelled to access services. Maps of patient location are provided in Appendix D to this report.

Characteristics of allied health outpatient episodes of care

Allied health outpatient episode of care characteristics were described by waiting time (the period of time between the referral and the first appointment for all patients), and the time period over which an episode of care lasted, the number of occasions of service in an episode of care and the total UR attributable time associated with the episode of care for patients who had completed an episode of care. In all instances, the distribution of these characteristics was significantly left skewed, that is, the bulk of values were small. Therefore the median value and 75th percentile are reported as indicators of central tendency and variability, rather than mean and standard deviations, which would have been influenced by the few large outlying values. Table 4.12 presents the episode of allied health outpatient care characteristics per hospital.

Table 4.12: Episode of allied health outpatient care characteristics per hospital

Waiting time (days)	M1	M2	M3	M4	M5	C1	C2	C3
median	5	8	4	-5	0	2.5	5	22
75th percentile	17	28	13	-1	0	16	16	59
Duration of episode of care (days)	**M1**	**M2**	**M3**	**M4**	**M5**	**C1**	**C2**	**C3**
median	9	8	31	12	1	13	1	22
75th percentile	42	29	66	28	1	27	1	38
Occasions of service constituting an episode of care	**M1**	**M2**	**M3**	**M4**	**M5**	**C1**	**C2**	**C3**
median	1	1	2	1	1	3	1	3
75th percentile	4	3	6	2	5	4	1	4
Total UR attributable time per episode of care	**M1**	**M2**	**M3**	**M4**	**M5**	**C1**	**C2**	**C3**
median	60	50	105	90	60	300	110	80
75th percentile	160	120	210	180	70	538	230	120

Waiting Times

Approximately 40% records overall did not contain a date of referral, and therefore missing data potentially biased the observed waiting times. Moreover, self referral was common, particularly in the country sites, and the date of referral in this instance would more appropriately be recorded as the date on which the appointment was sought. No participating service was able, or willing to, record this information. The lack of standard referral requirements, and a standard definition of 'referral', was highlighted by the variability in waiting times across sites. In some hospitals a referral for every new episode of care was commonly recorded. In other sites, recorded referrals were years old, meaning either that they were covering an extended period of care, or that relevant and more recent dates of referral were not being recorded. In other hospitals, the majority of referrals post dated the first service, which resulted in apparent negative waiting times. Before waiting times can be compared, and used as markers of service demand and efficiency, standard definitions are required for referral requirements, as well as systems support to record the date on which the patient made the first appointment.

Occasions of Service per Episode of Care

There was general consistency across sites in the low central tendency and low variability in the number of occasions of service within completed episodes of care. Two of the country sites had higher median values of occasions of service within the episode of care than any other hospital. The high number of single occasion of service episodes of care appeared to weight

the data distribution. However, service differences may have contributed to this finding, with services that supplied many patients to the project masking the effect of smaller services. This is explored in the next chapter.

Time Period per Episode of Care

There were disparities when comparing the low number of occasions of service per episode of care with the duration of the time period of the episode. The variability in the duration data suggests that many patients were discharged long after the last occasion of service, and / or that review appointments may not have been recorded as occasions of service. This highlights the need to more clearly define the ongoing, review and final nature of each occasion of service, and interim and final 'discharge'. It also highlights the need to define acceptable lengths of time within which patient records need to be completed.

UR Attributable Time per Episode of Care

The small differences in central tendencies in the occasion of service data were magnified in the total UR attributable time per episode of care. There was wide variability in the data, an early indication of the influence of specific services and locations on the time taken to provide allied health care. Therapist time is the greatest cost entailed in providing allied health care and total UR attributable time is a proxy measure for therapist salary costs.

Consumables

This project sought information on the consumables provided to patients in allied health outpatient services. Consumables are the items whose cost is borne directly from the department budget, that is the costs are not refunded via block grants or external funding agencies. Not all services collected information on consumables and not all were prepared to implement such a system for the purpose of this project. Information was therefore only available from some services in some hospital sites. The percentage of patients who were given consumables within the time period of the study is reported in Table 4.14. This is estimated to be less than the actual percentage of patients to whom consumables were given.

Table 4.14: The percentage of patients given consumables

M1	M2	M3	M4	M5	C1	C2	C3
8.7%	7.3%	n/a	11.4%	n/a	8.7%	n/a	14.7%

Cost of Consumables

The cost of consumables was collected in broad categories of less than $5, $5-$10, $10-$50, $50-$100 and $100+. Categories were used because the cost of an item was often not known by clinicians. The percentage of patients per hospital who received consumables in each cost category is listed in Table 4.14.1. Again this information is considered to be an underestimation of actuality.

Table 4.14.1: Percentage of patients receiving consumables per cost category

	M1	M2	M3	M4	M5	C1	C2	C3
<$5	1.9%	19.2%	4.2%	0.0%	n/a	0.0%	n/a	0.0%
$0-$10	53.4%	22.4%	54.7	23.1%	n/a	35.9%	n/a	58.0%
$10-$50	36.3%	22.0%	0.0%	50.8%	n/a	43.7%	n/a	6.9%
$50-$100	4.4%	9.6%	21.0%	9.2%	n/a	18.7%	n/a	1.7%
>$100	4.0%	4.2%	20.0%	16.9%	n/a	1.7%	n/a	0.3%

Patients consuming two or more episodes of allied health outpatient care

The patients who consumed more than one episode of allied health outpatient care in the one hospital during the study period were identified by multiple registrations of the same UR number. Consumption of care in more than one hospital could not be tracked because of a lack of a universal method of patient identification. The overall percent and the number of multiple UR registrations are listed in Table 4.15. The multiplicity of registrations supports the 'one-stop shop', or easy access to multiple services, the cross referrals available in a hospital setting and the multiple needs of some allied health outpatients.

Table 4.15: Multiple registrations

	M1	M2	M3	M4	M5	C1	C2	C3
overall %	10.0%	25.0%	19.0%	6.7%	33.8%	36.4%	22.1%	4.1%
	Percentage of the number of patients with multiple registrations (2 or more)							
2 registrations	95.6%	98.4%	97.2%	100%	92.0%	96.7%	100%	99.5%
3 registrations	3.9%	1.3%	1.4%		6.0%	2.0%		0.5%
4 registrations	0.5%	0.1%	0.7%		2.0%	1.0%		
5 registrations		0.05%	0.4%			0.0%		
6 registrations			0.3%			0.0%		
7 registrations						0.3%		

Communication difficulties

Therapists were asked to identify patients for whom they felt the outcome of care had been jeopardised by communication difficulties. Some clinicians attempted to describe specific communication difficulties and these are listed in Appendix B. However, the number of patients with communication difficulties was too small for clear identification of particular communication problems for allied health patients, and less than 50% services provided information on communication difficulties. Therefore the findings reported in Table 4.16 are crude estimates only of the magnitude of the problem.

Table 4.16: Communication difficulties

M1	M2	M3	M4	M5	C1	C2	C3
n/a	n/a	n/a	5.6%	9.8%	19.8%	n/a	3.7%

Key Points

1. This project captured information on only those new and returning outpatients who began treatment during the ten month study period. It did not capture information on inpatients, or on those outpatients whose treatment began prior to the study, and were ongoing during the period of the study. This project therefore does not report a “snap shot” of allied health outpatient services, rather a longitudinal view of service delivery.
2. The clinical allied health outpatient services played an important role not only for those individuals who had an association with a recent inpatient admission (Category C), and also for those individuals who had no association with an inpatient stay. This included those patients who did not have, and did have, eligibility for rebates for private sector services (Categories E1 and E2). Category E1 patients were most prevalent in all sites.
3. There were similar proportions of allied health outpatients in each site, who were wage earners, self funding and Government funded, highlighting the importance of public hospital allied health outpatient services to all members of the community.
4. Clinical allied health services were provided to acute and chronic patients in relatively equal numbers, refuting the belief that outpatient allied health services are provided only for chronic conditions.
5. The higher rates of returning patients to country hospitals (compared with metropolitan hospitals) highlights the probable lack of appropriate community-based allied health services (public and private) in the country. This finding underscores the role played by country public hospitals in the community.

6. The finding that a considerable percentage of patients consumed more than one episode of allied health outpatient care, and/ or had attended more than one allied health service at the one hospital during the time period of the study, highlights the multiple and ongoing needs of some allied health outpatients.

7. The ways in which patients travelled to their first appointment at the allied health service indicated the importance of public transport and also of local free parking, to public hospital allied health outpatients. Where public transport and free parking were not readily available, the use of private passive transport (driven by someone else, or by taxi) was high, perhaps indicating the level of disability of allied health patients.

8. The lack of standard referral requirements, and a standard definition of 'referral', was highlighted by the variability in waiting times across sites. Before waiting times can be compared, and used as markers of service demand and efficiency, standard definitions are required for referral requirements, as well as systems support to record the date on which the patient made the first appointment.

9. The central tendency and variability in the data for occasions of service per episode of care was similar, with single occasions of service per episode of care apparently weighting the data. Differences between sites were however, magnified by the total UR attributable time per episode of care, with site specific and service-driven constraints potentially underpinning the differences.

10. Inconsistencies between the number of occasions of service in the episode of care, and the length of the episode possibly highlight issues of delayed record keeping and the need for a consistent definition of 'discharge'.

11. Multiple episodes of allied health outpatient care were consumed by a considerable percentage of patients. This highlights the multiple and multidisciplinary needs of allied health patients. Consumption of multiple episodes of allied health outpatient care across sites could not be tracked, because of the lack of a universal patient identifier.

12. The cost of consumables provided by allied health services, and poor communication as a constraint on outcome, could not be fully investigated because of incomplete and non-standard data.

CHAPTER FIVE

Patient and episode characteristics per clinical Allied Health Service

This chapter reports on patient and episode characteristics per allied health service, with the aims being to compare service types. While stratum specific hospital and allied health service data are provided in the Appendix to this chapter, it is important that this data is not used to compare services between hospitals, because of the varying constraints imposed on particular services within particular hospitals. These constraints are described in Chapter Six.

Age and Gender Characteristics

Gender

There were no commonalities in gender distribution across services. The consistent gender imbalance (favouring women), observed in the previous chapter was not supported across allied health services. This suggests that overall; the gender imbalance favouring women may be an artefact of the data. Further investigations of gender equity of access are required. The gender distribution per service is reported in Table 5.1.

Table 5.1: Gender distribution per service

	Female %	Male %
Audiology	46.3	53.7
Clinical Nutrition & Dietetics	62.5	37.5
Occupational Therapy	42.7	57.3
Physiotherapy	60.4	39.6
Neuropsychology	37.5	62.5
Speech Pathology	40.0	60.0
Orthotics	62.5	37.5
Podiatry	61.5	38.5
Social Work	90.7	9.3

Age

Mean age (Standard Deviation, minimum, maximum) per allied health service is reported in Table 5.2. The variability in the data supports observations made in Chapter Four, that the clinical allied health services provided in public hospital settings have a role for patients of all ages.

Table 5.2: Mean age of patients per allied health service

Service	Mean	Sd Dev	Minimum Age	Maximum Age
Audiology	44.4	20.9	<1	90.0
(Clinical) Nutrition & Dietetics	46.3	20.4	<1	89.0
Occupational Therapy	34.9	23.6	<1	94.0
Physiotherapy	41.9	20.9	<1	94.0
Neuropsychology	40.4	17.8	<1	88.0
Speech Pathology	24.8	25.3	<1	87.0
Orthotics	52.3	20.2	9.0	89.0
Podiatry	54.7	24.5	<1	97.0
Social Work	24.8	10.9	<1	89.0

Age Group per Allied Health Serivce

Age was grouped so that commonalities across services could be identified. Three rows of data are presented in Table 5.3 per allied health service and per age category:

- the percentage of the total patient numbers
    - the percentage of the row (that is, the total number of patients for that service)
- the percentage of the column (that is, the total number of patients in that age category).

This level of detail is presented in this table only as an overview of data distribution. For all other analysis presented in this chapter, the row percent only is presented. The data distribution generally supports the observation made in Chapter Four, that the 40-59 year age group is the most commonly treated in the majority of clinical allied health services.

Table 5.3: Allied health service patients by age group

Row 1: Percent Overall

Row 2: Row Percent

Row 3: Column Percent Age groupings

	0-5	6-16	17-25	26-39	40-59	60-74	74+	% Total
Audiology	0.35	0.68	1.02	2.03	3.32	1.86	0.79	10.06
	3.49	6.79	10.18	20.16	33.03	18.46	7.88	
	4.77	8.25	7.91	9.10	13.86	10.14	11.65	
Nutrition	0.26	0.25	0.38	1.01	1.76	1.42	0.25	5.33
	4.90	4.71	7.16	19.02	32.96	26.55	4.71	
	3.54	3.03	2.95	4.55	7.33	7.73	3.69	
Occupational	1.09	1.23	0.90	1.38	2.07	1.12	0.37	8.16
Therapy	13.41	15.01	11.07	16.85	25.34	13.78	4.55	
	14.85	14.81	6.98	6.17	8.62	6.14	5.46	
Physiotherapy	2.03	3.11	7.14	13.34	13.02	9.73	2.90	51.32
	4.03	6.07	13.91	26.00	25.38	18.96	5.65	
	28.07	37.62	55.16	59.86	54.29	53.10	42.63	
Neuropsychology	0.01	0.01	0.21	0.32	0.28	0.11	0.04	0.98
	1.02	1.02	21.43	32.65	28.57	11.22	4.08	
	0.14	0.12	1.63	1.44	1.17	0.60	0.59	
Speech Pathology	2.97	1.31	0.43	0.68	1.14	0.93	0.26	7.73
	38.44	16.88	5.58	8.83	14.81	12.08	3.38	
	40.33	15.78	3.34	3.06	4.77	5.10	3.83	
Orthotics	0.00	0.01	0.04	0.24	0.28	0.23	0.17	0.97
	0.00	1.03	4.12	24.74	28.87	23.71	17.53	
	0.00	0.12	0.31	1.08	1.17	1.26	2.51	
Podiatry	0.30	0.85	0.39	0.74	1.76	2.88	2.00	8.93
	3.37	9.56	4.39	8.32	19.69	32.28	22.38	
	4.09	10.32	3.03	3.33	7.33	15.73	29.35	
Social work	0.31	0.82	2.42	2.54	0.35	0.04	0.02	6.51
	4.78	12.65	37.19	39.04	5.40	0.62	0.31	
	4.22	9.95	18.70	11.40	1.47	0.22	0.29	
Overall Total	**7.37%**	**8.27%**	**12.94%**	**22.29%**	**23.99%**	**18.33%**	**6.81%**	**100.00%**

Percentage of allied health category outpatients per service

Chapter Four reported three classifications of allied health outpatients identified in the data: Categories C, E1 and E2. The definitions of these classifications are repeated here for reference:

Category C:	*allied health outpatients who have an associated in-patient admission*
Category E1:	*allied health outpatients who do not have an associated inpatient admission and who are not eligible for private sector rebates*
Category E2:	*allied health outpatients who do not have an associated inpatient admission and who are eligible for private sector rebates*

Table 5.4. reports the percentage of patients in each category for each allied health service. For all services other than Neuropsychology and Social Work, the proportions of Category C to E patients were approximately 1:2. This finding highlights the importance of these allied health services to community-based patients who have not been admitted to hospital. However, for the two above-mentioned services, the proportions were approximately reversed. While this finding may be a true indication of the importance of these services to recently discharged hospital (in) patient, there were low numbers of patients from both Neuropsychology and Social Work, and therefore the findings may also be aberrant because of low power.

Table 5.4: Percentage of outpatients in allied health categories, per service

	Category C %	Category E1 %	Category E2 %
Audiology	20.1	58.4	21.5
(C) Nutrition & Dietetics	14.5	59.2	26.3
Occupational Therapy	56.5	30.5	12.9
Physiotherapy	30.6	53.5	15.9
Neuropsychology	63.1	22.6	14.3
Speech Pathology	23.9	38.8	37.2
Orthotics	20.9	61.6	17.4
Podiatry	10.9	60.4	28.7
Social Work	59.4	31.4	9.2

Referral mechanism per service

This section examines mechanisms of referral to clinical allied health services. As for Chapter Four, the referral mechanisms were summarised into hospital-related (ward, outpatient clinic, allied health professional in hospital setting), community related (general practitioner, specialist, allied health professional in community), self and don't know. The raw data per service per

hospital is provided in the Appendix to this chapter. The data presented in Table 5.5 refers to each service (i.e. interpreted across the row). It was clear that in this sample, Audiology, Occupational Therapy, Neuropsychology and Orthotics received a much higher percentage of referrals from their hospital setting than did the other services, indicating that either:

- the expertise available in these services was not as well known by community referrers (an hypothesis supported by the findings of the survey of medical referrers reported in Chapter Eight), and/ or
- the services provided by these disciplines were more appropriate for patients with a related inpatient admission, either following up the admission or prior to the admission.

Of note was the high proportion of self referrals to Social Work and Podiatry, an indication perhaps of the lack of equivalent community-based services.

Table 5.5: Percentage of patients for each broad referral mechanism per service

	Hospital %	Community %	Self %	Don't know %
Audiology	82.53	15.07	2.20	0.20
(C) Nutrition & Dietetics	50.58	44.57	4.46	0.39
Occupational Therapy	64.00	31.88	1.25	2.88
Physiotherapy	53.96	39.86	3.71	2.47
Neuropsychology	69.39	29.59	1.02	0.00
Speech Pathology	26.32	64.78	6.61	2.29
Orthotics	86.60	11.34	1.03	1.03
Podiatry	19.70	57.37	20.85	2.07
Social Work	19.00	56.13	16.58	8.29

Source of income

This sections reports on the sources of income for clinical allied health patients per service. Similarly to Chapter Four, summary data only are presented (for patients working in employment, patients who were self funding [housewives, students and retirees], and patients whose incomes were provided by Government support). Except for Podiatry, the percentage of employed patients ranged between 20% and 35% of the total number being treated by any one clinical allied health service, while for all services, Government supported patients ranged between 35 and 70%. The small percentage of Podiatry patients in employment was anticipated given the high mean age for patients to this service. The high volume of employed patients across services highlights the importance of the clinical allied health services to the entire community, and suggests that lack of private health insurance (as identified by Category E1 patients) may be a contributing factor to the choice of public hospital allied health services.

Furthermore, as is explored further in Chapter Six, the greater availability of specialist allied health services in public hospital settings may influence the choice to consume services. The raw data per service and per hospital is reported in the Appendix to this Chapter.

Table 5.6: Summary sources of income

	Employed %	Self funding %	Government supported %
Audiology	36.33	19.07	44.60
(C) Nutrition & Diet.	21.40	23.80	54.79
Occupational Therapy	36.56	19.25	44.19
Physiotherapy	30.46	19.60	49.94
Neuropsychology	32.39	14.77	52.84
Speech Pathology	33.95	28.64	37.41
Orthotics	20.14	12.95	66.91
Podiatry	13.12	15.56	71.32
Social Work	31.21	25.83	42.96

Chronicity of condition

Information on the chronicity of the condition for which treatment was reported, as for Chapter Four, in broad categories of acute (six months or less), borderline chronic (7-12 months) and chronic (more than 12 months). The raw data per service per hospital is reported in the Appendix to this chapter, and the summary data are reported in Table 5.7. The percentage of acute conditions was greater than 20% for all services and as high as 60% for Social Work. This finding indicates that the public hospital clinical allied health services are able to not only provide immediate service to allied health patients, but the services are not aimed solely at palliation or maintenance.

Table 5.7: Percentage of patients in broad categories of chronicity of conditions, per allied health service

	Acute %	Sub-acute %	Chronic %
Audiology	26.16	8.42	65.43
(C) Nutrition & Diet.	27.23	7.02	65.75
Occupational Therapy	49.89	9.68	40.43
Physiotherapy	48.80	9.95	41.26
Neuropsychology	34.09	12.50	53.41
Speech Pathology	24.44	17.90	57.65
Orthotics	28.78	15.83	55.40
Podiatry	21.59	13.33	65.08
Social Work	66.59	7.59	25.83

Components of episodes of Allied Health Oupatient care

Episodes of allied health outpatient care were described in Chapter Four as:

- incomplete
  - *where there was no information on occasions of service (O/S), and*
  - *there was information on at least one occasion of service but no information on date of discharge*
- complete
  - *a single occasion of service episode where the service occurred on the same day as discharge, and*
  - *the multiple occasion of service episode where the date of first service differed from the date of discharge.*

Table 5.8 reports the percentage of patients for components, per service. Differences, particularly in the nature of the completed episodes of care, indicate essential differences between service delivery, and highlight the association between core business of allied health services and service usage. For instance a much higher proportion of Audiology and Social Work episodes of care were completed within one occasion of service, than for any other service. The core business of Audiology and Social Work was perceived by clinicians to involve more diagnostic/ assessment/ counselling than the care-based core business of other allied health services.

Table 5.8: Episode of care components (percent of total number of patients per service)

	Incomplete episode %		Complete episode %	
	no O/S info	no discharge date	single O/S episode	multiple O/S episodes
Audiology	14.29	0.69	29.36	55.67
(C) Nutrition & Dietetics	23.88	37.69	2.24	36.19
Occupational Therapy	24.54	31.23	5.22	39.00
Physiotherapy	19.87	31.32	5.35	43.45
Neuropsychology	4.08	3.06	12.24	80.61
Speech Pathology	41.71	29.46	4.72	24.11
Orthotics	2.06	0.00	7.22	90.72
Podiatry	27.70	42.60	8.50	21.19
Social Work	6.99	6.99	26.44	59.57

Country of origin of patients

The percentage of patients for whom Australia was their country of origin (birth) is reported in Table 5.9. per service. For all allied health services, Australia was the most commonly reported country of origin. The number of other countries of origin reported by patients in each service is found in the same table. This number varies considerably, and if the hypothesis is posed that allied health services are required equally by patients from all ethnic backgrounds, there is evidence in the data of inequitable delivery of some allied health services. This finding requires further investigation. The raw data (describing the country, the language and the percentage of patients that reported each) are provided in the Appendix to this chapter.

Table 5.9: Country of origin reported per allied health service

	Percentage of patients	
	Born in Australia	**Number of other countries**
	%	**%**
Audiology	60.8%	56
(Clinical) Nutrition & Dietetics	68.1%	29
Occupational Therapy	73.9%	48
Physiotherapy	67.7%	90
Neuropsychology	69.4%	13
Speech Pathology	78.4%	33
Orthotics	66.7%	14
Podiatry	68.4%	40
Social Work	80%	41

Descriptors of episodes of Allied Health Outpatient care

Waiting Time per Service (days)

Waiting time for an appointment was calculated for all patients, irrespective of the state of completion of their episode of care. Median waiting time for an appointment fell into two distinct categories:

- short (two days or less) for Audiology, Physiotherapy, Occupational Therapy, Orthotics and Social Work
- long (up to 43 days) for Neuropsychology, Speech Pathology and Podiatry.

Presuming that waiting time was dependent on the availability of appointment times, and appropriate staff, this finding suggests that some services are more constrained than others in

responding quickly to patient needs. Median waiting time per service, and the 75th percentile, a measure of the extend of variability, is reported in Table 5.10.

Table 5.10: Waiting time per service (days)

	Median	75th percentile
Audiology	0	11
(Clinical) Nutrition & Dietetics	0	14
Occupational Therapy	2.5	11
Physiotherapy	6	14
Neuropsychology	43	92
Speech Pathology	28	54
Orthotics	0	7
Podiatry	12.5	28
Social Work	0	1

Time Period of an Episode of Allied Health Care per Outpatient Service (days)

The time period for an episode of allied health outpatient care was calculated only for those patients for whom there was information on the date of first service and of discharge, that is, those patients with completed episodes of care. There again were two distinct time periods of episodes of care:

- short (median value one visit) for Audiology, (Clinical) Nutrition and Dietetics, Neuropsychology, Podiatry and Social Work
- long (median value greater than 20 days) for Occupational Therapy, Physiotherapy and Speech Pathology).

Median time period for a completed episode of care, and the 75th percentile, as a measure of the extent of variability, is reported per service in Table 5.11.

Table 5.11: Time period of episode of care per service

	Median	75th percentile
Audiology	1	1
(Clinical) Nutrition & Dietetics	1	35
Occupational Therapy	20	95
Physiotherapy	20	38
Neuropsychology	1	2
Speech Pathology	86	154
Orthotics	1	1
Podiatry	1	9
Social Work	1	1

Occasions of Service per Completed Episode of Allied Health Care

Low median values for occasions of service per completed episodes of allied health outpatient care were noted for all services. Low median values for the services which usually provide multiple occasions of service per completed episode of care may be the result of self-imposed constraints, in order to manage waiting lists and staff shortages. Differences between service delivery were more discernible in the value assigned to the 75th percentile, where those services which usually provide one occasion of service per episode of care were clearly distinguishable from those which had variable numbers of occasions of service in the episode:

The median and 75th percentile is reported in Table 5.12.

Table 5.12: Occasions of service within episodes of allied health outpatient care

	Median	75th percentile
Audiology	1	1
(Clinical) Nutrition & Dietetics	1	1
Occupational Therapy	1	4
Physiotherapy	3	6
Neuropsychology	1	1
Speech Pathology	1	3
Orthotics	1	1
Podiatry	1	1
Social Work	1	1

Total Time per Completed Episodes of Allied Health Outpatient Care (minutes)

Total time per completed episodes of allied health outpatient care was the cumulative sum of the UR attributable time assigned to each occasion of service within the episode. Differences between service types were magnified during this investigation. The influence of multiple occasions of service was most obvious in those services which had higher median and 75th percentile values. Median total time per occasion of service and the 75th percentile value is reported in Table 5.13.

Table 5.13: Total time per episode of care (Minutes).

	Median	75th percentile
Audiology	25	30
(Clinical) Nutrition & Dietetics	70	95
Occupational Therapy	85	210
Physiotherapy	105	215
Neuropsychology	150	180
Speech Pathology	120	255
Orthotics	30	40
Podiatry	30	45
Social Work	55	70

Time per Occasion of Service within a Completed Episode of Allied Health Outpatient Care (minutes)

Median time per occasion of services per completed episode of care was calculated, as the total UR attributable time per episode divided by the number of occasions of service per episode. This calculation clearly identified differences between service types and service delivery. The median time per occasion of service per completed episode of care, and the 75th percentile value is reported in Table 5.14.

Table 5.14: Time per occasion of service per completed episode of care

	Median	75th percentile
Audiology	25	30
(Clinical) Nutrition & Dietetics	52.5	70
Occupational Therapy	50	67.5
Physiotherapy	32.5	43.1
Neuropsychology	120	150
Speech Pathology	72	92.5
Orthotics	30	45
Podiatry	30	45
Social Work	55	65

Across sites, the median time per occasion of service within a completed episode of allied health outpatient care identified four distinct time allocations:

- the relatively short occasion of service (approx 25 -35 minutes, provided by Audiology, Physiotherapy, Orthotics and Podiatry)
- the moderate occasion of service (approximately 50 - 60 minutes, provided by Occupational Therapy, [Clinical] Nutrition and Dietetics and Social Work)
- the long occasion of service (approximately 70 - 80 minutes, provided by Speech Pathology)

- the extended occasion of service (approximately 120 minutes, provided by Neuropsychology).

These variations in the length of an 'average' occasion of service highlight possible inequities in funding allied health services by the one 'occasion of service' funding model.

Consumables

Information on consumables was not collected with particular accuracy or rigour during this project from any one service, an issue which clearly highlighted the vagaries of allied health data definition and collection. There is no current standard way of collecting information on consumables or costs, and few services have been able to resolve the most appropriate mechanism of data collection. This study therefore could not explore consumable costs per service. The lack of this information highlights the difficulties of accurately costing allied health service delivery, and identifies the urgent need to support allied health services in collecting appropriate information UR attributable costs.

Key Points

1. Characteristics of patients and episodes of allied health outpatient care differed between services. Local constraints and service- specific delivery models potentially contributed to the differences. Therefore the data provided in the Appendix to this chapter should not be used for comparison of like services across hospital sites.
2. There was no consistent pattern to gender presentation across services, which suggested that the overall gender imbalance reported in Chapter Four may be an artefact of the data. There was wide variation in mean age of patients treated across services, with mean age per service ranging from approximately 25 years to approximately 50 years, with Standard Deviations in the order of 25 years. This finding provided further support for the needs of the entire community for public hospital allied health services.
3. The high proportion of Category E1 and E2 patients in all services except for Neuropsychology and Social Work suggests that lack of appropriate and alternative community-based services in Physiotherapy, Audiology, Occupational Therapy, (Clinical) Nutrition and Dietetics, Orthotics, Speech Pathology and Podiatry. The strong relationship between inpatient services, Neuropsychology and Social Work services particularly supports the role of these services in the continuum of care, when patients move from hospital to community and back. As Social Work services were available in some form in a number of the community health centres (reported in Chapter Nine), community needs may

be being met, a fact possibly reflected in the lower proportion of Category E1 and E2 patients in this data set. However, there were no community-health centre based Neuropsychology services, the low proportion of Category E1 and E2 patients perhaps indicates that this service is not well known or understood by referrers, and is therefore not being provided equitably.

4. An indication of the lack of appropriate community-based services is evident in the mechanism of referral to allied health services. The high proportion of community-based and self referral sources to some services needs to be evaluated in the light of hospital policy which requires an in-hospital medical referral. Reasons for self referral require investigation, for instance, the role of, and services provided by, Social Work and Podiatry are possibly transparent to patients, which encourages ease of self referral. The role of other services may not be as well understood or valued by patients, and perceived barriers to access may limit attempts to access services directly.
5. The high percentage of employed patients to all allied health services is an indication of the role of public hospital outpatient allied health services to the community as a whole. It is also possibly an indication of the number of specialist services available in the public system that are not duplicated in the private sector or in community health services. Therefore, despite employment, compensibility and private insurance status, patients may need to access the public system to obtain required care.
6. The high proportion of acute patients in the data supports the role of public hospitals in providing allied health outpatient care to the entire community. This finding is at odds with the traditional view of allied health services in the public sector i.e. that they are provided only to elderly patients, on Government assistance, who have chronic conditions.
7. Investigation of the components of episodes of allied health outpatient care highlights the need to take a longer term view of allied health care, than is currently taken with short term snap-shot studies measuring occasions of service. It also highlights essential differences in service delivery across allied health service types. This supports the need to review the mechanisms by which allied health services are funded and the way in which core business, and patient characteristics, impinge on service availability (as measured by waiting times and patient throughput).
8. The period of time over which treatment is provided identifies the variability in lengths of episodes of allied health outpatient care across services (where a review appointment, or the discharge assessment may occur some months after the initial treatment has been provided). It also highlights apparent inconsistencies in data entry, where the date on

which the patient was formally discharged on the allied health system may be some months after the actual last date of service. These inconsistencies must be borne in mind when comparing the period of time of the episode with the number of occasions of service in it.

9. The variability in time per occasion of service (determined by dividing the total time per episode of care by the number of occasions of service) highlights inequities in the one occasion of service funding model for all allied health services. Services which have longer episodes of care are potentially underfunded, and there is little incentive for efficiency, or the provision of quality service.

CHAPTER SIX

Workload information and barriers to access

This chapter reports on the survey of heads of clinical allied health services, regarding the delivery of outpatient services in public hospital allied health departments.

Introduction

This chapter reports on a survey of heads of allied health public hospital outpatient services. It was the fourth secondary study. The study aimed to:

- determine the extent of outpatient UR attributable hours offered by participating services
- identify constraints on, and barriers to, service delivery
- highlight unique features of public sector clinical allied health services.

Method

Survey Method

The heads of the clinical allied health outpatient services at the eight participating hospitals, and those at two other acute care public hospitals in the Adelaide region, that were not participating in the project, were surveyed by written mailed questionnaire, the wording and intent of which was developed during preliminary project discussions. A self addressed, stamped envelope was included to facilitate compliance. Questionnaires were also returned by services not considered by their hospital to be part of the clinical allied health division (as in Audiology). The services which did not return questionnaires within four weeks of postage were followed up by one telephone call. This was the extent of the possible follow-up, given the funding and time constraints of the study. The questionnaire and explanatory letter used for this survey is provided in Appendix 6.

Investigations

The questionnaire requested information on:

- average number of currently available hours per week for outpatient services
- the period of time within which the last change had been made to service delivery
- the nature of change that was made at that time
- restrictions on outpatient diagnoses able to be treated in the department, the type of referrals accepted and the type of outpatients encouraged to access the service
- unique services on offer, and comparable to services available in the private sector
- co-payment required from patients
- patients and/or conditions who were perceived to be more appropriately treated within the community

Results

Respondents

Not all nine clinical allied health services were available in all sites, and of the 55 services approached to participate in the survey, six did not respond. The tables (6.1) presented describe the number of hours available for each type of allied health outpatient service, whether changes had occurred to these hours within the last 12 months and the nature of these changes. The changes are broadly described in terms of increases or reductions in hours, and the introduction of new services. The unavailability of a particular clinical allied health service in each site is denoted by N/A (Not Available), and the services which were available, but did not respond to the questionnaire, are noted as N/R (No Response). The two hospitals which were not participating in the project are coded AS1 and AS2 (additional sites).

Table 6.1: Total staff hours available per week for outpatient services

a. Physiotherapy

Hospital	Total hours/ week	Recent changes	Changes
M1	250	within last month	reduced hours
M2	244	within last month	increased hours
AS1	66	6-12 mths age	new service introduction
AS2	45	6-12 mths age	new service introduction
M3	180	not within year	no change
M4	176	not within year	no change
M5	N/R		
C1	150	within last month	increased hours
C2	55	6-12 mths age	new service introduction
C3	56.25 (av)	within last month	reduced hours
av	135.8 hours		

b. Occupational Therapy

Hospital	Total hours/ week	Recent changes	Changes
M1	62	not within year	no change
M2	112.5	not within year	no change
AS1	45	6-12 months ago	new service introduction
AS2	27	6-12 months ago	new service introduction
M3	70	not within year	no change
M4	35	6-12 months ago	new service introduction
M5	102	not within year	no change
C1	N/R		
C2	37.5	2-3 months ago	increased hours
C3	10.5	2-3 months ago	increased hours
av	58.1 hours		

c. Speech Pathology

Hospital	Total hours per week	Recent changes	Changes
M1	53	2-3 months ago	current hours increased
M2	70	6-12 months ago	new service introduction
AS1	N/A		
AS2	N/A		
M3	N/R		
M4	25	not within year	no change
M5	140	6-12 months ago	new service introduction
C1	80	within last month	hours reduced
C2	112.5	2-3 months ago	current hours increased
C3	28	2-3 months ago	current hours increased
av	71.2 hours		

d. Nutrition and Dietetics

Hospital	Total hours per week	Recent changes	Changes
M1	36	within the last month	hours increased / new service introduction
M2	37.5	6-12 months ago	new service introduction
AS1	55	2-3 months ago	hours increased
AS2	3	not within year	no change
M3	12	6-12 months ago	new service introduction
M4	12	2-3 months ago	hours reduced
M5	N/A		
C1	N/A		
C2	13	6-12 months ago	new service introduction
C3	16	not within year	no change
av	23.1 hours		

e. Podiatry

Hospital	Total hours per week	Recent changes	Changes
M1	60	not within year	no change
M2	84	within last month	new service introduction
AS1	N/A		
AS2	60	2-3 months ago	hours increased
M3	60	6-12 months ago	new service introduction
M4	150	not within year	no change
M5	N/A		
C1	N/A		
C2	60	6-12 months ago	new service introduction
C3	N/A		
av	79 hours		

f. Social work

Hospital	Total hours per week	Recent changes	Changes
M1	N/A		
M2	N/R		
AS1	20	within last month	setting priorities
AS2	N/A		
M3	N/R		
M4	N/R		
M5	52	2-3 months ago	hours increased
C1	N/A		
C2	0	within last month	hours reduced
C3	1	not within year	no change
av	33.3 hours		

g. Audiology

Hospital	Total hours per week	Recent changes	Changes
M1	20	within last month	hours reduced
M2	24	not within year	no change
AS1	20	not within year	no change
AS2	N/A		
M3	12.5	not within year	no change
M4	N/A		
M5	130	not within year	no change
C1	N/A		
C2	N/A		
C3	N/A		
av	19.1 hours		

h. Neuro-psychology

This service was only supplied at one site (M1) for 20 hours per week, and 6-12 months ago, the hours of service were increased.

Restrictions Placed on Services

Information was requested on three potential barriers to access:

- the diagnoses that could be treated
- the required referral mechanisms
- the type of outpatient able to be seen.

Free text explanations were provided by respondents. They were coded for this report, and the raw data are supplied in Appendix 6. No effort was made to reword the text responses or to combine similar responses, so that readers can gauge the range of responses and the frequency with which similar responses were supplied. A summary of the coded responses is reported in Table 6.2. The percentage refers to the number of total services that indicated at least one barrier to service provision.

Table 6.2: Summary responses to barriers to services

A. Barriers to Physiotherapy	by diagnosis	by referral mech	by outpatient type
	66%	66%	33%
CODES	4,7,9,14,17,23, 25	4,6,9,13,24,27	4,6,9,18

B. Barriers to Occupational Therapy	by diagnosis	by referral mech	by outpatient type
	89%	89%	78%
CODES	1,3,8,12,15,16,24,26	1,5,8,11,14,15,18,28,30	1,5,8,11,13,19,23

C. Barriers to Speech Pathology	by diagnosis	by referral mech	by outpatient type
	14%	71%	57%
CODES	20	2,16,19,20,25,29,31	3,15,20,22,24

D. Barriers to Clinical Nutrition	by diagnosis	by referral mech	by outpatient type
	28%	28%	14%
CODES	6,22	22,23	17

E. Barriers to Podiatry	by diagnosis	by referral mech	by outpatient type
	80%	40%	60%
CODES	5,10,13,18,27	10,12,32	10,12,14,25

F. Barriers to Social Work	by diagnosis	by referral mech	by outpatient type
	20%	100%	50%
CODES	21	3,7,21,26	7,21

G. Barriers to Audiology	by diagnosis	by referral mech	by outpatient type
	50%	25%	25%
CODES	11,19	17	16

H. Barriers to Neuropsychology	The Neuropsychology service was restricted by diagnosis (Code 2) and outpatient type (Code 2).

Unique Services

The questionnaire required information on unique service(s) on offer. Descriptions of these services are provided in Appendix 6. The percentage of allied health services offering unique services is listed in Table 6.3. with text descriptions of similar services known by the heads of department to be available in the private sector.

Table 6.3: Unique Services

Service type	% providing unique service	Unique services which were also known to be available in the private sector
Physiotherapy	78%	Lymphodema, incontinence
Occupational Therapy	89%	Hand therapy (although not offering multidisciplinary treatment), developmental paediatrics, anxiety management, Lymphodema massage, rheumatology
Speech Pathology	86%	School age treatment, voice and stuttering
Clinical Nutrition	71%	Eating disorder assessments Palliative specialist care in dom. setting Some gastroenterology services and home feeding practice
Audiology	75%	Hearings and fittings
Neuropsychology	100%	Clinical neuropsychology assessment
Podiatry	60%	none known
Social Work	60%	none known

Co-payment for Services

The questionnaire requested information about required co-payment from patients, for treatment and/ or consumables. The responses per service type are listed in Table 6.4. The text responses relating to the codes are found in Appendix 6.

Table 6.4: Co-payment requirements

Service type	Codes associated with co-payment responses
Physiotherapy	12,19,23
Occupational Therapy	2,4,10,13,14,15,20,24,26
Speech Pathology	3,16,21,25
Clinical Nutrition	4,6,9,17,18
Audiology	8
Neuropsychology	none
Podiatry	1,11
Social Work	22

Key Points

1. There was no clear pattern in the changes which had been made in available outpatient hours over the preceding twelve months. There were similar numbers of services where hours had stayed the same, or had been decreased, or increased. Some service delivery changes may have reflected community need, for instance, where new services had been introduced. The survey did not inquire whether there has been community involvement in the decisions to change services, nor whether changes to service delivery had been communicated to referrers.
2. There were restrictions on all services, in diagnoses and patient types able to be treated, and in referral requirements. (Clinical) Nutrition and Dietetics appeared to be the least affected service. In the light of the high percentage of metropolitan Adelaide community health services that offered a nutrition service of some type (reported in Chapter Nine), this finding may indicate a more equitable distribution of Nutrition and Dietetics services across the community / hospital interface than for any other service, and therefore less need for restrictions for 'gatekeeping' service delivery. It may also however, suggest a restricted clientele, and/or a lack of referrer knowledge of service availability.
3. The restrictions placed on services appeared to be *ad hoc* across sites. The survey did not investigate the level of involvement of health planners and/ or hospital administration in decisions to alter service delivery or to restrict services to particular patient groups or diagnoses. The variability of allied health service provision within services and within hospitals suggests the potential for inequities in access to services. Unless specifically directed or informed, patients may not be aware of the availability of particular types of care. Moreover, the restrictions placed on patient type by compensibility and private insurance, appear to assume that there are appropriate services in the community (private or public sector) that can absorb the shortfall, and that privately insured patients can meet the gap payments for private services. However, the findings reported in subsequent chapters indicate that this is perhaps not the case, and it therefore follows that some patients may not be availing themselves of allied health services in either the public or the private sector.
4. The requirement of co-payment appears to be reasonably common across allied health services in the public sector. The amount requested was small in all instances, and was generally reimbursement for consumables. As was reported in Chapter Five, it was difficult to collect information on consumable cost and prescription from services, because of the lack of reporting mechanisms and standard price lists. It is assumed therefore that the lack

of appropriate systems makes tracking, and accounting for, reimbursement for consumables difficult.

5. Most respondents offered unique outpatient services, mainly for long term, complex and/ or multiple diagnoses, costly to treat conditions and conditions requiring costly consumables (such as splinting, pressure garments, nutritional supplements and prostheses). Respondents' knowledge of similar services on offer in the community appeared to be accurate in the light of the findings of the private practitioners' survey, reported in Chapter Ten.

6. There were commonalities across services in the patient types who were perceived as more appropriately managed in community settings. These were the maintenance and/ or chronic patients, who required more counselling and ongoing management advice than care-based management. Some heads of services perceived the provision of care in a public hospital setting as reinforcing an illness model, this being undesirable in some patient types. There appeared to be a strong feeling that, by shedding patients who had minimal "care-based" requirements, public sector services would be available for more acute and needy patients who required specific hands-on care. This perception concurs with the actual provision of outpatient services to a high percentage of patients with acute manifestations of their condition (six months or less), as reported in Chapters Four and Five.

Chapter SEVEN

Clinical Allied Health diagnoses

This chapter explores the way in which allied health diagnoses were described, and reports the most frequent diagnoses and the most time consuming per completed episode of care.

The aim of the chapter

The aim of this chapter was to provide baseline information for further studies which develop broad allied health diagnostic groups and codes. These are required for costing purposes as well as for the establishment of benchmarks of performance. The information on diagnoses managed in the participating allied health services in the participating hospitals were summarised and commonalities were identified. The raw data are listed in the Appendix to this chapter. The five most frequently reported diagnoses were identified per allied health service per hospital, as were the most costly with respect to total time for a completed episode of care. The most frequently reported diagnoses were identified from the entire data set (which included ongoing as well as discharged patients) while the time taken per diagnosis was calculated only on the completed episode of care data. Ranked order was expressed as 1 to 5, where 1 being the most frequently presenting, or the most costly with respect to time and 5 being the fifth most frequently presenting or most costly.

Not all participating services recorded diagnosis, and where diagnosis was recorded, different coding systems were used in nearly every instance. Where services wished to record diagnosis for the purpose of the project, but did not have an established in-house coding system, and did not want to record text entries, rough diagnosis categories were developed by the project team. It can be seen in the raw data that in a number of instances, the diagnosis codes/ categories reported across sites involved some degree of duplication and/or overlap. While it was tempting to intervene, the project team made few attempts to amalgamate and/ or streamline diagnoses for fear of adding to potential misclassification.

Of note is the range of diagnosis descriptors. Condition type, severity, chronicity, location (including laterality), symptoms/presentation, procedures and proposed causal agencies were

all employed by clinicians as a means of describing why patients attended allied health services. Standard classifications of diagnosis therefore need to take account of these diagnosis descriptors. The issue of allied health diagnosis classification is discussed in Chapter 12.

Audiology (servicing Audiology, ENT and Hyperbaric outpatient clinics)

Two of the three Audiology services supplying data to this project employed an in-house diagnosis coding system, which on comparison, contained markedly similar elements. It would appear on the basis of the similarity in diagnostic information that common Audiology codes could be developed with little further work. The Audiology diagnoses supplied to this study related mainly to the sensory system (hearing) and incorporated descriptions of symptoms/ presentation, procedures, causal agencies and findings of procedures. These seemed to relate to the core business of Audiology services which include assessment, screening, undertaking diagnostic procedures and providing some care-based patient management.

Common Diagnoses

There were few similarities in the most frequently recorded diagnoses across sites. This may be reflective of the nature of the business and/or specialty of the referring outpatient services (these being the most frequent for Audiology), such as Audiology, Ear, Nose and Throat, Hyperbaric Medicine and Neurology. The most commonly reported diagnoses are listed in Table 7.1.

Table 7.1: The five most common conditions seen by Audiology services

Ranking	Hospital	
	M1	M3
1	normal hearing	TM Perforation
2	bilateral hearing loss	cochlear loss
3	sensorineural hearing loss	vestibular dysfunction
4	balance problems	tinnitus
5	conductive hearing loss	otitis media

The Most Costly Diagnoses per Episode of Care

The majority of conditions seen by the Audiologists in this study were discharged after one occasion of service, and these occasions lasted on average 25-30 minutes. Therefore, rankings on a time basis could not be determined.

(Clinical) Nutrition and Dietetics

All six (Clinical) Nutrition and Dietetics services involved in this project used a form of standard diagnosis coding. The codes differed between sites, but contained markedly similar elements. Like Audiology, it would appear that common main Nutrition codes could be developed with little further effort. The diagnosis descriptors related mainly to the Alimentary system, and described diseases, symptoms, procedures, causes and required outcomes. Again, these appeared to be related to the core business of Nutrition services, which includes assessment, diagnosis, counselling and care-based management, and the supply of dietary supplements

Most Frequently Presenting Diagnoses

The boxed codes were equally ranked in the frequency distribution. There were marked similarities in the most frequently treated conditions, which suggest commonalities in patient presentation and available nutritional services across sites. The most commonly presenting conditions are reported in Table 7.2.

Table 7.2: The five most common conditions per hospital site

	M1	M2	M3
1	Obesity	Obesity	Obesity
2	Hyperlipidaema	Diabetes NIDDM	Hyperlipidaema
3	Food intolerance/ allergy	Eating disorders	Hypertension
4	NIDDM	Diabetes IDDM	Renal disease
5	Lower GIT problems	Lipid disease	General nutritional counselling
6	Coronary heart disease		

	M4	C2	C3
1	NIDDM	Overweight	Diabetic diet
2	*no other rankings*	Hyperlipidaema	Low fat diet
3	*possible*	Diabetes Type 2	Low fat, high fibre
4		Lower GIT	*no other rankings possible*
5		insulin resistance	
		paediatric feeding problems	

Most Costly Diagnoses

There were marked similarities across sites in the most costly diagnoses to treat, these being diabetes-related conditions, conditions related to pregnancy, and obesity. The five most costly diagnoses are listed in Table 7.3.

Table 7.3: The five highest consuming diagnoses of time, within a completed episode of care, per hospital

	M1	M2	M3
1	Weight loss	Post surgical	Pregnancy/ obesity
2	IDDM	Normal nutritional counselling	General nutritional counselling
3	Intake problems	Food sensitivity/ allergy	Anorexia Nervosa
4	Obesity	Renal dialysis	NIDDM
5	Lower GIT	Malabsorption, functional GIT disease	Overweight/ obesity

	M4	C2	C3
1	*times not provided*	Diabetes / gestational	Low sugar, diabetic type diet
2		Disaccharidase deficiency	Low fat diet for weight loss
3		Glutenenteropathy	Healthy low fat diet
4		Insulin resistance	Low fat, high fibre diet
5		Infection	Low fat, low salt diet

Occupational Therapy

There was considerable variety in the ways that occupational therapy diagnoses were recorded, from broad categories of condition to finely described presenting conditions. The descriptors used included condition type, causal agencies, laterality, body part involved, disease processes, outcome required and procedures applied. Although there were similarities across sites in the broad range of conditions treated, it would take considerable further effort to identify the diagnosis descriptors that would be appropriate across all sites. Identifying the core business(es) of Occupational Therapy and the broad conditions to which each core business applies, will assist in defining standard diagnosis descriptors.

The most Frequently Treated Diagnoses

There were similarities across sites in the most common diagnoses treated; although it appeared that the most frequently treated conditions were related to the key areas of service or expertise of the hospital-based Occupational Therapists. Variations in diagnoses recording made true comparison difficult. The most commonly treated diagnoses are listed in Table 7.4.

Table 7.4: The five most commonly presenting occupational therapy diagnoses

	M1	M2	M3	C1
1	Soft tissue injury	Tendon rupture/injury	Musculoskeletal disorders	Neurological
2	Rheumatoid Arth.	Carpal tunnel synd.	Mental disorders	Musculoskeletal
3	Epicondylitis, hand, extensor tendon	Developmental disorders	Cardiovascular disorders	Skin/subcutaneous tissue
4	Fracture single digit	Closed fracture, f/arm	Neurological disorders	Stress management
5	Burns to upper limb	Closed fracture, hand	Malignancy	Non specific diseases
	M4	**M5**	**C2**	**C3**
1	Mastectomy	Fine motor diff	Non-specific diag.	*no rankings*
2	Oncology	Perceptual motor	Specific learning dis	*possible because of limited codes*
3	Low Birth Weight	Unknown	Ill-defined disorders	
4	Paediatrics	Developmental delay	Other paed. cond	
5	Spinal tumour	Learning difficulties	*no ranking possible*	

Most Costly Diagnoses

Because of the variations in recording of diagnosis, and the vagaries of recording time and completed episodes, it was not possible to derive convincing information across sites about the most costly occupational therapy diagnoses to treat. The five most common diagnoses to treat are listed, as best as possible, in Table 7.5.

Table 7.5: The five highest consuming diagnoses of time, within a completed episode of care, per hospital

	M1	M2	M3	C1
1	Reflex Sympathetic Dystrophy	Learning difficulties	Cardiovascular disorders	Low birth weight
2	Fractures. multiple trauma	Coordination disorder	Malignancy	Wrist problems
3	Joint replacement, finger joints	Rheumatoid arthritis	Mmental disorders	*no further data*
4	Joint replacement, upper limb	Closed fracture carpal	Musculoskeletal disorders	
5	Dupuytren's contracture	Tenosynovitis	Neurological disorders	
	M4	**M5**	**C2**	**C3**
1	Mastectomy	Unspecified	Specific learning disability	*too little data to be meaningful*
2	*no further data*	Developmental delay	*no further data*	
3		Fine motor control		
4		Learning difficulties		
5		*no other ranking possible*		

Physiotherapy

Six of the eight Physiotherapy services in the project were not recording diagnosis, as clinicians considered that there was no appropriate mechanism for doing so. The two services that did record diagnosis used selected ICD-9-CM codes for selected patient groups. One of these services withdrew from the project within the first two months of the project, and the ICD-based data were therefore too few to use. A diagnosis code list was developed by the project team for remaining Physiotherapy services, to be used on manual discharge summaries. It was used by five of the sites, four that previously did not record diagnosis, and one site that used selective ICD codes for selected patient groups. The coding broadly classified diagnosis by condition type and by body part, allowing further exploration of musculoskeletal conditions. Standardisation in coding therefore enabled identification of similarities across sites in both condition type and body part. However, clinician feedback indicated the considerable weaknesses of this coding system, highlighting presentations of patients that could not be recorded, such as chronic pain patients. Therefore the information presented for Physiotherapy in this report is only indicative of the range of diagnoses that present to Physiotherapy outpatient services.

The Most Frequently Reported Diagnoses

Condition Type

Musculoskeletal conditions were the most commonly reported, with site specific variations in the chronicity and nature of the presentation. The frequency of diagnoses is reported in Table 7.6.

Table 7.6: The five most common physiotherapy conditions

	M1	M2	C1	M4	C3
1	MS acute soft tissue problem	MS acute soft tissue problem	MS soft tissue problem	Cardiovascular	MS chronic deg
2	MS chronic degenerative problem	MS chronic deg	MS chronic deg	MS acute soft tissue	MS acute soft tissue problem
3	MS fracture	MS acute deg.	MS fracture	MS nonspecific	MS acute degenerative
4	MS acute degenerative problem	MS fracture	MS acute degenerative problem	Genito-urinary	MS non specific
5	Neurological	Musculoskel, nonspecific	Musculoskeletal, nonspecific	Respiratory	Neurological

Body Parts Associated with Musculoskeltal Conditions

There were commonalities across sites in the body parts most commonly treated, with spinal conditions being reported most often. The body parts most frequently treated are reported in Table 7.7.

Table 7.7: The five most common body parts reported

	M1	M2	C1	M4	C3
1	Wrist	Lumbar spine	Knee	Hand/ fingers	Lumbar spine
2	Knee	Knee	Lumbar spine	Lumbar spine	Multiple sites
3	Shoulder	Shoulder	Cervical spine	Cervical spine	Cervical spine
4	Lumbar spine	Neck	Shoulder	Shoulder	Knee/ thigh
5	Multiple sites	Ankle	Hand	Ankle	Shoulder
				Knee	

The Most Costly Diagnosis

The cost of treatment was determined on the mix of conditions and body parts, in order to identify whether particular body parts and severity of musculoskeletal conditions were potential cost drivers. The neck and shoulder were commonly identified as high cost body parts, as was the treatment of multiple sites. The highest cost conditions/ body parts are listed per hospital site in Table 7.8.

Table 7.8: The five highest consuming diagnoses of time, within a completed episode of care, per hospital

	M1	M2	C1	M4	C3
1	Cystic fibrosis	Whole spine	Whole spine	Lower limb	Shoulder
2	Lumbar spine	Multiple sites	Shoulder	Shoulder	Multiple sites
3	Neck	Lymphodema, upper limb	Lumbar spine	Ankle	Forearm
4	Neck /shoulder	Ankle	Hip	Lumbar spine	Whole spine
5	Hip	Hand	Hand	Cervical spine	Hip

Speech Pathology Diagnoses

Coded Speech Pathology diagnoses were being employed in five of the hospital sites. Based on these commonalities, a coding system was subsequently developed by the Project team for use in the remaining three sites, using a manual discharge summary. The types of conditions treated by Speech Pathologists were described by condition type, severity, symptoms/ presentation, age-relationship, procedure and causal agencies. These seemed to relate to the core business of Speech Pathology services which included assessment, screening, undertaking diagnostic procedures and providing care-based patient management. Given the

current state of development of diagnosis descriptors by Speech Pathologists, definition of common diagnosis codes could be undertaken with little further effort.

The most Commonly Reported Diagnosis Codes

There were marked commonalities in the most frequently treated conditions across sites. These are reported per hospital in Table 7.9.

Table 7.9: The five most common speech pathology diagnoses

	M1	M2	M3	C1
1	Dysphonia	Language disorder develpmt	Voice problems	Speech disorder, articulation
2	Dysphasia	Dysfluency cluttering	Oral surgery	Speech delay, articulation
3	Dysfluency	Phonetic speech disorder	Dysphasia	Dysfluency
4	Assessment only	Language delay developmental	Tracheostomy	Dysphonia
5	Total laryngectomy	Speech delay, phonetic delay	Cough	Reading disorder/ developmental
				Velopharyngeal dis.
	M4	**M5**	**C2**	**C3**
1	Not at risk	Otitis media	Language delay	speech delay
2	Dysphonia / voice disorder	No medical condition	Phonological delay	language delay, developmental
3	*no further ranking possible*	Autism	Dysphonia/ Voice disorder	language & speech delay
4		Asthma	Phonological Disorder	Dysphasia/ aphasia
5		*no further ranking possible*	Articulation Disorder	speech disorder

The most Costly Diagnosis

There were marked differences across the sites in the most costly conditions treated, which possibly indicates specific expertise available in some sites for specific conditions. The most costly diagnoses are reported in Table 7.10.

Table: 7.10: The five highest consuming diagnoses of time, within a completed episode of care, per hospital

	M1	M2	M3	C1
1	Total laryngectomy	*no information on time*	Dysphasia	*too little*
2	Dysphasia	*or costs*	Tracheostomy	*information to*
3	Organic disorder, head and neck		Oral surgery	*be meaningful*
4	Assessment only		Voice problems	
5	Fluency		Cough	
	M4	**M5**	**C2**	**C3**
1	No apparent disorder	Asthma	Phonological delay	Reading disorder
2	*no further*	Otitis media	Articulation disorder	*no other*
3	*information*	No medical condition	Within normal limits	*rankings*
4		Autism	Dysphonia	*possible*
5		Tongue tie	*no other rankings*	

Podiatry Diagnoses

Only one Podiatry service was using standard diagnosis codes prior to the project. With the help of participating clinicians, the project team developed a set of diagnosis codes which were implemented in all other sites for the purpose of the project. The development of these codes identified that standard Podiatry diagnoses could be developed with little more effort. Podiatry diagnoses described procedures, symptoms / presentations and conditions and appeared to be closely related to the core business of Podiatry, that is assessment, health promotion, counselling, prescription and treatment.

Common Diagnosis

The management of diabetes and routine treatment appear commonly in this list across sites. The most frequently treated diagnoses are listed in Table 7.11.

Table 7.11: The five most common podiatry diagnoses

	M1	M2	M3	M4	C2
1	Biomechanical abnormality	Diabetes education	Routine palliative, at risk diabetic	Biomechanical Abnormality	Routine treatment
2	Diabetes education	Biomechanical abnormality	Routine palliative, diabetic	Footwear Advice	Biomechanical examination
3	Lesion debridement	Nail treatment	Ulcer, infection, at risk diabetic	*no further rankings*	Orthotic fabrication
4	Nail treatment	Lesion debridement	No problem	*possible*	Verrucae Pedis
5	Neuroma	Diabetic foot problems	No problem diabetic		Diabetic assessment

Most Costly Diagnosis

Diabetic conditions and biomechanical problems were the most costly to treat across sites. The list of the most common diagnoses is reported in Table 7.12.

Table 7.12: The five highest consuming diagnoses of time, within a completed episode of care, per hospital

	M1	M2	M3	M4	C2
1	IGTN - surgical	Diabetic foot complications	Routine palliative	*no time-based data available*	Biomechanical examination
2	Multiple biomechanical abnormalities	Fungal infection	Ulcer, infection, diabetic		Verrucae pedis
3	Foot pain	Neuroma	Ulcer, infection, at risk diabetic		Routine treatment
4	Bony abnormalities	Metatarsalgia	Biomechanical problems, diabetic		Diabetic assessment
5	Plantar fasciitis	IGTH - surgical	No problems, diabetic		Orthotic frabrication

Neuropsychology

Neuropsychology services were only supplied in one site. This site used a set of diagnosis codes that was in an evolutionary phase, and currently involved some overlap of condition types. The diagnosis descriptors comprised medical condition, nature of condition, causal agencies and symptom/presentation. They did not reflect the core business of the Neuropsychology service, that of assessment and reporting. The most commonly treated conditions are listed in Table 7.13, and the most costly to manage in Table 7.14.

Table 7.13: The most commonly treated conditions

1. Closed head injuries
2. Dementia
3. Carbon Monoxide Poisoning
4. Subarachnoid haemorrhage
5. Multiple Sclerosis

Table 7.14: The five highest consuming diagnoses of time

1. Carbon monoxide poisoning
2. Closed head injury
3. Epilepsy
4. Depression
5. Hypoxic Brain damage

Social Work

There was little comparable information on Social Work diagnoses, as no standard coding was in place in any one of the hospital sites. Text responses to the question of diagnosis involved lengthy descriptions of causal agencies, symptoms/ presentation, the type of service provided and the anticipated outcome. However, the information provided was strongly linked with the core business of Social Work services, counselling, advocacy and organisation. In order to provide summary information for this report, these responses were abbreviated where possible and like responses were amalgamated. Moreover, while Social Work services were participating in six sites, data from two of the sites were so few that the project could provide little meaningful information on service delivery. The most common diagnoses are listed in Table 7.15, where there was some commonality observed across sites. Despite the variety in Social Work diagnoses, it seems that services are provided under similar broad categories, suggesting that standard Social Work diagnostic categories could be developed without considerable effort. Time per occasion of service was not routinely provided in all instances, therefore it was difficult to develop an accurate picture of the cost of Social Work services per diagnosis.

Table 7.15: Common Diagnosis

	M2	M3	M4	M5
1	Emotional problems	Relationship problems	Treatment related counselling	Pregnancy related
2	*no further*	Stress related	Relationship counselling	Treatment related
3	*information*	Poor anger management	Accommodation	*no further information*
4	*available*	*no further information*	Disease counselling	*available*
5		*available*	Psycho-social issues	

Table 7.16: The five highest consuming diagnoses of time, within a completed episode of care, per hospital

	M2	M3	M4	M5
1	*no further*	Stress related	Accommodation	Pregnancy related
2	*information*	Relationship problems	Relationship counselling	*no further information available*
3	*available*	Poor anger management	*no further rankings*	
4		*no further information available*	*possible*	
5				

Orthotics

Orthotics information was supplied by two sites, but only one hospital provided sufficient data to be meaningful. Orthotics diagnoses described the condition for which assistance was being sought, the body part and causal agencies of the condition. The diagnoses bore little relationship with the core business of orthotics, that is, the prescription, manufacture and fitting of devices to assist activities of daily living. The most frequently treated conditions are listed in Table 7.17 and the most costly diagnoses are listed in Table 7.18. There was little difference between diagnoses as similar amounts of time were spent on all.

Table 7.17: The five most common orthotics diagnoses

1	Neurological arm, hand	**4**	Foot, other
2	Polio, trunk	**5**	Ligament/tendon knee
3	Neurological, below knee		

Table 7.18: The highest consuming diagnoses of time

1	neurological, below knee	**4**	fracture, cervical/ head
2	ligament/tendon, arm/ hand		arthritis, trunk
3	fracture, arm/ hand		foot wear modifications

Key Points

1. There were no common methods of classifying diagnosis across sites or across services.
2. Descriptors of diagnosis included a variety of features, including:

- the underlying medical condition
  - the nature of the problem
  - causal agencies
  - influence of external factors, such as age
  - the body part(s) affected
  - severity of condition
  - chronicity of condition
  - the presenting symptom(s), or the reason(s) for seeking help from the allied health practitioner
  - where more than one problem was presented
  - where there were multiple sites involved.

3. The services where common diagnosis classifications appear to be most achievable in the short term are Audiology, Speech Pathology, Podiatry and (Clinical) Nutrition and Dietetics. These services record diagnoses in a manner that reflects the core business of the service, and moreover, they also deal with well defined systems and / or conditions.
4. It appears that Social Work services, while currently lacking standard diagnosis / reason for intervention codes across sites, could develop common coding with little further effort, by defining the core business of the service and matching patient presentations to these.
5. For the remaining services of Occupational Therapy, Physiotherapy, Orthotics and Prosthetics, and Neuropsychology, further work is required to define the important components of diagnosis, before common methods of recording can be achieved. These discussions need to be undertaken with a clear view of the importance of specific elements of diagnosis, and of the need to record diagnosis (i.e. for costing purposes, quality management and benchmarking).

CHAPTER EIGHT

A survey of South Australian Medical Practitioners

This chapter reports on a survey of South Australian general medical practitioners, and Royal Adelaide Hospital medical outpatient staff, regarding access to, and availability of, allied health outpatient services at the Royal Adelaide Hospital

Introduction

This chapter reports on knowledge and practices of community-based general medical practitioners, and Royal Adelaide Hospital medical outpatient staff, when referring patients to allied health outpatient services at the Royal Adelaide Hospital. This hospital was chosen for this investigation as it was the primary site of the allied health Ambulatory Care Reform grant. Moreover, funding and time constraints limited this investigation to the one site. The Royal Adelaide Hospital is an inner city public hospital in Adelaide.

Clinical Allied Health Services of Interest

The clinical allied health services at the Royal Adelaide Hospital that were investigated in this survey were Physiotherapy, Occupational Therapy, Speech Pathology, Audiology, Clinical Nutrition and Dietetics, and Neuropsychology. These services were available to patients with a referral from within the hospital system (that is, from hospital wards and from the outpatient clinics). Data from the pilot study indicated that average waiting time between referral and treatment for these services was eight days.

General Medical Practitioners in the community

This section reports on the survey of general medical practitioners.

Method

Selection of General Practitioner Participants

620 general medical practitioners were surveyed during January, February and March 1996. Their names were drawn from the yellow pages suburb listings of general practitioners in the 08, 085, 086, 087 and 088 telephone books. Practitioners from the 08 telephone listings were randomly selected, where possible, on a 1:10 basis. Strict random selection was not possible where:

- there were multiple listings for the one practice (that is, the one practice was listed in different suburbs)
- there were less than ten practices listed in a suburb
- there were multiple doctors per practice, but the doctors' names were not listed.

All medical practitioners listed in the telephone areas of 085, 086, 087, 088 were surveyed because of the small numbers in all country areas.

Survey Approach

The original plan of a telephone survey was revised after a disappointing response from the first 20 doctors approached. In the first approach, letters introducing the survey were sent to the randomly chosen medical practitioners. They were followed two days later with a telephone call to the receptionist, to make a formal appointment to speak with the doctor. This approach failed because:

- doctors took a variable amount of time to read their mail (often more than one week);
- receptionists did not pass on the letter to doctors, and/ or
- it was difficult to make a time to speak with the doctor because receptionists were unwilling to make an appointment.

Following suggestions made by the project Reference Group, the survey was conducted by mail. The mailout included:

- a letter of introduction;

- a ‘tick box’ questionnaire, and
- a stamped, self addressed envelope.

Responses were anonymous. The letter of invitation and the questionnaire is included as Appendix 8.

Multiple Response Questions

Reasons for Referral to Allied Health Services

Categories of responses regarding reasons for referral to allied health outpatient services were supplied in the questionnaire. These categories were developed during preliminary discussions for the project. The categories were:

a. because of a unique and/ or specialist service
b. for continuity of care
c. because service was free
d. because it was the closest place for treatment
e. because the patient will be seen quickly
f. other

Access to, and Availability of, Allied Health Service at the Royal Adelaide Hospital

This question was open ended, as it sought to define medical practitioner perceptions of barriers to access to, and availability of, allied health outpatient services at the Royal Adelaide Hospital. For ease of analysis and reporting, the responses were collated by like themes into five broad categories:

1. Not enough knowledge (by GP) of the available services
2. Restricted access by patients to services
3. Inability of the GP to refer directly
4. Long waiting times for first appointment
5. Not the most appropriate local health service

Findings

The results are reported for each telephone area in order to identify geographical differences. In general the general medical practitioners text responses to the open ended questions included frank comments regarding access to, and availability of, services, making it clear that improvements were required by, and important to, respondents.

The Metropolitan General Practitioners (08 telephone area)

Familiarity with allied health outpatient services at the Royal Adelaide Hospital

Replies were received from 48.8% *(n=171)* of the 350 general medical practitioners surveyed in the 08 telephone listings (the Adelaide metropolitan area). Respondents comprised 69.6% men and 29.4% women. The average number of years since graduation of the respondents was 20.7 years (Standard Deviation 9.6 years). The post code locations of the metropolitan respondents are mapped in Appendix 8.

Physiotherapy was the service with which general practitioners were most familiar, and Audiology and Psychology were the services with which general practitioners were least familiar. The percentage of metropolitan general practitioners who were familiar with each allied health service is graphed in Figure 8.1.

The key to the allied health outpatient services investigated in this survey is PT (physiotherapy), OT (Occupational Therapy), CN & D (Clinical Nutrition and Dietetics), SP (Speech Pathology), Aud (Audiology) and Psych (Psychology).

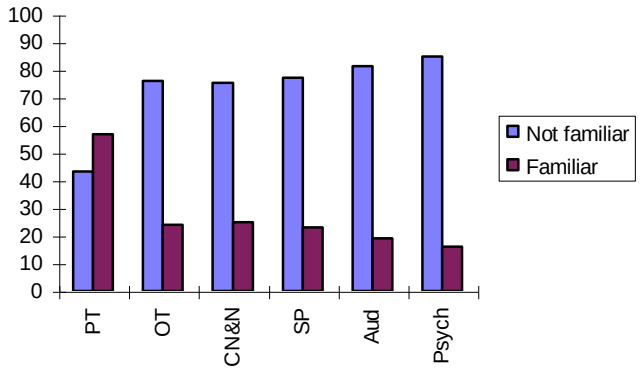

Figure 8.1: Percentage familiarity with clinical allied health outpatient services.

Further knowledge required of allied health outpatient services

The respondents were asked to nominate the services about which they required further information. As may be anticipated from the previous question, the outpatient services about which respondents required more information were Audiology and Psychology, followed closely by Clinical Nutrition and Dietetics. The percentage responses are illustrated in Figure 8.2, where the same key as for Figure 1 is used.

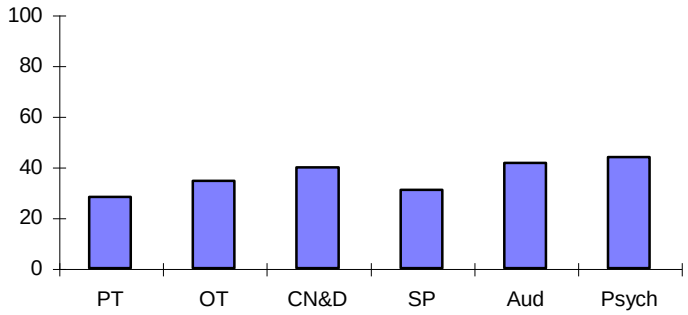

Figure 8.2: Percentage of metropolitan respondents who wanted to know more about each allied health outpatient service

Referral patterns

There was a clear pattern of general medical practitioner referral to the six clinical allied health outpatient services within the twelve months prior to the survey. This indicated that physiotherapy was the service which received the most referrals, and therefore it was supported it as the service about which the most was known. This question did not reflect the volume of referrals from the one general practitioner, rather whether general medical practitioners had ever referred to a service within the time period. The percentage responses are illustrated in Figure 8.3.

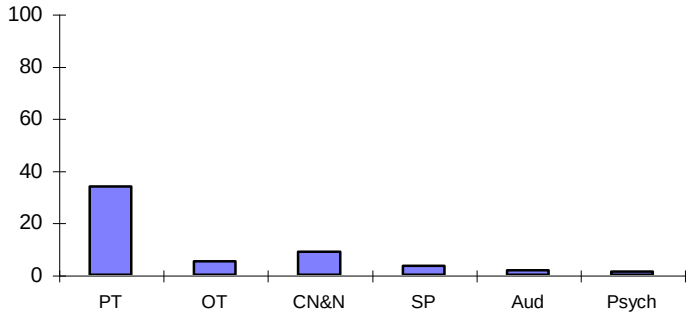

Figure 8.3: The percentage of metropolitan respondents who referred to each allied health service in the last 12 months.

Reasons for referring to Royal Adelaide Hospital allied health outpatient services

Respondents were asked why they had referred patients to allied health outpatient services at the Royal Adelaide Hospital. Specific responses were supplied (see Section 8.2.3.1), and the frequency with which these responses were reported is graphed in Figure 8.4. Availability of a

free service was the most frequently reported reason. The responses gathered from the 'other category' consisted of:

'at patients and/ or specialist's request' (n=2); and

'because of good communication' (n=2).

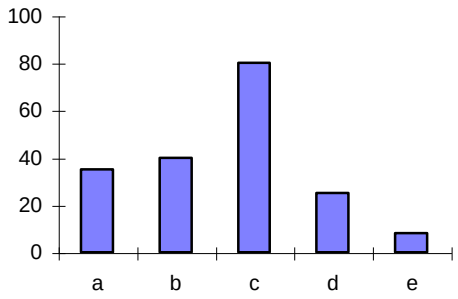

Figure 8.4: Percentage of respondents reporting specific reasons for referring to allied health outpatient services at the Royal Adelaide Hospital (refer to 8.2.3.1 for the key)..

Availability of, and access to, allied health outpatient services

20.1% of respondents reported that on at least one occasion in the last twelve months, their patients had been refused access to allied health outpatient services. Reasons describing why patients were refused access to allied health outpatient services at the Royal Adelaide Hospital are graphed in Figure 8.5.

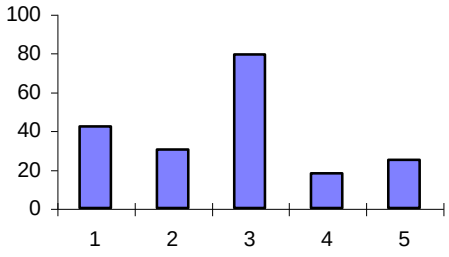

Figure 8.5: The percentage of responses detailing reasons for refusal to RAH allied health outpatient services, for patients of metropolitan GP's.

In an attempt to further investigate referral patterns, the number of years since graduation of the referrers to each service was examined. There were no significant differences overall in years since graduation, indicating that the more recently trained general practitioners did not refer more frequently than longer trained general practitioners. The results are graphed in Figure 8.6.

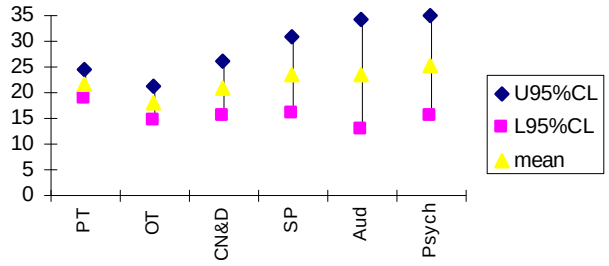

Figure 8.6: Average years since graduation (+/- 95% CL) of referrers to each allied health service

Respondents from the 085 Telephone Area

Replies were received from 51% of the 120 doctors surveyed in the 085 telephone listings. The gender of respondents was 86.8% male and 4.9% female. Two responses did not describe gender. The average years since graduation of the respondents was 19.4 years (Standard Deviation 9.4 years). The post code locations of the 085 telephone area respondents is reported in Appendix 8.3.

Familiarity with allied health outpatient services at the Royal Adelaide Hospital

As for the metropolitan referrers, Physiotherapy was the service with which general practitioners were most familiar. There was also a similar lack of familiarity with Clinical Nutrition, Speech Pathology, Audiology and Psychology. The results are illustrated in Figure 8.7, using the same key as Figure 8.1.

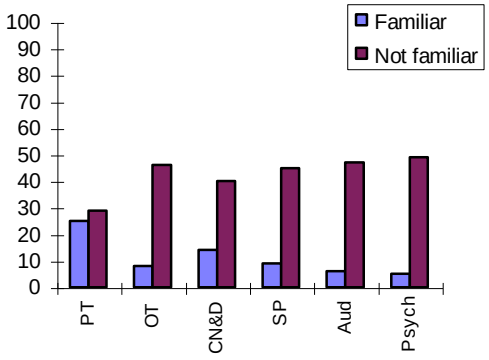

Figure 8.7: Familiarity with allied health outpatient services (085 telephone area).

Further knowledge requested about allied health outpatient services at the Royal Adelaide Hospital

Less than 10% of respondents wanted to know more about Physiotherapy, Occupational Therapy, Speech Pathology, Clinical Nutrition and Dietetics, and Audiology, however the service

about which respondents required more information was Psychology. The results are illustrated in Figure 8.8.

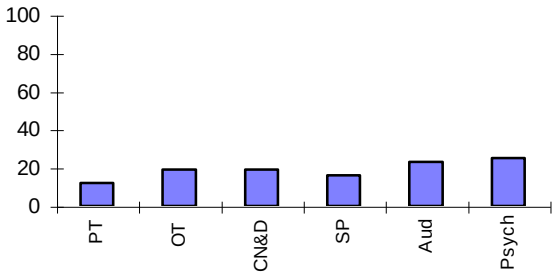

Figure 8.8: Percentage of respondents from the 085 telephone area who wanted to know more about Royal Adelaide Hospital outpatients allied health services.

Referral patterns

Less than 15% of the general medical practitioner respondents referred to any allied health outpatient service at the Royal Adelaide Hospital in the last 12 months. The service to receive the highest percentage of referrals was Physiotherapy. The percentage responses are illustrated in Figure 8.9.

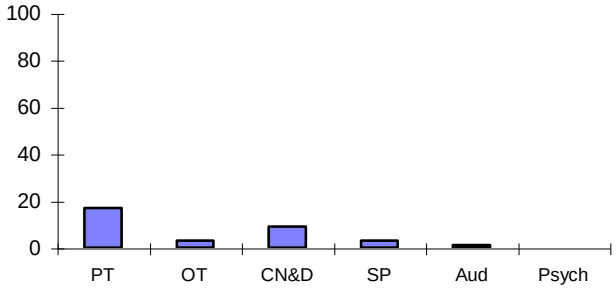

Figure 8.9: The percentage of respondents in the 085 telephone area who referred to allied health services at the Royal Adelaide Hospital in the preceding 12 months

Referral to individual allied health services at Royal Adelaide Hospital

There were 53 responses (86.8% respondents) to the question regarding referral of patients to allied health services, and none of these responses indicated that patients had been refused access to allied health services in the last twelve months. The percentage of respondents replying to the (supplied) reasons for referring patients to allied health services at the Royal Adelaide Hospital is graphed in Figure 8.10, where the key is the same as for Figure 8.4. Unlike their city counterparts, the most common response for referral to allied health outpatients services at the Royal Adelaide Hospital was '*because of a unique and/ or specialist service' (a)* Twelve respondents replied to the *'other'* category. Nine of these responses indicated that the

Royal Adelaide Hospital was not a convenient location for their patients, and three indicated that *'patients were referred on patients and/ or specialists' request' (d)*

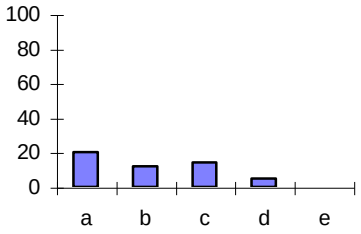

Figure 8.10: Frequency of reasons for referring patients to RAH allied health outpatient services (codes as for Figure 8.5).

There were fourteen responses to the question regarding access to, and availability of, allied health services at the Royal Adelaide Hospital. These responses were collated into common nature responses and the percentage responding to each common category is graphed in Figure 8.11. The main reason for not referring to the allied health services at Royal Adelaide Hospital was that: *'the service was not local'.*

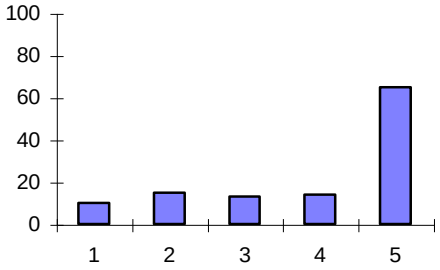

Figure 8.11: The percentage of responses regarding categories for non-referral to Royal Adelaide Hospital allied health outpatient services

Referral patterns

Because of the low number of referrals to allied health outpatient services at RAH from referrers in the 085 telephone area, differences between services in the mean number of years since graduation of referrers was not investigated.

Respondents from Remote Country Areas (086, 087, 088 telephone areas)

The responses from the remote country areas (telephone areas 086, 087, 088) were collated because of the comparatively similar (large) distances from Adelaide. The post code locations from which responses were received are mapped in Appendix 8.

Replies were received from:

- 30% of the 64 doctors surveyed in the 086 telephone listings;
- 15% of the 46 doctors surveyed in the 087 telephone area; and
- 17% of the 40 doctors surveyed in the 088 telephone area listings.

The gender and average time since graduation of the respondents from these areas are listed in Table 8.1.

Table 8.1: Gender proportions / mean years since graduation

Area code	Gender	Av. time since graduation
086	100% male	19.2 years (SD 8.7 years)
087	82% male 9% female, 9% unknown	25.5 years (SD 11.3 years)
088	86% male, 14% female	27.5 years (SD 11.7 years)

Familiarity with allied health outpatient services

Physiotherapy and Psychology outpatient services were the ones with which general practitioners in the 086 area were most familiar, and it was of note that there was a higher degree of familiarity with all allied health services in this region than in the 08 and 085 areas. There was, in particular, a similar level of familiarity with Physiotherapy, Occupational Therapy, Speech Pathology and Audiology in the 087 telephone area, this being lower than in the 086 area. Respondents in the 088 area were unfamiliar with all services. The results are illustrated in Figure 8.12.

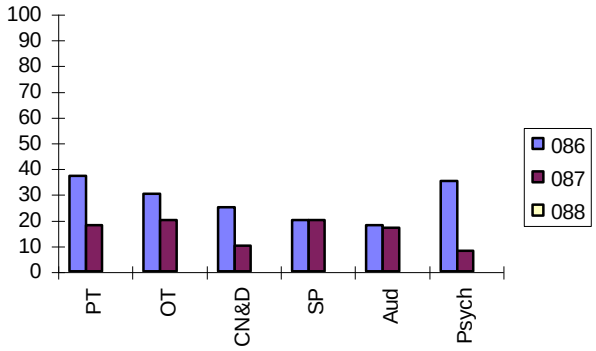

Figure 8.12: Percentage familiarity with allied health outpatient services at RAH (respondents in 086, 087, 088 telephone areas)

Further knowledge requested about allied health outpatient services

Not one respondent wanted to know more about Physiotherapy, but respondents in all areas required information about the remaining allied health services. The telephone areas consistently requiring the most information on allied health services were the 086 and the 087 areas. The service about which the most respondents from all areas required more information, was Psychology. These results are illustrated in Figure 8.13.

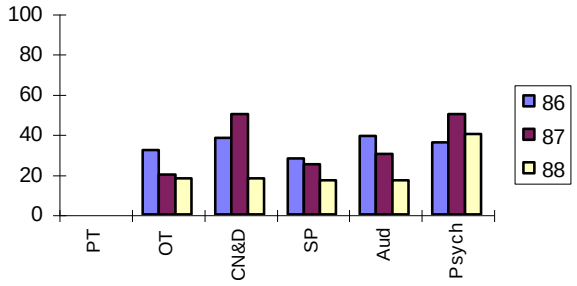

Figure 8.13: Percentage of respondents from the 086, 087 and 088 telephone areas who wanted to know more about outpatients allied health services

Referral patterns

The service to receive the highest number of referrals from all three areas was Physiotherapy, followed by Speech Pathology. The percent of referrals to each service are illustrated in Figure 8.14 for each telephone area.

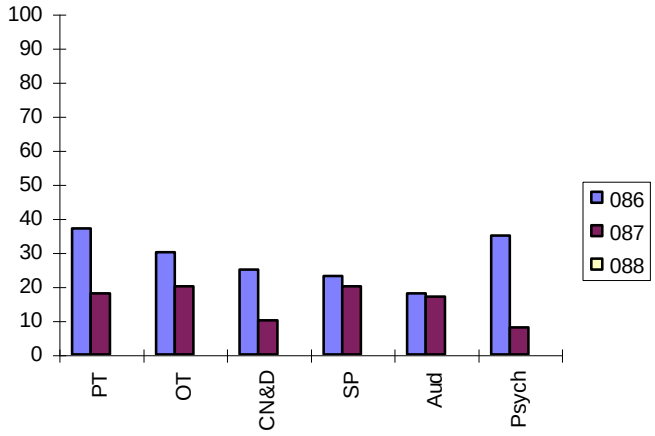

Figure 8.14: The percentage of respondents in the 086, 087, 088 telephone areas who referred to allied health services, RAH in the last 12 months

Referral to individual allied health services

There were 54 responses from the remote country locations to the question regarding referral to allied health services. One respondent each from the 087 and 088 areas reported that patients had been denied access to allied health outpatient services. Reasons for denial were listed as:

'the allied health service placing restrictions on the outpatients that were seen', and *'the long waiting list'*.

The percentage of respondents replying to the (proffered) reasons for referring patients to allied health services at the Royal Adelaide Hospital are graphed in Figure 8.15. Unlike their city counterparts, and their counterparts in the 085 area, the most common response for referral to allied health outpatients services at the RAH was for *'continuity of care following an inpatient stay at RAH'*. Four respondents replied to the *'other'* category, reporting that they referred *'because accommodation could be arranged for the length of the treatment'.* Six comments were also made regarding the difficulties that patients have, when they travel to the from the country for treatment.

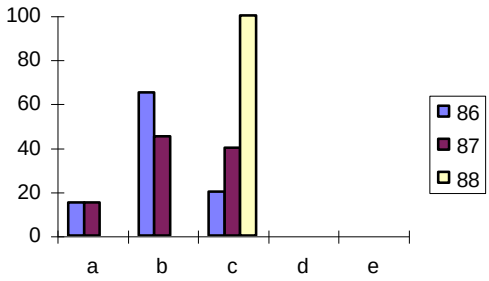

Figure 8.15: Percentage responses for referring patients to RAH allied health outpatient services

There were 14 responses to the questions regarding access to, and availability of, allied health services at RAH. These all related to the common nature responses for not referring patients to allied health services at the RAH (Figure 8.16). The main reason for not referring to the allied health services at RAH was that *'the service was not local'.*

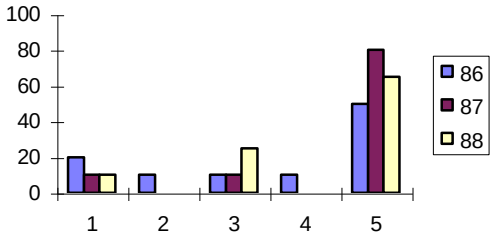

Figure 8.16: The percentage response regarding the main reasons for non-referral to RAH allied health outpatient services

Referral patterns

Because of the low number of referrals to allied health outpatient services at RAH, the question regarding mean number of years since graduation was not investigated

General practitioner findings: A discussion

This aspect of the survey provided an overview of the knowledge and referral practices of community-based general medical practitioners to the allied health outpatient services at the Royal Adelaide Hospital. The survey clearly indicated that, according to community general practitioners, there are concerns with the access to, and availability of, allied health services at the Royal Adelaide Hospital. The findings from this survey provide a basis for implementing strategies for improving communication between community general practitioners and the allied health outpatient services. Issues of concern should be monitored and changes made to them communicated to referrers. Improved knowledge regarding the allied health outpatient services will necessarily flow on to improved access and availability for patients.

The study sample represented approximately 50% of the general practitioners who were surveyed for this project. Given the spread of postcode locations of the respondents, this report fairly represents common feelings regarding access to, and availability of, RAH allied health outpatient services. The quality of responses from the general practitioners was high, and there were clear messages that the general practitioner respondents wished changes to be made in issues of access and availability to allied health services. The non-respondents in the sample were presumed to be those general practitioners who were happy with the services, those who were sufficiently unhappy with the services to not want to reply, and those who did not use the services.

Only a small percentage overall of the respondents to the survey had referred to the allied health outpatient services within the last twelve months. Two main reasons were proposed for this:

- the lack of knowledge of the average general practitioner of the nature and type of available allied health services
- the historical knowledge of the general practitioner regarding access to, and availability of, allied health services.

It is also possible that patients are attending allied health services without the knowledge of their general practitioners.

Actions that could reasonably follow the findings of this survey include the development of education material for community-based referrers, including clear descriptions of the nature of the services, average waiting times, types of referral accepted, possible constraints on accepting referrals and relevant contact personnel. The findings of this study pose questions for the Royal Adelaide Hospital management, and for the heads of the relevant allied health services within the hospital. Should communication with the general practitioners be improved, and accurate information be disseminated regarding access to, and availability of, allied health services, there remains the issue of whether there are sufficient staffing capacities and facilities within the departments to provide services to an (estimated) increase in referrals.

Royal Adelaide Hospital Outpatient Medical Staff

This section reports on the survey of outpatient medical staff at the Royal Adelaide Hospital.

This section reports on a survey of in-house (Royal Adelaide Hospital) outpatient medical practitioners' knowledge of, and referral to, the clinical allied health outpatient services of Physiotherapy, Occupational Therapy, Speech Pathology, Clinical Nutrition and Dietetics, Podiatry, Audiology and Neuropsychology.

Method

Subjects

The outpatient medical staff in the seven major divisions of outpatient services at the Royal Adelaide Hospital included consultants, registrars and residents. The number of medical staff in each division who were expected to be in attendance on the day of survey in May 1996, was determined before-hand, by making telephone contact with the clerical officers responsible for each division. Ninety-eight (98) questionnaires, corresponding to the number of medical staff in attendance on the day of survey, was provided to the divisions.

The Survey Instrument

The questionnaire that was developed to survey the general practitioners was re - worded to reflect the different study sample. As for the general practitioners, a letter was attached to each questionnaire, explaining the reason for the survey and providing instructions for its completion and return. The letter of instruction and the questionnaire are provided in Appendix 8. Attached to each questionnaire was a return envelope which was placed into the internal mail by the respondent, upon completion of the questionnaire.

Findings

Divisional Responses

Overall, 59 of the 98 questionnaires were returned (60.2% response). However, as four of the questionnaires were left blank, the actual percentage of completed questionnaires was 56.1%. The number of questionnaires supplied per division, and the number of responses per division are listed in Table 8.2. The four blank questionnaires were retained in the results presented in this section, but are not included in subsequent analysis. The origin of the four blank responses was not identified in order to preserve anonymity. The percentage response per division varied from 42.8% to 100%.

Table 8.2: Responses per divisional medical staff

Division	Number of questionnaires	Respondents	% response
Cardiovascular	3	3	100%
Orthopaedic / Trauma	10	7	70%
Surgical Specialty	17	9	52.9%
Gastro-Intestinal	10	10	100%
Cancer service	40	20	50%
Internal Medicine	14	6	42.8%
Women's' Health	4	4	100%
Total	**98**	**59**	**60.2%**

Clinic Responses

Twenty-six clinics were represented in the 55 completed responses, and the number of completed responses per clinic are listed in Table 8.3.

Table 8.3: The number of completed responses per clinic

Allergy	1	Ophthalmology	1
Breast	2	Orthopaedics	2
Cardiology	3	Osteoporosis	1
Colorectal	4	Palliative Care	2
Colposcopy	1	Pancreatic Surgery	1
Dermatology	2	Plastics	1
Endocrine	1	Radiation oncology	6
Ear, Nose and Throat	1	Radiology	1
Gynaecology	3	Radiotherapy	3
Haematology	5	Rheumatology	1
Medical Oncology	2	Surgical Specialty	2
Medical a,b,c	3	Surgical a,b,c,d	4
Neurosurgery	1	Thyroid	1

Staff Position of Respondent

The percentage response per medical staff position was notably uneven, with the consultants responding far more frequently than registrars or residents. Of the 55 completed forms, there was one missing response to this question. The percentage response is illustrated in Figure 8.17.

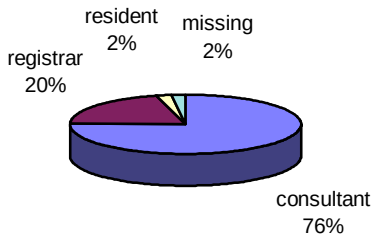

Figure 8.17: The percentage response per staff position of respondents

Gender Distribution of Respondents

Of the 55 completed responses, two were missing information on gender. Male medical staff were far more commonly represented than women medical staff. The gender distribution is illustrated in Figure 8.18.

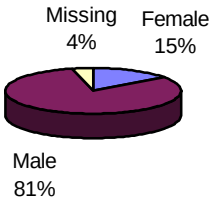

Figure 8.18: The gender distribution of respondents

Years Since Graduation

Overall, the mean number of years since graduation was 19.3 (Standard Deviation 12.25 years). Using a one tailed *t*-test procedure that took account of unequal variance in the two samples (because of the differences in numbers of men and women), no gender differences were found in the mean number of years since graduation. The findings are reported in Table 8.4.

Table 8.4: The output of a one-tailed *t*-test procedure

	Female	Male
Mean	19.28571	19.30233
Variance	95.2381	161.3588
Observations	8	44
p value of *t* statistic	0.498449	

Familiarity with Allied Health Services

Respondents were most familiar with Physiotherapy services (89% of the total). They were equally unfamiliar with Audiology and Psychology services (22% of the total). In descending order of familiarity were, Clinical Nutrition and Dietetics (65%), Occupational Therapy (58%), Podiatry and Speech Pathology (54%). There was not enough information to group respondents by clinic to determine if the rate of familiarity was linked to the clinic / division type of outpatient medical service.

Required more Information

The Psychology service was the one about which most respondents required more information (*n*=10), followed by Occupational Therapy (*n*=8), Podiatry (*n*=7), Clinical Nutrition and Dietetics (*n*=5), Physiotherapy and Speech Pathology (*n*=3 in each case) and Audiology (*n*=2).

Frequency of Referral within the last Twelve Months

Physiotherapy was the service to which the highest number of respondents had referred within the last twelve months (74%), and Audiology was the service to which the least number of respondents had referred (18%). In descending order of percentage referral, were Clinical Nutrition and Dietetics, Speech Pathology, Occupational Therapy, Psychology and Podiatry. The percentage referral per respondents is illustrated in Figure 8.19, the key being the same as for Figure 8.1.

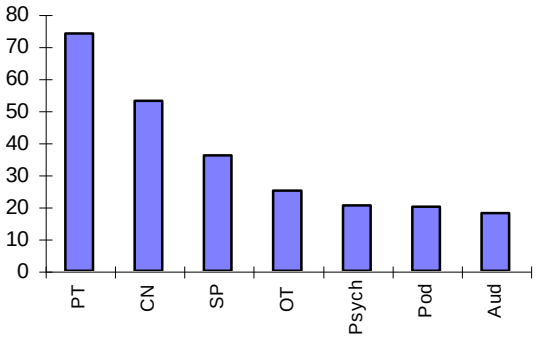

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Figure 8.19: The frequency of referral to the allied health outpatient services within the previous twelve months

The Relationship between Years since Graduation and Referral to Services

As was reported in the previous section, the number of respondents who referred to the allied health services differed between services. While for Physiotherapy, Clinical Nutrition and Dietetics, Speech Pathology, Audiology, Podiatry and Psychology, the mean number of years since graduation was similar, the low number of respondents is reflected in the width of the confidence limits, illustrated in Figure 8.20. However, it would appear that the referrers to Occupational Therapy services had markedly fewer years since graduation than referrers to most other services, particularly Physiotherapy. It could perhaps be postulated that younger graduates were more exposed to information regarding Occupational Therapy services, therefore being more familiar with them and more likely to refer.

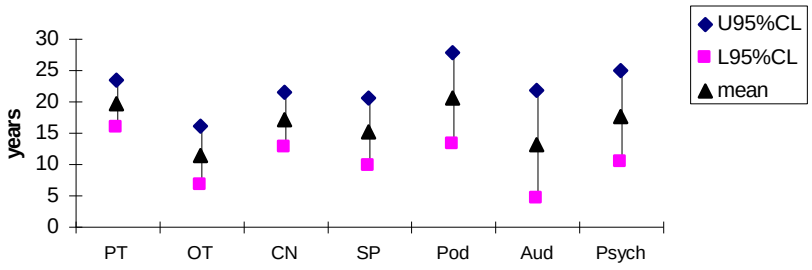

Figure 8.20: The mean number of years since graduation and the 95% Confidence Limits, for the referrers to each allied health service

Clinics from which Referrals were Generated

The clinics, from which the respondents replied, were used as an indicator of the point of origin of referral to the allied health services. Had there been a greater response from residents however, the clinics may not have provided an accurate indication of the point of referral, because in a twelve month period, residents rotate through hospital divisions. Nevertheless, as the majority response to the survey came from consultants, the clinics from whence the response to the questionnaire came, were considered to be the point of referral and an indicator of varied nature of patients who were referred to clinical allied health outpatient services. The outpatient clinics from which referrals to the allied health services were generated, are listed in Table 8.5.

Table 8.5: The clinics from which the referrals were generated

Physiotherapy	Occupational Therapy	Clinical Nutrition	Speech Pathology	Podiatry	Audiology	Psychology
		Allergy		Allergy		
Breast	Breast	Breast				
Cardiology		Cardiology		Cardiology		
Colorectal		Colorectal				
Colposcopy						
Dermatology						
Endocrine		Endocrine		Endocrine		
ENT			ENT		ENT	
Gynaecology		Gynaecology				
Haematology		Haematology			Haematology	
Medical Clinics	Medical Clinics	Medical Clinics	Medical Clinics	Medical Clinics		Medical Clinics
Medical Oncology		Medical Oncology				Medical Oncology
						Neurosurgery
Orthopaedics	Orthopaedics					
	Osteoporosis		Osteoporosis			Osteoporosis
Palliative Care						
Pancreatic Surgery		Pancreatic Surgery		Pancreatic Surgery		
Plastics	Plastics	Plastics	Plastics	Plastics		Plastics
Radiation Oncology		Radiation Oncology	Radiation Oncology		Radiation Oncology	Radiation Oncology
Radiology	Radiology	Radiology	Radiology		Radiology	
Radiotherapy		Radio-therapy	Radio-therapy			Radiotherapy
Rheumatology	Rheumatology			Rheumatology		
Surgical Clinics	Surgical Clinics	Surgical Clinics	Surgical Clinics	Surgical Clinics	Surgical Clinics	
Surgical specialty	Surgical specialty	Surgical specialty	Surgical specialty			
Thyroid			Thyroid			

Referral to Allied Health Outpatient Services at RAH

Multiple answers were accepted to this question, and each reason for referral was treated independently. The most commonly reported reason for referring patients to the allied health outpatient clinics at the Royal Adelaide Hospital was for continuity of care (78% of the respondents). 47% of respondents reported referring patients because of unique or specialist services, while there were equal numbers (22%) referring for reasons of free service and the closest place for the patient to access treatment. Seven per cent referred because they felt the patient would be seen quickly. Six other reasons were proffered by individual respondents for referring to the RAH allied health outpatient services, and these are quoted verbatim:

1. *Patients trust service*
2. *Because in-hospital communication is reliable*
3. *The services are available and convenient whilst patients are having treatment in our department.*
4. *Continuing ongoing multidisciplinary care*
5. *Excellent quality of service*
6. *Because of the hospital's important training / teaching role*

Access to Allied Health Outpatient Services within the last Twelve Months

Seven respondents indicated that their patients had been denied access to Royal Adelaide Hospital allied health outpatient services within the past twelve months. The reasons proffered for denial of services are provided below, and quoted verbatim:

1. *Lack of resources in speech pathology.*
2. *Outpatient physiotherapy discourage insured patients.*
3. *Dietitians won't see overweight people. They say there is insufficient staff to provide the service*
4. *Too long to wait so the patient went elsewhere*
5. *Podiatry appear to prefer to concentrate on diabetics*

Twenty-one respondents (38%) reported that none of their patients had been denied services within the last twelve months, and twenty-two respondents (40%) did not know whether or not services had been denied to their patients.

Further Services Required

Free text comments were elicited from respondents regarding additional clinical allied health services. Comments about current services were also requested. For each question, the comments were divided by key words into themes.

1. Additional allied health services required

There were nine suggestions regarding additional services. Three clear themes were identified, and then ranked according to the number of responses in each:

I. Increasing the availability of services and/ or staff numbers (five comments)

II. The provision of specific services (two comments) and Improvements to the delivery of services (two comments).

III. Comments on current services

2. Currently available services

Sixteen respondents commented on currently available services. Five clear themes were identified and ranked by the number of responses in each.

I. Lack of information about services (six comments)

II. Waiting times (three comments)

III. Quality of services (three comments).

IV. Lack of services (two comments) and,

V. Community interface (two comments)

RAH Outpatient medical staff: A discussion

The response to this survey should be encouraging to managers and staff of Royal Adelaide Hospital allied health outpatient services, as 56% of medical staff in the outpatient clinics on the day of survey took the time to complete the survey form and return it. The responses came from a cross-section of clinics within the outpatient divisions. The high number of consultants who responded was of interest, as was the poor response from registrars and residents. The lack of response from these medical staff perhaps indicates the time constraints within the clinics on the day of survey, or their lack of familiarity with, interest in, or usual referral to, the clinical allied health outpatient services available at the hospital. It may also reflect the nature of the clinic in which they were working, as a number of respondents reported that the survey

was irrelevant to them as the allied health outpatient services had nothing to offer their particular clinical area. A clinic from whence this comment came was the ophthalmology clinic.

Comparison between findings: GP's and RAH staff

Response Rate

The percentage response of the Royal Adelaide medical staff was higher than that of the general practitioners. This was anticipated, given that referral to allied health services is required by hospital policy, from the RAH outpatient clinics. However, the responses from both in-house and community medical practitioners indicate strong interest in allied health outpatient services provided at the Royal Adelaide Hospital. The findings should act as a catalyst for allied health outpatient services to review service delivery and consider the needs of their customers. At the time of the general practitioner survey, Podiatry was not participating in the project, and therefore figures on general practitioner familiarity with this service were not available.

Years since Graduation

There were no differences between the Royal Adelaide Hospital (RAH) respondents and the metropolitan general practitioner respondents in the mean number of years since graduation:

- 19.3 years (SD 12.25 years) for RAH respondents
- 20.7 years (SD 9.6) years for general practitioner respondents).

There were similar proportions of men and women in the two samples.

Knowledge of Outpatient Allied Health Services

More RAH medical staff than the metropolitan general practitioner respondents had some knowledge of available allied health outpatient services. The percentage of respondents with knowledge of allied health services is graphed in Figure 8.21.

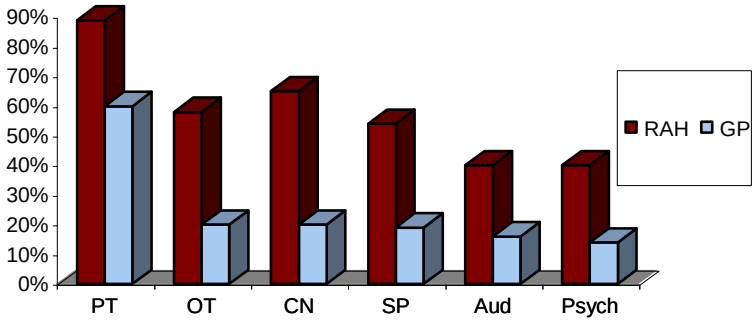

Figure 8.21: Comparison of percentage responses of RAH OP medical staff and general practitioners regarding outpatient allied health services

Desire for more Information on Services

Considerably fewer Royal Adelaide Hospital respondents than general practitioner respondents requested information on available RAH allied health services, suggesting that in-house referrers were more aware of services delivery than community referrers. A comparison of the percentage of RAH medical staff and general practitioners who required more information is provided in Figure 8.22.

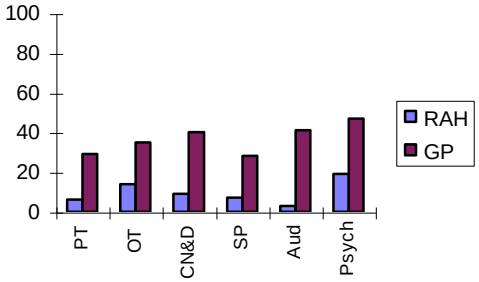

Figure 8.22: A comparison of the percentage of Royal Adelaide Hospital and general practitioner respondents who required more information about available allied health services

Referral to Services

It was of note that in-house referrals to the outpatient allied health services came from a wide cross-section of outpatient clinics. This perhaps was an indication that the services provided by the clinical allied health departments meet the needs of patients with a variety of condition

types. This finding should be encouraging to clinical allied health services, as it not only provides evidence of the importance of their place in the management of a wide cross-section of Royal Adelaide Hospital outpatients, but it also indicates that the medical staff in these areas recognise the input of allied health services in outpatient care.

The percentage of Royal Adelaide Hospital medical staff respondents who had referred to the clinical allied health services within the last twelve months was much higher than the percentage of general practitioner respondents, a finding that was not surprising in view of the hospital policy requiring in-house referral. Of interest however, were the similar trends in both samples of the percentage referral to the allied health clinics. Physiotherapy was the service most commonly referred to, and Audiology and Psychology were the services with least referrals. The trend in the samples in illustrated in Figure 8.23.

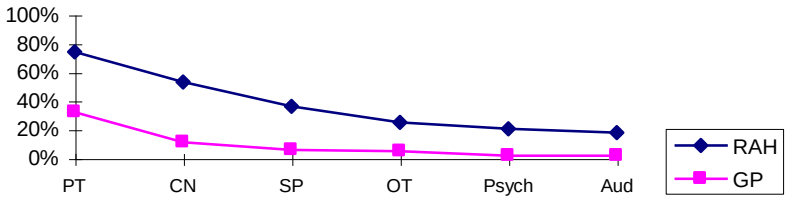

Figure 8.23: Trends in RAH medical staff and GP referral to RAH outpatient allied health services

Referring to Allied Health Outpatient Services

There were interesting differences between the samples in the reasons for referral to the outpatient allied health services. Metropolitan general practitioners referred mainly because the service was free, while Royal Adelaide Hospital medical staff referred mainly because of continuity of care. Continuity of care and unique / specialist services were also the main reasons for referral by rural and remote country general practitioners. A comparison of the reasons for referral between Royal Adelaide Hospital medical staff and metropolitan general practitioners is provided in Figure 8.24.

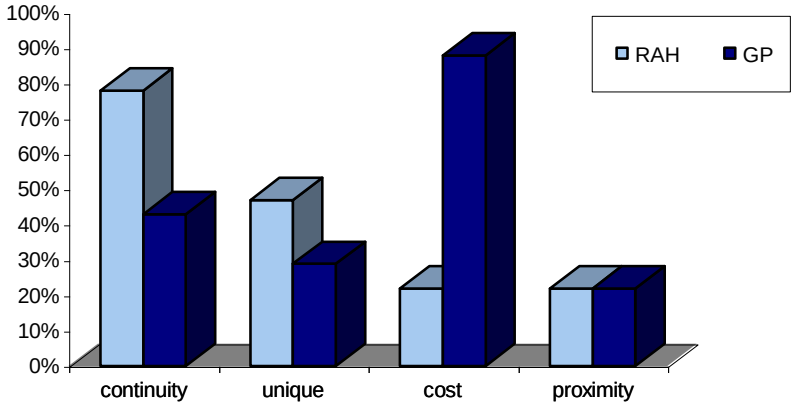

Figure 8.24: A comparison of the reasons why RAH medical staff and metropolitan general practitioners refer to clinical allied health outpatient services.

Moreover, a common comment was noted in both samples, in the 'other' category for reasons for referral, being the good communication established by allied health services with their referrers

Availability of, and Access to, Services

Common themes were expressed by general practitioner respondents and hospital medical staff with respect to availability of, and access to, allied health services. These were:

- *insufficient knowledge of medical practitioners regarding the available services*
- *long waiting times for the service*
- *restricted access to the services*
- *the need to improve the hospital / community interface (the ability to accept outside - hospital referrals)*

The commonality of these themes indicates areas for consideration and improvement, by both hospital administrators and allied health practitioners.

Conclusion

This chapter suggests that allied health outpatient services at the Royal Adelaide Hospital are valued by medical staff in the outpatient clinics as well as by general practitioners in the community. A number of aspects of the allied health services are important, including the free service, unique / specialist services and the continuity of care that these services offer with respect to admissions to hospital.

Referrers reported variable satisfaction with the quality of the services provided, and the decisions made by the services regarding the type of patients, and the nature of the conditions, that they manage.

There is a clear need to improve the level of communication with, and information provided to, all medical practitioners regarding the nature of available allied health services. Referrers expressed a desire to see improvements in aspects of the services, including the waiting time for the first appointment, the number of available staff and the ability of community referrers to refer directly to hospital outpatient services. That these issues were identified by both groups of medical practitioners surveyed for this project reinforces the importance of these factors in discussions on future access to, and availability of, allied health services provided in the public hospital.

Medical practitioners and patients are customers of allied health outpatient services provided in public hospital settings. A medical referral is most commonly required in order to monitor clinical allied health service usage. Therefore, accurate knowledge of available services is essential in order to attract appropriate and informed referrals. Moreover, consumer satisfaction with services provides a powerful argument when services are being rationalised, and it informs analysis of service strengths, weaknesses, opportunities and threats.

CHAPTER NINE

Allied Health Services provided in community health centres

This chapter reports on access to, and availability of, allied health services in community health centres in the Adelaide metropolitan area

Introduction

Clinical allied health services are available in the community in the Adelaide metropolitan area, from publicly funded community health centres, day care and/ or nursing home based services, domiciliary services and from private practices. This chapter deals with allied health services provided by community health centres and the private sector.

There is no standard delivery of clinical allied health services from community health centres in the Adelaide metropolitan area. Services are directed and modified by the purpose of the individual centre, the perceived needs of its customers, space and equipment, available staff expertise, historical service delivery models and the philosophy of management and funders.

Preliminary data collection and organisation

Little was known of the location, availability or accessibility of allied health services in either the public or the private sector in the Adelaide metropolitan region, prior to this project. Consequently, there was little readily accessible information upon which to mount this investigation. Preliminary work was indicated to establish baseline information upon which to mount this investigation

1. The listings of community services and private facilities obtained from the South Australian Health Commission and the telephone book were found to be incomplete and/or inaccurate. Comprehensive and current lists of community and private facilities were therefore developed during consultation with allied health professionals at Royal Adelaide Hospital, from professional associations, and from speaking with personnel at the community health centres in the telephone listings.

2. The Adelaide metropolitan district post codes were described as 5000 - 5250, and were divided into sixteen geographical regions for the purpose of this investigation. These regions were bounded where possible, by major roads and/ or natural barriers. The regions and the list of post codes per geographical region are supplied in Appendix 9.

Method

Community Health Centres

Currently operating community health centres were surveyed by mail, using a reply paid envelope to return the questionnaire to the project office. The allied health services provided at the community health centres were described by type, by the availability of hands-on (individual) management, and by the restrictions placed on access. The letter and questionnaire used in this survey is provided in Appendix 9.

Department of Education and Children's Services

Information on available allied health services was sought from the Department of Education and Children's Services (DECS), which was known to provide specific but limited allied health services for school children. The questionnaire used for this survey is provided in Appendix 9.

Patient Knowledge of Allied Health Services in the Community

The first three months of data (Feb - April 1996) collected from the Royal Adelaide Hospital (RAH) during the main study, were employed in this investigation. Information was available from 621 new patients to Physiotherapy, Occupational Therapy, Speech Pathology, Audiology, Psychology and Clinical Nutrition and Dietetics. The Social Work, Podiatry and Orthotics departments at the Royal Adelaide Hospital were not supplying data to this project during this time, and therefore patient knowledge of alternative community-based services for Social Work, Podiatry and Orthotics was unable to be examined. There was no other source of appropriate data from the same time period that could have been substituted for these three services.

Category E Patients

1. The responses to the survey items regarding 'knowledge of available alternative local services', and 'payment for these local services' were the dependent variables in the investigations reported in this chapter. These items did not define knowledge by public or private nature of services.
2. The dataset was described by patient category (C and E). The investigation focused on Category E patients, those who did not have a current inpatient episode for this particular condition. These patients had no continuity-of-care need to seek public hospital allied health outpatient services.
3. The postcode location of the patients who responded to the question of availability of alternative local services was compared with the post code location of available private and community based public services. To assist this investigation, the Adelaide post code regions (provided in Appendix 9) were used to match the geographical proximity of patients to local services. For example, the private, and community services available in a particular region were compared with the number of patients who lived in that region and who were aware (or not) of the availability of the service.

Influences on Correct Knowledge

Several factors were considered as influences on patients' knowledge of available local services:

- the referral mechanism
- the age of the patient
- source of income

Investigations of effect were undertaken using univariate logit models, in which the dependent variable in each instance was patient lack of knowledge. Incorrect, or no knowledge, of available services was scored as 1, and correct knowledge of local services was scored as 0 in these models.

The independent variable in the first model was age, treated in separate ten year categories. In the second and third models the independent variables were, respectively, referral mechanism, and source of income. Not every category of referral mechanism and source of income had sufficient numbers for appropriate binary division. Moreover, overall, the three months of data included only small numbers of patients from four of the allied health services. Two strategies were therefore implemented:

- the allied health service was not taken into account
- the categories of referrer mechanism, and employment status, were regrouped into broader categories

Referral mechanism was regrouped into four categories:

1 = referral from Royal Adelaide Hospital (RAH)
2 = referral by General Practitioner (GP)
3 = referral by Specialist
4 = referral by allied health professional, or by any other manner (categories 5 - 9 on the manual questionnaire)

The ten categories of source of income were grouped into four:

1 = self employed
2 = PAYE
3 = home duties
4 = Government payments of some type (categories 4-10)

Results

Availability of Community Based Services

Twenty two currently operational community health centres were identified in the Adelaide metropolitan area. Disregarding distance from the Adelaide City centre, the distribution of community health centres per general geographical location shows the majority of centres situated on the North Eastern aspect of the city. The map of post code location of community health centres is illustrated in Figure 9.1, and the percentage of centres per region is graphed in Figure 9.2.

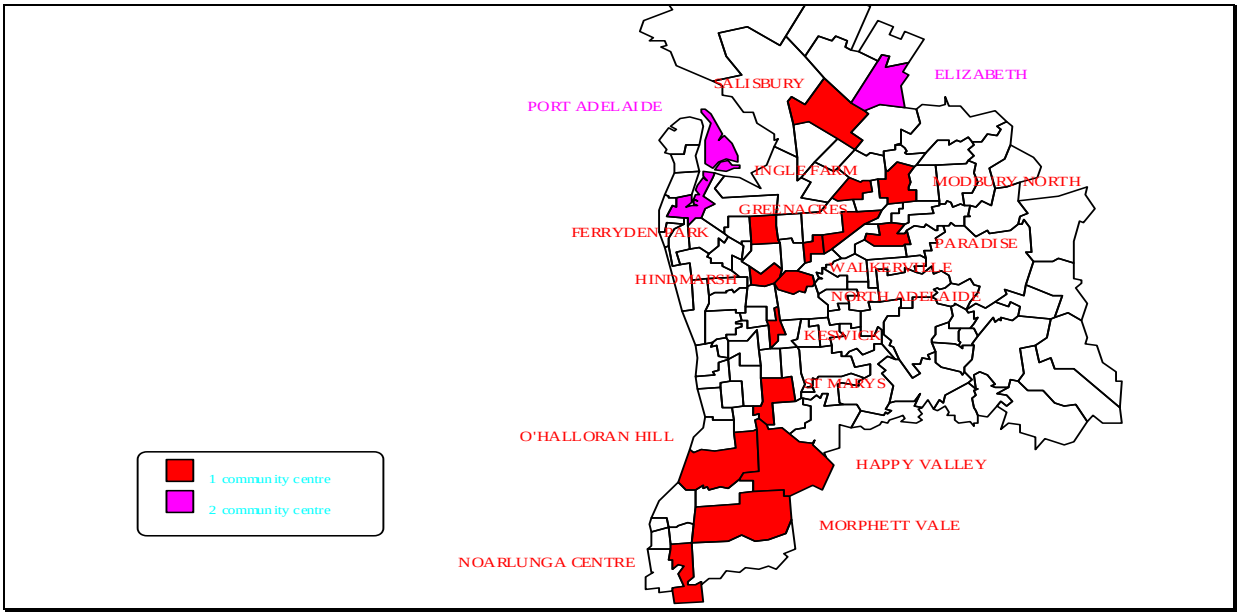

Figure 9.1: Map of post code locations of community health services

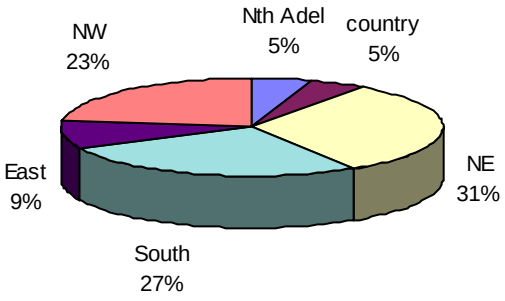

Figure 9.2: Percentage distribution of community health centres in metro Adelaide geographic locations

Availability of Services

The overall availability of allied health services per community health centre is reported in Table 9.1, and the availability of each of the allied health services is described in Tables 9.2.1 to 9.2.9. There were a number of restrictions on service availability, and to simplify reporting, these were grouped and coded retrospectively using common key words or themes. The code list is reported in Table 9.3. In the table below, **Y** indicates the availability of the allied health service and **Y+** indicates that the service is 'hands-on' (individual management).

Table 9.1: Allied health services provided at community health centres

Postcode	Region	PT	OT	SP	CN	Aud	Psych	SW	Pod	Orth
5015	NW 10-15							Y+		
5075	E10-15				Y+			Y+		
5082	NE5				Y			Y		
5086	NE 10-15			Y+	Y+			Y+		
5042	S5-10			Y+	Y+		Y+	Y+	Y+	
5035	W5				Y+		Y+	Y+		
5010	NW 5-10	Y+		Y+	Y+		Y+	Y+	Y+	Y
5007	NW5							Y+		
5015	NW 10-15	Y+		Y+				Y+	Y+	Y
5251	Country	Y+	Y+	Y+	Y+			Y+	Y+	
5006	Nth Adel							Y+		
5159	S15+			Y+				Y+		
5112	NE10+				Y+			Y+		
5158	S15+			Y+						
5171	S15+			Y+			Y+	Y+		
5162	S15+			Y+	Y+			Y+		
5168	S15+	Y	Y+	Y+	Y+		Y+	Y+		
5098	NE10+			Y+			Y+	Y+	Y+	
5092	NE10+			Y+			Y+	Y+	Y+	
5108	NE10+			Y+			Y+	Y		
5112	NE10+			Y+	Y+		Y+	Y+		
5114	E15+			Y+				Y+	Y+	

Key:

PT = Physiotherapy
OT = Occupational Therapy
CN = Clinical Nutrition
Pod = Podiatry
SP = speech Pathology
Aud = Audiology
Orth = Orthotics
Psych = Psychology
SW = Social Work

Physiotherapy Services

Physiotherapy services were available in only three of the twenty-two centres. These services were restricted to those individuals who did not have private health cover and were not eligible for compensation, who lived in the catchment area and carried Health Care Cards. There was a waiting list in all instances. Only one centre did not impose restrictions on the conditions seen, the other two centres did not provide management of paediatric or neurological conditions. There was no cost for the service. Referrals were taken from anyone with the consent of the patient (patient, General Practitioner, specialist, other community services and health professionals). A summary of the services is provided in Table 9.2.1. Each row reports on the physiotherapy service available from one health centre, which is de-identified for the purpose of this report.

Table 9.2.1: Physiotherapy Services

Restrictions	Waiting list	Condition restrictions	Cost	Referral
2, 3, 3.1	Y	N	N	1, 2 ,3, 5
1.2, 2	Y	1.8, 24	N	2, 4, 5
5	Y	9	N	1, 2, 5

Occupational Therapy Services

Occupational therapy services were available in only two of the twenty-two community health centres. Children under eight years only, were seen at one centre (as long as they did not have developmental delay or learning problems), while the other centre catered for all patients as long as they were not mentally ill. There was a waiting list in each centre A small charge was raised at one of these centres for materials and some items of equipment. Anyone could refer to the services with clients' permission. The services are summarised in Table 9.2.2.

Table 9.2.2: Occupational Therapy Services

Centre	Restrictions	Waiting list	Condition restrictions	Cost	Referral
1	1, 6	Y	N	3	8
2	1.5	Y	22	N	1, 5, 6

Speech Pathology Services

Speech Pathology services were available at fifteen of the twenty-two community health centres. In all but one centre, restrictions applied. The most common restriction was that the service was available for children only, and for patients who came from the catchment area. There was a waiting list in all centres. There were restrictions on the type of conditions able to be managed in five of the fifteen centres. These consisted of developmental delay, learning difficulties and/ or stuttering in four instances and children with intellectual disability in the fifth. There was no cost for treatment in any centre, and referral was accepted from anyone. The services are summarised per de-identified community health centre in Table 9.2.3.

Table 9.2.3: Speech Pathology Services

Centre	Restrictions		Waiting list		
1	2, 1.5	Y	Condition restrictions	Cost	Referral
2	1.4	Y	N	N	10
3	2, 4.3	Y	N	N	2, 3, 6
4	2, 25	Y	N	N	2, 3, 6
5	1	Y	N	N	1, 6, 7
6	1.4, 1.6	Y	15.1	N	8, 11
7	1.4	Y	21	N	11
8	1.4	Y	N	N	2, 3, 6, 7
9	1.4	Y	22	N	2, 3, 6, 7
10	1.4	Y	N	N	11
11	1.3	Y	22	N	1, 5, 6
12	1.3	Y	N	N	1
13	1.5	Y	N	N	1
14	1.3	Y	N	N	6
15	1.3	Y	N	N	11
			22	N	12

Clinical Nutrition and Dietetics Services

Clinical nutrition and dietetics services were available in eleven of the twenty-two centres. In two instances there were no restrictions on the patients who could access the services, and in the other centres, patients were mostly limited to the catchment area only, and to those who could not afford private cover. Group work only was available in two centres. There were waiting lists in nine centres, and there were restrictions on the type of conditions that could be seen in five centres. There was no cost associated with treatment and referral was accepted from anyone. The services are summarised per community health centre in Table 9.2.4.

Table 9.2.4: Clinical Nutrition and Dietetics Services

Centre	Restrictions	Waiting list	Condition restrictions	Cost	Referral
1	1, 2	Y	N	N	1.2, 3
2	2	Y	N	N	1.2, 3
3	2	Y	N	N	1, 2, 3
4	2, 3.2	Y	14	N	1, 2, 3, 4, 6,
5	2	Y	N	N	11
6	4	Y	4	N	2, 3, 5
7	N	Y	N	N	1, 2, 5
8	N	N	N	N	1, 2
9	9	Y	9	N	11
10	9	Y	9	N	1, 5
11	12	N	12	N	1

Clinical Psychology Services

Clinical psychology services only (not neuropsychology services) were available in nine of the twenty-two centres. There were restrictions on the type of clients able to be seen in four centres, including clients from the catchment area only, adults only, no clients with acute mental illness, no IDSC clients and no clients already being seen at other centres (without a formal co-working arrangement in place). There was a waiting list at ten of the eleven centres. Four centres placed restrictions on preparing court reports, assessments and compensation reports. There was no cost associated with the service, and anyone could refer. The services are summarised in Table 9.2.5.

Table 9.2.5: Clinical Psychology Services

Centre	Restrictions	Waiting list	Condition restrictions	Cost	Referral
1	N	Y	15	N	1
2	2	Y	1	N	1, 2, 4
3	2, 4.2	Y	17	N	1.5, 2, 3
4	1	Y	15	N	1, 2.6, 5.7
5	8, 10	Y	18	N	1, 5
6	N	Y	N	N	1
7	N	Y	N	N	1
8	N	Y	N	N	11
9	N	N	N	N	1

Social Work Services

Social work services were the most readily available, being located at twenty of the twenty-two centres. There were restrictions on the type of clients seen, in thirteen centres. The restrictions ranged from catchment area-only clients, women only, specific crisis situations such as domestic violence, groups only, no mental illness and no crisis work. There was a waiting list in eighteen of the twenty centres. The conditions able to be managed were limited overall, with restricted counselling services, no disability assessments undertaken and no clients of another service taken on, unless a formal co-working arrangement was in place. There were no costs for the service, and self referral was accepted in all centres. The available services are summarised in Table 9.2.6.

Table 9.2.6: Social Work Services

Centre	Restrictions	Waiting list	Condition restrictions	Cost	Referral
1	2	N	13.1	N	1
2	1, 2	Y	13.6	N	1, 2, 3
3	2, 8	Y	19	N	1, 2, 3, 5
4	2	Y	6	N	1, 2, 3
5	8	Y	16	N	1
6	2	Y	1	N	1, 2, 11
7	2, 4.2	Y	N	N	1, 2, 3, 5
8	11, 12	Y	13.2	N	11
9	2	Y	13.7	N	11
10	7	Y	13.3	N	8
11	1.1	Y	13.4	N	1, 3
12	N	Y	13, 13,5	N	11
13	N	Y	19	N	1
14	N	Y	13.7	N	11
15	N	Y	18	N	11
16	10	Y	10	N	1, 5
17	N	Y	N	N	1
18	N	Y	N	N	1
19	1	N	N	N	1
20	N	Y	N	N	1

Podiatry Services

Podiatry services were available in seven of the twenty-two centres. Services were limited most commonly to adults over the age of 65 years who were Health Care Card holders, and to catchment area clients. There was a waiting list at five of the centres. Conditions treated at two of the centres were restricted to high priority medical conditions. In three centres patients were asked to make a small donation for the service. Anyone could refer to the service. The services are summarised in Table 9.2.7.

Table 9.2.7: Podiatry Services

Centre	Restrictions	Waiting list	Condition restrictions	Cost	Referral
1	1.2	N	N	N	11
2	2, 4.2. 4.4	Y	20	N	1, 2, 3, 5
3	2, 4.2	Y	N	N	11
4	1.7, 4.4	N	N	N	1, 2, 3, 5
5	1.2	Y	N	1	1
6	1.2	Y	N	1	1
7	1.2	Y	N	1	11

Orthotics Services

Orthotics services were available in only two of the twenty-two centres. Services were limited to the provision of simple orthotics for clients who could not afford private health insurance. There was a waiting list in both instances, but anyone could refer. These services are summarised in Table 9.2.8.

Table 9.2.8: "Hands-on" Orthotics Services

Centre	Restrictions	Waiting list	Condition restrictions	Cost	Referral
1	3.1	Y	3.3	2	1, 2, 3, 5
2	27	Y	27	N	11

Table 9.3: Codes describing specific restrictions on service

1. Age
1.1 women only
1.2 over 65 years, Health Care Card holder
1.3 under 4 years
1.4 under 5 years
1.5 under 8 years
1.6 state school children, limited access for private school children
1.7 housebound people
2.Catchment area only
3. No compensable patients
3.1 N/A if has private cover
3.2 N/A if can afford private cover
4. Groups
4.1 Health promotion / education
4.2 Special needs
4.3 Specified groups
4.4 High risk groups
5. Only those not covered by HACC guidelines
6. Minimal work with mental illness
7. Crisis work not appropriate
8. No IDSC client, acute/ chronic mental illness
9. No weight loss programmes unless related to clinical condition
10 No clients of another service unless co-working arrangements in place
11. Individual service for survivors of domestic violence
12. Provide community development services / nutrition
13. Counselling
13.1 Short term
13.2 Cannot provide a general service
13.3 Intensive service not possible
13.4 Long term limited
13.5 Group work services
13.6 Gender appropriate counselling
14. Limited service for enteral feeding and eating disorders
15. Intellectual ability
15.1 Not children with intellectual disability
15.2 Cannot see anyone with intellectual disability
16. Does not provide financial or legal advice
17..Limits on court, compensation reports and/ or assessment
18. No disability related assessments
19. Limited by staff numbers and skill
20. High priority groups / medical conditions
21. Medical and surgical, acute head injury
22. Developmental delay, learning difficulties, articulation and stuttering
23. Non-inpatient services
24. No ongoing neurological rehab.
25. Must not be eligible for any other publicly funded speech pathology services
26. Not available for diseases requiring hands on technological support
27. No facilities to fabricate innersoles

Cost of services

1. Donation of $3
2. Cost of orthotics/ prosthetics
3. Some materials, small items of equipment

Referral to services

1. Self
2. GP
3. Other services - hospital, FACS, CAFHS & RDNS
4. Specialists
5. Allied health agencies and professionals
6. Other individuals (teachers, friends, family)
7. Kindergartens, pre-schools, child health agencies
8. Anyone with the client's permission
9. HCCC holders > 65 years
10. The general community within the catchment area
11. Anybody
12. Legal guardian

Groups

1. Exercise Groups
2. Back Care
3. Osteoporosis
4. Arthritis self management
5. Water workout

1.1 With children / parents and early intervention agencies
1.2 Group work for diabetes support
1.3 Clinical and group work with women's support / domestic violence
1.4 Pedicure and foot care
1.5 For specific groups for foot care
1.6 Health education and promotion

Services available through the South Australian Department of Education and Children's Services

Limited clinical allied health services were available under the auspices of the Dept. Education and Children's Services. Information on available services was provided to the project upon written request. Allied health consultants were available to DECS schools, and parents of children attending DECS schools. The available services comprised Speech Pathology (average of 30 positions/ week), Psychology (average of 53 positions/ week) and Social Work (average of 13 positions/week).

There was no overt limit placed on the amount of care provided per child, but the pressure of waiting lists and demand 'means that there would be few children seen more than twice, and mainly for assessment' so that recommendations can be made to parents, teachers, school support staff and special education teachers (personal communication from Guidance Officer, Student Behavioural Management, Program Division, DECS, 1996).

Category E patients

Identifying Category E Patients

Information that identified patient category (that is, Category C or E) was available from 546 of the 621 patients in the data set. Of these 546 patients, 163 were attending allied health services following an admission to hospital, 15 were attending allied health services prior to an admission to hospital and 368 were attending allied health services without an associated inpatient allegiance. Therefore, approximately 59% patients in the data set were potentially Category E patients. Private medical insurance and compensible claim status were then employed to identify those patients for whom there was no rebate for allied health services provided in the private sector.

Private medical insurance status

Of the 368 patients who did not have an associated hospital admission:

- six had some type of private medical insurance (but were not sure what kind)
- six had hospital cover only
- 17 had ancillary cover only
- 33 had full hospital and ancillary cover
- 306 had no private insurance cover.

If those patients who were not certain what type of insurance they had, did not have ancillary cover, then 86% of the 368 patients were unable to claim a private health cover rebate for private allied health services in the community. However, if these patients had ancillary cover, then 85% of the 368 patients were unable to claim a private health cover rebate for private allied health services in the community. .

Compensible status

Seventy-seven patients reported that they were eligible to claim a rebate from a compensible agency for their allied health treatment. The different categories of compensible payment, and the patients in each category, are listed in Table 9.4

Table 9.4. Compensible status of patients

Compensible category	N
WorkCover	10
Motor Accident Insurance	5
DVA	1
Comwlth Pension Scheme	38
Employer	19
Other	4
Total	77

Those patients who were unable to claim a rebate from private health insurance (including those who did not know what type of insurance they had) and were also not eligible for compensation, were true Category E patients (reported as Category E1 in Chapter Four). 243 patients were involved in this group.

Characteristics of Category E Patients

Age Group

The bulk of Category E1 patients were middle aged. These patients are described by age group in Table 9.5, and are compared with all patients without an associated inpatient admission (combined Category E1 and E2 patients) (*N=368*)

Table 9.5: Age group of Category E patients

Age group	Category E1	all Category E
<= 5 years	5	6
6-16 years	4	4
17-25 years	32	52
26-39 years	60	88
40-59 years	80	133
60-74 years	51	67
75+ years	11	18

Source of income

The source of income of Category E1 patients is described in Table 9.6, and this is compared with the source of income of all Category E patients.

Table 9.6: Source of income

Source of income	Category E1	all Category E
self employed	12	15
PAYE	50	90
homeduties	37	46
unemployed	27	38
sickness pension	35	51
aged pensioner	48	68
retired	2	5
student	15	25
supporting parent benefit	1	2

The lack of private insurance and/ or eligibility for compensible claim was fairly evenly distributed across all source of income categories.

Occupation

Those occupations represented within the self employed and PAYE categories of the Category E patients are listed in Table 9.7. The broad ASCO categories were used to define occupational groups (Australian Standard Classification of Occupations 1993).

Table 9.7: The occupations of employed Category E patients

Type of Occupation	N
managerial	3
professional	7
paraprofessional	6
tradesperson	13
clerical	5
service worker	13
driver/ transport worker	1
blue collar worker	10

Patient knowledge of available services

Private Services

The patient responses were considered as if they reflected knowledge of private services. They were compared, per region, with the available private services.

Audiology

Private audiology services were available in five of the Adelaide metropolitan regions. The Audiology service at the Royal Adelaide Hospital serviced three outpatient medical / speciality clinics: Audiology, Ear, Nose and Throat and Hyperbaric clinics (which is a specialist service, particularly used by divers). The Hyperbaric service was not available elsewhere, and the responses of patients attending this service reflected this fact. The data from all Audiology patients (*N=110*) is presented in Table 9.8.1, which showed that 59% patients were correct in their response regarding the availability (or not) of a local private service. Incorrect responses were gathered from 32% patients.

Table 9.8.1: All patients to Audiology allied health service at RAH

	Available Private service	
Patient response	**Yes**	**No**
Yes	8%	0%
No	32%	51%
Don't know	5%	4%

Only the patients attending the Hyperbaric clinic were examined (*N= 24*), and the comparisons were again made between patient responses and the actual available private service. The responses are reported in Table 9.8.2. There was, as would be expected, a high proportion of patients who attended the Hyperbaric clinic who were correctly aware that no private service was available.

Table 9.8.2.: Hyperbaric patients only

	Available Private service	
Patient response	**Yes**	**No**
Yes	0%	0%
No	79%	0%
Don't know	21%	%

Clinical Nutrition and Dietetics

There were small patient numbers supplied by the Clinical Nutrition and Dietetics service at the Royal Adelaide Hospital (*N = 9*) in this data set. The findings of this particular investigation is therefore not a conclusive statement of knowledge of these patients of available services. The patient responses compared with available private services is listed in Table 9.8.3. There was a high frequency of incorrect (or lack of) knowledge for Clinical Nutrition and Dietetics patients at the RAH, in that only 26% of patients were correct in their knowledge of available private resources.

Table 9.8.3: Clinical Nutrition and Dietetics

	Available Private service	
Patient response	**Yes**	**No**
Yes	15%	0%
No	54%	11%
Don't know	27%	0%

Occupational Therapy

There were thirteen new patients to Occupational Therapy at the Royal Adelaide Hospital during the first three months of the survey. The knowledge of these patients of available private services is reported in Table 9.8.4. Only 30% of these patients had correct knowledge of available private services.

Table 9.8.4: Occupational Therapy

	Available Private service	
Patient response	**Yes**	**No**
Yes	15%	0%
No	54%	15%
Don't know	15%	0%

Physiotherapy

Private physiotherapy services were available in every Adelaide metropolitan region. However, only 35% patients were correct in their knowledge of available private services. The results are provided in Table 9.8.5.

Table 9.8.5: Physiotherapy

	Available Private service	
Patient response	**Yes**	**No**
Yes	35%	0%
No	44%	0%
Don't know	21%	0%

Clinical Psychology

The patients who supplied data were all neuropsychology patients. The question regarding availability of alternative local facilities should have related to neuropsychology services. However, it was not known whether respondents were aware of the difference between neuropsychology and clinical psychology, so the availability of psychology services and neuropsychology services was investigated by considering that the data reflected only one, and then only the other. 45% patients in each instance were not aware of the availability of private services. The data are provided in Tables 9.8.6 and 9.8.7..

Table 9.8.6: Clinical Pyschology

	Available Private service	
Patient response	Yes	No
Yes	45%	0%
No	45%	10%
Don't know	0%	0%

Table: 9.8.7: Neuropsychology

	Available Private service	
Patient response	Yes	No
Yes	10%	35%
No	10%	45%
Don't know	0%	0%

Speech Pathology

Incorrect (or no) knowledge of available private services was held by 83% of the patients. The data are provided in Table 9.8.8.

Table 9.8.8: Speech Pathology

	Available Private service	
Patient response	Yes	No
Yes	5%	0%
No	25%	12%
Don't know	42%	16%

Community Health Centre Services

The patient responses were then considered as if they reflected knowledge of community health services. They were compared, per geographical region, with the availability of community health centre services.

Audiology (all Patients)

There were no audiology services available in community health centres in the metropolitan Adelaide region. 88% of 110 patients were aware of this fact, while 6% of patients incorrectly said that there were, and 6% of patients did not know. Because of the high number of patients with correct answers, the patients to the Hyperbaric clinic were not examined separately.

Clinical Nutrition and Dietetics

A large percentage (77%) of patients were not aware of the availability of community Clinical Nutrition and Dietetics services at community health facilities. The findings are reported in Table 9.9.1.

Table 9.9.1: Clinical Nutrition and Dietetics

	Available Private service	
Patient response	**Yes**	**No**
Yes	11%	0%
No	55%	11%
Don't know	22%	0%

Occupational Therapy

76% patients were correct in their knowledge of available community health centre resources for Occupational Therapy. The results of investigation are reported in Table 9.9.2

Table 9.9.2: Occupational Therapy

	Available Private service	
Patient response	**Yes**	**No**
Yes	15%	8%
No	0%	61%
Don't know	0%	15%

Physiotherapy

44% of patients were correct in their knowledge of available community health centre resources for Physiotherapy. The results of investigation are reported in Table 9.9.3.

Table 9.9.3: Physiotherapy

	Available Community service	
Patient response	**Yes**	**No**
Yes	2%	32%
No	2%	22%
Don't know	5%	37%

Psychology

Only clinical psychology services were available in six community health centres in the Adelaide metropolitan region. However, the data were examined as if it referred to each of the service types. 46% of patients were correct in their knowledge of available community health centre resources for Clinical Psychology. 45% of patients were incorrect in their knowledge of the

availability of any Neuropsychology services in community health centres. The results of investigation are reported in Table 9.5.4 and Table 9.5.5.

Table 9.5.4: Clinical Psychology

	Available Community service	
Patient response	**Yes**	**No**
Yes	27%	27%
No	27%	19%
Don't know	0%	0%

Table 9.5.5: Neuropsychology

	Available Community service	
Patient response	**Yes**	**No**
Yes	0%	45%
No	0%	55%
Don't know	0%	0%

Speech Pathology

Correct knowledge about available speech pathology services in the community was held by 30% patients. The data are reported in Table 9.5.6.

Table 9.5.6: Speech Pathology

	Available Community service	
Patient response	**Yes**	**No**
Yes	2%	0%
No	9%	28%
Don't know	35%	23%

Summary

There was a considerable lack of patient knowledge, or at least incomplete knowledge, of available services in both the private and community settings. The percentage of patients to each allied health service at the Royal Adelaide Hospital who provided incorrect answers, or who indicated that they did not know the answer to the question, is graphed in Figure 9.3. Lack of knowledge of private and community services was relatively similar for Clinical Nutrition, Physiotherapy, Psychology and Speech Pathology, but there were differences in patients' knowledge of availability of private and community facilities for Audiology and Occupational therapy. In both instances, the lack of knowledge of available private facilities was far greater than knowledge of available services in the community.

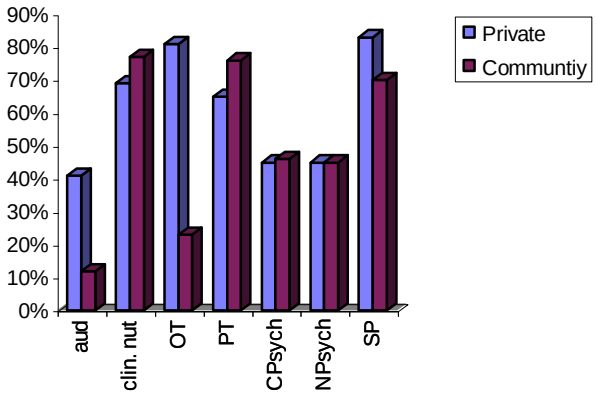

Figure 9.3: The percentage of patients who were unable to correctly identify the availability of a local allied health service

A summary of the incorrect knowledge of patients regarding available services is provided in Table 9.6. More patients overall had incorrect knowledge of the availability of local private services than they did of the availability of local community services. Only 37.2% of patients overall had correct information about the availability of any service.

Table 9.6: Patient knowledge compared with the availability of services

	Patient knowledge		
	Incorrect	**Unknown**	**Correct**
Both Private and Community services available	1 (0.3% total)	6 (1.6% total)	4 (1.1% total)
Only Private services available	101 (27.8% total)	102 (28.1% total)	70 (19% total)
Only community services available	2 (0.5% total)	0	0
Neither Private nor community services available	61 (16.8% total)	8 (2.2% total)	8 (2.2% total)

Influences on Patient Knowledge

Age, Source of Income and Referral

Using the knowledge of patients referred by the RAH wards/outpatient clinics as a reference, there were significant influences on knowledge if the patient was referred by a general practitioner and a specialist. The odds ratios that patients would have incorrect knowledge of available local services were protective (OR = 0.21 (95%CL 0.09-0.47) (*p=0.0003*) if they were

referred by specialists and 0.56 (95%CL 0.34-0.93) *(p=0.04)* if the referral had come via the general practitioner). These findings indicate that patients being referred from their GP or specialist were significantly more likely to have correct information about the availability of local services than any other patient. It was plausible that knowledge regarding the lack of appropriate local services was a reason for referral to the outpatient clinics at the Royal Adelaide Hospital.

No other findings were of significance. Compared with patients whose income was from government payments, the knowledge of available local services of patients who were self employed, employed on a PAYE basis or employed in home duties was not significantly different. Compared with patients who were aged over 75 years, the knowledge of patients in all other age groups was also not significantly different. The output of the logit models is reported as odds ratios and 95% Confidence limits in Table 9.7.

Payment for Services

The significant influence on patient knowledge of local services if the referral by a general practitioner or a specialist medical practitioner may well be attributed to the cost of the local service (if private). Therefore, further investigation was conducted on the cost of local services, reported by those patients with correct knowledge, and a referral via GP or Specialist.

The data did not encourage the belief that services at the Royal Adelaide Hospital were chosen on the basis of the free service in all instances. Of the 153 patients of interest, 39.5% of them reported that the local service was free, 50% of them reported that the local service required payment and only 10.5% of them reported not knowing whether the local service required payment.

Table 9.7: The output of the logit models that tested the association between potential influences on correct patient knowledge

components	OR (95%CL)	OR (95%CL)	OR (95%CL)
	referral mechanism	**source of income**	**age group**
	cf RAH referral	**cf Government payment**	**cf age >= 75 years**
RAH ward or OP clinic	1.0		
GP	**0.56 (0.34-0.93)**		
Specialist	**0.21 (0.09-0.47)**		
allied health	0.91 (0.34-- 2.48)		
self/ other	0.47 (0.17 - 1.28)		
self employed		0.56 (0.16 - 1.84)	
PAYE		0.78 (0.47 - 1.28)	
home duties		0.86 (0.43 - 1.75)	
Government funding		1.0	
< 6 years			0.4 (0.04 - 4.43)
6 - 16 years			2.0 (0.22 - 17.9)
17 - 25 years			0.9 (0.32 - 2.41
26 - 39 years			1.3 (0.48 - 3.22)
40 - 59 years			1.1 (0.41 - 3.06)
60 - 74 years			1.8 (0.67 - 4.95)
75+ years			1.0

Key Points

1. This study described the patients who, in a three month period, attended one of six allied health outpatient clinics at the Royal Adelaide hospital.
2. The study used information on compensible status and private health insurance to identify those patients who were correctly classified as Category E outpatients, that is, those for whom there is no rebate when attending private allied health services in the community.
3. Several factors from this investigation give rise to the contention that allied health services in the Adelaide metropolitan community are not widely available to patients for whom there is no rebate for private services. However, those free community services that are available, appear to be accessible to knowledgable patients.
4. There was no overlap in services provided by the Royal Adelaide Hospital allied health outpatient departments and the community health centres. On this basis, it is likely

that there is no overlap between services provided at community health centres and those of the allied health outpatient services of any of the public hospitals in the Adelaide metropolitan area.

5. There was no clearly defined mechanism by which patients were made aware of the availability of allied health treatment (private or public) in the community.
    - The list of community health centres and private practitioners in the current telephone book was inaccurate and incomplete.
    - The services provided at community health centres were not described in sufficient detail to enable customers (patients, carers and medical referrers) immediately to access information.
    - The focus of some allied health services in community centres is more on health promotion than on individual management of presenting conditions. Patients seeking such management in disciplines such as Audiology, Physiotherapy and Occupational Therapy have little access to services in the community other than the private sector.
6. There were variable restrictions on the type of patients that were able to be managed by community health centres in the Adelaide metropolitan region. Restrictions reflected individual decision-making in individual centres. There were few commonalities in restrictions, or health delivery.
7. The geographical location of community health centres was not equitable within regions of metropolitan Adelaide (some regions having a number of community health centres, while others have none).
8. The lack of availability in community health centres of individual management for particular conditions highlights the role that public hospital allied health outpatient services currently play.
9. For all six allied health services at the Royal Adelaide Hospital (barring, perhaps, the Hyperbaric service component of the Audiology service), patient knowledge of local alternative services was poor. Patients either had incorrect knowledge, or simply did not know. Incorrect knowledge was not related to age or source of income, but patients were more likely to have correct information about local services if they were referred by the general practitioner or a specialist.
10. The cost of attending a local service for these cases was potentially a determinant of attendance at allied health services at the Royal Adelaide Hospital in approximately 50% cases.

11. The choice of attendance at outpatient allied health clinics at the Royal Adelaide Hospital is potentially driven by a number of factors.
    - Referral mechanism was an important determinant of correct knowledge of local services. The referring medical practitioner identifies the need for an allied health service, and may then direct the choice of practitioner. The choice of a public hospital service may be based on the cost of the local service, the unique or specialist nature of the hospital service or the fact that the hospital service is perceived as superior to, or more desirable than, the local service.
    - Travel arrangements may be important in determining choice of venue, in that it may be easier for patients to attend a large hospital city location than to access a local suburban health centre. This finding is supported by the fact that a high proportion of the patients to RAH used public transport. Of those who travelled by car, a high proportion were driven by some-one else, who then (presumably) had the responsibility of parking the car.
12. Allied health outpatient services provided by the Royal Adelaide Hospital are not additional to adequate community health facility services, as in most instances the services in the community are not serving all Category E Adelaide metropolitan patients equitably. Future discussions on the role of the allied health outpatient services at Adelaide public hospital settings must take into account the 'community health centre' role that these large hospitals play, for people who live in the immediate geographical regions, and for people for whom there are no other local options.

This study identified the need for more in depth investigation of decision-making by referrers and patients regarding their choice of the location for delivery of allied health services.

CHAPTER TEN

Availability of private Allied Health services for specific conditions

This chapter reports on the third secondary study,
a survey of private clinical allied health providers.

Introduction

This survey was undertaken on the assumption that private clinical allied health services were frequently constrained in their ability to manage all presenting conditions. Constraints were believed to be:

- financial
    - cost of a treatment episode, in that all clinical allied health services require direct payment for each occasion of service, and this is sought from the patient directly. The patient may have private extras insurance, or be eligible for rebates from a compensible agency
    - cost of consumables, or aids and appliances, which may have a high cost, and need to be replaced regularly
- professional, in that some conditions require specialist knowledge which is expensive to acquire and maintain, and may be infrequently applied
- logistical, in that some conditions, and some types of patients require longer than usual occasions of service, and/ or the treatment episode needs to extend over a long period of time
- practical, in that location of the practice can incur physical access problems, appropriate hygiene facilities may not be available and there may not be the facilities for treating frail or disabled patients.

Method

Fee for service

Each professional association was contacted to determine the current recommended fee for service. Some professions had non-time based fees, while others based their fees on the amount of time spent with the patient. None of the professional bodies separated contact time from non-contact time, and therefore it was not clear how the individual professions were rebated for the non-patient contact hours required for the management of particular conditions.

Case Histories

One or two case histories of typical difficult patients were provided by each clinical allied health service at the Royal Adelaide Hospital. The choice of case history was left to the clinicians. Instructions were that the case history could reflect a condition which should (or could) be treated in the community, or one which required specialist care.

For each allied health service, two private practices (if two were available) were selected at random from each Adelaide metropolitan region. These regions were established in the investigations outlined in Chapter Nine. As for all the other secondary surveys, an explanatory letter was sent with the case history, and a reply paid envelope was supplied to facilitate return.

The questionnaire outlined the case(s) and requested information on the cost of treatment, the waiting time, the expected number of treatments required to resolve (or stabilise) the condition and available rebates for patients. Practitioners were also asked for comments on appropriate management of these cases.

Results

Fee for Service

The recommended fee for service, as of September 1996, is listed in Table 10.1 for each of the clinical allied health services.

Table 10.1: Recommended fee for service

Audiology	$120 for initial 60 min session ($180 for initial 60 min session + one 30 min. review)
Neuropsychology	$426 for two hour's consultation + one hour report
Clinical Nutrition	$62 for one initial session ($89 for one hour's initial consultation + one 15 min. review)
Occupational Therapy	$130 (initial consultation and two standard treatments)
Physiotherapy	$196.90 (initial consultation and four standard treatments)
Speech Pathology	$227 (one 45 min. initial consultation and 3 x 30 min standard consultations)
Podiatry	$82 (one initial consultation and one 20 min. repeat consultation)
Social Work	$120 for one hour's consultation

Physiotherapy

Case History

Male patient, uninsured, aged 24, self inflicted methylated spirits burns to 57% body/face/neck/chest/back/legs/hands. He has recently been discharged from hospital following debridement and mesh skin grafts. He was fitted with tubigrip, vest and pants and isotoner gloves on discharge from Hospital. He has contractures of axillae, elbows and neck and will require active exercises; passive stretches; strengthening; and fitting of pressure garments; extensive scar management with silicone products; serial night splint especially of elbows.

Number surveyed	35		
Response overall	24 (68.6%)		
Response per Region	1(n=3) 67%	2 (n=2) 100%	3 (n=2) 50%
	4 (n=2)50%	5 (n=2) 100%	6 (n=3) 67%
	7 (n=2) 50%	8 (n=1) nil	9 (n=2) 50%
	10 (n=4) 50%	11 (n=2) 100%	12 (n=2) 50%
	13 (n=2)50%	14 (n=2)50%	15 (n=2) 100%
	16 (n=2) 50%		
Availability of treatment	Yes 10 (41.6%)		
	No 14 (58.4%)		
Length of Occasion of Service	Minimum 53 minutes		
	Maximum 60 minutes		
Cost per occasion of service	Minimum $62		
	Maximum $75		

Comments provided by practitioners who could not supply treatment	'Inadequate experience in scar management, splint making, fitting pressure garments and using silicone products'. 'Do not have silicone products, dressing creams and splints'. 'Cannot supply specialist practices namely orthopaedic and sports injury, incontinence and pelvic floor dysfunction, and paediatric services'. 'A team hospital approach more appropriate than small general practice. If treated, patients would need to understand the cost involved, and be prepared to meet it, be motivated to help themselves and have the necessary home support in regard to meals, ADL and night splints'.
Comments on cost of management	'Cost is the prohibiting factor due to the extensive treatment required. Even if the patient had private insurance, or the means to pay, he would be best treated in a hospital outpatient setting, where they have the time/equipment and option of using other specialist staff'. 'It would be possible to treat in a specialised practice provided it had a steady supply of patients to justify the start up cost, and it would provide an even better cost effective service'

Occupational Therapy

Case History

40 year old Mr X requires ongoing occupational therapy following a traumatic crush injury to his right (dominant) hand in a wool crusher, resulting in a compound fracture to his R thumb, superior dislocation of and, 3rd and 4th metacarpals and fracture to 4th distal phalanx (tuft). He also sustained a degloving injury to dorsal and volar forearm, 5th digit amputated just distal to MCPJ; thenar area debrided and partial muscle bulk removed; SSG from thigh to forearm to cover defect over forearm. He requires Occupational Therapy after five weeks immobilisation and wound healing, to commence splinting and mobilisation. His current problems are an unhealed wound, with a sinus in thenar area, oedematous hand and digits, unstable thumb and ring finger fractures (non-union, precluding resistive exs), limited passive ROM digits and wrist, minimal active pull-through of flexors/extensors of digits, excessive forearm scar formation, and decreased function and ability to perform ADL's. Mr X suffers a pre-morbid anxiety and depressive disorder, and has traumatic flashbacks of the injury.

Numbered surveyed	21		
Response overall	13 (61.9%)		
Response per region	1(n=2) 50%	2 (n=2) 50%	3 (n=1) 50%
	4 (n=2)100%	5 (n=2) 50%	6 (n=1) nil
	7 (n=0)	8.(n=2)nil	9 (n=0)
	10 (n=2) 100%	11 (n=2) nil	12 (n=1) nil
	13 (n=0)	14 (n=1)	15 (n=1)
	16 (n=2) 100%		
Availability of treatment	Yes 6 (46%)		
	No 7 (54%)		
Length of Occasion of Service	Minimum 60 minutes		
	Maximum 64 minutes		
Cost per Occasion of Service	Minimum $83		
	Maximum $87		
Comments from practitioners who could not provide treatment	'We could not provide treatment because we do not have the staff expertise in this area, but we could provide an assessment only with a referral onto an O/T hand specialist'		
	'No provision for intensive onsite treatment'		
	'We are not a specialist practice in this area'.		
	There were concerns from a number of respondents regarding the person who would be responsible for the payment of the fee.		
Comments on Cost	'It would require intensive specialised ongoing treatment for at least two months'.		
	'The cost of management would be high'		
	'With the multidisciplinary management needed, then hospital setting would give the best result'		
	'It would be hard to find a single occupational therapist who could offer the full treatment range and therefore treatment becomes disjointed.'		
Treatment availability	Four practitioners stated that they could provide the treatment with a greater degree of flexibility than the hospital system, as regards to:		
	• intensive treatment on a daily basis		
	• worksite visits and assessments		
	• flexible working hours		
	• less stress on the patient.		

Speech Pathology

Case History

Male patient, uninsured, aged 79, presented following total laryngectomy and tracheo-oesophageal puncture for voice restoration. He will have 6 weeks post operative radiotherapy. He requires: measurement for and fitting of a voice prosthesis, video-fluoroscopy to assess prosthesis fit and P.E. segment adequacy; training in insertion and use of the prosthesis; counselling about general rehabilitation following laryngectomy; provision of equipment; monitoring of tracheo-oesophageal puncture site, health and voice during radiotherapy; assistance coping with radiation induced oedema and dysphagia.

Number Surveyed	24		
Response Overall	16 (66.7%)		
Response per region	1(n=2) 100%	2 (n=2) 50%	3 (n=0)
	4 (n=2)50%	5 (n=2) 50%	6 (n=2) 50%
	7 (n=0)	8.(n=0)	9 (n=2) 100%
	10 (n=2) 50%	11 (n=2) nil	12 (n=0)
	13 (n=2)100%	14 (n=2)100%	15 (n=2)
	16 (n=2) 100%		
Availability of Treatment	Yes 1 (6.25%)		
	No 15 (93.75%)		
Length of Occasion of Service	Minimum 45 minutes		
	Maximum 60 minutes		
Cost per Occasion of Service	Minimum $67		
	Maximum $90		
Comments from practitioners who could not provide treatment	The majority of respondents considered this case to be specialised as it required close access to complex supplies and equipment, medical backup, together with considerable experience and expertise in the area, as well as a multidisciplinary approach. One comment was: 'This case could possibly be managed by private sector if clients were referred on a regular basis, then clinicians with experience in this field could set up a system for supplying aids and services, but to provide video/ fluoroscopy would be costly'.		

Podiatry

Case History

A 78 year old lady with a 25 year history of NIDDM, currently taking Thyroxine, Lasix, Slow K and Mixtard 70/30 50U mane, 35U nocte. She has had previous multiple hospital admissions due to infections, and has had bilateral amputations of digits and metatarsal heads due to PVD. She is currently having treatment for abscess/ sinus formations on both feet by RDNS. Her podiatry treatment involves frequent (once to twice monthly) visits for ongoing debridement and dressing changes for amputation sites, open wounds and ulcerations, as well as modification of footwear and manufacture of pressure relieving insoles.

Number surveyed	36		
Response overall	25 (69.4%)		
Response per region	1(n=4) 50%	2 (n=2) 100%	3 (n=2) 50%
	4 (n=2)100%	5 (n=2) 50%	6 (n=2) 100%
	7 (n=2) 50%	8 (n=2) 50%	9 (n=2) 50%
	10 (n=2) 100%	11 (n=2) 100%	12 (n=2) 100%
	13 (n=2) 50%	14 (n=2)50%,	15 (n=2) 100%
	16 (n=4) 50%.		
Availability of Treatment	Yes 23 (92%)		
	No 2 (8%)		
Length of Occasion of Service	Minimum 25 minutes		
	Maximum 28 minutes		
Cost per Occasion of Service	Minimum $36		
	Maximum $38		
Comments from practitioners who could not provide treatment	We consider the patient to be a high risk and therefore believe hospital based podiatry more appropriate, where vascular backup is readily available.		
Other Comments	(Provided in similar form by three practitioners) 'Our practice already treats this type of patient as we have the equipment and the expertise, and patients do not have to put up with hospital waiting times'.		
	'Private treatment has the benefit of being done locally and residents have the RDN/GP'S input and co-operation'.		
Comments on cost	'The cost of travel time and parking need to be considered when being treated at a public hospital'.		
	'Because of the prohibitive cost to patient in the private sector [not subsidised by Government] we usually refer onto hospital diabetic clinics for free ongoing treatment'		

Clinical Neuro-psychology

Case History

Mrs X, a 74 year old woman with a history of hypertension, is engaged in home duties and providing a day-care for her grandchildren. She is referred by her GP because of her daughter's concerns about her forgetfulness, her failure to take medications, and her poor driving. The question of a possible dementing disorder has been raised. CT and neurological examination have been inconclusive. Hence this referral for the establishment of a neuropsychological baseline. Mrs X receives an old age pension and has no health insurance.

Number surveyed	6
Response Overall	2 (33%)
Response per region	1 (n=0) 2 (n=2) 50% 3 (n=0) 4 (n=0) 5 (n=2) 50% 6 (n=1) nil 7 (n=1) 8 (n=0) 9 (n=0) 10 (n=0) 11 (n=0) 12 (n=0) 13 (n=0) 14 (n=0) 15 (n=0) 16 (n=0)
Availability of Treatment	Yes 1 (50%) No 1 (50%)
Length of Occasion of Service	Minimum 180 minutes Maximum 180 minutes
Cost per Occasion of Service	Minimum $400 Maximum $400
Comments from practitioners who could not provide treatment	'I work only with children and adolescents. I could provide feedback to family, but for practical advice/support the Alzheimer Association would be better and cheaper'. 'Most pensioners cannot afford this, and tend to decline the service, and even with health cover would receive only a $80 rebate'.

Audiology

Case History

Male patient aged 68 years of age retired and now a superannuant. Wife and family are complaining that he "has selective hearing" and hears what he wants!, needs the television volume loud compared to the rest of the family, does not hear the phone ring, and generally misses most conversations, especially when many people are speaking at the same time. Patient reports increasing difficulties hearing but does not think that the problem is as bad as the

family “make out”, and rather that its “probably my concentration” and that “they (the family) never have anything useful to say anyway!”. He has worked in a number of jobs involving significant noise, in particular 16 years as a fitter and turner for an elevator manufacturing company. He has constant tinnitus in both ears, much worse on the left and also has a long history of right armed rifle shooting as a younger man - “but surely that doesn’t count - it was a long time ago!” Audiology management requires full air/borne/speech testing; if the loss is asymmetrical ABR testing may be required. An ENT examination and review is likely indicated on completion of testing, and should the patient be free of active otalgic disease would be referred for hearing aids via private sector.

Number surveyed	5
Response overall	6 (100%)
Response per region	1(n=2) 100% 2 (n=0) 3 (n=0) 4 (n=0) 5 (n=0) 6 (n=0) 7 (n=0) 8 (n=1) 100% 9 (n=0) 10 (n=1) 100% 11 (n=0) 12 (n=0) 13 (n=0) 14 (n=0) 15 (n=1) 100% 16 (n=1) 100%
Availability of Treatment	Yes 6 (100%) No 0
Length of Occasion of Service	Minimum 45 minutes Maximum 69 minutes
Cost per Occasion of Service	Minimum $95 Maximum $123
Comments from practitioners who could not provide treatment	‘We provide routine audiometry, but no Hearing Aids and rehabilitation service at this stage’. ‘Private audiology provides personalised care, an availability, and flexibility of appointment times/ dates and is cost effective’. ‘As a superannuant he may be able to access AHS via a contractor at a reduced cost’. ‘Treatment availability is limited under Medicare, and only hearing aids are rebatable on private insurance’. ‘If he is ENT referred then Medicare rebate applies’. ‘Clients are best served by continuity of diagnostic and rehabilitation services under the one roof’.

Clinical Nutrition and Dietetics

Case History #1

Female aged 7 with phenylketonuria. Has required weekly / fortnightly review of blood chemistry results as an outpatient from birth for management of low protein diet with supplementary amino acids. Amino acids are supplied by public sector dietitian.

Number surveyed	21
Response overall	9 (42.86%)
Response per region	1(n=2) 50% 2 (n=1) 100% 3 (n=1) nil 4 (n=2) nil 5 (n=2) 50%, 6 (n=2) nil 7 (n=1) 100% 8 (n=1) 100% 9 (n=1) nil 10 (n=2) 50% 11 (n=2) 50% 12 (n=0) 13 (n=0) 14 (n=2) 100% 15 (n=0) 16 (n=2) nil
Availability of Treatment	Yes 1 (11%) No 8 (89%)
Length of Occasion of Service	Minimum 15 minutes Maximum 20 minutes
Cost per Occasion of Service	Minimum $30 Maximum $30
Comments from practitioners who could not provide treatment	'Eight of the nine practices stated that they could not treat the case as 'it required a specialised paediatric dietitian with expertise in the management of PKU, who would be in close communication with medical officers and have access to blood chemistry'.
Other comments	The one practitioner who could treat this case stated that 'we do not see much of this type of client'. 'This condition is rare in S.A. and is best managed in one location by dietitians exposed to the needs of these patients'. 'Costs would be high and therefore the paediatric team at the Children's Hospital would be the most appropriate people to treat the case'.

Clinical Nutrition and Dietetics

Case History #2

Male patient aged 24. Insulin dependent diabetes mellitus. Gastroparesis which is a complication of diabetes led to insertion of a (percutaneous-endoscopic) gastrostomy for feeding purposes on an indefinite basis. Requires regular review by dietitian of enteral feeding to ensure appropriate glycaemic control and adequate nutritional intake. Is unable to afford enteral feeds and equipment (giving sets) and containers and needs to receive these items from his public service dietitian

Number surveyed	21
Response overall	9 (42.86%)
Response per region	1(n=2) 50% 2 (n=1) 100% 3 (n=1) nil 4 (n=2) nil 5 (n=2) 50%, 6 (n=2) nil 7 (n=1) 100% 8 (n=1) 100% 9 (n=1) nil 10 (n=2) 50% 11 (n=2) 50% 12 (n=0) 13 (n=0) 14 (n=2) 100% 15 (n=0) 16 (n=2) nil
Availability of Treatment	Yes 5 (60%) No 4 (40%)
Length of Occasion of Service	Minimum 30 minutes Maximum 37 minutes
Cost per Occasion of Service	Minimum $38 Maximum $50
Comments from practitioners who could not provide treatment	The practices that said they could not provide treatment did so on the basis that they considered that this patient could not afford the costs, as no medical rebate applies. They would refer him on to a Community Health Service in their area.
Other comments	'We do not see much of this type of patient'. 'The possible complications, and the costs entailed in his ongoing treatment make him more appropriately seen in the public health system.'

Key Points

Private sector services were available in all instances for each of these cases. However, on the whole, few of the patients presented in the case histories could be satisfactorily managed in the private sector, for reasons of:

- widely available expertise
- cost.

The public hospital outpatient allied health services not only have a role for patients who have an associated admission to a public hospital, but also for those who have no association with a public hospital in patient admission. Moreover, public hospital outpatient allied health services provide a safety net for patients who cannot afford private sector care (and this could also involve patients who carry extras private health cover, whose problems are extensive and require a multidisciplinary approach, and who require ongoing provision and revision of aids and appliances.

CHAPTER ELEVEN

Cost Drivers

Introduction

The investigation of cost drivers of allied health outpatient services was conducted on episodes of completed care within the time period of the study (that is, where the dates of both first and last treatment fell between 1st February and 30th November 1996).

Service Costs

The service cost was expressed in two ways. As allied health services are currently funded under the occasion of service model (where the time taken to deliver the occasion of service is not a consideration), the number of occasions of service contributing to a completed episode of allied health outpatient care was investigated. However, the total time of the episode of care was a more realistic measure of the cost of the service, than the total number of occasions of service, because it was a proxy for the greatest costs entailed in providing the allied health outpatient service, that is, therapist time.

As was identified in Chapter Five, neither occasions of service per episode of allied health care, nor total time per episode of allied health care were normally distributed, and therefore the most appropriate manner of investigating their association with potential cost drivers was to use binary logistic regression, where the model under investigation was:

> if P = the probability of a subject consuming high cost allied health services, then P = $exp\ (cost) / 1 + exp\ (cost)$, where cost = $X_0 + X_1A$, and A was the dummy predictor for each cost driver.

Five separate models were developed, using total time of the completed episode of care as the dependent variable in four of the models, and the number of occasions of service within the completed episode of care in the fifth. The four time-based models were indicated by the variability in total time per completed episode per service. The placement of cut points to define dummy predictors of cost was made on the basis of the distribution of the data. The

reduction in the variability in each of the models was expressed as the -2 log L statistic and associated *p value*.

- For occasions of service in an episode of care, the 75th percentile was employed as the cut point *(dummy predictor 0 = one occasion of service, 1 = more than one occasion of service).*

For total time per episode of care, cut points were placed at:

- 30 minutes (for short episodes) *(dummy predictor 0 = less than 30 minutes, 1 = equal to, or greater than 30 minutes).*
- 50 minutes (for moderate length episodes) *(dummy predictor 0 = less than 50 minutes, 1 = equal to, or greater than 50 minutes).*
- 70 minutes (for long episodes) *(dummy predictor 0 = less than 70 minutes, 1 = equal to, or greater than 70 minutes).*
- 120 minutes (for extra long episodes) *(dummy predictor 0 = less than 120 minutes, 1 = equal to, or greater than 120 minutes).*

Service Type as a Cost Driver

Investigations were first undertaken to determine the association between service type and the measures of cost. The components of the Audiology service (Audiology, ENT and Hyperbaric) were amalgamated for this exercise, and Audiology was used as the reference, in a model containing the remaining services as the independent terms. Clear evidence of differences between services was provided for both total time per episode of care, and occasions of service within the episode. On this basis, all subsequent investigations were service specific. The association between service type and cost is reported as Odds Ratios and *p values* in Table 11. Section A reports the odds that each allied health service provided more than one occasion of service in a completed episode of care, when compared with Audiology services. Section B reports the odds that each allied health service provided completed episodes of care of greater than 30 minutes total in length, when compared with Audiology services.

Table 11.1: The strength of association between service type and cost

Section A: Dependent variable

1 = greater than one occasion of service in completed episode of care

0 = one occasion of service only in completed episode of care

	Odds Ratios	*p value*	- 2 log L	*p value*
Audiology	1.0		$1684.6_{(8)}$	*<0.0001*
(Clinical) Nutrition& Dietetics	7.1	*<0.0001*		
Occupational Therapy	35.9	*<0.0001*		
Physiotherapy	52.8	*<0.0001*		
Neuropsychology	10.6	*0.18*		
Speech Pathology	31.8	*<0.0001*		
Orthotics	1.3	*0.70*		
Podiatry	6.6	*<0.0001*		
Social Work	0.6	*0.18*		

Section B: Dependent variable:

1 = greater than, or equal to, 30 minutes in a completed episode of care

0 = less than 30 minutes in completed episode of care

	Odds Ratios	*p value*	- 2 log L	*p value*
Audiology	1.0		$371.3_{(8)}$	*<0.0001*
(Clinical) Nutrition& Dietetics	8.6	*<0.0001*		
Occupational Therapy	3.4	*<0.0001*		
Physiotherapy	4.4	*<0.0001*		
Neuropsychology	4.8	*<0.0001*		
Speech Pathology	6.4	*<0.0001*		
Orthotics	6.9	*<0.0001*		
Podiatry	.6	*<0.0001*		
Social Work	1.6	*<0.0001*		

Other Potential Cost Drivers

The other potential cost drivers under examination were:

- age (categorised as age groups as reported in Chapter Four)
- the allied health patient classifications (Category C, E1 or E2)
- grouped source of family income (categories of wages (self employed, PAYE), self funding (housepersons, retirees and students) and Government support (unemployment, sickness benefits, supporting parents, aged pensioners, prisoners)
- grouped referral mechanism (from within the hospital setting, from the community setting and self referred)
- lack of alternative services in the community (no service available, or available services for which payment was required)
- use of other outpatient clinics at the hospital within the previous 12 months (any)
- country of origin (English speaking countries, European countries, Africas, Asias, South Americas countries)
- grouped methods of travel to the first allied health appointment (hospital supported, self propelled, public transport, transported by another person, by car, free parking, by car, paid parking)
- current consumption of treatment outside the hospital setting (any)
- the chronicity of the condition for which treatment was being sought (acute, subacute, chronic)
- comorbidities (any noted)
- difficulties with communication (any noted)
- hospital location (metro / country).

Other factors were identified from the literature as potential influences on cost, but were unable to be examined in this project, because of the lack of appropriate data, or methods of data collection. These were the allied health diagnosis, the experience of the service provider, the needs of the patient, family and/ or carer and satisfaction with the service.

Univariate Models

Cost modelling was undertaken using univariate models because of the lack of data on diagnosis and customers' needs and expectations. Without these descriptors, investigation of drivers of costs in multivariate models was inappropriate. The univariate influence of each of the potential cost drivers was tested by entering each category of the variable independently into each of the five models (four dependent variables expressing different times per episode of care, and one dependent variable for the number of occasions of service in an episode of care). The models where the reduction in deviance was significant at $p=0.05$ or less were highlighted. Cost drivers common to services were also highlighted, and the most appropriate dependent variable (measure of cost) for each service was identified by the eveness with which the chosen cutpoint divided the patient sample.

Findings

The cost drivers for the Neuropsychology service could not be investigated because small numbers in the sample precluded successful resoluotion of any of the predictive models. Small numbers of patients, and/ or the data distribution for the dependent variables also compromised the resolution of some of the models for Audiology and Orthotics. Commonalities were detected across services, in the significant cost drivers, these being hospital location, age, country of origin, referral mechanisms, source of inceom, chronicity, travel arrangements and previous use of other outpatient services. Summarised findings are reported per service in Table 11.2. The dependent variable in each model is listed in the top row and the -2 log L value indicates the amount of the deviance which is accounted for by model (* denotes $p<0.05$, and ** denotes $p<0.01$). The output of each of the models is reported in full in the Appendix to this chapter.

These findings concurred in part with work undertaken iun Rotterdam by the Institute of Health Care Policy and Management, Erasmus University, which identified the risk effectos of age, gender and prior hospitalisation on total health care expenditure. Comorbidity and the influence of communication difficulties on costs were also identified as significant predictors. There were reservations about these findings in the light of error, missing data and misinterpretation of the aim of the question. These are discussed in Chapter Twelve.

The most appropriatre cut points for each of the services were found in the total time data, where relatively even distribution of data occurred at ± 35 minutes for Audiology, Orthotics and

Podiatry, ± 50 minutes for Social Work, ± 70 minutes for Clinical Nutrition and Dietetics and Occupational Therapy, and ± 120 minutes for Physiotherapy and Speech Pathology.

While the commonalities in cost drivers suggest that allied health patients have common characteristics, the service-specific differences in the most appropriate dependent variable highlight important differences within allied health service delivery. These findings underscore therefore, the inappropriateness of funding allied health outpatient services in public hospitals using the one occasion of service model, and reinforce the need for further research into allied health type and core business.

Table 11.2: Significant influence of independent variable on five (possible) models

	Aud	CN	OT	PT	SP	Orth	Pod	SW	Total
age	3	1	2	5	3	1	3	0	**18**
referral mechanism	1	3	0	5	0	0	3	3	**15**
source of income	0	2	2	5	4	0	1	0	**14**
chronicity	1	1	2	2	1	1	2	4	**14**
country of origin	3	0	0	5	5	0	4	0	**17**
classification of allied health	0	2	2	1	0	0	2	3	**10**
available local treatment	1	0	0	1	0	1	0	2	**5**
use of OP services in 12/12	0	2	0	5	2	0	3	0	**12**
travel mechanisms	1	4	2	1	3	0	0	2	**13**
having treatment elsewhere	1	2	0	5	0	0	0	1	**9**
comorbidity	0	0	3	3	1	0	2	3	**12**
hospital location	0	4	5	4	5	0	5	0	**24**
communication	0	1	5	0	0	0	0	3	**9**

Table 11.3: Summary of univariate analysis per allied health service, where 💻💻 denotes a significant decrease in deviance (denoted by the -2 log L value).

AUDIOLOGY	time >= 35 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
	1=174	1=169	1=33	1=9	1=21
	0=681	0=694	0=830	0=854	0=842
age	💻💻	💻💻	💻💻	no	
referral mechanism		💻💻		model	
source of income				resolultion	
chronicity				💻💻	
country of origin	💻💻	💻💻		💻💻	
classification of allied health					
available local treatment	💻💻				
use of OP services in 12/12					
travel mechanisms	💻💻				
having treatment elsewhere	💻💻				
comorbidity					
hospital location	no model	- all metro	services		
communication					

(CLINICAL) NUTRITION AND DIETETICS	time >= 35 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
	1=187	1=143	1=105	1=44	1=58
	0=19	0=63	0=101	0=162	0=148
age	💻💻				
referral mechanism			💻💻	💻💻	💻💻
source of income				💻💻	💻💻
chronicity					💻💻
country of origin					
classification of allied health				💻💻	💻💻
available local treatment					
use of OP services in 12/12		💻💻	💻💻		
travel mechanisms		💻💻	💻💻	💻💻	💻💻
having treatment elsewhere	💻💻	💻💻			
comorbidity					
hospital location		💻💻	💻💻	💻💻	💻💻
communication difficulties	💻💻				

OCCUPATIONAL THERAPY	time >= 35 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
	1=278	1=241	1=202	1=147	1=175
	0=86	0=123	0=162	0=217	0=189
age			💻💻		💻💻
referral mechanism					
source of income	💻💻	💻💻			
chronicity	💻💻	💻💻			
country of origin					
classification of allied health				💻💻	💻💻
available local treatment					
use of OP services in 12/12					
travel mechanisms				💻💻	💻💻
having treatment elsewhere					
comorbidity	💻💻	💻💻			
hospital location	💻💻	💻💻	💻💻	💻💻	💻💻
communication difficulties	💻💻	💻💻	💻💻	💻💻	💻💻

PHYSIOTHERAPY	time >= 35 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
	1=2047	1=1787	1=1614	1=1177	1=1656
	0=443	0=703	0=876	0=1313	0=834
age	💻💻	💻💻	💻💻	💻💻	💻💻
referral mechanism		💻💻	💻💻	💻💻	💻💻
source of income	💻💻	💻💻	💻💻	💻💻	💻💻
chronicity				💻💻	💻💻
country of origin	💻💻	💻💻	💻💻	💻💻	💻💻
classification of allied health					💻💻
available local treatment					💻💻
use of OP services in 12/12	💻💻				
travel mechanisms	💻💻	💻💻	💻💻	💻💻	💻💻
having treatment elsewhere					💻💻
comorbidity	💻💻	💻💻	💻💻	💻💻	💻💻
hospital location	💻💻	💻💻	💻💻	💻💻	
communication difficulties			💻💻		💻💻

SPEECH PATHOLOGY	time >= 35 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
	1=195	1=177	1=154	1=117	1=100
	0=31	0=49	0=72	0=109	0=126
age			💻💻	💻💻	💻💻
referral mechanism					
source of income	💻💻	💻💻	💻💻		💻💻
chronicity		💻💻	💻💻	💻💻	
country of origin	💻💻	💻💻	💻💻	💻💻	💻💻
classification of allied health					
available local treatment					
use of OP services in 12/12		💻💻	💻💻		
travel mechanisms		💻💻		💻💻	💻💻
having treatment elsewhere					
comorbidity					
hospital location	💻💻	💻💻	💻💻	💻💻	💻💻
communication difficulties					

ORTHOTICS	time >= 35 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
	1=33				**1=3**
	0=62				**0=92**
age	💻💻	few	few	few	few
referral mechanism		numbers	numbers	numbers	numbers
source of income		no	no	no	no
chronicity	💻💻	model	model	model	model
country of origin		resolution	resolution	resolution	resolution
classification of allied health					
available local treatment	💻💻				
use of OP services in 12/12					
travel mechanisms					
having treatment elsewhere					
comorbidity					
hospital location	*metro*	*services*	*only*		
communication					

PODIATRY	time >= 35 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
	1=135	1=70	1=41	1=15	1=38
	0=134	0=199	0=228	0=254	0=231
age	💻💻	💻💻	💻💻	no	
referral mechanism	💻💻	💻💻	💻💻	model	
source of income	💻💻			resolution	
chronicity			💻💻		💻💻
country of origin	💻💻	💻💻	💻💻		💻💻
classification of allied health	💻💻	💻💻			
available local treatment					
use of OP services in 12/12		💻💻	💻💻		💻💻
travel mechanisms					
having treatment elsewhere					
comorbidity	💻💻	💻💻	💻💻		💻💻
hospital location	💻💻	💻💻	💻💻	💻💻	💻💻
communication					

SOCIAL WORK	time >= 35 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
	1=381	1=346	1=160	1=17	1=10
	0=185	0=220	0=406	0=549	0=556
age	no	model	resolution		
referral mechanism	💻💻	💻💻		💻💻	
source of income					
chronicity	💻💻	💻💻	💻💻	💻💻	
country of origin					
classification of allied health	💻💻	💻💻		💻💻	
available local treatment	💻💻			💻💻	
use of OP services in 12/12					
travel mechanisms	💻💻	💻💻			
having treatment elsewhere		💻💻			
comorbidity	💻💻	💻💻	💻💻		
hospital location	*unable*	*to be-*	*investigated*		
communication difficulties	💻💻	💻💻	💻💻		

Key Points

1. The differences between allied health service type were clearly identified by the increased odds that all services, except Orthotics, would provide more occasions of service and/ or more total time per episode of care, when compared with Audiology.
2. Use of the cost measures of total time per episode of care and occasions of service per episode of care enabled identification of cost driving mechanisms, and further highlighted differences between service types.
3. The lack of appropriate information on diagnosis, and on customers' needs and expectations of the service precluded the construction of multivariate models.
4. The independent variables of hospital location, age, country of origin, referral mechanism, source of income, chronicity, travel arrangements and use of other outpatient services were common and significant predictors of cost across services.
5. This exercise identified the need to collect wide ranging and specific data on allied health episodes of outpatient care and the patients who consume it, in order to more clearly define significant cost drivers.

CHAPTER TWELVE

Discussion

This study recorded information on 10,095 individuals who sought care from 46 allied health services, sited in eight acute care public hospitals, between 1st February and 30th November 1996. The study focused on:

- the characteristics of patients attending clinical allied health services
- the nature and extent of service provision
- access to, and availability of, clinical allied health services
- service cost drivers.

Patient recruitment

Eligible patients not registered with the project

The number of patients not approached to participate in this study could not be determined accurately. New outpatients who had not been registered with the project could be identified in most sites by specific coding, and these losses were calculated as ranging from 5% to 20% of the available sample across sites. It was more difficult to accurately identify those 'returning' patients who had not been registered with the study, because of issue of discriminating between 'returning' patients who began a new episode of care after the 1st February 1996 (real losses to the study), and 'returning' patients who had already commenced an episode of care prior to the 1st February 1996 (of no interest to the study).

The real losses in returning patients were estimated as 10% to 30% of the available sample across sites. Overall, the percentage of eligible new and returning patients that was lost to the study was estimated to range from 25% to 50%. The losses per service were variable, and there was no clear pattern to the services which lost more eligible patients than others. It is possible that specific patient groups, such as patients who were elderly, and/ or disabled, patients who spoke little English, and patients who were difficult to deal with, were deliberately not approached to participate, because of the time and effort involved in obtaining compliance. Moreover, on busy days when the patient per staff ratio was larger than usual, it is also possible

that a cross-section of all eligible new and returning patients was not approached to participate because of lack of staff time.

Refusals

Figures were available per service and per hospital, on the patients who were approached to participate in the study, but failed to do so for reasons of refusal, inability to complete the form and/ or inability to speak and read English appropriately (known total 498). The number lost from the study by refusal, after having been approached to participate, is provided in Table 12.1., per site and per service. This figure is also expressed as a percentage of the total number of patients provided from each site.

Table 12.1: The known number of patients per site, and per service, who refused to participate in the study

DEPARTMENT	M1	M2	M3	M4	M5	C1	C2	C3
AUDIOLOGY	1		13					
(CLINICAL) NUTRITION & DIETETICS	49	2	13					
OCCUPATIONAL THERAPY		71						
ORTHOTICS			5					
PHYSIOTHERAPY	47	133	62	3	9	3		
PODIATRY	25	1	21				5	
SPEECH PATHOLOGY	1	1	7	3	4			
SOCIAL WORK		9	1		9			
TOTAL LOST TO STUDY	**123**	**217**	**122**	**6**	**22**	**3**	**5**	**0**
% TOTAL PATIENT NUMBERS	**4.3%**	**11.5%**	**8.1%**	**0.8%**	**1.3%**	**0.5 %**	**1.0%**	**0%**

Difficulties in Multicentre Data Collection

This project identified difficulties in disseminating information to all appropriate staff in participating services. Providing information to one sector of the staff did not ensure that the same information would be handed on to others. Newsletters appeared to be effective in providing ongoing information and support, although the time period for them to circulate within large departments was reportedly long. The project team sought to 'buy' maximum compliance with data collection by funding a local contact person in each site to raise the level of awareness of the need to enrol all new and returning former patients, and to deal with tasks such as ensuring a constant supply of questionnaires, checking that questionnaires were appropriately completed by patients and staff, and collecting manual discharge summaries where required. This produced considerable good will amongst clinicians and support staff,

although it is apparent from the estimations of patients lost to the study, that this was not sufficient to ensure appropriate patient capture in all sites on all days.

Data Auditing

This project particularly highlighted difficulties in auditing the number of individuals in the study against the actual number of eligible patients to whom outpatient services were provided. The 'head-through-the door' count required by state Health authorities takes account only of the occasions of services provided, not the individuals who consumed services. Services also employed a number of ways of recording patients consuming 'group' care, ranging from a full occasion of service assigned to each group participant at each group attendance, to a fractional occasion of service allocation assigned per UR number, to a simple head count of people in the group, with no UR assigned. Where antenatal classes were offered, in some sites the partner attending the class with the expectant woman was also allocated a UR number and an occasion of service was registered for each person. It was difficult therefore to compare occasions of service information across sites.

Access to, and availability of, allied health services

The study identified both internal and external barriers to equitable service delivery. Internal barriers were imposed (by default in many instances) by the power, membership and allegiances of the allied health divisions in individual hospitals, hospital-specific referral and review requirements, methods of service delivery, lack of appropriate data recording and reporting, lack of delineation of core business of allied health services, lack of delineation of the role of the allied health service within the multidisciplinary ambulatory care team, and lack of benchmarking between like services across sites. External barriers were imposed (again, possibly by default) by funding agreements, and where funding authorities assumed that there were multiple options for service provision within both metropolitan and rural communities. The ease of transport to public hospital outpatient services and patients' multiple health needs directed allied health service usage.

Allied Health Divisions

There was a lack of standard membership of allied health 'divisions' across sites. The (seemingly) random site-specific exclusion of services from this group is a possible contributor to fragmented delivery of clinical allied health services, the marginalisation of smaller or more specialist allied health services, and the lack of cohesive direction in the overall delivery of allied health care. Moreover, not all participating hospital sites formally employed directors of the

allied health 'divisions', and in these instances, leadership of the group was assumed by elected individuals. 'Training on the job' was the most commonly reported method of obtaining allied health leadership skills.

Referral Mechanisms

Obtaining a clear ruling on hospital policy regarding referral requirements was difficult across sites. The traditional medical model was nominally in place, and the referrer in most instances was required by hospital policy to be from within the hospital. However, the data indicated that general practitioners, and patients themselves, commonly initiated referrals, particularly in country sites where the hospital was part of a more integrated delivery of hospital / community - based health services.

The primary contact model commonly practised by allied health services in the private sector, supports self regulation by allied health professionals, the ability of patients to determine and direct their health care consumption and the regulatory effect of market forces on the availability and quality of care. This last, presumes that the private sector can adapt quickly to cope with consumer demands and that private practitioners are prepared to carry the risks entailed in good times and in bad. The philosophy underlying the requirement of a medical (in-house) referral to hospital-based allied health ambulatory services therefore requires review to determine whether it is appropriate in the face of changing legislation, funding arrangements, shrinking health funding and consumer demands. This study highlighted that patients often are required to attend two medical practitioners (their own general practitioner, and the required hospital referrer) in order to obtain a referral to public hospital outpatient allied health services. This is not only costly in financial terms, but it potentially involves a passage of time which may be inappropriate for the patient's condition and home situation.

It also creates the opportunity to blur the communication channels between the allied health practitioner and the original referrer, and to compromise the smooth delivery of care across the hospital / community interface. Moreover, where public hospital allied health services are underfunded, costly or in high demand, the use of in-house referral as a 'gatekeeping' mechanism without appropriate and agreed screening procedures (negotiated with allied health departments), may compromise the care of patients who are unable to negotiate the system or to act as self advocates. Therefore its value would appear to be costly to the system and questionable in benefit to a quality outcome.

Workload Issues

Heads of most allied health services reported changes to service delivery within the previous twelve months, with relatively even numbers of services reducing, or increasing their outpatient services. In-house referrers, as well as general medical practitioners, expressed the need to know more about the available allied health services at the primary site of the grant. Presuming similar situations elsewhere, the frequency with which allied health services changed their delivery suggested that lack of knowledge of referrers about available resources could act as a barrier to equitable access. *Ad hoc* barriers were also raised by the allied health services, by imposing long waiting times, determining the frequency of available appointments and clinic operating hours, and not providing treatment to compensable and privately-insured patients.

Funding

Private Sector Funding

The variable rebates for allied health services offered in the private sector mean that either the patient or the health practitioner is compromised financially. Where the therapist is treating a compensable patient, the fee for service is usually fixed at less than the recommended fee, and it may not be possible to recoup the gap from the patient. Where patients are privately insured with ancillary cover, the gap between the fee charged and the rebate can be up to 60% of the fee. For example, the fees charged by private allied health practitioners in South Australia as of July 1996 are itemised in Table 12.2. If the patient has a condition which requires a longer than 'usual' treatment time, some allied health services are disadvantaged if the fee is not tied to a visit of specified length. Therefore there may be little incentive for the therapist to provide a long occasion of service, or the patient to undertake long term allied health management.

Table 12.2: Private Allied Health Fee Schedules

Audiology	$120 for initial 60 min session ($180 for initial 60 min session + one 30 min. review)
Neuropsychology	$426 for two hour's consultation + one hour report
Clinical Nutrition	$62 for one initial session ($89 for one hour's initial consultation + one 15 min. review)
Occupational Therapy	$130 (initial consultation and two standard treatments)
Physiotherapy	$196.90 (initial consultation and four standard treatments)
Speech Pathology	$227 (one 45 min. initial consultation and 3 x 30 min standard consultations)
Podiatry	$82 (one initial consultation and one 20 min. repeat consultation)
Social Work	$120 for one hour's consultation

To provide concrete examples of the costs entailed in attending private sector allied health services, the cost of an episode of care (as determined by this study) was calculated as the proportion of the fortnightly income for single public hospital patients aged 21-60 years, who were receiving Government subsidy. Two forms of benefits are currently available: unemployment (also encompassing supporting parents and young homeless) of $320.20 per fortnight, and pensions (encompassing aged and illness/ disability) of $351.80 per fortnight. Fortnightly income was employed because the usual episode of care extended over approximately one fortnight, with payment expected at the end of the episode. The proportion of the fortnightly income of 21-60 year old recipients of Government subsidy that would be spent on a usual episode of allied health care delivered in private settings is listed in Table 12.3.

Table 12.3: Proportion of fortnightly income from Government subsidy that would be spent on a usual episode of private sector allied health care

	Unemployment	Pension
Audiology	37.5%	34.1%
Neuropsychology	133%	121%
Clinical Nutrition	19.4%	17.6%
Occupational Therapy	40.6%	36.9%
Physiotherapy	61.5%	55.9%
Speech Pathology	70.8%	64.5%
Podiatry	25.6%	23.3%
Social Work	37.5%	34.1%

Public Sector Funding

On the other hand, services that are 'free' to the patient are provided in public sector ambulatory settings. Reimbursement to the hospital is per the occasion of service funding model. Funding is delivered to each hospital by yearly block grants which take no account of:

- the size of the pool of allied health patients who may require services in any one year, for instance the effect on service consumption of age, chronicity or home location of patients
- the differential UR attributable time spent, per allied health service, on one occasion of service (as highlighted in Chapter Five, where four distinct lengths of episode of care were identified from the data)
- the number of occasions of service within an episode of care
- the allied health services which are disadvantaged by the volume of ongoing patients

This study identified that the frequent delivery of the episode of care containing one occasion of service only, was common in all allied health services. This finding was anticipated only from those services whose core business is mainly assessment and/ or diagnosis. However,

identifying it in those services which have traditionally provided longer-term care-based episodes containing multiple occasions of service suggests:

- a shift in philosophy to providing preventative / educative allied health management, and/ or
- a climate of 'making ends meet', by providing a small amount of service for as many people as possible.

These findings highlight the need for further investigation of core business and philosophies underpinning allied health services, to identify whether the traditional care provided by public hospital allied health outpatient services requires formal re-definition in the face of decreasing funding, and changing customer demands.

Duplication of Services

This study highlighted the lack of duplication of allied health services, when comparing community-based, private sector services and public hospital outpatient services.

Community Health Services

Community health services were located in twenty-two sites in the Adelaide metropolitan area. These centres were largely independent of each other, although several had the same management. Overall focus was on health promotion rather than care-based treatment, and therefore only limited care-based opportunities were available. The type of patient eligible to access community health centre services was constrained by home location, age, condition type and ability to pay. There were few links between the services provided in community health centres and those provided in acute public hospital outpatient settings. Funding came from different sources and there was little coordination in the way that services were offered, or in professional links between clinicians. Community services were frequently not sited on public transport routes and therefore access to them was potentially further limited. For the age groups for whom services were generally supported by community health centres (the very young and the elderly), this particular barrier to access may in fact be the most difficult.

Private Services

While the same conditions could theoretically be treated in most private and hospital-based services, access to private sector services was largely restricted by cost, and by private sector practitioners' willingness and ability to provide long term, ongoing, coordinated care. Moreover, some specific and specialist services were only available in the public hospital setting because of the available multidisciplinary options, and because of the costs entailed in care provision.

The survey of private practitioners highlighted the importance of the public hospital system in providing care that was unable to be supported by the private sector, except at great cost and effort.

Standard Data Collection

This study highlighted the *ad hoc* approach to data collection by allied health services. This was attributed to lack of systems support from state Health Authorities and institution, lack of sophistication of allied health practitioners in determining the specifications for standard and required data items, and lack of skills, incentive and opportunity to derive the maximum value from the available data. The reporting undertaken in some institutions belied the amount of available data, and, coupled with clinicians' concerns regarding the time consumed, and errors incurred, in data entry, urgent revision of data collection by allied health professions is required.

Data collection should succinctly describe the care provider, patient and episode characteristics, and issues of access and availability. Some data items will satisfy two or more of these requirements, but others are specific, and should only be recorded when there is an immediate use for the information. The specifications for relevant data items for allied health are proposed in Appendix B. The analyses reported in Chapters Four, Five and Eleven provide suggestions for reports which can be used by managers and clinicians to describe patient and episode characteristics, and to facilitate investigation of service costs.

Such is the importance of accurate data collection on allied health services that educational input is required at undergraduate and post graduate levels to assist them with book-keeping and accounting, computing and reporting skills. This project highlighted the lack of administrative support in some departments, and therefore clinicians who undertake data collection exercises may not have the relevant training to support the completion of systems-based tasks.

Diagnosis

A range of descriptors were employed by the participating allied health services to describe patients' diagnosis/ reason for intervention. Few standard descriptors were used within particular services, and none were used across services. Allied health services largely appeared to reject ICD-9-CM codes, DRG's and the Developmental Ambulatory Classification System (proposed by the DACS study 1995) as viable diagnosis descriptors because they were felt to be inappropriate to the range of components inherent in allied health diagnosis.

Diagnosis as a Cost Driver

Diagnosis is believed to drive health costs, and on this premise, descriptors of diagnosis, patient and episode-related variants underpin the Diagnostic Related Groupings used in inpatient costings (ANDRG Version 3). However, because of the variety of ways that allied health services recorded outpatient diagnosis information for this study, investigations into diagnosis as a cost driver of outpatient services could not be pursued. Condition type, severity, chronicity, location (including laterality), symptoms / presentation, procedures and proposed causal agencies were used by clinicians to describe allied health diagnosis, and some of these features were of particular importance for particular allied health services. For some services, the way in which diagnosis information was recorded matched the core business of the service, while for others, there was no obvious relationship. For some, the causal agencies were of as much interest as the presenting condition, and for others, the chronicity and severity of the condition were the most important elements.

Each allied health service needs to consider the relative merits of each aspect of diagnosis in the context of their core business and service delivery. Collecting information consistently is time consuming, and because of the wealth of information potentially entailed in allied health diagnosis, it needs to be determined whether all aspects of diagnosis are cost drivers, or whether particular aspects are of more significance than others as cost determinants. Moreover, minimum essential levels of diagnosis information are required so that large quantities of accurate data can be made available, to inform further studies. Not only does diagnosis information need to be collected in a standard way across sites, but the accuracy with which clinicians assign elements of diagnosis needs to be tested.

Standard Diagnosis Elements

For the purpose of classifying and clarifying components of allied health diagnosis, commonalities were identified in the way in which diagnosis was reported to the project by clinicians. The common components of diagnosis were considered, and then ordered into multilevel options. This is outlined in Figure 12.1. This approach enables the components of diagnosis that are essential to individual allied health services to be determined on reporting, research and quality management needs.

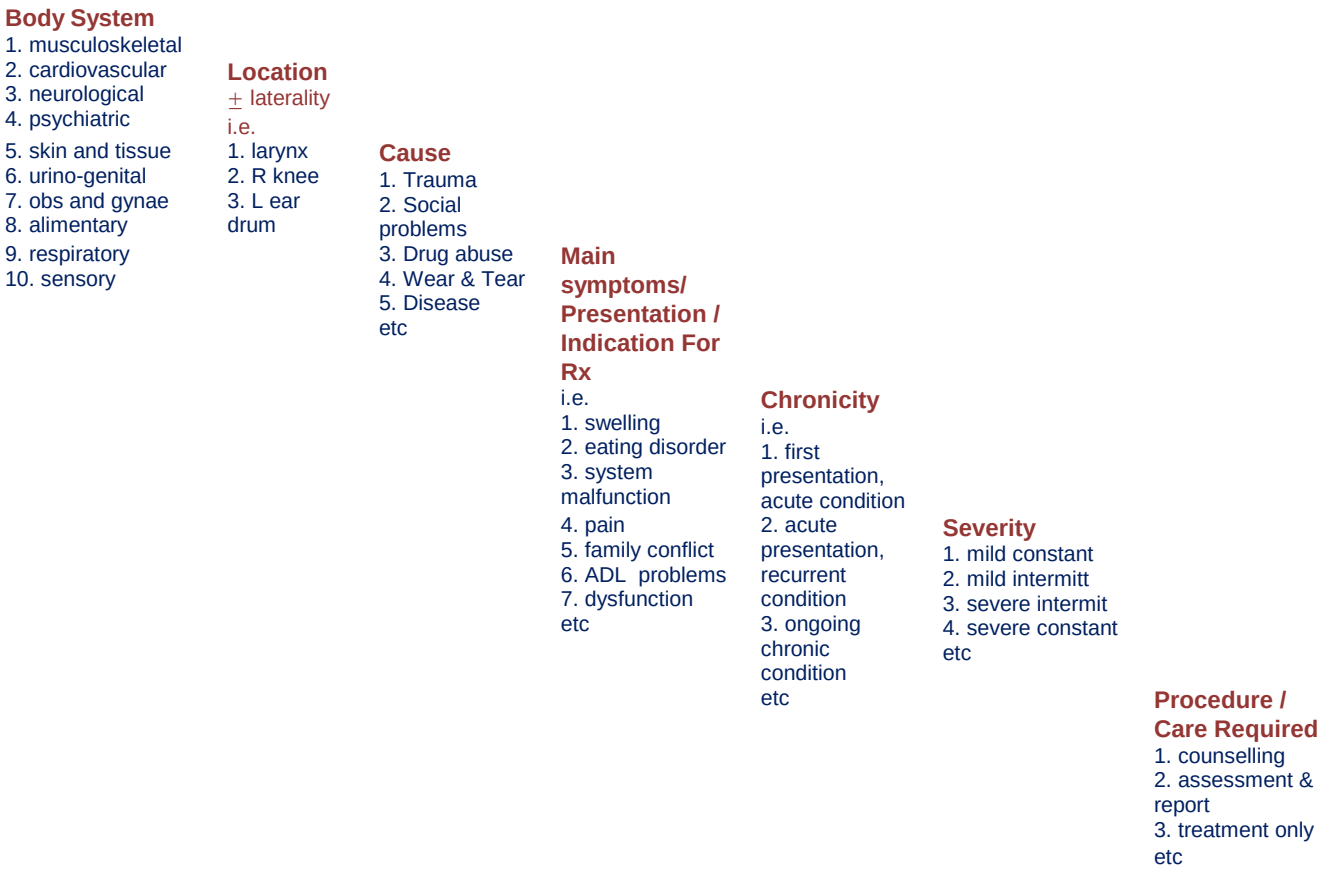

Figure 12.1: Options for collecting essential elements of allied health diagnosis

Comorbidity

Little useful information was provided to the project on comorbidity. Few allied health services collected this information routinely, and when asked for the information for the purpose of the project, information of variable type and amount was provided. In many instances, the information was simply further explanation of the diagnosis, rather than defining a comorbid state. Therefore little confidence could be placed in this information in the analysis of cost drivers. The collection of information on comorbidity requires further investigation.

Outcome of Care

Two of the elements of diagnosis have a role as markers of the outcome of care, these being

- Main symptoms/ Presentation / Indication for treatment
- Severity.

If these elements are measured on initial assessment and on discharge and/ or review, changes in them can be used as a marker of success of management. To date there are no standard

descriptors of either main symptoms (or reason for presentation) or severity of condition, and therefore more work is required to develop these elements for each of the clinical allied health services.

Cost drivers

Determinants of cost drivers of allied health services have not been identified. The two measures of cost employed in this analysis (the number of occasions of service in a completed episode of care, and the total time of the completed episode of care) enabled differentiation between different service types, and on the basis of the findings, it was clear that the total time per episode of care was a better indicator of service-specific cost than the number of occasions of service.

Service Differences

This study identified significant differences between services in the total time for an episode of care, and indicated that cost drivers need to be investigated on a service specific basis. The dependent variable also needed to be service specific, as there were marked differences between services in the most appropriate placement of cut points in the total time measure. The number of patients identified by service-specific cut points were:

Audiology
total episode time >= 35 minutes (1 = 174, 0 = 681)**

Orthotics
total episode time >= 35 minutes (1=33, 0= 62)

Podiatry
total episode time >= 35 minutes (1=135, 0=134)

Social Work
total episode time >= 50 minutes (1=346, 0=220)

(Clinical) Nutrition and Dietetics
total episode time >= 70 minutes (1=105, 0=101)

Occupational Therapy
total episode time >= 70 minutes (1=202, 0=162)

Physiotherapy
total episode time >= 120 minutes (1=1177, 0=1313)

Speech Pathology
total episode time >= 120 minutes (1=117, 0=109)

***1 denotes the number of patients who fell outside the cut point (i.e. consumed greater than 35 minutes in the episode of care) and 0 denotes the number of patients who fell within the cut point (i.e. consumed less than 35 minutes in the episode of care).*

It was not possible to resolve any model constructed for Neuropsychology because of the small numbers of patients, and the lack of variability in occasions of service and total time per episode information For similar reasons, there was poor resolution of some of the models constructed for Orthotics and Audiology. Audiology and Neuropsychology services provide mainly assessment, diagnosis and reporting services, and therefore are potentially able to be described by standard 'packages of care' which last for prescribed periods of time (suggested as approximately 30 minutes and 150 minutes respectively). The Orthotics service however, provides assessment, manufacturing, fitting and maintenance services, and therefore patient care cannot be expected to be described in standard 'package' terms. However, the information provided to the project on time belied this, and indicated the need to clarify the way in which UR attributable time is recorded by Orthotics services. For instance, the lack of variability in the figures supplied to the project suggested that UR attributable time may not always include non-patient contact time such as that spent on manufacturing or maintenance.

Regional Differences

Had the data set included more hospitals from country regions, and services that were provided in both metropolitan and country sites, more confidence could have been placed in the findings of the influence on cost of hospital location. The data allowed comparison of metropolitan and country-based services only for Clinical Nutrition and Dietetics, Occupational Therapy, Physiotherapy, Speech Pathology and Podiatry. While Social Work services were provided in country locations, the patient numbers were too few for resolution of models.

Standardised patient numbers, reported in Chapter Six, indicated higher rates of new and returning former patients in country sites. Moreover, it was found that, overall, hospitals in country regions provided slightly more total time per episode of care than metropolitan hospitals, a finding that suggests that:

- local hospitals play an even more important role in country communities than in metropolitan communities, because of the lack of alternative community services in the country. Country hospitals therefore possibly take a longer term approach to their provision of care, so that it addresses all the relevant needs of patients
- country patients are more likely to be older and have more chronic conditions, which may require the provision of longer episodes of care to obtain the required outcome
- the lack of all relevant clinical allied health services in country regions necessitates country therapists becoming multiskilled, where they undertake the tasks of unavailable allied health providers. This may incur longer occasion of service times to achieve the required patient outcomes.

Future studies on the influence of hospital location on costs of service need to examine staff availability, staff experience, the ratio of outpatient to inpatient hours, the characteristics of the patient population, and the availability of local alternative services.

Other Cost Drivers

Across services, age, country of origin, referral mechanism, source of income, chronicity, travel arrangements and use of other outpatient services were common and significant predictors of cost.

However, the findings on comorbidity and communication difficulties must be viewed with some scepticism. Strong associations with increased time per episode were observed for those patients with a record of comorbidity. This information did not accurately describe comorbid states. While it is proposed that those patients with comorbidity information registered against them were recognised, by default, as having greater needs, further investigation of the influence of comorbidity on costs is required. Similarly, despite evidence that patients with communication difficulties required longer episodes of care than others, there were few records with this information appropriately recorded and therefore little confidence can be placed in the findings.

Age

The influence of age on specific service time per episode of care was variable within services and sites, but generally, the patients aged between 26 and 50 were the highest consumers. These patients may be more vocal, or may have more specialist requirements that demand greater time per episode. Had better diagnosis information been available, the needs of age stratified patients could have been more closely investigated.

Country of Origin

Country of origin was grossly grouped to reflect specific language bases and regions of the world. It provided the expected information that non-English speaking patients (those not born in Australia, the UK, or North America) were more likely to consume greater total time per episode of care than any other patient. This information suggests that the allied health services are sensitive to the health needs of migrants, in that greater time was spent with them. It also indicates the potentially higher costs of providing allied health care to non-English speaking patients, in that there may be inefficiencies due to communication problems and interpreter availability.

Referral Mechanism

The influence of referral mechanism on cost of service was inconsistent because in some sites the number of community-based and self- referrals was small. Overall, self referral appeared to be less costly than referral from other source, suggesting that where patients understood the nature of the service and were directly involved with decisions regarding consumption of care, costs were reduced. This finding requires further investigation, either in a larger observational study or in a controlled trial. The association between referral mechanism, diagnosis and costs also requires investigation, as the nature of diagnosis may be intrinsically related to the need for referral to a particular service, or for a particular type of care.

Source of Income

Source of income was a consistent cost driver, where patients on Government support consumed more total time per episode of care than all others. This finding perhaps indicates a particular mindset of patients and/ or therapists regarding the provision of 'free' care. It may also indicate the need to require co-payment from all patients, as a means of regulating service consumption and increasing patients' perceptions of the 'value' of the service. However, this finding cannot be definitive until it is evaluated in the light of diagnosis information, as patients on Government support may suffer more complex problems, and have multiple and/ or multisystem needs that requires more management time.

Chronicity

There was some variability across services in the impact of chronicity on total time consumed per episode of care. However, on balance, patients with chronic conditions consumed longer episodes of care than those with acute presentations. Given that allied health care was provided to patients across the spectrum of chronicity, this finding suggests that earlier treatment to prevent chronic problems may reduce allied health costs. This needs further study using controlled trials and measuring outcomes over a long time period.

Travel

The influence of travel arrangements on total time per episode of care indicated that where patients travelled passively, or whose travel was supported by free local parking, the time per episode of care was higher. Thus, where patients made a direct contribution to their travel arrangements (by being self propelled or by paying for parking), this appears to act as a disincentive on the length of an episode of care Patients may also choose to minimise their attendance because of difficulties and/ or costs entailed in accessing clinical allied health services in public hospital settings.

Use of other Outpatient Services

Previous use of other outpatient services was consistently associated with longer episodes of care, identifying perhaps the cost driving influence of chronicity of conditions, the complexity of health needs and/ or a type of patient who was an accustomed public health 'free' service user. This corroborates the findings on the cost driving influences of source of income.

Minimum ambulatory data set requirements

In order to undertake costing studies on ambulatory care, a standard minimum data set is required, and data needs to be collected from a larger number of hospitals for at least twelve months. The components were identified from the comprehensive list of data items collected for this project, and were defined for the minimum data set by their importance to patient and episode characteristics. The components of the proposed data set are listed below.

Patient Descriptors

1. UR number *(a Key item, to which all subsequent data is attached - collected or acknowledged at each Occasion of Service)*
2. Gender *(collected once only on a Master File*
3. Date of Birth (*collected once only on a Master File)*
4. Source of Income *(collected for each Episode of Care)*

Episode of Allied Health Outpatient Care Descriptors

5. Service Identifiers (*a key data item, collected or acknowledged at each Occasion of Service)*
   - allied health service
   - subclinic identifier
   - campus Identifier
6. Allied health status *(collected for each Episode of Care)*
   - Association with inpatient admission
   - Compensable insurance status
   - Private extras health insurance cover
7. Hospital Diagnosis (if relevant) *(collected for each episode)*
8. Allied Health Diagnosis (including all relevant components) *(collected at each Occasion of Service)*
9. New or returning patient to this service for this condition *(collected for each Episode of Care)*
10. Prescription and cost of consumables (collected for each Occasion of Service)
11. UR attributable time per occasion of service *(collected at each Occasion of Service)*
12. Total number of occasions of service (*a count of the Occasions of Service)* with descriptors for

- Date of first occasion of service
- Date of final occasion of service

13. Outcome of care on final occasion of service / discharge *(collected at each Episode of Care)*

Comparison with other data sets

The 1991 Census data for Population and Housing (Basic Community Profile for Adelaide metropolitan area (ABS Catalogue No 2722.4) was used as a comparison with this data set for age and country of birth. It was unfortunate that the timing of this project was such that the 1996 Census data could not be used. The hypothesis of equal access to allied health services, regardless of age and ethnicity, was examined.

The average costs per occasion of allied health service, reported in the Victorian Ambulatory Classification system resource weights study (Jackson et al 1996), and the 1996-7 Allied Health Ambulatory Study conducted at the Princess Alexandra Hospital, Queensland (personal communication), were compared with extrapolated findings of this project (cost of staff time associated with total average time per occasion of service within an episode of care).

Age Groups

The percentage of the total population in each of the age categories used in this project (determined from the Census report) was compared with the percentage for each hospital, that fell in each age category. This is reported in Table 12.4. Differences were observed between the Census data and the data from individual sites. For instance, only two of the hospitals provided services to children in approximate proportion to the Census data, while the remaining hospitals provided either no services to children or services to considerably more children than expected. On the other hand, the proportion of patients in the 60-74 year group was higher in five of the eight sites than the population norm. This suggests that the census data for Adelaide metro may not be appropriate for the country and/ or that higher numbers of older patients have allied health needs that are being met in the public sector. Of interest however, was the agreement between Census data and all but one hospital, for the proportion of 75+ year patients attending allied health services. The one site with significantly higher numbers of elderly patients than Census figures was a country site, again suggesting that Adelaide metro population figures were inappropriate for comparison.

The commonalities between the two data sets for this age category provide evidence against the suspected selection bias in this study, as the findings suggest that older patients may not have been particularly discriminated against during data collection.

Table 12.4: Comparison of 1991 Census data with project age categories per hospital

	<=5	6-16	17-25	26-39	40-59	60-74	75+
Census	8.1%	14.9%	14.7%	22.2%	22.5%	12.1%	5.5%
M1	0%	0%	13.2%	23.1%	33.5%	23.1%	7.1%
M2	10.6%	14.2%	10.2%	19.7%	22.9%	17.5%	5.0%
M3	0%	0%	7.5%	18.5%	32.6%	28.9%	12.5%
M4	5.3%	6.8%	15.6%	22.3%	31.9%	14.5%	3.7%
M5	20.2%	20.0%	23.9%	33.3%	2.3%	0.1%	0%
C1	6.6%	11.7%	15.5%	28.3%	21.1%	13.7%	3.1%
C2	11.7%	5.9%	2.9%	6.6%	17.5%	30.8%	25.4%
C3	15.1%	5.7%	5.4%	13.9%	26.5%	26.5%	6.9%

Country of Birth

Similar proportions of countries of origin were found in the Census data and the data from this study, suggesting that overall, allied health outpatient services were provided equitably to individuals regardless of their place of origin. Moreover, when examining the data hospital by hospital, the patient groups of two metropolitan hospitals in particular constituted considerably fewer Australian-born patients than the other hospitals (where the Census figures for Australian-born individuals were 72.3% and the hospital proportions were 57% and 58.5% respectively). This finding suggested these two hospitals were:

- situated in high migrant population areas,
- providing greater numbers of services to migrants than to Australian-born patients, and/ or
- were providing more accessible services to migrants than other hospitals.

However, there were large discrepancies in the proportion of countries of origin across services, with Physiotherapy providing services to individuals from significantly more ethnic backgrounds than any other allied health service. These findings suggest discrepancies in the accessibility and availability of some public sector allied health outpatient services for individuals from migrant backgrounds. Furthermore, given the lack of allied health services in community health centres, and the cost of private sector services, it was not anticipated that the 'missing' proportions of migrants were seeking allied health services elsewhere.

The provision of appropriate allied health services to migrants needs to be considered in the light of community knowledge of public sector allied health services, interpreter support services, services provided out of hours, when family members can accompany the patient, community and referrer awareness of the range of services provided by allied health clinicians

and the required referral mechanisms to public hospital outpatient services. However, inequities in the number of migrants consuming services in the different allied health outpatient areas also need to be considered in view of the possibility that non-English speaking patients were excluded from this data set in greater numbers than English speaking patients because of (staff) perceived difficulties in obtaining a completed questionnaire. Moreover, less well-resourced services (particularly in clerical support) may have excluded proportionately more non-English background patients than more resourced services because of the lack of dedicated support for patients who required assistance in completing the questionnaire.

Comparison with Costing Studies

Victorian Ambulatory Classification and Funding System

The Victorian Ambulatory Classification and Funding Study which produced relative resource weights for non-admitted patients (Jackson et al 1996) collected data from six metropolitan Melbourne hospitals over a two month period. Valid patient level allied health cost data were available from allied health services in four of the six hospital sites. There were inconsistencies in the way allied health time was attributed to patients, and it was suspected on this basis that the allied health costings were undervalued. The allied health occasion of service costs were determined as the proportion of gross block funding for salary for two months of the allied health outpatient service attributed to the occasions of service logged within that time period. The number of occasions of service was a proxy for time-based costs, where small numbers of patients consuming long treatment times were theoretically reflected in higher average costs. Data were collected on all patients 'through the door' during the study period (reflecting the volume of service delivery, not completed episodes of care).

Princess Alexandra Hospital Allied Health Project

An allied health Ambulatory Care Reform project conducted at the Princess Alexandra Hospital, Q'ld, during 1996-1997, used a similar methodology to the Victorian study, but with tighter controls on the way time-based data were collected - an advantage of a new and dedicated information system. Data were collected from one hospital only for a twelve month period and the occasion of service costs included labour (direct patient time and patient attributable time) and consumables allocated to the patient.

Indicative Comparison of Costs per Occasion of Service

The project on which this report is based was not planned as a costing study. Rather, it aimed to develop baseline information on patient and episode characteristics, and to explore issues of access to, and availability of, allied health services. However, the identification of service-

specific time per occasion of outpatient service, developed from the notion of episodes of allied health outpatient care, provided the opportunity to develop indicative costs associated with allied health outpatient service delivery. The South Australian Health Commission agreed rate of allied health occasion of service funding was, as of March 1997, a location-specific allied health weighting of $73 for an outpatient occasion of service, irrespective of allied health service type. The metropolitan allied health weighting (0.68) was derived from the Ambulatory Encounters Project (1990) conducted at Flinders Medical Centre. Thus every occasion of service (counted in this project), that was provided at participating metropolitan South Australian hospitals incurred a reimbursement at hospital level of $49.64.

This study however, demonstrated that each occasion of service incurred variable allied health therapist time. To enable comparisons of costs, an indicative averaged gross hourly rate of SA metropolitan public hospital allied health staff time was derived (approximately $80). For each service, the yearly block salary grant was divided by hours per year of available inpatient and outpatient allied health service, and then this figure was averaged across the allied health services. This figure took account of salary increments and small consumables but not large block grants for consumables. Using this figure, the cost per service of an occasion of service was determined (the average therapist time for this having been determined by this project). These indicative costs are listed in Table 12.5. They were compared with the agreed SA Health Commission allied health rebate, as well as the costs of allied health occasion of outpatient service reported by the Victorian (VACS) and Queensland (PAH) studies.

Table 12.5: Comparison of costs attributed to allied health occasions of outpatient care

	salary cost per av. occasion of service within completed episode of care	av residual from SAHC rebate	VACS cost for O/S	Q'ld study cost per O/S
Audiology	$40.00	+$9.64	$50.69	$26.79
Nutrition	$69.60	-$19.96	$60.03	$14.91
Occupational Therapy	$66.67	-$17.03	$46.27	$27.77
Physiotherapy	$43.33	+$6.31	$12.23	$13.64
Speech Pathology	$96.00	-$46.36	$48.50	$29.80
Podiatry	$40.00	+$9.64	$34.66	$12.46
Social Work	$73.33	-$23.69	$16.25	$12.91
Neuropsychology	$160.00	-$110.36	$36.60	
Orthotics	$40.00	+$9.34	$36.60	$61.76

Because of the differences in study methodologies, the above comparison offers only food for thought. This study examined only those patients who began and ended an episode of care during the period of the study (therefore ignoring the patients who were consuming ongoing allied health care during the same time period), while the two comparison studies counted occasions of service, not individuals, in a specific time period. Moreover, the VACS study identified the possible underestimation of its published allied health costs on the basis of missing data, and variable data definitions employed in participating sites. Nevertheless, the comparison highlights the need to more clearly understand and value the variability in allied health service delivery, and way in which costs of service delivery are attributed.

Conclusion

Characteristics of Patients and Episodes

This study provided an overview of the characteristics of allied health patients and episodes of care delivered at the clinical allied health outpatient services at eight public acute care hospitals. Four of these were South Australian metropolitan sites, two were South Australian country sites and two were interstate comparison sites. The data set enrolled 10,095 patients, 5,207 of whom completed at least one episode of allied health outpatient care within the time period of the study (approximately 51%). The episode of care identified the occasions of service provided to the one patient for the one condition in the one allied health service on the one referral. The episode was opened and closed by specifically flagged dates. The discharged patients in the data set consumed single, and multiple, occasion of service episodes of care. Approximately 5% of patients overall consumed more than one episode of allied health care in the time period of the study, an indication of the multiple and long term needs of some outpatients.

Commonalities

The study identified commonalities in allied health patient and episode characteristics, and cost drivers, across services and sites. Allied health outpatients came from all aspects of the community, including those with, and without, a related inpatient association, of all age groups, from all ethnic backgrounds, from all sources of income, and with both acute and chronic conditions. The delivery of the one occasion of service episode of care was common in all sites and services, an indication of:

- a general focus on single contact core businesses such as assessment, diagnosis, health promotion and education, or
- constraints (financial environmental and staff complement) requiring the delivery of minimum service to maximum patients.

Differences

Allied health services differed significantly with respect to core business and characteristics of episodes of care, in particular the UR attributable time per episode of care, and per occasion of service. The study highlighted the need to collect more specific information than that which is currently collected on allied health core business, customers and service delivery, in order to understand, and appropriately direct policy on allied health outpatient service delivery. Moreover, the working definition of clinical allied health professionals developed for this study requires further investigation to ensure that it appropriately defines core business, and identifies all relevant allied health personnel.

Minimum Data Set

Recommended elements of a minimum data set on characteristics of allied health outpatient patients and episodes of care were identified during this study. Definitions and justification of data items are provided in Appendix B. The study particularly indicated the urgent need for standard data collection on diagnosis and outcome. It also identified the need to clarify referral requirements and flags for the beginning and ending of episodes of allied health outpatient care. Systems support, including appropriate and hardware, supported and enhanced software, and relevant and ongoing training for data entry, should be provided to allied health services to ensure that the minimum data set elements can be collected efficiently, and appropriate reports on the data can be generated without complications.

Current Funding Model

The study questioned the appropriateness of the current model of funding allied health services per occasion of service. Alternative funding models based on core business and episodes of care need to be considered, reflecting in particular the longer term focus of some allied health services. Moreover, the influences of clinical guidelines and quality benchmarks on service delivery need to be considered. Funding models which incorporate clinical guidelines, expect implementation of benchmarks of performance and acknowledge the variable length of an episode of care would provide incentive for quality and efficient service delivery. Moreover, service-specific differences in the delivery of episodes of allied health outpatient care need to be considered when developing policy, funding models and new structures for the delivery of outpatient care.

Availability of Services

This project identified current barriers to allied health service delivery in public hospital outpatient services, community health centres and private practices. On these findings, it is feasible that patients who require clinical allied health services are currently being denied access to relevant care because of referral mechanisms, home location, the availability of the service they require, the experience of the service provider and the cost.

There was little duplication of services in public hospital outpatient settings and the community, meaning that if the availability of public hospital outpatient services was to be constrained in the future (say, to patients without an associated inpatient admission), there would be few opportunities for these patients to access similar care in the community. To increase the availability and accessibility of allied health services in the community, the Medical Benefits Schedule needs to include rebates for private sector services, the number and location of community health centre-based allied health services needs to increase, and the role of community health centres in providing care-based allied health services requires review.

Primary Contact

The public hospitals in this study generally required a referral from medical staff within the hospital before allied health services could be provided. This requirement was in direct opposition to common community-based practice, where private practitioners and practitioners at community health centres could act in a primary contact role. Not only is the requirement of an in-house referral costly, in terms of money and waiting time, but it does not acknowledge the ability of clinical allied health practitioners to regulate and administer their own services. Moreover, in only four of the hospitals was there a Director of Allied Health Services. This omission does not enable allied health services to be adequately represented at executive planning level or when developing policy. If allied health services in public hospitals are to deliver optimum services that are accessible to all, the issue of hierarchical and traditional medical regulation requires review.

Cost Drivers

Data on completed episodes of care (involving approximately 50% of the data) were assessed to determine the influence of cost drivers. This approach differed from any undertaken previously. For some services which did not regularly discharge patients, the available numbers for investigation were small.

The choice of five possible dependent variables reflected current funding models and variable amounts of total UR attributable time per episode of care. The most appropriate dependent variable for each service was different, reflecting service specific differences in core business, service delivery type and length of episode of care. However, the identification of common cost drivers across services (age, country of origin, referral mechanism, chronicity of condition, source of income, hospital location, travel arrangements and use of other outpatient services) suggests that both patient and episode characteristics consistently drive costs. The lack of diagnosis information precluded the investigation of multivariate models of cost drivers. Further study is required of service-specific cost drivers, based on larger numbers of patients

Conclusion

This study is the first of its type in Australia. It collected multicentre public hospital data on a large patient cohort, describing characteristics of patients and episodes of allied health outpatient care. It highlighted the unique and important role played by outpatient allied health services, and identified a number of ways in which service delivery could be streamlined and improved, and customer satisfaction enhanced.

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APPENDICES

Appendix A

Project Management Details

PROJECT MANAGEMENT DETAILS

Project Description

This project comprised a main study (including a preliminary study and a pilot study), and four secondary studies. The project was conducted over an eighteen month period in four stages, structured to meet Commonwealth reporting requirements and to inform the progress of the study.

Project Office

The project office was located in the Speech Pathology Department of the Royal Adelaide Hospital. This hospital was the recipient of the grant. The office was staffed by a Project Manager (0.75 FTE per week), on secondment from the University of South Australia, a Project Officer (0.6 FTE per week) and a Project Assistant/ Accountant (average FTE 0.2 per week). The Project Director was fully employed by the Royal Adelaide Hospital in her capacity as Director of Speech Pathology. The programmer/ analyst was a contractor to the Royal Adelaide Hospital Information Technology Dept, and was employed in the project on a contract basis.

Reporting Processes

The Project Director and Manager met weekly to discuss project issues. The Project Manager supervised the project team, and team meetings were held on a needs basis.

The Steering Committee met formally six times during the life of the project, although individual members were consulted separately by the project team for assistance with specific issues. This committee comprised representatives from the project team, the Medical Sciences and Allied Health Committee of the Royal Adelaide Hospital, Royal Adelaide Hospital Administration, the Royal Adelaide Information Technology and Finance Departments and the South Australian Health Commission. The members of this committee are acknowledged on Page 5, and the Terms of Reference of this Committee are provided in this Appendix.

Interim reports on the project, containing specified deliverables, were provided to the Commonwealth at three and nine months into the life of the project. Regular newsletters were sent to all involved in the study. These newsletters acted as a means of informally disseminating information, raising consciousness of the project aims and maintaining compliance with data collection.

Reference Group

An expert Reference Group was established so that expert advice could be readily obtained on survey form content and design, allied health information issues including definition and management, information systems, coding and costing and the specifics of reporting. Reference Group members were chosen for their specific abilities and knowledge. They are acknowledged on Page 20.

Summary of Essential Equipment and Consumables

Two personal computers (including one lap top) were used by the team. The latter was particularly useful for field trips, where issues in data analysis could be discussed directly, with clinicians. The project software included Microsoft Office 3.1, Word 6 and Excel 5, SAS/BASIC and SAS/STAT, and EasyMap Version 2. A dedicated printer/fax/copier enabled immediate contact with participants, receipt of data and document preparation. Considerable intra- and inter-state travel was undertaken to enrol and monitor participating sites, and to access specific knowledge on the allied health concerns addressed by this project. Questionnaire printing was a major expenditure. Appendix 2.1 in this chapter provides an indicative summary of project expenditure.

Ethical Considerations

Preliminary Investigations

Neither patients, nor the services from which they sought allied health care, were identified in any way during preliminary investigations. No allied health professional or patient was coerced to participate, and staff and patients were informed verbally, and in writing, that they could cease to participate at any time. The information and consent form used for patients in the preliminary investigations is provided in Appendix 2.4.

Main and Pilot Studies

Patients were identified during the life of the main and pilot studies by Unit Record number, or some other identifier appropriate to the system in place in the participating hospital. Again, no patient was coerced to participate, and patients were advised by appropriate wording on the manual questionnaire that they were not required to provide information on any data item if they did not wish to do so. Contact telephone numbers of the Director of Medical and Allied Health Services at the RAH (The Chairperson of the Human Research and Ethics Committee, RAH) and the Project Manager were provided for patient queries.

Patient information remained confidential at all times. The UR number was the only patient identifier available to the project team (that is, no other information on name or address was

collected) and the UR number was used only to link manual records, and to enable systems-based access to the remaining required data items (specifically, the patient-related information held on allied health information systems and/or on the hospital Patient Master Index). For analysis and reporting, information was aggregated per service and per hospital.

Reporting

Mid-way through the project, and at its end, specific reports were provided to each participating hospital. No hospital or allied health service was provided with information from any other site. To facilitate ongoing discussion however, details of relevant contact people are provided in this report on Pages 17 - 19.

Secondary Studies

In the secondary studies, neither the medical referrers (Study 1), nor the private practitioners (Study 3) were able to be identified as no identification, other than post code of practice location, was sought. All those surveyed were provided with an information sheet on the project, and it was presumed that practitioners who did not wish to participate in the project would not complete and return the questionnaire. Community health centres (Study 2) were identified, but are described in this report by post code only for service location. The allied health services (Study 4) needed to be identified for the purpose of the project, but are identified only by hospital code in this report.

Appendix B:

The Survey Instrument

The draft (Pilot) survey instrument

Content

The project brief required national core data items for allied health outpatients to be included, where appropriate, in the survey instrument. The instrument aimed to collect data on patient and episode allied health care characteristics.

Patient characteristics

Patient-related information was defined as that which 'travelled' with the patient, and was constant, irrespective of the condition for which allied health management was provided. It included patient identifiers, post code, gender, date of birth, source of income and employment, country of birth and language spoken at home, previous attendance at outpatient clinics and communication difficulties.

Episode characteristics

Information on episodes of allied health outpatient care was defined as being related to the particular condition being managed by the allied health service. It included provider identifiers, allied health patient classification, diagnosis information, new/ returning patient status, current consumption of other health care, cost of consumables, allied health activities, UR attributable time, occasions of service, outcome of care, referrer, date of referral and transport methods used to attend allied health care.

Draft data items

Draft survey items were identified and developed from the literature, and from preliminary discussions with clinicians, patients, administrators and funders. The draft survey instrument included all possible data items of interest (including all national core data items for allied health outpatients).

Justification of final survey data items

Each of the draft survey items was assessed via feedback from patients, clinicians and clerical staff, and from the pilot study findings. On this basis, some pilot survey items were excluded from the final survey instrument, others were amended and new items were included. This section presents the justification for the items in the final survey instrument.

Redundant and Excluded National Core Data Items

The allied health practitioner always provides the allied health service. The **type of care provider** was therefore redundant, as under current registration requirements, this information will be determined by the type of allied health service providing the care.

It was found from the pilot study that collecting information on the **Medicare number** was impractical. On the whole, patients did not know their Medicare number and as only one Medicare card is provided per family unit, the Medicare card was not commonly available from patients. Patients can also be legitimately without a Medicare number i.e. prisoners, and overseas students / visitors.

Knowledge of the Medicare number also provided little assistance in tracking costs of allied health services in either public or private sector. Currently there is little available data on private allied health consumption on the Health Insurance Commission data base because of the lack of MBS funding for private services. Private health insurers record allied health service usage by patients with ancillary cover in a variety of ways. Moreover, the variability with which public and private hospital allied health services (inpatient or outpatient) are recorded on state health commission data bases precludes accurate tracking of usage.

Modified National Core Data Items

Principal and Secondary Diagnosis

Standard information on **principal and secondary diagnosis** was not available, and its lack requires urgent attention. The following issues in recording diagnosis information were highlighted.

- **Category C patients** (those patients whose allied health outpatient attendance is associated with an inpatient admission) generally carried a hospital-assigned ICD-9-CM code and DRG. However, this was not always related to the reason for allied health outpatient attendance, and the information was not always available to the allied health service at the time of the first outpatient attendance. Where it was available, allied health personnel did not routinely record the hospital diagnosis on their patient record system, and where they did, it was variably assigned as the principal diagnosis, the secondary diagnosis, or the comorbidity.
- **Category E patients** were rarely assigned an ICD-based diagnosis by allied health clinicians, because they generally considered this method of recording diagnosis as inappropriate to allied health requirements. There was no definition therefore of primary and secondary diagnosis.
- There was no standard method of assigning or recording allied health diagnosis. In some services it was not recorded at all, in the absence of an agreed method of recording. In others, it was only recorded on the patient notes in text, and not on the information system. In others, it was recorded on the information system as a differential diagnosis on the first visit (i.e. at the beginning of the episode) but was not subsequently amended or confirmed. In others, it was recorded only on discharge.

- A number of descriptors of allied health diagnosis were provided to the project, including the body system involved, location of symptoms, their chronicity and severity, causal agencies and procedures/ management undertaken. Moreover, allied health diagnosis frequently appeared to require more than one descriptor (i.e. multilevel data entry) to reflect the complexity and/ or extent of the presenting problem.

It was considered inappropriate to seek confirming diagnosis information from the patients, as the quality of responses in the pilot study, regarding **'the condition for which you are about to receive treatment'** was generally uninformed.

Date of Service and Repeat Nature of Visit

Allied health practitioners identified that the **date of service** and/or **repeat nature of visit** did not adequately describe the nature of episodes of allied health outpatient care. Information required to define the episode included dates of first and last service, and the dates of service in between. Moreover, the date of discharge required better definition. A current referral was sought to clarify the start of an episode of care. Data from patients were not useful in assisting the clarification of an episode of allied health outpatient care. In the pilot study, patients were frequently unable to identify why they had consumed previous care in the allied health department, and previous patient records were not readily available within the allied health service to verify responses.

Principal and Secondary Procedures, the Nature of the Visit and Diagnostic Investigation Ordered

Allied health professionals can employ a number of approaches to address a patient's condition. Single defined procedures are undertaken where the condition requires diagnostic or assessment only. These procedures are usually undertaken in an episode of allied health outpatient care that involves one occasion of service only. Care-based management is often provided in an episode of care involving multiple occasions of service. Each occasion of service can differ in **nature** from the previous one, being dependent on the change in the patient's condition. There is little evidence-based research to support the efficacy of allied health procedures, or to dictate the importance or sequencing of procedures. Therefore **principal and secondary activities, nature of visit** and **diagnostic procedures** are not sufficiently specific or descriptive for allied health purposes.

Sources of Referral

There are a number of sources of referral to clinical allied health services. Hospital policy requiring an in-house referral does not recognise that the source of the referral may have originated in the community. Identifying the actual source of the referral recognises the

stakeholders in allied health services, and supports investigations into the hospital/community interface, and issues of access to, and availability of, allied health services.

Post Code

Home **post code** is a national core data item required for inpatients. Post code has relevance to investigations on, access to, and availability of, allied health out-patient services. The pilot study identified discrepancies between hospital records, and patient-reporting, of post codes. This information therefore should always be collected from patients, as the most accurate source.

Additional Survey Items

Provider Location Information

A **campus identifier** and a **clinic identifier** were required to identify, respectively, outreach services provided by hospital-based allied health services, and discrete within-department outpatient clinics (such as paediatric clinics, or specific rehabilitation clinics). Campus service delivery and within-department clinics may require specialist allied health skills, and they may incur longer occasions of service, or more occasions of service per episode of care because of the complexity of the nature of presenting problems.

Associated inpatient admission

This information is required as the first step in discriminating between Category C and Category E outpatients. Category E outpatients do not have an associated inpatient admission, while Category C patients are consuming outpatient care associated with an inpatient stay.

Private Health Insurance/ Third Party Compensation

Private extras medical insurance cover and/ or compensable status *complete the* identification of Category E outpatients (who are not eligible for rebates in the private sector). The current Medical Benefits Schedule does not fund clinical allied health services delivered in the private sector, and private health insurers partially rebate members for private allied health services only if the member carries ancillary cover. A proportion of the recommended fee is paid to clinical allied health therapists for the management of patients with compensable conditions.

Family Income/ Occupation

Source of income and **occupation** are required from public hospital inpatients (described in the National Minimum Health Data Set [suggested by the Taskforce on National Hospital Statistics 1988]). These data items inform investigation of issues of access to, and availability of, allied health outpatient services.

Lag Time Between Referral and First Visit

Date of referral coupled with **date of first service,** describe the time delay between referral and first appointment. This provides information on access to, and availability of, public hospital outpatient services, and enables monitoring of waiting lists, triage processes and workloads. However, the date of referral requires definition to ensure that patient-created delays do not influence reporting of waiting time.

Chronicity of Condition

Chronicity of condition (be it for the principal medical diagnosis, the allied health diagnosis and/ or reason for intervention and/ or the comorbidity) is a potential cost driver of allied health services. Anecdotal evidence suggests that chronic conditions requiring allied health management entail longer episodes of care which are provided on an ongoing and frequent basis.

UR Attributable Time

UR attributable time (time directly related to the management of one patient) *per occasion* of service quantifies service-specific therapist time costs of providing an episode of care.

Outcome of Care

Outcome of allied health care describes the change in patient's health status across the episode of care. There are no standard measures of outcome of allied health care, and these need to be considered from the perspective of all stakeholders, including patient and carer, therapist, referrer, administrator and payer.

Transport

Method of transport informs discussion on issues of access to acute public hospital settings, and the indirect costs borne by the patient and family.

Previous Attendance at this Outpatient Allied Health Service

Information on **previous attendance at this outpatient allied health service** identifies new patients to the service. It also assists in identifying patients who are returning for further care: those who have been previously discharged but are returning for further management because the condition has failed to settle, those are consuming intermittent ongoing care for a particular condition, and those are seeking management for a new condition having previously consumed care for another condition.

Recent Use of Outpatient Clinics

Recent use of other outpatient clinics at this hospital assists in describing patterns of use of public hospital outpatient services, and access to public hospital health care.

Current Consumption of Health Care Outside the Public Hospital

Current consumption of other health care in the community enables investigation of patients' decisions to access (and pay for) particular health services, availability of services and chronicity or complexity of condition. The **availability** of allied health services close to home, and the **cost** of these services, provides the opportunity to discuss access to, and availability of, allied health services within the community, and to examine duplication of service delivery and type.

Ethnicity and Language

Country of birth and **main language spoken at home** are required data elements for other public hospital patients. These data items assist discussion of issues of access to, and availability of, allied health outpatient services.

Communication Difficulties

Communication difficulties enable identification of patients for whom the successful outcome of an allied health service has been potentially compromised, and for whom the occasion of service time may be longer than usual.

Definitions of Recommended Survey items

This section defines the items whose choice in the final survey instrument was justified in the previous section. This section specifies recommended field content, and highlights those items which may need to be modified for particular circumstances.

Episode Level Information

1. HOSPITAL IDENTIFIER

The hospital site where outpatient treatment is provided, or which oversees the provision of treatment at a distant site (campus or outreach).

Specification: alphanumeric

2. CAMPUS IDENTIFIER

The campus where outpatient treatment is provided, enabling description of the geographical range and location of allied health services provided under the auspices of one hospital site.

Specification: alphanumeric

3. SERVICE IDENTIFIER

The allied health service

Specification: alphanumeric

4. WITHIN-DEPARTMENT IDENTIFIER

Linked to the allied health service identifier by additional alphabetic or numeric characters, to identify specialty clinics, or sub-units within the service.

Specification: alphanumeric

5. DATE OF FIRST ATTENDANCE

Refers to the date on which the patient has the first recorded contact with the allied health practitioner for a particular condition, with a new referral. It is the first occasion of service for an episode of care.

Specification: standard form of date recording.

6. DATE OF REFERRAL

The most recent date of medical review/ referral, at which a referral for allied health management occurred for this condition.

Specification: standard form of date recording.

Conditions

- *Referral date will not be available for self referrers.*
- *Referral date may be inappropriate in the instance where the patient has received a formal referral for the allied health service, but has delayed making an appointment, or where previous formal review/referral predated the date of first service by more than six months. In this instance, the date on which the appointment was made is a more appropriate marker of the beginning of the episode. There will be difficulties in collecting this information.*

7. HOSPITAL ASSIGNED DIAGNOSIS

Hospital-assigned diagnosis, or procedure (ICD based) which may, or may not, be related to the reason for attendance at allied health outpatient service. The diagnosis may be obtained from the PMI, from the patient's notes and/ or from the letter of referral.

Specifications: six character alphanumeric code

8. ALLIED HEALTH DIAGNOSIS

Standard and (possibly) multiple allied health diagnosis descriptors. These may well differ from the hospital diagnosis, and the content and number of items will vary between allied health services (Refer to Chapters Seven and Twelve).

Specifications: Six alphanumeric fields. Requires standard code lists per allied health service.

9. COMORBIDITY

Refers to medical conditions underlying the patient's allied health diagnosis and potentially influencing the outcome of care.

Specifications: As for hospital and/or allied health diagnosis.

10. DATE OF DISCHARGE

The date of final occasion of service (which ends the episode of allied health outpatient care). This acknowledges the passage of time since the first date of service .

Specification: standard form of date recording.

Conditions:

The date of discharge must be qualified by the type of discharge. This may be formal and final (that is, the patient has ceased contact with the allied health professional and has no reason to return for further management of this condition), it may be pending review (short term review which may be followed by a formal discharge) or it may be an ongoing review where the patient has a recognised need for further treatment or monitoring. It is recommended that the discharge date and discharge status be completed within six weeks of the last contact with the patient.

11. CONSUMABLES

Aids and appliances (consumables) provided to patients by allied health practitioners for self-management. The cost of supplying and storing these items is usually borne by the department budget, or specific funding arrangements.

Specifications: Alphanumeric code enabling description from a range of stock. May require a second field containing the cost of the item.

Categories of costs collected in this project
Less than $5
$5 - $10
$10 - $50
$50 - $100
Over $100

12. OUTCOME OF CARE

Measures the success of the allied health episode of care. Requires identification of the individual who measures outcome i.e. therapist only, patient only or joint therapist/patient.

Specifications: At least two alphanumeric fields (one for therapist, one for patient/ care-giver). Requires standard code lists per department, or per allied health division.

A sample of the outcome of care codes used by allied health services in this project is provided as an example of the diversity of current approaches.

Outcome of Care Codes	
Sample 1	
For a number of visits	*For a single visit*
1. fully recovered	1. successful
2. marked improvement	2. unsuccessful
3. some improvement	
4. condition stabilised	
5 no change in condition	
6. worse	
7. failed to complete treatment	
Sample 2	**Sample 3**
• 100% of goals achieved	• recovery or expected recovery
• 75% of goals achieved	• died
• 50% of goals achieved	• chronic or long term illness
• 25% of goals achieved	
• 0% of goals achieved	

13. COMMUNICATION DIFFICULTIES

Identifies those patients for whom the effectiveness of the service may be diminished (patients who are unable to fully co-operate with the service provider, or fully comprehend the information/instructions being imparted). This data item records therapists' subjective

assessments. Descriptors suggested by therapists in this project include social situation, intellectual disability, or receptive/expressive communication difficulties.

Specifications: two digit numeric code. Requires standard code list for allied health division. \

14. DATES OF OCCASIONS OF SERVICE

Defines the occasions of service in the episode of care for this condition on this referral, marked by the starting and discharge dates (previous definitions) This information has three uses:

- counts the occasions of service per episode
- defines the time period of the episode
- determines the frequency of occasions of service within the episode

Specification: standard form of date recording

15. TIME PER OCCASION OF SERVICE

This defines the UR attributable time per occasion of service, including all direct patient contact time, and non-contact UR attributable time, such as preparation time, time spent on documentation and liaison and time spent following-up. It is recommended that all services collect time in a standard manner for ease of comparison of total time per episodes of care.

Specification: numeric field accepting up to five digits

See Appendix 3.1 for the methods of time recording per hospital.

16. CATEGORY OF OUTPATIENT

Defined as Category C, E1 or E2 outpatient, requiring

16A INPATIENT ADMISSION

Hospital admission status

Specification: alphanumeric field for hospital admission and a field for diagnosis information

16B COMPENSABILITY (REFERS DIRECTLY TO CATEGORY E PATIENTS)

Source of compensability

Specification: alphanumeric field of standard codes

Compensability information collected by project	
WorkCover	Personal Injury Claim
Correctional Service	Public Liability
Dept Veteran Affairs	Research Funding
Income Protection Insurance	School Insurance
Motor Accident Insurance	Sporting Injury Claim
Victims of Crime	Travel Insurance

16C PRIVATE HEALTH INSURANCE (REFERS DIRECTLY TO CATEGORY E PATIENTS)

Identifies patients with ancillary (extras) private health insurance - the only patients who attract rebates for allied health services consumed in the private sector

Specification: alphanumeric field of standard codes

17. PREVIOUS ATTENDANCE AT THE ALLIED HEALTH SERVICE

Identifies patients who have previously attended this service

- for another condition (unrelated to this current presentation)
- for this current condition, where there was a previous formal discharge
- for this condition, and are on periodic review (have not been formally discharged)

Specification: alphanumeric field defined by allied health division, able to be cross-matched with other hospital or service records.

18. AVAILABILITY OF ALLIED HEALTH SERVICES CLOSE TO HOME

Identifies patients' knowledge of available services in the community and closer to home

Specifications: alphanumeric field accepting Y (Yes), N (No) and U (don't know)

19. THE NEED TO PAY FOR SUCH SERVICES

Identifies patients' knowledge of the need to pay for these local services.

Specifications: alphanumeric field accepting Y (Yes), N (No) and U (don't know)

20. CHRONICITY OF PRESENTING CONDITION, OR THE MANIFESTATION OF THE CONDITION FOR WHICH TREATMENT IS BEING SOUGHT

Identifies the length of time that patients have suffered from the condition for which they are currently seeking treatment. The chronicity categories employed in this project are listed for reference. This question has two important elements:

- the chronicity of the condition for which treatment is sought
- the chronicity of underlying conditions (comorbidities)

Specifications: two alphanumeric fields containing a number of categorical options

Chronicity of Condition
less than one week
2 - 3 weeks
about a month
2 - 3 months
4 - 6 months
7 - 11 months
about 12 months
1 - 2 years
3 - 5 years
more than 5 years

Patient Level Information

1. PATIENT IDENTIFIER

i. Hospital-assigned UR Number

ii. Other unique patient identifier where no UR number is assigned. Methods used by hospitals in this project include:

- first four letters of surname, followed by the first letter of Christian name
- in-house number or alpha-numeric system

Specification: alpha-numeric up to 7 characters

2. DATE OF BIRTH

Specification: standard form of date recording

3. GENDER

Specification: alphabetic field containing defined items of M (Male), F (Female), U (not known)

4. HOME POST CODE (PATIENT LEVEL INFORMATION)

Specifications: four digit item to record Australian Post codes

5. PREVIOUS ATTENDANCE AT OTHER OUTPATIENT CLINICS AT THE HOSPITAL (Patient level information)

Identifies recent users of other hospital outpatient services. This item is particularly important where allied health records are not linked to hospital outpatient bookings records.

Specifications: alphanumeric field, codes of hospital outpatient clinics standard to allied health division.

The clinics reported by patients in this Project are listed in Appendix 3.2

6. TRAVEL (PATIENT LEVEL INFORMATION)

Describes the method(s) used by the patient to travel to the hospital for the first outpatient allied health occasion of service. This has implications for health and urban planning.

Specifications: numeric field

Methods of travel collected in this Project	
Ambulance	Motorcycle
Bicycle	Plane
Boat/Ferry	Police escort
Car - someone else driving	Private bus
Community care transport	Public bus
Supported bus	Staff (work at the Hospital)
Drove a care and parked:-	Staying at the Hospital
• in the hospital car park	Taxi
• in a private car park	Train
• in a metered park in the street	Tram
• in an unmetered park in the street	Transport provided free
Gopher ride-on	Walked from home/work
Ethnic Link transport	Wheelchair

7. PATIENT'S SOURCE OF INCOME (OR FOR CHILDREN, THE SOURCE OF INCOME OF THE FAMILY OR CARE-GIVERS)

Identifies source of income and employment of allied health patients and/ or their families.

Conditions

The responsible adult responding to this question needs to be identified eg

1. *the patient*
2. *the parent(s) or care-giver of a child patient (under 14 years)*

3. *the carer of an adult patient (where the patient is not responsible and/ or not earning an income)*

Specifications: three fields, all alphanumeric or numeric

- the relationship of the person 'owning' the source of income to the patient
- the source of income
- the nature of paid employment

Sources of income identified by the Project are listed in Appendix 3.3.

5. CURRENT TREATMENT OUTSIDE THE HOSPITAL

This identifies the types of off-campus health services currently being consumed by the allied health outpatient.

Specifications: numeric field, using agreed code list of all possible places of treatment as defined by the local Health Commission.

The list of off campus health services reported to this project is provided in Appendix 3.2.

6. COUNTRY OF BIRTH

Specifications: four digit numeric code, standard code list (ISIS Reference Manual)

7. LANGUAGE SPOKEN AT HOME

Specifications: two alphabetic characters, standard code list

The list of languages spoken at home by patients in this project is reported in Appendix 3.4.

Survey instrument delivery

Collecting Data from Patients

Collection of data items directly from patients using a standard manual questionnaire (Appendix C) was undertaken because:

- in the primary site (RAH), there was no direct link between the in-house allied health information system and the Patient Master Index (PMI). Routine PMI data pertaining to the patient were therefore not readily available to the clinical allied health departments. This was identified as a potential issue in all participating sites.

- the project sought specific information on access to, and availability of, allied health services. This information was not collected by anyone, and was therefore most appropriately collected directly from the patient.

Patients completed the manual questionnaire while waiting for their first appointment at a clinical allied health service.

The questionnaire was uniquely identified for the purpose of the project with hospital, campus, department and where required, sub-department identifiers. Colour coded questionnaires were provided for ready identification of specific allied health services.

Translations of the patient forms were provided, in the four foreign languages believed to be commonly spoken by allied health patients (Greek, Italian, Polish and Vietnamese). To facilitate data capture, signs were placed in each participating department in English and also, where appropriate, in the four additional languages, alerting patients to the data collection exercise, and asking them to enquire about the data form, if they had not already been given one by staff.

Receptionists and therapists were alerted to the need to capture information on all new or returning former patients to the service. A local support person was identified in each of the participating sites to facilitate ongoing compliance with data capture. The project budget contributed up to two hours per week of each contact person's salary to enable them to regularly visit each department to collect data, to encourage compliance and to troubleshoot. Moreover, there was regular contact with staff by the project team, by way of personal visits, telephone calls and newsletters to encourage consistent capture of data.

Data Collected from Therapists

Data on episodes of allied health outpatient care were collected from therapists, using either routinely collected computer-based data, or specifically designed manual summaries, or a combination of both. The variability in data collection methods in place in the participating sites became the major problem for the project. For instance, there was no standard way in which outpatients were identified from inpatients, and therefore data amalgamation needed to be undertaken, service by service, for each participating hospital, in order to deal appropriately with the vagaries of each information management system.

Dedicated allied health computer systems that collected some episode-related data and some patient-related data, were in operation in six sites. For instance, data were being collected in four of the South Australian hospitals using the Performance Indicators System (Performance Indicators and Clinical Costs Manual Version 3.0 1995). In no instance was this system linked

to the mainframe. Two files were required to provide the required episode-related information from this program:

- i_data.dat file (containing occasion of service information)
- patients.dat, or referrer.dat (as appropriate) containing referral and discharge information. The name of this file was dependent on the hospital-specific network linking allied health services.

However, not every allied health service in these four sites was recording occasion of service data or formally discharging patients using this system, and therefore additional manual records needed to be kept (or data retrieved from existing manual records) to complement available system-based information.

One other South Australian hospital and one inter-state hospital were collecting allied health data (occasion of service and discharge) via an in-house program which allowed selected access to the Patient Master Index, and the Patient Booking System. However, in both these sites, not every participating service was recording occasion of service data or formally discharging patients using the in-house system, and therefore additional manual records again needed to be kept (or information needed to be retrieved from existing manual records) to complement the available systems-based information. In two instances, non-systems based services in these hospitals kept occasion of service records on Excel files.

In the remaining South Australian and interstate sites, all data were recorded manually, using calendars and time sheets. This information was copied and sent to the project team, who collated it by manually cross-matching patient and episode information.

Data management

Data Retrieval and Recording

The manual (patient completed) questionnaires were collected monthly and data entered onto Excel spread sheets by the one data enterer, who developed and applied a standard set of codes for each data item (listed in Section 2 of this Appendix). Information from therapists was obtained by a number of methods:

- the required data files (or relevant fields) were retrieved monthly by project staff or designated others, from the in-house allied health computer system
- manual occasion of service and discharge information was supplied to the project when the patient ceased treatment.

A summary of the ways in which data were collected from each site is provided in Appendix E of this report.

Data sources were amalgamated into one data file for each participating hospital, using the SAS system Version 6.11. Key features were required to identify particular allied health care episodes, in particular to exclude allied health management that preceded the outpatient episode of interest. These comprised the UR number, the allied health service, an outpatient status identifier and the date of first service which postdated 31st January 1997. Furthermore, the data were collected over a ten month period, and therefore a method of identifying completed episodes of care was required.

Data Coding to Identify Episode of Care Information

A score of 1 was assigned when a manual questionnaire had been completed by the patient for one allied health service at one hospital (and at one campus, where relevant). In the final analysis, those records with scores of 1 only, identified those patients for whom registration details were available, but for whom there was no episode of care information.

A score of 2 was assigned if a systems record of an outpatient allied health occasion of service for that UR number was located. In the analysis, those records with scores of 2 only, identified patients for whom no patient-related information was available. It could not be determined if these patients were consuming ongoing care when the study started (and therefore were of no interest to the study) or were truly of interest to the study and had not been enrolled into it, (where patients had begun treatment within the time frame of the study but no manual registration had been obtained).

A score of 3 was assigned if there was both a manual registration for the patient (score of 1) and an occasion of service which occurred on or after the date of manual registration (score of 2). In the analysis, those records with a score of 3 marked an ongoing episode of care for that patient in one allied health outpatient service.

A score of 4 was assigned when a systems record of a date of discharge was located, occurring after the date on which the site commenced participation in the project. In the analysis, records assigned a score of 4 identified patients for whom there was discharge information, but no patient-related information.

In the analysis, records with a total score of 5 (summed scores of 1 + 4) identified patients who were enrolled into, and then discharged from, the one service on the same day (that is, patients whose episode of care contained one occasion of service only). Records with a total score of 7 (summed scores of 1, 2 and 4) identified patients who had consumed a number of occasions of service between the date of enrolment into the project, and the date of discharge.

Discharge from Care

A major problem for the project was the identification of the end of an episode of allied health outpatient care for each patient. In order to describe this problem, the range of possibilities in the delivery of episodes of allied health outpatient care are described in Figure B.1, where *Rx* refers to treatment, while *D/C* describes formal discharge.

			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Scenario 1	Hosp A, Dept 1	condition A	Rx 1			Final Rx D/C		
Scenario 2	Hosp A, Dept 1	condition A	Rx 1	Final Rx		Review D/C		
Scenario 3	Hosp A, Dept 1	condition A	Rx 1	Final Rx		Review ongoing Rx		
Scenario 4	Hosp A, Dept 1	condition A	Rx 1	Final Rx		Review ongoing Rx		
	Hosp A, Dept 1	condition B			Rx 1			Final Rx D/C
Scenario 5	Hosp A, Dept 1	condition A	Rx 1			Final Rx D/C		
	Hosp A Dept 2	condition B	Rx 1	Final Rx		Review ongoing Rx		
Scenario 6	Hosp A, Dept 1	condition A	Rx 1			Final Rx D/C		
	Hosp A Dept 2	condition B		Rx 1				final Rx D/C
Scenario 7	Hosp A, Dept 1	condition A	Rx 1			Final Rx D/C		
	Hosp B Dept 2	condition B	Rx 1		review ongoing Rx		final Rx D/C	

Figure B.1: Possibilities for clinical allied health episodes of care consumed by the one patient.

Time per visits

M1	AUDIOLOGY	1 minute
	NUTRITION & DIETETICS	15 minutes
	OCCUPATIONAL THERAPY	15 minutes
	PHYSIOTHERAPY	1 minute
	PSYCHOLOGY	15 minutes
	SPEECH PATHOLOGY	15 minutes
M2	AUDIOLOGY	1 minute
	NUTRITION & DIETETICS	1 minute
	OCCUPATIONAL THERAPY	1 minute
	PHYSIOTHERAPY	1 minute
	PODIATRY	1 minute
	SOCIAL WORK	1 minute
	SPEECH PATHOLOGY	1 minute
M3	AUDIOLOGY	1 minute
	NUTRITION & DIETETICS	15 minutes
	OCCUPATIONAL THERAPY	15 minutes
	ORTHOTICS	15 minutes
	PHYSIOTHERAPY	1 minute
	PODIATRY	15 minutes
	SOCIAL WORK	15 minutes
	SPEECH PATHOLOGY	15 minutes
M5	OCCUPATIONAL THERAPY	1 minute
	ORTHOTICS	1 minute
	PHYSIOTHERAPY	1 minute
	SOCIAL WORK	1 minute
	SPEECH PATHOLOGY	1 minute
C2	NUTRITION & DIETETICS	1 minute
	OCCUPATIONAL THERAPY	1 minute
	PHYSIOTHERAPY	1 minute
	PODIATRY	1 minute
	SOCIAL WORK	1 minute
	SPEECH PATHOLOGY	1 minute
C3	NUTRITION & DIETETICS	20 minutes
	OCCUPATIONAL THERAPY	20 minutes
	PHYSIOTHERAPY	20 minutes
	SOCIAL WORK	20 minutes
	SPEECH PATHOLOGY	20 minutes
C1	OCCUPATIONAL THERAPY	1 minute
	PHYSIOTHERAPY	1 minute
	SPEECH PATHOLOGY	1 minute
M4	NUTRITION & DIETETICS	15 minutes
	OCCUPATIONAL THERAPY	10 minutes
	PHYSIOTHERAPY	10 minutes
	PODIATRY	10 minutes
	SOCIAL WORK	1 Unit = 5-14 min
		2 Units = 15-25 min
		3 Units = 25-35 min
	SPEECH PATHOLOGY	10 minutes

Points of referral and attendance sources

Accident & Emergency
Accupuncture Clinic
Adelaide Health Services
Alfreda Rehabilitation
Alice Springs Hospital/Outreach Centre
Allergy Treatment/Clinic
Amputee Rehabilitation Clinic
Antenatal Clinic
Arthritis Clinic
Ashford Hospital
Asthma Foundation
Audiology Service
Australian Hearing Services
Autistic Society
Birthing Centre
Biomedical Engineering
Breast Feeding Unit
Breast Oncology Unit
Burns Clinic/Unit
Child, Adolescent & Family Health Services
Child Development Unit
Child Adult Mental Health Services
Cardiac Rehabilitation Service
Cardiology Clinic
Cardiothoracic Surgery Clinic
Castletown Medical Centre
Casualty
Ceduna Hospital/Outreach Centre
Chemical Pathology Clinic
Chest Clinic
Child Health Services
Child Protection Services
Children's Assessment Team
Chiropractor
City Mission
Cleft Palate Clinic
Cleve Outreach Centre
Clinic Sister/Nurse
Colorectal Surgery Clinic
Community Health Centre
Community Nurse
Community Rehabilitation Service
Cowell Outreach Centre
Cranio Facial Unit
Cystic Fibrosis Clinic
Department Education & Children's Services
Day Surgery Unit
Dental Clinic/Hospital
Department Social Security
Dermatology Clinic
Diabetes Nurse Educator
Diabetes Support Group
Diabetes House/Clinic
Dialysis Clinic/Service
Dietician
Disability Support Service
Domicillary Care
Drug & Alcohol Resource Centre
Early Intervention Service - Eastern Division
Employer
Endocrine Clinic/Endocrinologist
Ear Nose and Throat Clinic
Ethnic Affairs
Eye Clinic
Family and Community Services
Family Counselling
Family Planning
Flinders Medical Centre
Flinders University/F.U.S.A. Clinic
Fracture Clinic
Franklin House
Friend/Family member
General Practitioner
Gastro-enterology Clinic
General Medicine Clinic
Geneticist
Geriatric & Rehabilitation Medicine Clinic
Glenside Hospital
Growth & Development Clinic
Guidance Officer
Gynaecology Clinic
Haematology Clinic/Haematologist
Hampstead Centre
Head & Neck Consultative Clinic
Health Promotion
Hepatobiliary & Pancreatic Surgery

(cont'd)

HETA/Jobnet
Home visit
Hormone Replacement Therapy Clinic
Hostel Supervisor
Hydrotherapy
Hyperbaric Medicine Clinic
Hypertension Clinic
I.D.S.C.
Immunology/Allergy Clinic
Infectious Diseases Clinic
Internal Medicine Clinic
Julia Farr Centre
Kimba Outreach Centre
Kirwan Women's Centre
Labour ward
Lady Gowrie Centre
Laser Medicine Clinic
Leukemia Research Unit
Life Line
Lyell McEwin Hospital
Marion Mental Health Services
Maryborough Hospital - Queensland
Masseur
Maternity Clinic
Medical Oncology Clinic
Medical ward
Memorial Hospitl Rehabilitation
Midwife
Modbury Hospital
Modbury Medical Centre
Multiple-Sclerosis Society
Mt. Gambier Hospital
Murray Mallee Noise Project
Musculoskeletal Clinic
Naturopath
Neonatal Clinic
Neonatal follow-up program
Neurological Rehabilitation Clinic
Neurology Clinic
Neurosurgery Clinic
Noarlunga Hospital
Nuclear Medicine Clinic
Nursing home
Nutrition & Dietetic Clinic
Obesity Clinic
Ostetrics Clinic
Occupational Health Clinic
Occupational Therapy Service
Oesophagogastic Surgery Clinic
Open day held at Hospital
Options co-ordinator
Optometrist/opthamologist
Oral and Maxillofacial Surgery
Orthopaedic Surgery and Trauma Clinic
Orthotics & Prosthetics Service
Outreach nurse
Paediatric Clinic/Paediatrician
Pain Clinic
Palliative Care nurse
Palliative Medicine Clinic
Paramedical aide
Parks Medical Centre
Payneham Rehabilitation Centre
Pharmacist
Physiotherapy Service
Plastic & Reconstructive Surgery
Podiatry Service
Pre-anaesthetic assessment
Pregnancy advisary Centre
Psychiatry Service
Psychology Service
Pt. Augusta Hospital
Pulmonary Medicine
Queen Elizabeth Hospital
Radiation Oncology Clinic
Radiology/ultrasound Clinic
Radiotherapy Clinic
Rehabilitation Medicine Clinic
Renal Medicine Clinic
Repatriation Hospital
Reproductive Medicine Unit
Research Project
Respiratory Clinic/Respirologist
Rheumatology Service

(cont'd)

Royal Adelaide Hospital	Surgical ward/Clinic
Royal Darwin Hospital	S.A.M.H.S.
Nursing Mothers association counsellor	T.A.F.E.
S.P.E..L.D. Clinic	Tea Tree Gully Community Health Centre
School/Kindergarten/Child Care	Thoracic Medicine Clinic
Scoliosis Clinic	Tuberculosis Services
Senior Citizen Village staff	Urogynaecology Clinic
Singing teacher	Urology Clinic
Social Work Service	Vascular Surgery Clinic
Soft tissue Clinic	Voice Clinic
Special education teacher	Wallaroo Hospital
Special needs consultant	Whyalla Hospital
Speech & Language Program	Whyalla community health team
Speech Pathology Service	Women's & Children's Hospital
Spinal Unit/Clinic	Women's Health Centre
Sports Injury Clinic	Workskill
Sportsmed	Wudinna Hospital Hostel
St Margarets Hospital	Wudinna Outreach Centre
Staff in Shoe shop	Yatala Prison
Streaky Bay Hospital	Youth Health Centre
Student magazine advertising free health services	

Occupation / source of income

Aged pensioner
Blue collar worker
Carer's pension
Casual work (imspecified)
Clerical/Secretarial
Defence forces pension
Homeduties
Immigration arrangement
Managerial position
Paraprofessional occupation
Partner's allowance
Prisoner
Private income
Professional occupation
Retired from paid workforce (Superannuant)
Service worker
Sheltered workshop
Sickness or disability pension
Special benefits
Student
Supporting parent benefit
Tradesperson
Training allowance
Transport worker
Unemployment benefits
Unpaid maternity leave
Widow pension
Workcover
Young homeless allowance

Languages

Aboriginal
Afrikaans
Albanian
Amharic
Arabic
Armenia
Austrian
Belgian
Bengali
Bosnian
Bruny Island dialec
Bulgarian
Cambodian
Cantonese
Chinese
Croatian
Czech
Danish
Dari
Deaf
Dutch
Egyptian
English
Estonian
Farsi
Finnish
French
German
Greek
Hindi
Hmong
Hokkien
Hungarian
Indian
Indonesian
Iranian
Italian
Japense
Kaka Kagawya
Kampuchean
Kanada
Khmer
Korean
Lao
Latvian
Lebanese
Lithuanian
Macedonian
Malay
Maleyalam
Maltese
Mandarin
Manual
Maori
Marathi
Norweigian
Pajabi
Persian
Phillipino
Polish
Portuguese
Romanian
Russian
Serbian
Sinhalese
Slovak
Slovene
Spanish
Swedish
Taiwanese
Tagalog
Teluga
Thai
Turkamen
Turkish
Urdu
Ukranian
Vietnamese
Yugoslavian

Appendix C

Questionnaire

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ph 2225783
fax 2225802
Project Manager: Dr Karen Grimmer
Project Officer: Jacqui Howard

ROYAL ADELAIDE HOSPITAL
North Terrace
ADELAIDE S.A. 5000

Hospital Code M1
Department Code 6

PHYSIOTHERAPY OUTPATIENT DEPARTMENT

To be completed by the receptionist
UR NO.
Date of first attendance:

Dear Patient or Parent/Caregiver of Patient,
We are collecting information on Allied Health Outpatient services at this hospital. It would help us if you answered the following questions. You will not be identified by your answers and you do not have to answer all of these questions if you do not want to. Your answers will not influence your treatment, or the cost of it, in any way. Any queries that you may have about the project can be directed to Dr Karen Grimmer on (08) 2225783, or at home (08)3526371, or to Dr Richenda Webb (The Chairman of the Research Ethics Committee, Royal Adelaide Hospital (RAH) ph (08)2225355).

Please give this form back to the receptionist or Physiotherapist when you have completed it.

This information is about the Patient

1. Date of Birth ____/_____/_____

2. Sex *(please circle your answer)* | Male | Female |

3. Your home postcode | | | | |

4. *Please circle your answer.* Are you attending this clinic

1. following a recent stay in hospital, (including day surgery) or
2. because you are about to be hospitalised (including day surgery)?
3. Neither of the above is correct

5. Have you attended M1 Outpatients Physiotherapy before? | es | o |

6. Who suggested you attend this service? (*circle only one*)

1. M1 ward (which ward?)_____
2. M1 Outpatient Clinic (which clinic?) _____
3. General Practitioner ↓
   *Suburb or postcode of GP*_____
4. Specialist ↓
   *Suburb or postcode of Specialist)*_____
5. Allied health professional at M1 *(which type?)* ↓
   *(*e.g. physiotherapist*)* _____
6. Allied health professional in community *(which type?)* ↓
   (e.g. physiotherapist)_____
7. Other (*please explain*) _____
8. Self
9. Don't know

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT PAGE 2

7 *Please circle your answer* . You are being treated here as a public patient and your treatment is covered by Medicare. However, are you also eligible to have your treatment covered by:

1. WorkCover?
2. Motor Accident insurance?
3. Department of Veterans Affairs?
4. Commonwealth Government pension scheme?
5. private medical insurance?
6. your employer?
7. other (please describe)?
8. none of the above.

8. Your answer to this question is confidential and does not affect the cost of your treatment. *Please circle your answer* . Do you/your family have:

1. private medical insurance but you are not sure which type?
2. private hospital cover only?
3. extras (ancillary) cover only?
4. private hospital cover as well as extras cover?
5. I do not have any private medical insurance.

9. *Please circle your answer*. In your main occupation, are you : (If the Patient is under 16 years of age, both parents - if appropriate - please answer this question)

1. self employed (what occupation) _____
2. an employed worker (what occupation) _____
3. involved in homeduties
4. unemployed
5. on sickness or disability pension
6. aged pensioner
7. retired from the paid workforce
8. student
9. supporting parent benefit or, young homeless allowance _____
10. other (*please describe*) _____

10. Are Physiotherapy services for your condition available closer to home? *Please circle your answer.*

Yes	No	Dont know

11. If you answered Yes to Question 10, would you have had to pay for this service? *Please circle your answer*

Yes	No	Dont know

12. Approximately how long have you been troubled by this problem? *Please circle the most appropriate answer*.

1. less than one week
2. 2- 3 weeks
3. about a month
4. 2-3 months
5. 4-6 months
6. 7-11 months
7. about 12 months
8. 1-2 years
9. 3-5 years
10. more than 5 years

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT PAGE 3

13. Have you attended any outpatient clinics at the M1 *IN THE LAST 12 MONTHS*? If Yes, which ones were they? | Yes | No |

---

14. *Please circle* the way(s) in which you travelled to the hospital today.

1. I used transport provided free by the hospital
2. I walked from home/ work
3. I travelled by public bus
4. I travelled with a private bus company
5. I travelled by train
6. I travelled by taxi
7. I drove a car and I parked
    8. in the hospital public car park
    9. in a private car park
    10. in a metered park on the street
    11. in an unmetered park on the street
12. I travelled by push bike
13. I travelled by motorcycle
14. Someone else drove me in a car
15. I am staying in the hospital
16. other

15. Are you currently having treatment for any condition outside M1? | Yes | No |
If Yes, who is providing the treatment? *(for instance, physiotherapist or perhaps your general practitioner)*

---

16. What is your country of birth? _____
(indicate if Australian Aborigine or Torres St. Islander)

17. What is the main language spoken at your home? _____

Thank you, we appreciate the time you have taken to complete this questionnaire. Your answers will help us to complete our study.

Appendix D

Discharge Summary

Discharge Summary : Audiology

also included Audiology ENT & Hyperbaric

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Audiology Department Discharge Summary

PARTICIPATING HOSPITAL: _____

UR number_____

The hospital diagnosis (if known) _____

Audiology Department diagnosis _____

List underlying conditions that may have influenced the treatment.

_____

Date of final treatment at Audiology ____/_____/___

In your opinion, did communication difficulties with this patient reduce the effectiveness of the treatment?	Yes	No

The total number of treatments and/or tests for this episode at the Audiology Clinic_____

The total time taken for these treatments at Audiology _____

Discharge summary : (Clinical) Nutrition & Dietetics

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Clinical Nutrition & Dietetics - Discharge Summary

PARTICIPATING HOSPITAL : _____

1. UR number_____
2. The hospital diagnosis (if known) _____
3. Nutrition & Dietetics diagnosis _____

   _____
4. List underlying conditions that may have influenced the treatment.

   _____
5. Date of final treatment at Nutrition & Dietetics Dept. ____/_____/___
6. Which category best describes the outcome of intervention for this patient?

   1. For a number of visits

   1. fully recovered
   2. marked improvement
   3. some improvement
   4. condition stabilised
   5. no change in condition
   6. worse
   7. failed to complete treatment

   2. For a single visit

   1. successful
   2. unsuccessful

7. Were any aids and appliances provided for this patient? | Yes | No |

   If *Yes,* circle the letter that best describes its cost.

   1. less than $10 2. $10-$50 3. $50-$100 4. >$100

8. Please circle any factors that may have influenced the effectiveness of intervention:
   - A Social Situation
   - B Intellectual Disability
   - C Receptive/Expressive communication difficulties
   - D Other _____
   - N None
9. In your opinion, did communication difficulties with this patient reduce the effectiveness of the treatment? | Yes | No |
10. The total number of treatments and/or tests for this episode at Nutrition & Dietetics Dept. _____
11. The total time taken for these treatments at Nutrition & Dietetics Dept. _____

Discharge summary : Occupational Therapy (sample A)

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Occupational Therapy Outpatient Discharge Summary

PARTICIPATING HOSPITAL: _____

1. Patient UR number_____

2. The hospital diagnosis (if known) _____

3. Circle the letter that best describes the condition causing the need for Occupational Therapy intervention.

A Paediatrics:

A1 Congenital Anomalies (Downs Synrome etc)
A2 Developmental Disability (Coordination etc)
A3 Learning Disability
A4 Hyperkinetic Syndrome
A5 Neurological

B Mental Health

B1 Affective Psychosis
B2 Anxiety
B3 Dementia
B4 Depression
B5 Drug Dependance
B6 Eating Disorder
B7 Psychosis

C Adult

C1 Neurological (nerve injury, Hemiplegia etc)
C2 Skin/Subcutaneous (laceration, oedema, etc)
C3 Musculoskeletal (arthritis, tendon injury, etc)
C4 Burns
C5 Stress Management/relaxation
C6 Frail aged

D Other:-

_____
_____

4. List underlying conditions that may have influenced the treatment.

_____

5. Date of final treatment at Occupational Therapy. _____/_____/_____

6. Were any aids and appliances provided for this patient?

Yes	No

If *Yes,* circle the letter that best describes its cost.

1. less than $10 2. $10-$50 3. $50-$100 4. $100-$500 5. >$500

7. Which category best describes the outcome of intervention for this patient?

1. For a number of visits

1. fully recovered
2. marked improvement
3. some improvement
4. condition stabilised
5. no change in condition
6. worse
7. failed to complete treatment

2. For a single visit

1. successful 2. unsuccessful

8. Please circle which factor influenced the effectiveness of intervention:

A Social Situation
B Intellectual Disability
C Receptive/Expressive communication difficulties
D Other _____
N None

Discharge summary : Occupational Therapy (sample B)

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Occupational Therapy Outpatient Discharge Summary

PARTICIPATING HOSPITAL: _____

1. Patient UR number_____

2. The hospital diagnosis (if known) _____

3. Circle the letter that best describes the condition causing the need for Occupational Therapy intervention.

A	**Paediatrics:**
A1	Congenital Anomalies (Downs Synrome etc)
A2	Developmental Disability (Coordination etc)
A3	Learning Disability
A4	Hyperkinetic Syndrome
A5	Neurological
B	**Mental Health**
B1	Affective Psychosis
B2	Anxiety
B3	Dementia
B4	Depression
B5	Drug Dependance
B6	Eating Disorder
B7	Psychosis
C	**Adult**
C1	Neurological (nerve injury, Hemiplegia etc)
C2	Skin/Subcutaneous (laceration, oedema, etc)
C3	Musculoskeletal (arthritis, tendon injury, etc)
C4	Burns
D	**Other:-**

_____

4. List underlying conditions that may have influenced the treatment.

_____

5. Date of final treatment at Occupationl Therapy. _____/_____/_____

6. Please circle which factor influenced the effectiveness of intervention:

6A	Social Situation
6B	Intellectual Disability
6C	Receptive/Expressive communication difficulties

7. Which category best describes the outcome of intervention for this patient?

7A	100% of goals achieved
7B	75% of goals achieved
7C	50% of goals achieved
7D	25% of goals achieved
7E	0% of goals achieved

8. In your opinion, did communication difficulties with this patient reduced the effectiveness of the tests and/or treatment?

YES	NO

Discharge summary : Orthotics

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Orthotics Department Discharge Summary

PARTICIPATING PARTNER IN PROJECT: _____

UR number_____

The hospital diagnosis (if known) _____

List underlying conditions that may have influenced the treatment.

_____

Were any aids and appliances provided for this patient?

Yes	No

Circle the letter that best describes its cost.

1. less than $10
2. $10- $50
3. $50- $100
4. >$100

Date of final treatment at Orthotics Department ____/_____/___

The total number of treatments and/or tests for this episode at Orthotics Department_____

In your opinion, did communication difficulties with this patient reduce the effectiveness of the treatment?

Yes	No

Discharge summary : Physiotherapy (sample A)

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Physiotherapy Outpatient Discharge Summary

PARTICIPATING HOSPITAL: _____

1. Patient UR number_____

2. The hospital diagnosis (if known) _____

3. Circle the letter that best describes the Main Body Part treated

0	Site unspecified	G	Ankle, Foot and toes
A	Shoulder and scapula region	H	Whole Spine
B	Upper Arm	I	Cervical spine and Head
C	Elbow, forearm, including radius and ulna	J	Thoracic spine excluding scapula region
D	Wrist, Hand and fingers	K	Lumbar spine
E	Pelvic and upper thigh region	M	Multiple sites in the body
F	Knee including lower thigh and upper leg		

4. Circle the number that best describes the Main type of Condition treated

1 Pregnancy and Childbirth
2 Genito-urinary
3 Neurological (inc hyperhydrosis)
4 Cardiovascular (inc lymphoedema)
5 Respiratory
6 Skin and Subcutaneous Tissue
7 Congenital Abnormalities
8 Musculoskeletal
- 8.1 acute soft tissue/ joint
- 8.2 fracture
- 8.3 acute degenerative
- 8.4 chronic degenerative
- 8.5 amputee

9 Alimentary/ Endocrine

5. Indicate using the coding from Q3 and/or Q4 any underlying conditions that may have influenced the condition being treated [ ]

6. Date of final treatement at Physiotherapy (Paediatrics) Dept ___/___/___

Yes	No

7. Were any aids and appliances provided for this patient?

If *Yes,* circle the letter that best describes its cost.

1. less than $10 2. $10-$50 3. $50-$100 4. >$500

8. Which category best describes the outcome for this patient?

1. For a number of visits

1. fully recovered
2. marked improvement
3. some improvement
4. condition stabilised
5. no change in condition
6. worse
7. failed to complete treatment

2. For a single visit

1. successful 2. unsuccessful

9. Please circle any factors that may have influenced the effectiveness of intervention:

A Social Situation
B Intellectual Disability
C Receptive/Expressive communication difficulties
D Other _____
N None

Discharge summary : Physiotherapy (sample B)

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Physiotherapy Outpatient Discharge Summary

PARTICIPATING HOSPITAL: _____

1a). Patient UR number_____

b) Did the patient attend a group? Is so which one? _____

2. The hospital diagnosis (if known) _____

3. Circle the letter that best describes the Main Body Part treated

0	Site unspecified
A	Shoulder and scapula region
B	Upper Arm
C	Elbow, forearm, including radius and ulna
D	Wrist, Hand and fingers
E	Pelvic and upper thigh region
F	Knee including lower thigh and upper leg
G	Ankle, Foot and toes
H	Whole Spine
I	Cervical spine and Head
J	Thoracic spine excluding scapula region
K	Lumbar spine
M	Multiple sites in the body

4. Circle the number that best describes the Main type of Condition treated

1 Pregnancy and Childbirth
2 Genito-urinary
3 Neurological (inc hyperhydrosis)
4 Cardiovascular (inc lymphoedema)
5 Respiratory
6 Skin and Subcutaneous Tissue
7 Congenital Abnormalities
8 Musculoskeletal
- 8.1 acute soft tissue/ joint
- 8.2 fracture
- 8.3 acute degenerative
- 8.4 chronic degenerative
- 8.5 amputee

9 Alimentary/ Endocrine

5. Indicate using the coding from Q3 and/or Q4 any underlying conditions that may have influenced the condition being treated [ ]

6. Were any aids and appliances provided for this patient? [Yes] [No]

If *Yes,* circle the letter that best describes its cost.

1. less than $10 2. $10-$50 3. $50-$100 4. >$100

7. Which category best describes the outcome for this patient?

1. For a number of visits

1. fully recovered
2. marked improvement
3. some improvement
4. condition stabilised
5. no change in condition
6. worse
7. failed to complete treatment

2. For a single visit

1. successful
2. unsuccessful

8. Date of final treatment at physiotherapy ____/_____/___

9. In your opinion, did communication difficulties with this patient reduce the effectiveness of the tests and/ or treatment? [Yes] [No]

Discharge summary : Podiatry (sample A)

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Podiatry Outpatient Discharge Summary

PARTICIPATING HOSPITAL: _____

1. Patient UR number_____

2. The hospital diagnosis (if known) _____

3. Circle the letter that best describes the main type of condition treated

A Arthritic condition
B Biomechanical abnormality
C Bony abnormality
  1) Hallux Valgus
  2) Tailors bunion
  3) Hammer toe
  4) Other
D Congenital Education
E Diabeties Education
F Diabetic Foot complication
G Foot pain
  1) metatarsalgia
  2) plantar fasciitis
  3) calcaneal spur
  4) apophysitis
  5) other
H Footwear advice
I Fungal infection
J IGTN - Surgical
K Lesion debridement
L Nail treatment
M Neuroma
N Verruca
O Wound management

4. List underlying conditions that may have influenced the treatment.

_____

5. Were any aids, appliances and consumables provided for this patient?

Yes	No

6. If *Yes,* circle the letter that best describes its cost.

0. less than $5 1. $5-$10 2. $10-$50 3. $50-$100 4. Over $100

7. Which category best describes the outcome for this patient?

1. For a number of visits

1. fully recovered
2. marked improvement
3. some improvement
4. condition stabilised
5. no change in condition
6. worse
7. failed to complete treatment

2. For a single visit

1. successful
2. unsuccessful

8. Date of final treatment at podiatry ____/_____/___

9. In your opinion, did communication difficulties with this patient reduce the effectiveness of the tests and/ or treatment?

Yes	No

Discharge summary : Podiatry (sample A)

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Podiatry Outpatient Discharge Summary

PARTICIPATING HOSPITAL: _____

1. Patient UR number_____

2. Circle the letter that best describes the main type of condition treated

A Arthritic condition
B Biomechanical abnormality
C Bony abnormality
  1) Hallux Valgus
  2) Tailors bunion
  3) Hammer toe
  4) Other
D Congenital Education
E Diabeties Education
F Diabetic Foot complication
G Foot pain
  1) metatarsalgia
  2) plantar fasciitis
  3) calcaneal spur
  4) apophysitis
  5) other
H Footwear advice
I Fungal infection
J IGTN - Surgical
K Lesion debridement
L Nail treatment
M Neuroma
N Verruca
O Wound management

3. Which category best describes the outcome for this patient?

1. For a number of visits

1. fully recovered
2. marked improvement
3. some improvement
4. condition stabilised
5. no change in condition
6. worse
7. failed to complete treatment

2. For a single visit

1. successful
2. unsuccessful

4. Please circle any factors that may have influenced the effectiveness of intervention:

A Social Situation
B Intellectual Disability
C Receptive/Expressive communication difficulties
D Other
N None

Discharge summary : Psychology

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Psychology Outpatient Discharge Summary

PARTICIPATING HOSPITAL: _____

UR number_____

The hospital diagnosis (if known) _____

Psychology Department diagnosis _____

List underlying conditions that may have influenced the condition being treated

_____

Date of final treatment at Psychology ____/_____/___

In your opinion, did communication difficulties with this patient reduce the effectiveness of the tests and/ or treatment?	Yes	No

The total number of treatments for this episode at Psychology_____

The total time taken for these treatments at Psychology _____

Discharge summary : Social Work

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Social Work Discharge Summary

PARTICIPATING PARTNER IN PROJECT: _____

UR number_____

The hospital diagnosis (if known) _____

List underlying conditions that may have influenced the problem.

_____

Were any aids and appliances provided for this patient?

Yes	No

Circle the letter that best describes its cost.

1. less than $10
2. $10- $50
3. $50- $100
4. >$100

Date of final treatment at Social Work ____/_____/___

The total number of treatments for this episode at Social Work_____

In your opinion, did communication difficulties with this patient reduce the effectiveness of the treatment?

Yes	No

Discharge summary : Speech Pathology

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ROYAL ADELAIDE HOSPITAL

Speech Pathology Outpatient Discharge Summary

PARTICIPATING HOSPITAL: _____

1. Patient UR number_____

2. The hospital diagnosis (if known) _____

3. Circle the letter that best describes the condition causing the need for Speech Pathology intervention.

A	Alaryngeal Speech
B	Cognitive Problem - that may include language dysfunction
C	Dysarthria/Anarthria
D	Dysfluency/Stuttering, Stammering, Cluttering, Fluency Disorder
E	Dysphagia/Eating, Swallowing, Feeding Difficulties
F	Dysphasia/Aphasia
G	Dysphonia/Voice Disorder, Aphonia
H	Dyspraxia (Speech)/Apraxia, Developmental verbal dyspraxia
I	Language Delay - Developmental
J	Language Disorder - Developmental
K	Language Disorder - Psychiatric/Confusion
L	Language - Dementia
M	No Apparent Disorder - Not at risk
N	No Apparent Disorder - But at risk
O	Reading Disorder - Developmental/Dyslexia
P	Resonance Disorder
Q	Speech Delay/Articulation Delay, Phonological Delay
R	Speech Disorder/Articulation, Phonological Disorder
S	Tracheal Disorder/Tracheostomy Management
T	Velopharyngeal Disorder/Velopharyngeal Inco-ordination/Insufficiency, Incompentence

4. List underlying conditions that may have influenced the treatment.

5. Date of final treatment at Speech Pathology Dept. _____/____/_____

6. Which category best describes the outcome of intervention for this patient?

1. For a number of visits

1. fully recovered
2. marked improvement
3. some improvement
4. condition stabilised
5. no change in condition
6. worse
7. failed to complete treatment

2. For a single visit

1. successful
2. unsuccessful

7. Were any aids and appliances provided for this patient?

Yes	No

If *Yes,* circle the letter that best describes its cost.

1. less than $10 2. $10-$50 3. $50-$100 4. >$100

8. Please circle any factors that may have influenced the effectiveness of intervention:

A	Social Situation
B	Intellectual Disability
C	Receptive/Expressive communication difficulties
D	Other _____
N	None

Appendix E

Mechanisms of collecting Therapist – General episodes of care information

This appendix lists the sources of therapist generated episode data. The in-house computer systems programs are abbreviated as

1. 'PI' (Performance Indicators program)
2. 'SB+'
3. 'Mainframe'
4. Occasions of Service are abbreviated to OOS.

The data file names refer, where appropriate, to the specific files containing the data items required for the survey instrument.

HOSPITAL M1

	Manual Format	PI i_data.dat file	PI patients.dat file
Audiology	hosp diag allied health diag comorbidity date discharge cost script outcome communication	date of OOS time per OOS	date referral
(Clinical) Nutrition and Dietetics		allied health diag date of OOS time per OOS	date discharge date referral cost script outcome communication
Occupational Therapy		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication
Physiotherapy	hospital diagnosis all health diagnosis 1&2 (for Gen OP) comorbidity cost script outcome communication	allied health diagnosis (plastics) date of OOS time per OOS	*not using this file*
Neuropsychology	hosp diag allied health diag comorbidity date discharge cost script outcome communication date of OOS time per OOS	date of OOS time per OOS	date referral
Podiatry	hosp diag allied health diag comorbidity date discharge cost script outcome communication date of OOS time per OOS		
Speech Pathology		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication

HOSPITAL M2

	Manual Format	Mainframe System	Department generated stand alone file
Audiology	hosp diag date referral allied health diag comorbidity date discharge cost script outcome communication date of OOS time per OOS		
(Clinical) Nutrition and Dietetics	hospital diagnosis date referral date discharge date referral cost script outcome communication	dates of OOS time per OOS	allied health diagnosis (separate system)\
Occupational Therapy	date referral	hosp diag allied health diag comorbidity date of OOS time per OOS date discharge date referral cost script outcome communication	
Physiotherapy	hospital diagnosis date referral all health diagnosis comorbidity cost script outcome communication	date of OOS time per OOS	
Podiatry	hosp diagnosis date referral allied health diag comorbidity date discharge cost script outcome communication date of OOS time per OOS		
Social Work	hosp diagnosis date of referral allied health diag comorbidity date discharge date referral cost script outcome communication	date of OOS time per OOS	

HOSPITAL M2 (cont'd)

	Manual Format	Mainframe System	Department generated stand alone file
Speech Pathology	hosp diagnosis date of referral allied health diag comorbidity date discharge date referral cost script outcome communication	date of OOS time per OOS	

HOSPITAL M3

	Manual Format	PI i_data.dat file	PI patients.dat file
Audiology	hosp diagnosis allied health diag comorbidity date of referral date discharge cost script outcome communication date of OOS time per OOS		
(Clinical) Nutrition and Dietetics		allied health diagnosis date of OOS time per OOS	date discharge date referral cost script outcome communication
Occupational therapy		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication
Physiotherapy		date of OOS time per OOS	date discharge date referral cost script outcome
Orthotics	hospital diagnosis date of referral comorbidities cost of consumables date final OOS number of OOS communication difficulties	date of OOS allied health diagnosis	outcome
Podiatry	hosp diag date of referral allied health diag comorbidity date discharge cost script communication date of OOS		

HOSPITAL M3 (cont'd)

	Manual Format	Mainframe System	Department generated stand alone file
Speech pathology		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication

HOSPITAL M4

	Manual Format	Mainframe system (SB+)	Department generated stand alone file
Clinical Nutrition and Dietetics	allied health diag hospital diagnosis comorbidity visit number date of final Rx time per visit outcome of care consumable cost communication		
Occupational therapy	hospital diagnosis comorbidities date of final Rx cost consumables outcome of care communication	allied health diagnosis visit number time per visit	
Physiotherapy	hospital diagnosis allied health diagnoses comorbidity date final Rx cost script outcome communication	some allied health diagnoses visit number time per visit	
Podiatry	hosp diag allied health diag comorbidity outcome		cost consumables communication visit number date final Rx time per visit
Social Work		hospital diagnosis allied health diagnosis comorbidities date final Rx outcome of care cost consumables communication total visits total time	
Speech Pathology	hospital diagnosis allied health diagnosis comorbidities date final Rx outcome of care cost consumables communication total visits total time		

HOSPITAL M5

	Manual Format	PI i_data.dat file	PI referrer.dat file
Occupational Therapy		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication
Physiotherapy		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication
Social Work		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication
Orthotics		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication
Speech pathology		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication

HOSPITAL C2

	Manual Format	PI i_data.dat file	PI referrer.dat file
Occupational Therapy		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication
Physiotherapy		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication
Social Work		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication
Orthotics		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication
Speech pathology		hosp diag allied health diag comorbidity date of OOS time per OOS	date discharge date referral cost script outcome communication

HOSPITAL C1

	manual format	appointment diary
Occupational Therapy	hosp diag allied health diag comorbidity date discharge date referral cost script outcome	visit number time per visit
Physiotherapy	hosp diag allied health diag comorbidity date discharge date referral cost script outcome	visit number time per visit
Speech Pathology	hosp diag allied health diag comorbidity date discharge date referral cost script outcome	visit number time per visit

HOSPITAL C3

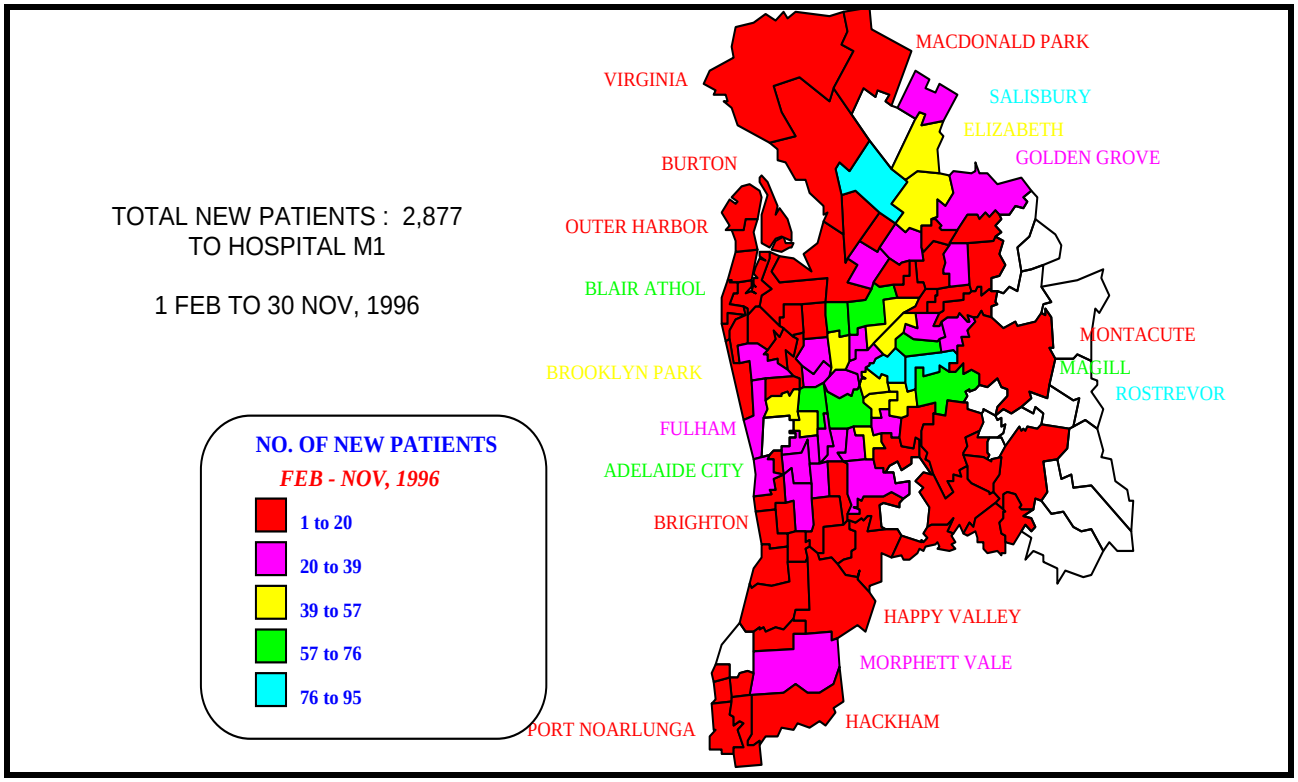
	manual format	appointment diary	Department generated stand alone file
Occupational Therapy	hosp diag allied health diag comorbidity date discharge date referral cost script outcome	visit number time per visit	
Social Work	hosp diag allied health diag comorbidity date discharge date referral cost script outcome	visit number time per visit	
(Clinical) Nutrition and Dietetics	hosp diag allied health diag comorbidity date discharge date referral cost script outcome	visit number time per visit	
Physiotherapy	hosp diag allied health diag comorbidity date discharge date referral cost script outcome		visit number time per visit
Speech Pathology	hosp diag allied health diag comorbidity date discharge date referral cost script outcome	visit number time per visit	

Appendix F

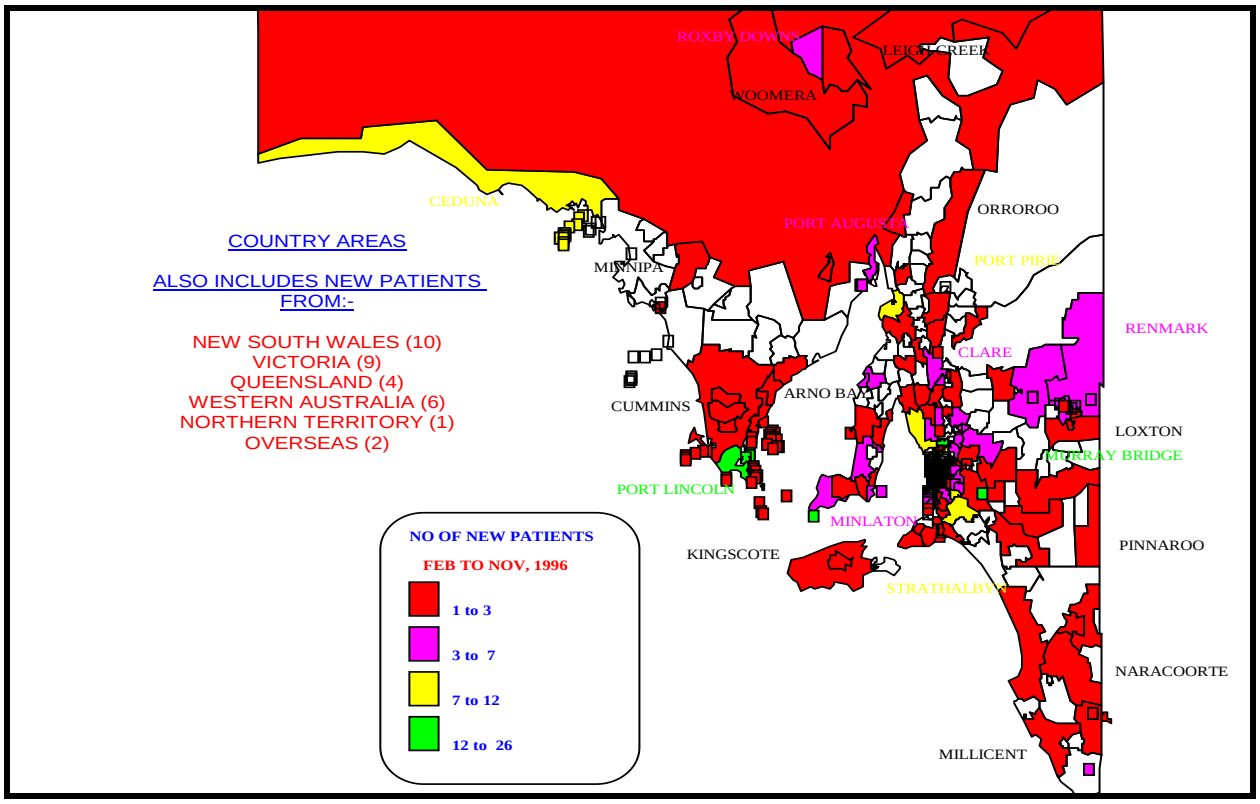
Post Code location of new patients

Post code location of new patients to M1

ADELAIDE METROPOLITAN AREAS

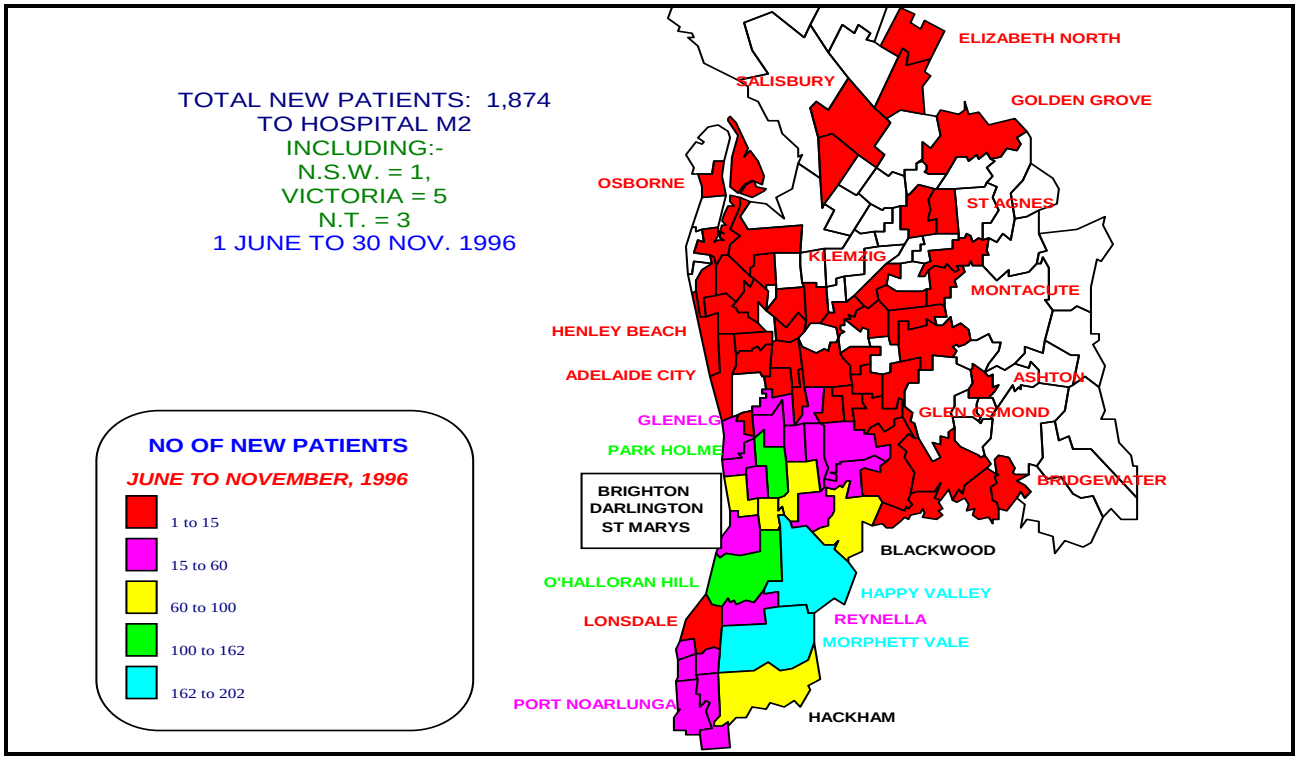


COUNTRY AREAS

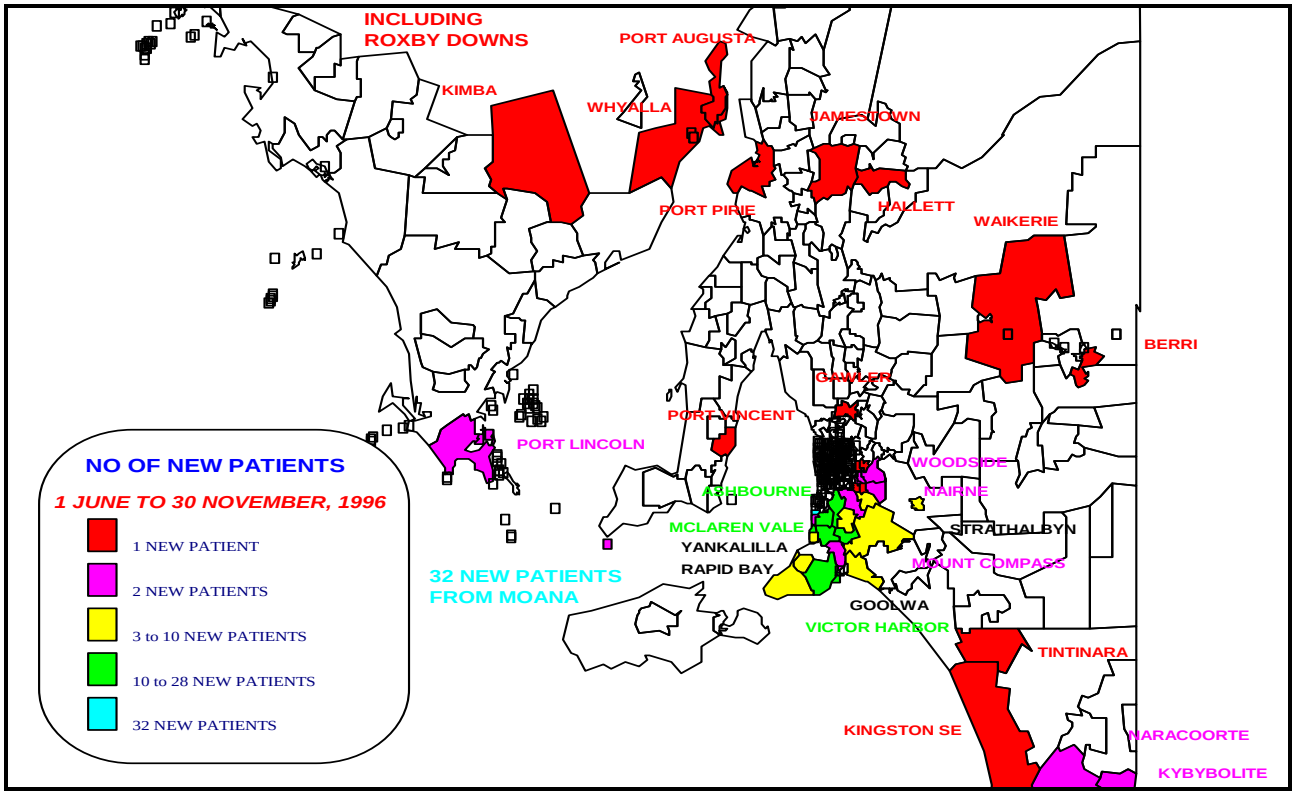


Post code location of new patients to M2

ADELAIDE METROPOLITAN AREAS

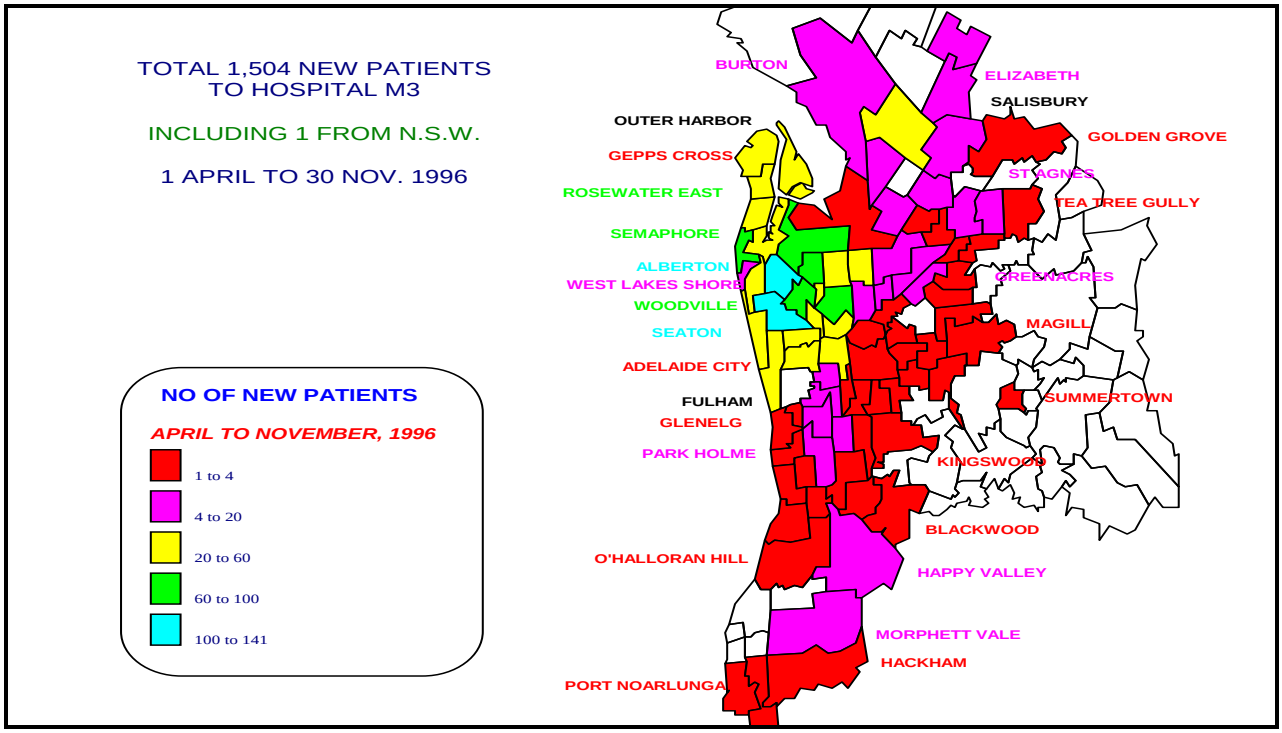


COUNTRY AREAS

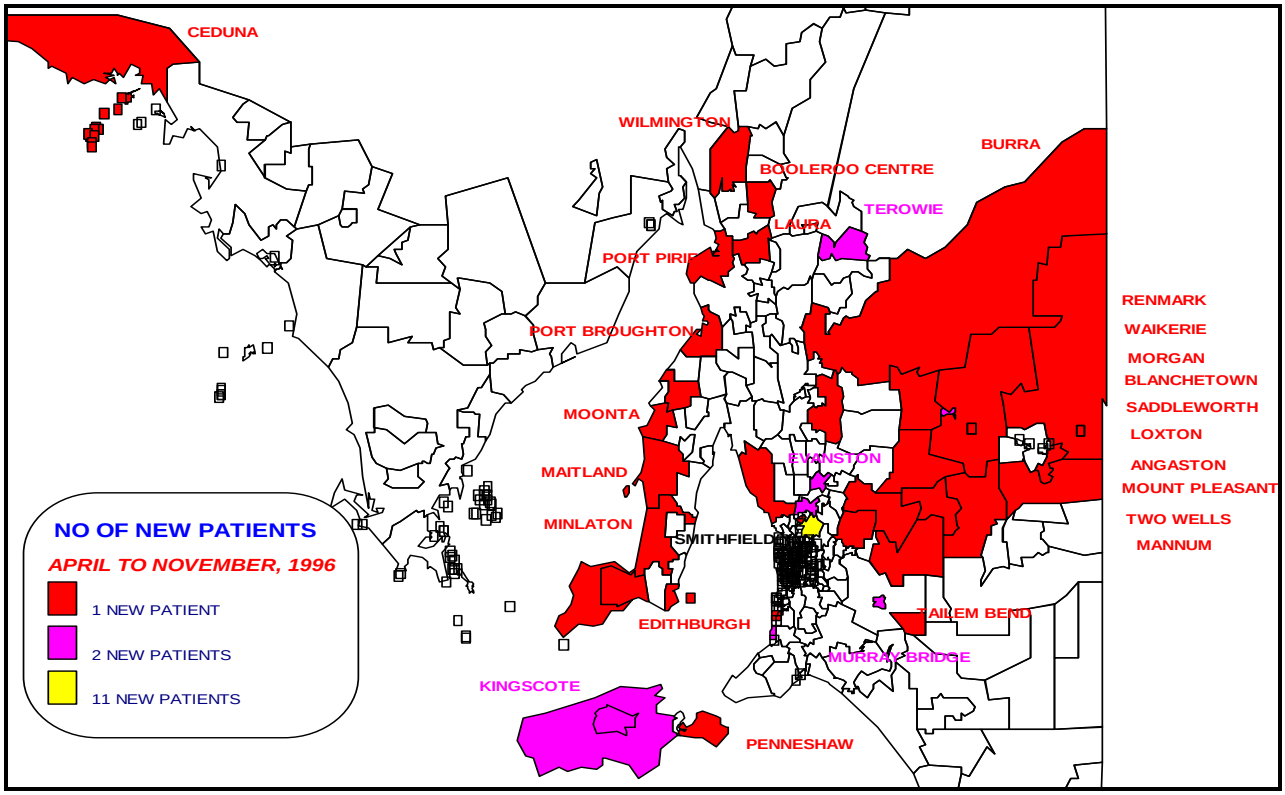


Post code location of new patients to M3

ADELAIDE METROPOLITAN AREAS

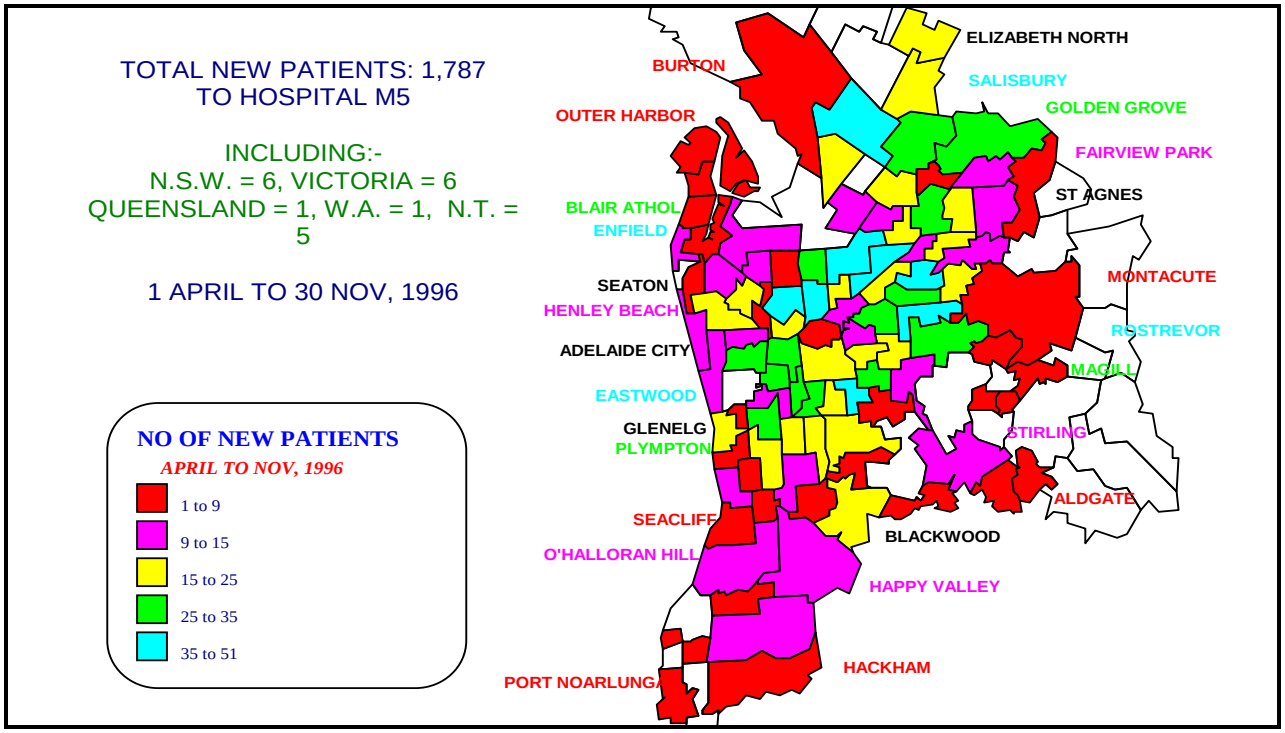


COUNTRY AREAS

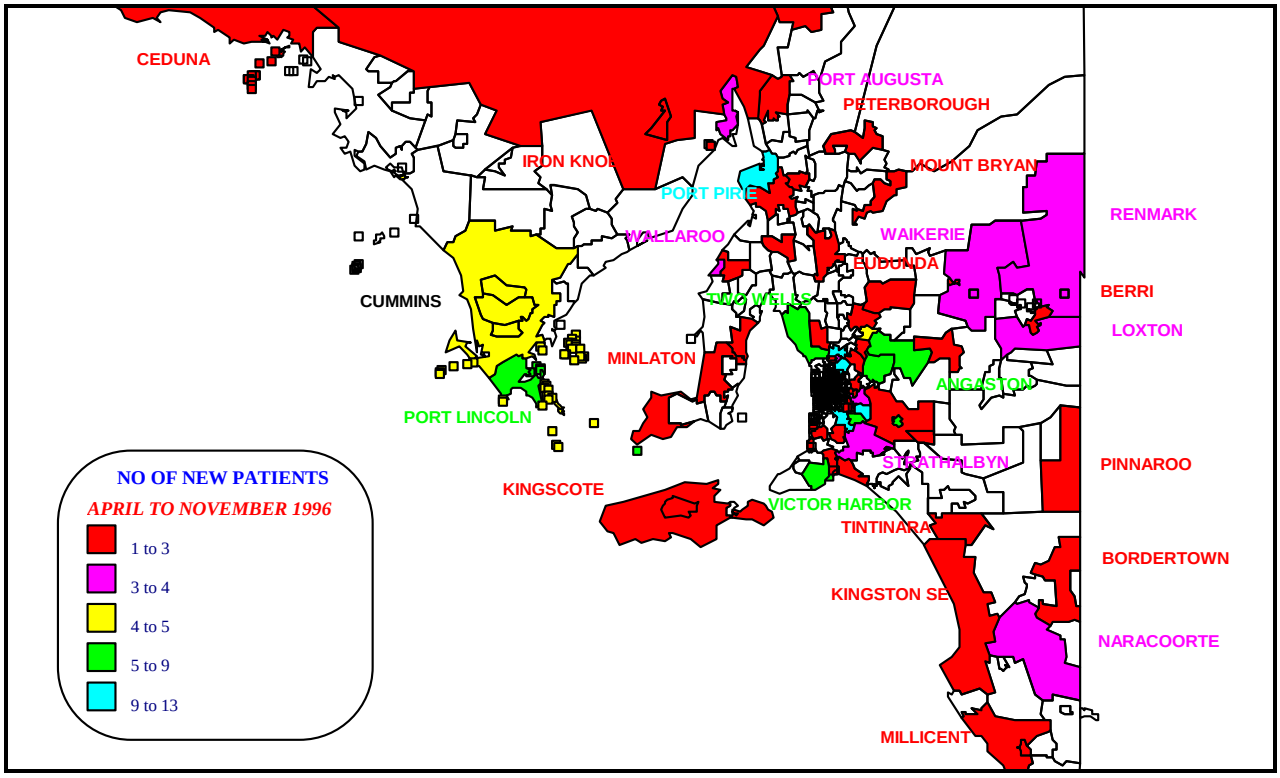


Post code location of new patients to M5

ADELAIDE METROPOLITAN AREAS



COUNTRY AREAS



Appendices for Chapter 2

- Expenditure
- Informal face-to-face discussions with patients who are waiting for treatment at an Allied Health Outpatient Department
- Questions asked in preliminary information face-to-face discussion with patients who were waiting for treatment at an Allied Health Outpatient Department
- The items in the pilot survey instrument and the data sources
- Survey items in the final instrument and data sources
- Consent form

Expenditure

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ESTIMATED INCOME & EXPENDITURE STATEMENT FOR PERIOD 1ST JULY, 1995 TO 31ST MARCH, 1997

INCOME:

Grant received	$163,000
TOTAL INCOME	$163,000

LESS EXPENDITURE:

Printing & Stationery	7,928		
Postage	1,953		
Subs. Books, Magazines	1,081		
Advertising & Cartage	1,100		
Travel & Accommodation	7,521		
Translation	504		
Internal job cost charge	1,463		
Catering	413		
Telephone/fax	1,916	$23,879	
COMPUTER			
Hardware	11,405		
Printer	1,195		
Software	1,265	$13,865	
Furniture & Fittings		$1,706	
Study/Continuous Education		$19	
SALARIES			
Project Manager	70,405		
Clerical Support	36,806		
Computer Consultant	16,320	$123,531	$163,000

Questions asked of Allied Health managers and Clinicians in preliminary investigations

NB: THIS LIST OF QUESTIONS WAS NOT SIGHTED BY RESPONDENTS

1. What information is routinely collected on outpatient records in your department?
2. What other outpatient information is routinely collected in your department? How is it recorded?
3. What sort of statistical reports are routinely generated within your department on outpatients?
4. What information would you like to know about your outpatients but do not currently have access to?
5. Do you (or would you) find any difficulty when wanting to record an outpatient's hospital (medical) diagnosis?
6. How do you record your own diagnosis?
7. Are there improvements you would like to make to the ways in which you record diagnosis?
8. How do you record interventions?
9. What is your service's core business?

Informal face-to-face discussions with patients who are waiting for treatment at an allied health outpatient department

***CONDUCTED DURING PRELIMINARY INVESTIGATIONS*.**

INFORMATION SHEET GIVEN TO PATIENTS

THE PROJECT

This project is looking at allied health outpatient services at the Royal Adelaide Hospital to identify who are the users of the services, where they live, how many services they use and how they were referred to them. Your help would be much appreciated.

THE INVESTIGATOR

Dr Karen Grimmer

1. The nature and purpose of the research project has been explained to me. I understand it, and agree to take part in it.

2. I understand that I may not directly benefit from taking part in this project.

3. I understand that, while information gathered during the study may be published, I will not be identified and my personal records will remain confidential.

4. I understand that I can withdraw from the study at any stage and this will not affect my medical care, now or in the future.

5. I have had the opportunity to discuss taking part in this investigation with a family member or friend.

Patient signature

Questions asked in preliminary informal face-to-face discussions with patients who were waiting for treatment at an allied health outpatient department.

NB: THIS LIST OF QUESTIONS WAS NOT SIGHTED BY THE PATIENT.

⇒ Gender and age

⇒ Post code of home address

⇒ Who are you waiting to see?

⇒ Have you attended any other allied health services today?

If Yes, which one(s)?, where?

⇒ How long did you wait for this appointment?

⇒ How many times have you attended this services in the past?

⇒ How many times this year have you attended any other allied health services at Royal Adelaide Hospital?

⇒ Did you have to travel far today to get to the Royal Adelaide Hospital?

⇒ By which method did you travel?

⇒ How much do you estimate that it has cost you to travel to Royal Adelaide Hospital today?

⇒ Are you attending this allied health service because

- you have recently completed a stay in hospital (which hospital)?
- you are intending to go to hospital in the near future?

⇒ Who referred you to this allied health service?

⇒ Could you have gone elsewhere in the community for this service?

⇒ If Yes, would you have had to pay?

⇒ Are you insured for extras cover under a private medical insurance cover?

Thank you for your help

The items in the pilot survey instrument and the data sources

RECEPTIONIST	Hospital site	Allied health outpatient department
	UR number	Date of first appointment
	Medicare number	Date of referral
PATIENT	Date of birth	Gender
	Post code	Hospital admission
	Previous attendance at this clinic for this condition	Referral mechanism
	Previous attendance at this clinic for other conditions	Compensibility
	Location of referrer	Source of family income
	Private extras cover	Knowlede of availability and cost of alternative local treatment
	Occupation	Number of different outpatient clinics attended in the past 12 months at this hospital.
	Chronicity of condition	Type of health care being consumed outside the auspices of the hospital
	Method of travel to hospital today	Main language spoken at home
	Country of birth	The condition for which treatment is sought
THERAPIST	Hospital diagnosis	Allied health diagnosis
	Comorbidity	Cost of consumables
	Date of discharge	Total number of occasions of service
	Communication difficulties with patient	Outcome of care
	Total UR attributable time	

Survey items in the final instrument and data sources

RECEPTIONIST	Hospital site	Campus
	UR number	Date of first referral (if not available from Therapist)
PATIENT	Date of birth	Gender
	Post code	Hospital admission
	Previous attendance at this clinic for this condition	Referral mechanism
	Location of referrer	Compensibility
	Private extras cover	Source of family income
	Occupation	Knowlede of availability and cost of alternative local treatment
	Chronicity of condition	Number of different outpatient clinics attended in the past 12 months at this hospital.
	Method of travel to hospital today	Type of health care being consumed outside the auspices of the hospital
	Country of birth	Main language spoken at home
		The condition for which treatment is sought
THERAPIST	Hospital diagnosis	Allied health diagnosis
	Comorbidity	Cost of consumables
	Date of discharge	Total number of occasions of service
	Communication difficulties with patient	Outcome of care
	Total UR attributable time	Date of referral
	Date of first service	Date of susequent service

CONSENT FORM

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ph 2225783
fax 2225802
Project Manager: Karen Grimmer

ROYAL ADELAIDE HOSPITAL
North Terrace
ADELAIDE S.A. 5000

A G R E E M E N T

B E T W E E N

PHYSIOTHERAPY DEPARTMENT of the ***(full name and address of hospital)***

and

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT of the Royal Adelaide Hospital, North Terrace, Adelaide, South Australia, 5600

1. The **Physiotherapy Department** hereby agree to supply data to the **Allied Health Ambulatory Care Reform Project** run by the **Royal Adelaide Hospital Allied Health Departments**.
2. We have been informed about the Project and **understand** its aims and objectives.
3. We **agree** to supply data to the Project from ..... 1996 to .....1996.
4. We accept **responsibility** for supplying completed forms to the Project.
5. We also agree for ..... to have access to our
   (NAME OF DELEGATED PERSON)
   Performance Indicator (PI) Program to extract the necessary data files.
6. We understand that our **participation** in the Project can be **reviewed** and **varied** at any time by us if staffing or time constraints make on-going participation difficult.

Dated this day of 1996.

SIGNATURE OF)
SPOKESPERSON) .....
FOR THE DEPARTMENT)

Appendices for Chapter 4

- Gender and age groups
- Compensibility
- Referral mechanisms
- Source of income/employment
- Chronicity of condition
- Country of origin
- Language spoken at home

GENDER AND AGE GROUPS

Gender of patients in participating hospitals

Hospital code	Female %	Male %
M1	52.3	47.7
M2	53.7	46.3
M3	58.1	41.9
M4	43.8	56.2
M5	75.7	24.3
C1	60.7	39.2
C2	61.6	38.4
C3	53.3	46.7

Age groups of patients in participating hospitals

	<=5 %	6-16 %	17-25 %	26-39 %	40-59 %	60-74 %	75+ %
M1	0.0	0.0	13.2	23.1	33.5	23.1	7.1
M2	10.6	14.2	10.2	12.7	2.9	17.5	5.0
M3	0.0	0.0	7.5	18.5	32.6	28.9	12.5
M4	5.3	6.8	15.6	22.3	31.9	14.5	3.7
M5	20.2	20.0	23.9	33.3	2.3	0.1	0.0
C1	6.6	11.7	15.5	28.3	21.1	13.7	3.1
C2	11.7	5.9	2.9	6.6	17.5	30.8	25.4
C3	15.1	5.7	5.4	13.9	26.5	26.5	6.9

COMPENSIBILITY

Percent of total patients with an associated compensibility status

	M1 %	M2 %	M3 %	M4 %	C1 %	C2 %	M5 %	C3 %
Workers Comp	3.8	1.8	2.3	5.0	1.2	0.6	0.2	2.3
Motor Vehicle Ins	2.4	1.2	1.4	2.5	0.1	0.2	0.5	0.6
Dept Vets Affairs	0.6	0.7	1.6	0.4	2.0	2.8		2.1
Employer	3.1	0.4	0.1	0.6		0.2	0.1	
No explanation	0.4	0.4	0.4				0.3	
Victims of Crime	0.1	0.1	0.1		0.1	0.1	0.1	
Travel Insurance	0.1	0.0	0.0			0.2		
Public Liability	0.05	0.1	0.1			0.1	0.2	
Correct Services	0.1	0.0	0.0					
Sports Injury Claim	0.05	0.1	0.0	1.0	0.1	0.1		
School Insurance					0.1	0.1		
Research	0.05	0.0	0.0					

Percent of patients with private health cover

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
Private cover, not sure which type	1.5	2.6	1.5	2.3	2.2	5.3	2.6	3.3
Hospital only	2.4	3.9	4.1	6.4	1.8	5.2	1.4	5.9
Extras only	5.0	11.2	3.9	1.7	10.9	2.9	7.9	4.4
Hospital plus extras	7.7	8.6	5.3	6.0	12.4	15.1	8.7	10.6
None	83.4	72.6	85.1	83.6	72.5	71.5	79.5	75.8

REFERRAL MECHANISMS

Percent, overall of referral mechanisms

Referrer Code*	Hospital Code							
	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	10.7	11.1	11.1	10.2	7.8	15.6	3.0	0.0
2	55.0	35.9	47.5	29.4	24.7	22.7	1.6	0.3
3	18.8	24.7	20.6	29.7	28.3	21.7	33.3	55.2
4	6.9	6.8	7.2	14.9	12.1	10.8	7.5	14.5
5	2.7	4.3	4.4	5.0	4.1	5.5	3.6	3.5
6	1.5	2.1	1.1	2.5	1.1	2.3	3.2	4.0
7	2.1	8.3	2.7	3.9	5.9	9.5	17.3	14.1
8	1.4	5.1	1.9	3.6	9.0	10.6	29.6	7.8
9	1.1	1.7	3.3	0.7	6.9	1.2	1.0	0.6

*Key:

1 hospital ward
2 hospital outpatient clinic 6
3 general practitioner
4 specialist
5 allied health professional in hospital
allied health professional in community
7 other
8 self
9 don't know

Referral mechanism per allied health category

CATEGORY C

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	29.9	33.4	28.4	27.2	16.8	37.2	33.3	0.0
2	54.8	42.3	45.2	30.4	13.3	29.0	5.6	0.0
3	3.6	6.2	5.9	3.2	41.1	4.3	0.0	31.4
4	3.0	4.5	3.8	21.6	6.2	10.4	44.4	11.4
5	5.3	4.7	5.3	9.6	1.4	6.9	11.1	25.7
6	0.8	1.2	0.9	1.6	0.2	1.4	0.0	11.4
7	1.2	4.2	5.0	3.2	4.9	3.0	5.6	14.3
8	0.6	1.5	2.0	1.6	9.2	7.8	0.0	2.9
9	0.85	1.9	3.5	1.6	6.9	0.0	0.0	2.9

CATEGORY E1

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	2.0	3.8	5.6	4.5	2.8	4.3	1.5	0.0
2	57.2	31.1	48.3	27.6	33.4	20.9	0.8	0.4
3	24.8	31.9	25.8	39.0	20.9	29.8	34.7	58.3
4	7.3	7.5	7.4	12.3	13.5	9.1	5.3	14.0
5	1.7	5.1	4.1	3.9	4.9	4.8	3.0	1.2
6	1.6	2.5	1.6	3.3	1.3	2.9	3.0	2.6
7	2.6	10.1	2.4	4.3	7.1	13.2	17.9	15.5
8	1.6	6.4	1.8	4.5	8.7	12.9	33.3	7.6
9	1.1	1.7	3.0	0.6	7.4	2.1	0.5	0.4

CATEGORY E2

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	0.7	2.9	3.5	3.4	1.6	3.9	1.9	0.0
2	46.1	28.3	45.6	17.2	14.7	17.9	3.9	0.0
3	21.3	23.7	22.8	37.9	12.3	13.7	27.6	54.1
4	23.4	12.1	21.0	24.4	37.7	27.4	7.8	18.9
5	0.7	2.3	1.8	3.4	12.3	7.8	5.9	0.0
6	2.8	5.2	0.0	3.4	4.2	3.9	3.9	5.4
7	2.1	15.0	0.0	6.9	4.1	13.7	21.6	8.1
8	2.8	8.7	1.8	3.4	11.5	9.8	23.5	13.5
9	0.0	1.7	3.5	0.0	1.6	1.9	3.9	0.0

SOURCE OF INCOME/EMPLOYMENT

Key:

1 self employed
2 PAYE
3 homeduties
4 unemployed
5 sickness/disability
6 aged pensioner
7 self funding retiree
8 student
9 young homeless/ supporting parent
10 other

Percent of overall patients, source of income

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	4.7	6.1	2.7	10.2	6.8	8.2	1.8	9.2
2	26.4	25.9	18.8	32.2	40.5	35.9	10.0	14.7
3	8.9	14.4	11.1	10.4	18.8	13.9	7.2	22.9
4	9.7	7.7	8.0	11.9	11.0	8.2	3.6	7.2
5	14.9	9.2	13.9	8.9	2.8	6.7	5.6	12.2
6	23.3	17.4	3.5	12.6	0.1	11.6	58.0	21.9
7	3.5	3.4	4.9	3.7	0.3	3.4	1.8	6.9
8	5.6	9.4	2.5	7.8	9.4	6.4	9.6	3.4
9	1.7	5.6	2.6	2.3	9.2	4.6	1.8	1.6
10	1.3	0.9	2.0	0.0	1.1	1.1	0.6	0.0

Percent source of income for Category C patients

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	4.7	6.1	5.0	15.1	5.9	10.1	5.9	22.9
2	26.4	34.9	24.8	30.2	44.5	32.1	17.6	11.4
3	8.9	10.1	9.1	8.4	15.8	15.6	17.6	8.6
4	9.7	7.7	9.4	10.2	9.2	5.5	11.8	14.2
5	14.9	11.2	15.7	12.6	2.5	11.0	17.6	11.4
6	23.3	18.1	24.5	12.6	0.0	15.1	17.6	22.9
7	3.5	2.9	6.0	2.5	0.3	3.2	11.9	5.7
8	5.6	4.3	1.3	5.9	10.9	3.2	0.0	0.0
9	1.7	3.5	2.6	2.5	10.3	4.2	0.0	2.9
10	1.3	1.2	1.6	0.0	0.6	0.0	0.0	0.0

Percent source of income for Category E1 patients

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	4.7	5.65	2.3	7.6	7.1	7.3	1.5	6.2
2	26.4	23.4	16.9	34.4	36.5	38.9	7.2	14.1
3	8.9	16.9	11.7	11.8	21.1	13.3	6.1	24.9
4	9.7	8.3	8.3	12.7	12.7	10.9	3.3	7.2
5	14.9	8.1	12.7	8.2	1.9	4.8	5.2	13.7
6	23.3	14.4	34.5	9.9	0.0	7.6	65.2	23.2
7	3.5	3.2	4.8	3.9	0.3	1.4	1.5	6.2
8	5.6	12.7	3.4	8.8	9.0	9.6	7.7	3.3
9	1.7	6.5	3.5	2.7	9.8	4.8	2.0	1.2
10	1.3	0.9	1.8	0.0	1.6	1.4	0.3	0.0

Percent source of income for Category E2 patients

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	4.7	11.5	2.6	4.3	11.0	10.5	1.9	15.1
2	26.4	41.8	38.5	43.5	49.0	63.3	27.4	21.2
3	8.9	13.1	12.8	17.4	23.0	10.5	11.8	24.2
4	9.7	3.3	0.0	8.7	4.0	0.0	1.9	0.0
5	14.9	4.1	12.8	8.7	1.0	0.0	1.9	6.1
6	23.3	7.4	15.4	4.3	0.0	2.6	19.6	15.2
7	3.5	3.3	7.7	8.7	1.0	7.9	0.0	12.1
8	5.6	9.8	7.6	4.4	8.0	0.0	31.7	6.1
9	1.7	4.9	0.0	0.0	3.0	2.6	1.9	0.0
10	1.3	0.8	2.6	0.0	0.0	2.6	1.9	0.0

Percent of known income earners in specific employment categories

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
Managerial	8.4	9.9	5.7	6.1	7.6	6.8	1.7	22.7
Professional	16.1	13.3	10.4	9.0	16.8	24.5	8.5	8.0
Para-professional	6.8	5.1	4.7	3.8	6.7	7.5	23.7	2.7
Tradesperson	18.8	21.8	18.3	18.9	12.5	15.3	3.4	13.3
Clerical	12.8	14.0	13.6	14.6	26.8	13.9	8.5	10.7
Service Worker	16.2	16.2	12.2	11.8	22.8	16.0	10.2	18.7
Transport Operator	3.9	4.3	5.7	3.8	1.0	1.7	27.1	6.6
Blue Collar	17.0	12.7	20.8	27.4	5.8	15.3	16.9	17.3

CHRONICITY OF CONDITION

Key:

1 less than one week
2 2-3 weeks
3 about a month
4 2-3 months
5 4-6 months
6 7-11 months
7 about 12 months
8 1-2 years
9 3-5 years
10 more than 5 years

Percent of patients in categories of chronicity of condition

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	2.9	5.1	6.7	7.9	6.5	7.0	0.6	2.9
2	8.2	7.8	9.2	11.8	11.3	13.6	1.4	7.2
3	7.9	9.8	9.1	13.9	17.7	8.8	5.3	7.2
4	16.6	12.5	12.3	20.5	11.8	16.1	5.9	12.4
5	8.8	9.1	9.4	11.6	10.1	9.4	6.7	12.6
6	5.0	5.3	4.9	5.0	7.9	8.3	4.7	4.4
7	4.9	6.8	7.5	3.7	5.8	5.3	7.9	7.9
8	11.5	12.5	10.8	9.2	10.9	8.6	15.1	15.6
9	9.0	12	9.9	7.2	8.1	9.3	19.7	12.4
10	25.2	18.1	20.2	9.2	9.9	13.6	32.7	17.4

COUNTRY OF ORIGIN

(percentage of patients)

Country	M1	M2	M3	M4	M5	C1	C2	C3
	%	%	%	%	%	%	%	%
Australia	57.0	72.5	58.5	79.6	83.7	82.2	74.8	84.3
Australian Aboriginal/ Torres Strait Is.	0.5	0.2		3.6	1.3	1.0	0.4	1.2
Aust Territories	1.2	0.9		0.5		1.2		
New Zealand			0.6	2.7	0.6	0.1	0.2	0.6
Papua New Guinea	0.1	0.1	0.1	0.5	0.2			
Fiji	0.1	0.1		0.2	0.1	0.1		
Europe	0.2	0.2	0.3	0				
UK and Ireland	0.1		0.1	0				
England	9.9	11.4	8.5	4.7	4.9	7.0	11.2	9.1
Scotland	2	0.2	1.5	0.4	0.5	0.3	3.1	1.2
Wales	0.1		0.3	0.2		0.1	0.4	0.3
Northern Ireland	0.05			0.4				
Ireland	0.6	1.0	0.5		0.1	0.1	1.0	0.6
Albania			0.1			0.1		
Andorra	0.5	0.1						
Cyprus			0.5					
Greece	4.6	1.0	3.6		0.1	0.1	0.4	0.3
Italy	7.2	1.0	7.0	0.4	0.4	0.3	1.8	
Malta	0.5	0.2	0.4					
Portugal	0.08		0.1		0.1			
Spain	0.2	0.1	0.2		0.1		1.0	
Yugoslavia	1	0.4	1.9		0.1	0.4	0.4	0.3
Bosnia-Hertzigovena	0.6	0.1	0.6		0.1			
Croatia	0.8	0.2	0.8		0.1	0.3	0.4	
Federal Republic of Germany			0.1					
Slovenia	0.1	0.1	0.4		0.1	0.1		
Austria	0.06	0.1	0.1					
Belgium	0.1	0.2			0.1			
France	0.07		0.3	0.7	0.1	0.1		0.3
Germany	3.2	0.2	2.1	1.1	0.2	0.6	1.4	0.9
Netherlands	1.1	1.0	0.4	0.5	0.1	0.7	2.0	

Country of Origin continued

(percentage of patients)

Country	M1	M2	M3	M4	M5	C1	C2	C3
	%	%	%	%	%	%	%	%
Switzerland	0.04		0.1			0.1		
Denmark	0.1	0.1	0.1	0.2				
Faeroe Is	0.1	0.1						
Finland			0.1	0.2	0.1			0.3
Sweden	0.5		0.1	0.2	0.1	0.1		
Bulgaria	0.07		0.1		0.1			
Czechoslovakia	0.2	0.2	0.1		0.1	0.1		
Hungary	0.4	0.1	0.4	0.4		0.1		
Poland	1.6	0.9	2.9	0.2	0.3	0.3	0.6	
Romania	0.2	0.2	0.3					
Czech Republic	0.06		0.1					
Estonia	0.1	0.1	0.1					
Georgia	0.1							
Latvia	0.2	0.1	0.2					
Lithuania	0.2		0.1				0.4	
Ukraine	0.4	0.1	1.1			0.1	0.2	
Gaza Strip	0.4	0.2						
Iraq	0.07							
Iran			0.1		0.1			
Lebanon	0.2	0.5	0.2		0.2			
Algeria			0.1		0.1			
Syria	0.1					0.1		
Cape Verde	0.1	0.2						
Mauritania	0.08		0.1					
Cambodia	0.2	0.1	0.3		0.1			
Indonesia	0.1	0.2			0.1	0.1		
Laos	0.06							
Brunei				0.5				
Malaysia	0.2	0.2		0.4	0.2	0.4		
Philippines	0.4	0.2	0.5	0.4	0.5	0.3		
Singapore	0.2				0.2	0.1		
Thailand	0.1	0.1						

Country of Origin continued

(percentage of patients)

Country	M1	M2	M3	M4	M5	C1	C2	C3
	%	%	%	%	%	%	%	%
Viet Nam	0.7	0.2	1.4	0.2	0.4			
China	0.8	0.1	0.6	0.2	1.0			
Hong Kong	0.1	0.1			0.4			
Japan	0.1							
Korea	0.07				0.1	0.1		
Macau	0.07							
Taiwan	0.06				0.1	0.4		
Afghanistan	0.1				0.1			
India	0.2	0.5	0.3	0.5	0.7		0.2	
Sri Lanka	0.05				0.1	0.1		
Canada	0.2	0.2	0.1	0.2	0.2	0.1		
USA	0.4	0.2	0.2		0.4	0.3	0.2	
Argentina		0.1	0.2		0.1	0.1		
Chile	0.2	0.2	0.2					
Brazil		0.1	0.1					
Colombia	0.1	0.1						
El Salvador			0.3					
Peru	0.03	0.1			0.1			
Panama	0.1			0.2		0.7		
Bahamas			0.1		0.1		0.2	
St Kitts-Nevia	0.07							
Kenya	0.1	0.1			0.1			
St Helena	0.06							
South Africa	0.1	0.1		0.2	0.7	0.4		
Zimbabwe		0.2		0.0	0.1	0.3		
Zambia				0.2				
Ethiopia	0.2							

LANGUAGE SPOKEN AT HOME

Language	M1	M2	M3	M4	M5	C1	C2	C3
	%	%	%	%	%	%	%	%
Aboriginal	0.1		0.1		0.1	0.1		
Albanian		0.1	0.1		0.1			
Amharic	0.1							
Arabic	0.1	0.2	0.1		0.2	0.1		
Austrian	0.05							
Belgian	0.05				0.2	0.1		
Bosnian	0.3	0.1	0.5		0.1			
Bulgarian	0.05		0.1		0.1			
Cambodian		0.3			0.2			
Cantonese	0.2	0.5			0.1			
Chinese	0.4	0.1	0.5	0.2	0.9			
Croatian	0.6	0.2	0.9	0.9	0.1	0.3	0.4	
Czech	0.05		0.1	0.1				
Deaf	0.05				0.1			
Danish				0.2				
Dari	0.05	0.1						
Dutch	0.2	0.2	0.1		0.1	0.1	0.6	
Egyptian	0.1							
English	79.6	92	76.9	96.5	93.4	96.6	94.9	99.4
Estonian	0.05		0.1					
Farzi		0.1						
Finnish	0.1		0.1			0.1		0.3
French	0.1	0.1	0.2	0.4		0.1		
German	0.7	0.7	1.2	0.7	0.2	0.1	0.6	
Greek	5.0	1.2	4.0		0.7		0.2	0.3
Hindi	0.1	0.1	0.1		0.2			
Hungarian	0.1		0.1		0.1			
Hinang						0.1		
Indonesian	0.1	0.1			0.1	0.1		
Iranian	0.0							
Italian	6.7	0.6	6.1	0.6	0.6	0.3	1.6	

Language spoken at home continued

Language	M1	M2	M3	M4	M5	C1	C2	C3
	%	%	%	%	%	%	%	%
Japanese	0.1							
Khmer	0.1	0.1	0.1		0.1			
Korean								
Lao								
Lebanese	0.1	0.2	0.1					
Lithuanian	0.1		0.1					
Latvian	0.1	0.1	0.1					
Mandarin	0.1		0.1		0.4	0.1		
Maltese	0.4	0.1	0.3		0.1			
Maori			0.1		0.1			
Mayalam				0.5	0.1			
Norwegian		0.1			0.1			
Panjabi	0.1	0.1	0.1					
Persian	0.3	0.2	0.1					
Philippine	0.1	0.1	0.2	0.2				
Polish	1.0	0.7	2.4		0.4	0.3	0.4	
Portuguese		0.1	0.1					
Romanian	0.1	0.2	0.1		0.1			
Russian	0.1	0.1	0.4	0.2				
Serbian	0.4	0.1	0.8			0.3	0.2	
Slovak		0.1	0.4					
Singhalese					0.1			
Slovak					0.1			
Spanish	0.6	0.2	0.5		0.3	0.6	1.0	
Teluga		0.1						
Tagalog		0.1	0.1	0.2	0.1			
Thai	0.1							
Turkish						0.1		
Turkamen	0.1							
Ukrainian	0.4	0.2	0.6			0.1		
Urdi		0.1						
Vietnamese	0.5	0.1	1.4	0.2	0.6			
Yugoslavian	0.1	0.1	0.5		0.2	0.2		

Appendices for Chapter 5

Patient and episode characteristics per Clinical Allied Health service

Mean age per clinical Allied Health service per hospital

Audiology Services		
	mean	**SD**
Hospital M1	45.3	15.5
M3	58.6	19.5
M2	10.9	10.0
Ear, Nose,Throat		
M1	47.8	17.5
M3	55.6	16.2
M2	29.3	25.9
Hyperbaric		
M1	35.4	10.5

Occupational Therapy		
	mean	**SD**
M1	42.8	17.3
M2	33.6	23.5
M3	46.3	18.1
M4	46.7	19.1
M5	6.4	3.9
C1	42.8	28.5
C2	42.4	24.7
C3	22.6	27.4

Podiatry		
	mean	**SD**
M1	55.6	17.2
M2	37.7	26.9
M3	67.3	12.3
M4	30.5	35.5
C2	65.7	18.4

(Clinical) Nutrition and Dietetics		
	mean	**SD**
M1	50.2	15.2
M2	40.6	22.0
M3	46.9	15.8
M4	43.5	21.7
C2	30.2	23.1
C3	55.5	16.7

Physiotherapy		
	mean	**SD**
M1	49.1	18.2
M2	40.8	21.1
M3	52.8	18.1
M4	40.3	19.8
M5	20.5	11.7
C1	39.8	18.7
C2	58.2	16.6
C3	50.3	18.9

Social Work		
	mean	**SD**
M2	39.7	17.5
M3	36.0	16.9
M4	22.2	17.6
M5	24.6	8.9
C2	22.5	20.5
C3	35.0	10.8

Speech Pathology		
	mean	**SD**
M1	48.7	19.1
M2	14.3	18.2
M3	52.7	15.7
M4	13.5	20.0
M5	5.1	5.8
C1	19.8	19.7
C2	10.8	17.8
C3	9.3	16.7

Percentage of Allied Health category outpatients per service

Category C those outpatients who have an associated in-patient admission

Category E1 those outpatients who do not have an associated inpatient admission and who are not eligible for private sector rebates

Category E2 those outpatients who do not have an associated inpatient admission and who are eligible for private sector rebates

Audiology

	M1 %	M2 %	M3 %
Audiology			
C	25.2	0.0	12.5
E1	44.2	48.8	81.3
E2	30.6	51.2	6.2
ENT			
C	19.6	30.8	24.6
E1	77.4	34.6	67.4
E2	3.0	34.6	7.8
Hyperbaric			
C	0.0		
E1	29.4		
E2	70.6		

Clinical Nutrition and Dietetics

	M1 %	M2 %	M3 %	M5 %	C2 %	C3 %
C	17.4	0.0	18.0	0.0	14.3	6.7
E1	68.1	100	60.0	49.2	47.6	46.7
E2	14.9	0.0	22.0	57.1	38.1	46.7

Occupational Therapy

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
C	66.4	53.5	53.9	50.0	0.0	50.0	33.3	100.0
E1	28.1	29.6	31.7	50.0	41.7	32.1	66.7	0.0
E2	5.5	19.9	14.3	0.0	58.3	17.9	0.0	0.0

Percentage of Allied Health category outpatients per service (cont'd)

Physiotherapy

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
C	40.1	26.9	28.1	12.3	48.6	19.4	50.0	11.4
E1	54.4	51.2	54.4	59.6	37.9	61.7	0.0	71.5
E2	8.5	21.9	17.5	28.1	13.6	18.9	50.0	17.1

Neuropsychology

	M1 %
C	63.1
E1	22.6
E2	14.3

Orthotics

	M3 %	M5 %
C	21.2%	0.0%
E1	62.3%	0.0%
E2	16.5%	100.0%

Podiatry

	M1 %	M2 %	M3 %	M4 %	C2 %
C	8.6	14.8	16.7	0.0	1.9
E1	62.9	49.2	75.0	50.0	83.0
E2	28.6	35.9	8.3	50.0	15.1

Social Work

	M2 %	M3 %	M4 %	M5 %	C3 %
C	66.7	0.0	20.9	66.3	14.3
E1	33.3	100.0	72.6	23.5	85.7
E2	0.0	0.0	4.5	10.2	0.0

Speech Pathology

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
C	25.7	0.0	35.5	0.0	0.0	30.0	10.0	0.0
E1	34.7	41.7	52.9	100.0	57.1	60.0	20.0	100.0
E2	39.6	58.3	11.8	0.0	42.8	10.0	70.0	0.0

Referral mechanism per service

*Key:

1 hospital ward
2 hospital outpatient clinic
3 general practitioner
4 specialist
5 allied health professional in hospital
6 allied health professional in community
7 other
8 self
9 don't know

Audiology

Audiology	M1 %	M2 %	M3 %
1	4.6	1.5	20.7
2	66.7	1.5	34.5
3	3.5	17.6	20.7
4	9.3	19.2	10.3
5	0.0	2.9	6.9
6	4.1	4.4	1.7
7	4.1	48.5	3.5
8	7.6	4.4	1.7
9	0.0	0.0	0.0

Hyperbaric	M1 %
1	0.0
2	94.7
3	0.0
4	1.3
5	0.0
6	0.0
7	0.0
8	4.0
9	0.0

ENT	M1 %	M2 %	M3 %
1	0.3	6.5	3.0
2	97.7	66.5	97.0
3	0.6	13.0	
4	0.6	9.3	
5	0.0	0.0	
6	0.3	0.0	
7	0.3	1.9	
8	0.0	1.9	
9	0.3	0.9	

Clinical Nutrition and Dietetics

	M1 %	M2 %	M3 %	M4 %	C2 %	C3 %
1	11.6	9.9	12.1	6.4	12.2	0.0
2	65.2	45.8	25.3	21.3	4.9	0.0
3	14.7	19.4	41.3	19.1	56.1	70.2
4	7.4	8.9	9.3	27.7	17.0	12.3
5	1.1	8.5	4.0	17.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	3.5	2.7	2.1	4.9	5.3
8	1.1	2.9	5.3	6.4	4.9	12.3
9	0.0	1.1	0.0	0.0	0.0	0.0

Referral mechanism per service (cont'd)

Neuropsychology

	M1 %
1	34.7
2	33.7
3	8.2
4	13.3
5	1.0
6	1.0
7	7.1
8	1.0
9	0.0

Orthotics

	M3 %	M5 %
1	0.0	0.0
2	86.5	100.0
3	4.2	0.0
4	5.2	0.0
5	0.0	0.0
6	0.0	0.0
7	2.1	0.0
8	1.0	0.0
9	1.0	0.0

Occupational Therapy

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	23.6	6.1	12.0	8.2	7.6	23.5	2.9	0.0
2	51.1	62.3	59.5	10.9	19.3	5.9	2.9	5.6
3	8.4	7.9	2.6	13.7	9.2	0.0	20.6	5.6
4	2.8	3.9	4.3	42.5	20.2	50.0	44.3	22.2
5	10.1	4.4	7.8	13.7	19.3	8.8	14.7	16.7
6	1.7	3.1	1.7	5.6	7.6	0.0	2.9	33.3
7	1.1	7.5	9.5	2.7	9.3	0.0	8.8	11.0
8	0.0	1.7	1.7	1.4	0.8	5.9	0.0	0.0
9	1.1	3.1	0.9	1.4	6.7	5.9	2.9	5.6

Physiotherapy

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	12.4	14.7	14.4	10.4	10.2	19.0	12.5	0.0
2	51.2	33.4	38.2	35.7	35.3	24.0	12.5	0.0
3	24.5	33.5	29.0	34.6	19.9	24.6	50.0	66.5
4	3.5	4.9	4.1	10.5	13.4	7.6	0.0	16.9
5	3.4	3.4	4.9	3.7	2.5	5.2	0.0	4.2
6	1.1	1.3	1.2	0.2	0.7	2.4	12.5	3.4
7	1.5	4.2	1.7	1.6	3.8	7.2	0.0	3.3
8	0.9	2.7	2.4	2.6	8.3	8.6	0.0	6.1
9	1.5	1.9	4.1	0.7	5.9	1.4	12.5	0.5

Referral mechanism per service (cont'd)

Podiatry

	M1 %	M2 %	M3 %	M4 %	C2 %
1	3.7	9.7	7.7	3.1	1.7
2	16.7	19.1	25.3	6.2	0.6
3	59.9	28.5	29.7	61.5	35.3
4	3.1	4.7	12.0	3.2	1.4
5	1.8	5.5	7.7	0.0	1.7
6	3.1	4.3	3.3	9.4	3.2
7	6.8	11.1	4.4	15.6	15.3
8	2.5	16.2	0.0	.0	39.9
9	2.5	0.9	9.9	0.0	0.9

Social Work

	M2 %	M4 %	M5 %	C2 %	C3 %
1	42.9	5.0	4.4	0.0	0.0
2	0.0	33.7	8.2	0.0	0.0
3	0.0	1.2	52.0	0.0	37.5
4	0.0	1.2	2.9	0.0	0.0
5	0.0	2.5	1.9	50.0	0.0
6	0.0	1.2	0.6	0.0	0.0
7	21.4	26.2	5.7	50.0	50.0
8	28.6	26.7	14.4	0.0	12.5
9	7.1	0.0	9.9	0.0	0.0

Speech Pathology

	M1 %	M2 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	6.6	3.2	2.5	7.3	6.2	2.8	0.0
2	19.7	10.5	5.0	28.5	9.4	2.8	0.0
3	10.9	9.5	17.5	12.8	12.5	15.5	37.5
4	50.3	20.0	2.5	25.7	25.0	15.5	0.0
5	0.5	7.4	2.5	6.3	3.1	8.4	0.0
6	4.4	7.4	20.0	0.0	3.1	4.3	0.0
7	4.4	27.4	32.5	12.8	21.9	39.4	50.0
8	1.6	12.6	17.5	3.3	18.7	11.3	12.5
9	1.6	2.0	0.0	3.3	0.0	0.0	0.0

Source of income

Combined Audiology, ENT, Hyperbaric

	M1 %	M2 %	M3 %
self employed	4.0	9.5	2.6
PAYE	25.8	34.1	21.7
house duties	9.1	15.3	15.5
unemployed	22.1	3.4	7.1
sickness/ disability pension	10.9	3.4	6.2
aged pensioner	1.2	11.1	34.1
self funding retiree	7.5	0.8	10.2
student	1.2	15.4	2.2
supporting parent	2.0	5.1	0.0
other	2.2	1.7	0.0

(Clinical) Nutrition and Dietetics

	M1 %	M2 %	M3 %	M4 %	C2 %	C3 %
self employed	6.2	5.6	4.2	0.0	4.5	3.6
PAYE	21.2	19.7	31.2	42.6	20.4	7.1
house duties	11.2	16.7	14.6	4.8	20.5	30.4
unemployed	8.7	6.6	16.7	14.3	11.5	7.1
sickness/ disability pension	2.5	8.6	12.5	4.8	13.6	10.7
aged pensioner	17.5	20.7	12.5	19.1	22.7	19.6
self funding retiree	8.7	9.6	0.0	0.0	0.0	17.9
student	2.5	7.1	2.1	4.8	6.8	3.6
supporting parent	0.0	5.0	6.25	4.8	0.0	0.0
other	1.2	0.5	0.0	4.8	0.0	0.0

Occupational Therapy

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
self employed	9.0	7.0	1.8	13.9	9.0	0.0	5.7	9.0
PAYE	34.7	41.7	29.1	30.6	39.6	26.5	14.3	18.2
house duties	5.6	12.6	10.9	6.9	20.7	20.6	22.9	27.3
unemployed	11.1	3.5	9.1	11.0	6.4	0.0	5.7	9.1
sickness/ disability pension	14.6	7.5	25.4	5.6	2.7	8.8	14.3	9.1
aged pensioner	15.3	14.6	11.8	15.3	0.0	26.5	8.6	18.2
self funding retiree	0.7	1.0	8.2	12.5	0.9	11.8	11.4	9.1
student	8.3	8.5	0.0	4.2	4.5	0.0	17.1	0.0
supporting parent	0.0	3.0	0.9	0.0	15.3	0.0	0.0	0.0
other	0.7	0.5	2.7	0.0	0.9	5.8	0.0	0.0

Source of income (cont'd)

Physiotherapy

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
self employed	5.1	5.1	3.3	9.7	6.6	8.9	0.0	9.6
PAYE	21.3	24.3	16.7	32.4	47.2	38.5	37.5	15.4
house duties	9.8	14.5	9.6	9.4	17.2	15.0	0.0	19.7
unemployed	10.7	11.2	8.3	12.8	11.1	7.5	0.0	6.3
sickness/ disability pension	16.4	11.6	15.4	9.4	2.2	6.2	12.5	13.5
aged pensioner	25.5	17.6	34.5	13.3	0.0	11.9	50.0	26.4
self funding retiree	3.9	2.4	3.0	2.7	0.6	3.7	0.0	4.4
student	4.7	6.2	3.2	7.9	7.9	6.5	0.0	3.8
supporting parent	1.9	5.9	3.6	2.4	6.0	1.2	0.0	0.9
other	0.7	1.0	2.3	0.0	1.2	0.6	0.0	0.0

Speech Pathology

	M1 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
self employed	4.2	2.7	7.7	11.4	25.0	3.3	16.7
PAYE	39.1	25.3	38.5	31.2	34.4	14.7	16.7
house duties	8.8	9.7	30.8	28.9	9.4	13.2	30.5
unemployed	5.2	4.2	5.1	6.3	9.4	1.6	8.3
sickness/ disability pension	9.4	11.3	5.0	2.8	6.3	6.6	11.0
aged pensioner	20.8	28.4	2.6	0.6	0.0	4.9	5.6
self funding retiree	4.2	7.2	0.0	0.0	0.0	1.6	2.8
student	6.2	4.2	7.7	6.3	3.0	45.9	2.8
supporting parent	1.1	1.4	2.6	10.8	12.5	8.2	5.6
other	1.0	5.6	0.0	1.7	0.0	0.0	0.0

Podiatry

	M1 %	M2 %	M3 %	M4 %	C2 %
self employed	2.5	6.7	0.0	7.4	0.9
PAYE	13.9	19.1	2.6	18.5	6.9
house duties	5.7	10.2	9.2	14.8	3.2
unemployed	7.6	3.6	3.9	7.4	2.9
sickness/ disability pension	3.3	7.6	9.2	7.4	3.4
aged pensioner	41.8	25.8	65.5	18.5	77.3
self funding retiree	3.2	4.0	9.2	3.7	1.0
student	5.1	18.2	0.0	0.0	2.9
supporting parent	4.4	3.6	0.0	18.5	0.9
other	2.5	1.3	1.3	3.8	0.6

Orthotics

	M3 %	M5 %
self employed		100.0

Social Work

	M2 %	M3 %	M4 %	M5 %	C2 %	C3 %
self employed	7.1	0.0	2.6	4.8	0.0	0.0
PAYE	14.3	0.0	28.6	33.8	0.0	37.5
house duties	7.1	100.0	7.8	16.9	0.0	12.5
unemployed	21.4	0.0	14.3	13.7	0.0	25.0
sickness/ disability pension	14.3	0.0	9.1	3.7	0.0	0.0
aged pensioner	7.1	0.0	3.9	0.0	0.0	0.0
self funding retiree	14.3	0.0	0.0	0.0	0.0	12.5
student	7.1	0.0	12.9	14.1	50.0	0.0
supporting parent	7.1	0.0	20.8	12.1	50.0	12.5
other	0.0	0.0	0.0	0.9	0.0	0.0

Chronicity of condition

Key:

1	less than one week	2	2-3 weeks
3	about a month	4	2-3 months
5	4-6 months	6	7-11 months
7	about 12 months	8	1-2 years
9	3-5 years	10	more than 5 years

Audiology, ENT and Hyperbaric services

	M1 %	M2 %	M3 %
1	2.2	4.0	18.0
2	3.3	3.0	7.5
3	2.7	4.0	10.6
4	9.7	14.0	7.5
5	8.8	9.0	10.2
6	4.9	5.0	0.0
7	4.9	9.0	14.1
8	11.7	13.0	11.1
9	6.6	17.0	8.8
10	44.9	23.0	11.1

Neuropsychology

	M1 %
1	2.1
2	29.5
3	1.0
4	15.8
5	26.3
6	6.3
7	10.5
8	4.2
9	0.0
10	4.20

Clinical Nutrition and Dietetics

	M1 %	M2 %	M3 %	M4 %	C2 %	C3 %
1	1.1	0.0	0.0	0.0	6.7	0.0
2	0.0	2.0	1.3	8.6	4.6	21.1
3	4.3	7.5	9.3	2.9	9.3	17.5
4	5.3	11.1	10.7	5.7	9.4	15.8
5	8.5	8.0	2.7	11.4	2.3	8.8
6	4.3	3.5	2.7	5.7	2.3	1.7
7	1.0	4.0	8.0	17.1	2.3	0.0
8	14.9	14.6	9.3	5.7	9.4	7.0
9	12.7	14.1	18.7	14.3	16.4	12.3
10	47.9	35.2	37.3	28.6	37.3	15.8

Orthotics

	M3 %	M5 %
1	6.4	0.0
2	5.4	0.0
3	8.6	0.0
4	5.4	0.0
5	8.6	0.0
6	7.8	0.0
7	6.4	0.0
8	9.6	0.0
9	14.0	100.0
10	27.8	0.0

Chronicity of condition (cont'd)

Occupational Therapy

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	4.5	10.4	3.3	4.2	0.1	0.0	0.0	0.0
2	15.1	16.8	10.0	1.4	0.0	2.9	2.9	5.9
3	14.5	14.4	14.2	16.9	0.0	0.0	20.0	0.0
4	27.9	17.8	20.8	25.3	0.9	11.8	5.7	0.0
5	3.9	7.4	9.2	16.9	2.8	8.8	5.7	17.6
6	6.7	5.4	4.2	5.6	3.7	11.8	8.6	5.9
7	2.2	2.9	6.7	5.6	8.3	5.9	8.6	11.8
8	9.5	10.9	8.3	14.2	33.3	17.6	14.3	0.0
9	3.9	6.9	5.8	4.3	26.8	11.8	20.0	29.4
10	11.7	6.9	17.5	5.6	23.3	29.4	14.2	29.4

Physiotherapy

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	3.5	6.8	5.9	9.7	6.8	9.4	0.0	4.8
2	11.5	9.7	12.6	15.2	7.1	16.7	12.5	4.8
3	10.2	12.0	9.3	14.5	11.9	10.4	37.5	6.2
4	18.8	13.8	15.3	20.8	14.4	18.4	0.0	15.2
5	8.4	9.4	9.2	9.4	18.7	7.9	12.5	14.8
6	4.5	6.0	5.5	4.8	12.9	9.2	0.0	4.8
7	4.2	6.5	5.7	2.9	4.4	3.6	12.5	7.0
8	10.6	10.1	10.5	5.8	7.8	6.8	0.0	14.3
9	8.5	10.6	7.5	7.7	7.0	7.5	25.0	8.6
10	19.8	15.0	18.4	9.2	9.0	1.0	0.0	19.5

Podiatry

	M1 %	M2 %	M3 %	M4 %	C2 %
1	1.1	1.4	1.1	0.0	0.0
2	3.3	1.8	2.2	0.0	0.9
3	4.4	4.6	2.2	3.3	2.9
4	14.3	13.4	1.1	10.0	6.3
5	12.1	8.7	5.4	13.3	6.0
6	6.6	6.4	5.4	0.0	4.3
7	9.9	10.5	7.6	6.7	7.7
8	14.8	19.7	15.2	10.0	13.5
9	15.4	13.8	19.7	23.3	20.0
10	18.1	19.7	40.2	33.4	38.4

Chronicity of condition (cont'd)

Social Work

	M2 %	M3 %	M4 %	M5 %	C2 %	C3 %
1	0.0	0.0	6.3	9.9	0.0	0.0
2	23.1	0.0	11.4	22.7	0.0	12.5
3	23.1	0.0	6.3	33.8	0.0	0.0
4	7.7	0.0	15.2	14.2	0.0	0.0
5	15.4	0.0	6.3	3.4	0.0	0.0
6	0.0	0.0	8.9	2.9	0.0	0.0
7	0.0	0.0	7.6	1.7	50.0	50.0
8	7.7	0.0	15.2	3.2	0.0	25.0
9	7.7	50.0	10.1	2.3	0.0	0.0
10	15.4	50.0	12.7	5.9	50.0	12.5

Speech Pathology

	M1 %	M2 %	M3 %	M4 %	M5 %	C1 %	C2 %	C3 %
1	1.3	0.0	0.0	0.0	0.0	0.0	0.0	2.1
2	0.6	0.0	1.2	0.0	0.0	8.8	0.0	0.0
3	3.2	1.3	3.7	5.1	1.7	14.7	4.3	2.1
4	13.9	8.6	8.5	7.7	5.0	11.8	2.9	2.1
5	13.3	13.6	21.9	20.5	8.0	29.5	12.9	8.3
6	5.1	1.2	11.1	2.6	9.7	2.9	7.0	6.2
7	10.0	13.6	7.3	7.7	18.9	5.9	10.0	12.5
8	12.7	14.8	13.4	30.8	26.9	8.8	28.6	35.4
9	12.7	22.2	14.6	7.7	14.9	8.8	20.0	25.0
10	27.2	24.7	18.3	17.9	14.9	8.8	14.3	6.3

Episode of Care Components

Key:

1 no visit information
3 ongoing episode
5 single occasion of service episode
7 multiple occasion of service episode

Audiology

Aud	M1	M2	M3	ENT	M1	M2	M3	Hyperbaric	M1
	%	%	%		%	%	%		%
1	1.2	38	62.1	1	0.6	35.7	22.5	1	0.0
3	0.0	1.4	6.9	3	0.0	0.0	1.2	3	0.0
5	52.9	60.6	10.3	5	11.3	65.3	18.3	5	18.4
7	45.9	0.0	20.7	7	88.1	0.0	58.0	7	81.6

(Clinical) Nutrition and Dietetics

	M1	M2	M3	M4	C2	C3
	%	%	%	%	%	%
1	17.5	22.7	17.5	76.6	21.7	7.0
3	3.2	76.3	13.9	0.0	19.6	40.4
5	1.0	0.0	0.0	23.4	0.0	0.0
7	78.3	1.0	68.6	0.0	58.7	52.6

Neuropsychology

	M1
	%
1	4.1
3	3.1
5	12.2
7	80.6

Orthotics

	M3	M5
	%	%
1	2.1	0.0
3	0.0	0.0
5	97.9	0.0
7	0.0	100.0

Occupational Therapy

	M1	M2	M3	M4	M5	C1	C2	C3
	%	%	%	%	%	%	%	%
1	6.0	22.0	18.0	57.5	41.5	23.5	42.9	5.6
3	9.3	40.8	23.8	0.0	47.9	67.6	48.6	88.8
5	4.4	0.8	1.6	38.4	0.8	5.9	0.0	0.0
7	80.2	36.4	56.6	4.1	9.8	2.9	8.6	5.6

Episode of Care Components (cont'd)

Physiotherapy

	M1	M2	M3	M4	M5	C1	C2	C3
	%	%	%	%	%	%	%	%
1	9.7	15.3	11.0	7.4	57.9	25.7	0.0	7.5
3	33.6	20.7	35.5	40.3	22.5	43.7	62.5	30.7
5	3.3	13.6	0.9	5.6	0.1	11.3	0.0	6.1
7	53.4	50.4	52.6	46.7	19.5	19.3	37.5	55.7

Podiatry

	M1	M2	M3	M4	C2
	%	%	%	%	%
1	75.9	10.0	16.0	93.7	12.8
3	0.0	29.8	66.0	0.0	71.0
5	24.1	12.4	0.0	6.3	0.3
7	0.0	47.8	18.0	0.0	15.9

Social Work

	M2	M3	M4	M5	C2	C3
	%	%	%	%	%	%
1	26.7	50.0	6.2	6.0	100.0	12.5
3	40.0	0.0	7.4	6.2	0.0	0.0
5	6.7	50.0	79.0	19.3	0.0	25.0
7	26.6	0.0	7.4	68.5	0.0	61.5

Speech Pathology

	M1	M2	M3	M4	M5	C1	C2	C3
	%	%	%	%	%	%	%	%
1	8.2	58.6	54.2	8.8	86.5	70.0	0.0	1.9
3	13.8	27.9	25.0	82.3	6.2	0.o	86.1	96.2
5	5.1	13.5	0.0	3.0	0.0	30.0	0.0	0.0
7	72.8	0.0	20.8	5.9	13.4	0.0	13.9	1.9

Episode descriptors

Median waiting time (days)

	M1	M2	M3	M4	M5	C1	C2	C3
Audiology	6	18	0.5					
ENT	18	0	0					
Hyperbaric								
Clinical Nutrition & Dietetics	9	22	0	37	0			15
Neuropsychology	5							
Occupational Therapy	5	0	3	2	+1	52	-2	29
Orthotics			0			-15		
Physiotherapy		5	7	6	n/a	0	-5	17
Podiatry		14	0	32	8			
Social Work		1			n/a	0		4
Speech Pathology	18	35	15	33	79.5	44.5	-37.5	106

Median time period of completed episode of care (days)

	M1	M2	M3	M4	M5	C1	C2	C3
Audiology	4	1	56.5					
ENT	4	1	73					
Hyperbaric	1							
Clinical Nutrition & Dietetics	8	7	60		1	1		27
Neuropsychology	6							
Occupational Therapy	117	1	1	6.5	1	1	1	150
Orthotics			1				15	
Physiotherapy	29	19	31	13	21	5	1	22
Podiatry	7	1	169		20.5	1		
Social Work		10			1	n/a		1
Speech Pathology	110	1	106	1	1	1	1	1

Median Occasions of service per completed episode of care

	M1	M2	M3	M4	M5	C1	C2	C3
Audiology	1	1	1					
ENT	1	1	1					
Hyperbaric	1							
Clinical Nutrition & Dietetics	1	1	1		1	1		3
Neuropsychology	1.5							
Occupational Therapy	4	2	1	1	1	1	1	2
Orthotics			1				1	
Physiotherapy	5	2	6	3	1	1	1	3
Podiatry		1	2		1	1		
Social Work		1	2		1	n/a	1	1
Speech Pathology	3	1	3	1	1	1	1	1

Episode descriptors (cont'd)

Median value total UR attributable time per completed episode of care (minutes)

	M1	M2	M3	M4	M5	C1	C2	C3
Audiology	22	20	30					
ENT	31	20	20					
Hyperbaric	27							
Clinical Nutrition & Dietetics	63	45	75		n/a	85		130
Neuropsychology	157							
Occupational Therapy	262	40	60	n/a	300	100	120	60
Orthotics			30				15	
Physiotherapy	150	90	180	90	300	50	40	70
Podiatry		45	75		n/a	30		
Social Work		60			426	n/a	60	90
Speech Pathology	261		240	n/a	600	84.5	84.5	170

Average time per occasion of service within a completed episode of care (minutes)

	M1	M2	M3	M4	M5	C1	C2	C3
Audiology	23		30					
ENT	31	25	20					
Hyperbaric	26							
Clinical Nutrition & Dietetics	57	45	45		n/a	85		45
Neuropsychology	126							
Occupational Therapy	154	20	45	n/a		100	120	30
Orthotics			30				15	
Physiotherapy	32	20	33	38		45	40	25
Podiatry	25	40	45			30		
Social Work		60					60	60
Speech Pathology	76		75	n/a		82.5	82.5	170

Consumables

Occupational Therapy

	M1	M2	M3	M4	M5	C1	C2	C3
<$5	0.0							0.0
$5-10	14.3			0.0	0.0	n/a	n/a	0.0
$10-50	78.6	100.0		80.9	0.0			0.0
$50-100	7.1			4.8	50.0			0.0
>$100	0.0			14.3	50.0			0.0
%Total given consumables	**5.4%**	**0.8%**		**32.3%**	**3.1%**			**0.0**

Physiotherapy

	M1	M2	M3	M4	M5	C2	C3
<$5	0.0						
$5-10	59.6	52.0		28.9	26.9	n/a	44.4
$10-50	34.7	22.8		42.1	51.9		42.2
$50-100	2.7	19.3		13.2	21.2		11.1
>$100	2.2	5.3		15.8	0.0		2.2
%Total given consumables	**86.2%**	**45.6%**		**58.5%**	**81.2%**		**88.2%**

Podiatry

	M1	M2	M4	C2
<$5	28.6	36.9	0.0	n/a
$5-10	9.5	27.7	n/a	n/a
$10-50	23.8	29.2	n/a	n/a
$50-100	14.3	1.5	n/a	n/a
>$100	23.8	4.6	n/a	n/a
%Total given consumables	**8.1%**	**52.0%**		

Social Work

	M2	M4	C3
<$5		0.0	0.0
$5-10		0.0	0.0
$10-50	100.0	0.0	100.0
$50-100		0.0	0.0
>$100		0.0	0.0
%Total given cosumables	**1.6%**		**9.8%**

Speech Pathology

	M1	M4	M4	C2	C3
<$5	0.0	0.0	0.0	n/a	n/a
$5-10	100.0	100.0	0.0		
$10-50			0.0		
$50-100			0.0		
>$100			0.0		
%Total given consumables	**0.4%**	**4.6%**			

Clinical Nutrition and Dietetics

	M2	M4
<$5		0.0
$5-10		90.0
$10-50	100.0	10.0
$50-100		0.0
>$100		0.0
%Total given consumables	**1.6%**	

Country of Origin

Audiology		Clinical Nutrition and Dietetics	
Country of origin Code	% total	Country of origin Code	% total
1100	60.8	1100	68.1
1101	0.6	1101	1.0
1301	0.7	1301	1.0
1402	0.1	2000	0.2
2000	0.5	2101	10.5
2100	0.2	2102	2.3
2101	9.5	2103	0.4
2102	1.1	2107	0.6
2103	0.2	2203	0.4
2104	0.1	2205	2.3
2107	0.4	2207	3.3
2203	0.1	2208	0.2
2205	4.7	2220	1.1
2207	4.6	2221	0.2
2208	0.3	2305	1.5
2209	0.1	2309	0.8
2220	1.7	2401	0.2
2221	0.6	2501	0.2
2222	0.5	2502	0.6
2302	0.2	2504	1.1
2303	0.1	2614	0.2
2305	1.8	3108	0.4
2309	1.4	3203	0.6
2403	0.2	4102	0.2
2407	0.1	4105	0.8
2502	0.1	4107	0.4
2503	0.2	4110	0.2
2504	1.8	6104	0.8
2505	0.1	7104	0.6
2609	0.1	8101	0.2

Country of Origin (cont'd)

Audiology		Physiotherapy	
Country of origin Code	% total	Country of origin Code	% total
2614	0.3	1100	67.7
3103	0.3	1101	0.9
3104	0.1	1102	0.1
3108	0.1	1301	1.0
3203	0.1	1402	0.1
4102	0.8	1503	0.0
4103	0.1	1602	0.1
4105	0.1	2000	0.2
4107	0.4	2100	0.0
4108	0.2	2101	8.6
4109	0.1	2102	1.4
4110	1.2	2103	0.2
5101	0.3	2105	0.0
5102	0.1	2106	0.0
5103	0.2	2107	0.7
5104	0.1	2201	0.0
6104	0.4	2203	0.3
7102	0.1	2205	2.5
7104	0.6	2207	4.0
8100	0.1	2208	0.2
8104	0.3	2209	0.0
8111	0.1	2211	0.1
8203	0.1	2220	0.7
8313	0.1	2221	0.4
9207	0.1	2222	0.6
9227	0.2	2223	0.0
		2226	0.1

Occupational Therapy			
1100	73.9	2301	0.0
1101	0.8	2302	0.0
1102	0.1	2303	0.2
1301	1.3	2305	1.3
1602	0.1	2309	0.6
2100	0.1	2310	0.0
2101	9.1	2401	0.1
2102	1.1	2403	0.1
		2406	0.0

Country of Origin (cont'd)

Occupational Therapy		Physiotherapy	
Country of origin Code	% total	Country of origin Code	% total
2107	0.6	2407	0.0
2203	0.5	2501	0.1
2205	0.9	2502	0.1
2207	1.9	2503	0.4
2208	0.4	2504	1.3
2211	0.1	2505	0.2
2220	0.3	2506	0.0
2221	0.1	2507	0.0
2222	0.5	2604	0.1
2226	0.1	2605	0.0
2303	0.3	2608	0.1
2305	1.6	2609	0.1
2309	0.8	2614	0.5
2310	0.1	3103	0.2
2403	0.3	3107	0.0
2407	0.1	3108	0.3
2502	0.1	3111	0.0
2503	0.1	3113	0.1
2504	0.4	3201	0.0
2505	0.4	3203	0.1
2506	0.1	4101	0.0
2604	0.1	4102	0.1
2614	0.1	4103	0.1
3105	0.1	4104	0.0
3108	0.3	4105	0.3
3201	0.1	4107	0.4
4101	0.1	4108	0.1
4102	0.1	4109	0.0
4103	0.4	4110	0.5
4105	0.1	5101	0.4
4107	0.1	5102	0.1
4109	0.1	5103	0.0
4110	0.6	5104	0.0
6104	0.3	5105	0.0

Country of Origin (cont'd)

Occupational Therapy		Physiotherapy	
Country of origin Code	% total	Country of origin Code	% total
7102	0.3	5106	0.0
7104	0.3	5108	0.0
8104	0.1	6101	0.1
8105	0.1	6104	0.3
8203	0.1	6105	0.0
8305	0.1	6108	0.1
9227	0.1	7102	0.2
		7104	0.3
Neuropsychology		8103	0.0
1100	69.4	8104	0.1
1301	1.0	8105	0.0
2101	15.3	8203	0.2
2102	2.0	8206	0.0
2107	1.0	8208	0.0
2207	1.0	9207	0.0
2208	1.0	9211	0.0
2220	1.0	9217	0.0
2309	2.0	9220	0.2
2407	1.0	9224	0.0
3205	1.0	9225	0.1
4107	1.0	9227	0.1
5108	1.0		
7102	2.0		

Speech Pathology	
1000	0.1
1100	78.4
1101	1.3
1301	1.1
1402	0.1
1602	0.1
2101	5.5
2102	1.2
2103	0.3
2105	0.1

Country of Origin (cont'd)

Speech Pathology	
Country of origin Code	% total
2107	0.3
2205	0.3
2207	3.0
2211	0.1
2220	0.1
2221	0.1
2226	0.1
2305	2.1
2309	0.5
2502	0.1
2504	0.7
2608	0.3
2614	0.1
3103	0.3
3113	0.1
4105	0.1
4107	0.5
4110	0.7
5101	0.3
5102	0.3
6104	0.4
7104	0.3
8104	0.1
9220	0.8

Podiatry	
1100	68.4
1101	0.4
1301	0.6
1402	0.1
2101	10.9
2102	1.8
2103	0.2
2107	0.7
2203	0.2

Orthotics	
Country of origin Code	% total
1100	66.7
1301	1.0
2101	10.4
2205	1.0
2207	3.1
2220	3.1
2222	1.0
2301	1.0
2305	3.1
2403	1.0
2504	3.1
2608	1.0
4102	1.0
4110	1.0
5101	2.1

Social Work	
1100	80.0
1101	1.7
1301	0.6
1402	0.3
1602	0.2
2101	6.0
2102	0.5
2205	0.2
2207	0.5
2211	0.2
2220	0.2
2221	0.2
2222	0.2
2226	0.2
2303	0.2
2305	0.3
2309	0.2
2407	0.2

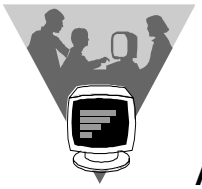
Country of Origin (cont'd)

Podiatry		Social Work	
Country of origin Code	% total	Country of origin Code	% total
2205	1.6	2502	0.2
2207	4.3	2504	0.3
2208	0.2	2505	0.2
2209	0.1	3108	0.2
2211	0.9	4102	0.2
2220	0.4	4103	0.2
2222	0.3	4107	0.5
2226	0.2	4108	0.3
2301	0.1	4110	0.5
2303	0.3	5101	2.0
2305	1.9	5102	0.5
2309	1.8	5108	0.3
2503	0.2	6101	0.2
2504	1.2	6104	0.8
2604	0.1	7102	0.3
2608	0.2	7104	0.5
2614	0.2	8100	0.2
3103	0.1	8104	0.2
3108	0.2	8114	0.2
3203	0.1	8200	0.2
4103	0.1	8203	0.3
4105	0.2	9207	0.2
4108	0.1	9220	0.3
4110	0.1	9225	0.2
6104	0.4		
7102	0.2		
7104	0.1		
8101	0.2		
8104	0.1		
8111	0.1		
8205	0.1		
9220	0.1		

Appendices for Chapter 6

- Questionnaire and letter
- Code lists for reference

QUESTIONNAIRE AND LETTER



ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ph 82225783
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Project Manager: Dr Karen Grimmer
Project Officer: Jacqui Howard

ROYAL ADELAIDE HOSPITAL
NORTH TERRACE
ADELAIDE S.A. 5000

18th June, 1996

To: Head of Allied Health Department

From: Allied Health Ambulatory Care Reform Project

The Allied Health Ambulatory Care Reform Project being conducted at the Royal Adelaide Hospital is currently conducting a substudy to investigate the availability of community allied health services. We have found that there is little information about available services in either community or public hospital settings. To assist our investigations, we would be pleased if you could answer the enclosed questionnaire about your service and return the reply promptly in the envelope provided. Please remember that your responses are related to outpatient services only.

For your interest, our investigations encompass:

- the allied health services available at community health centres in metro Adelaide, and any restrictions on these services
- private allied health services in the community and any restrictions on these services
- public hospital services and any restrictions on these services

We would be happy to provide you with a copy of the findings when the investigation is complete. Please let us know if you require a copy.

Please feel free to contact us at the Ambulatory Care Office to discuss this questionnaire, and to suggest any amendments to it that would enable us to more clearly describe public hospital outpatient services.

SAMPLE QUESTIONNAIRE

Hospital | | Allied Health Dept | |

1. On average, how many total staff hours per week are currently devoted to outpatient services in your department? |

2. When was the last time that some change was made to the available outpatient service in your department?

i. with the last month
ii. 2-3 months ago
iii. 6-12 months ago
iv. not within the last year

3. If you answered i, ii or iii in the question above, what overall changes were made?

current hours reduced
current hours increased
new service introduced
other (specify)

4. Are there restrictions on the outpatient diagnoses that are currently able to be treated in your department?

Yes	No

If you answered Yes to Question 4, what are the restrictions?

_____
_____

5. Are there restrictions on the outpatient referrals that you accept?

Yes	No

If you answered Yes to Question 5, what are the restrictions?

_____
_____

6. Are there restrictions on the type of outpatients who can access treatment in your department?

Yes	No

If you answered Yes to Question 6, what are the restrictions?

_____
_____

7. Please list the unique services that your department provides (services that, to your knowledge) are not available in any other <u>public</u> setting

_____

8. List your unique services that you know are also available in private settings

_____

9. If you ask any of your public patients to make a contribution to the cost of their treatment, please specify which patient types, and what costs you ask them to bear_____
_____

10. Please list the types of patients (and/ or conditions) that you would like to see treated in community settings, rather than in public hospital outpatient facilities. Why?
_____
_____

Code lists for reference

Codes regarding diagnosis restrictions

Code	Explanation of Code
1	Cannot see all neurological/general medical referrals, psychiatric, cardiac patients etc
2	No referral accepted for psychological/ emotional problems
3	Limited to acute hand injuries, some simple neuro and paediatric hand problems, paediatric and mental health problems limited to this hospital's inpatients
4	Limited by the availability of Lymphodema, neurological rehabilitation services
5	Do not see children <16 or diabetics with peripheral vascular disease, rheumatoid arthritis
6	Weight reduction / cholesterol lowering mainly seen in groups rather than individual appointments
7	No neurological rehabilitation, limited Lymphodema, amputee, only can see one patient at a time
8	Services only available to children in hospital, limited services in specific programs - pain, arthritis, elderly falls
9	Musculoskeletal and women's health only
10	No palliative nail care provided unless the patient is at risk
11	Equipment unavailable for some conditions i.e. lack of resources
12	No paediatric conditions seen due to issues with staffing & facilities
13	Only high risk patient seen as outpatients
14	Provide initial assessment for all, but often refer on to more appropriately resourced service for some conditions eg community agencies for maintenance type treatment
15	Adults only, only do hands, short term CVA, cardiac Paediatrics don't treat clients for CCA
16	Treatment provided for conditions described in policy manual
17	Pelvic floor electrical stimulation not provided
18	Biomechanical orthotics (other than soft innersoles, prefabricated devices) are referred to orthotics dept
19	No paeds assessment < 4 years of age
20	All patients are assessed and then prioritised for most immediate diagnosis needs. Some conditions go straight through the department (like voice, neuro disorders, medical and surgical cases, those requiring multidisciplinary treatment). Others are referred to community health
21	Only for specific conditions
22	Weight reduction patients only, seen in obesity clinic. Diagnosis does not usually restrict patients, only whether 'hospital' or 'private'
23	Limited resources of staff and equipment
24	Limited resources, therapy time and staff resources (numbers and experience)
25	No neurological / rehabilitation treatment provided
26	Provide services to paediatrics (encopresis, developmental/neonates), mastectomies, oncology, burns, lymphodaema, rheumatology. Other hand conditions and RSD go to community or private based rehab.
27	Biomechanics / orthoses referred to orthotics dept in general

Code lists for reference (cont'd)

Codes for referral restriction

Code	Explanation of Code
1	Accept referrals from outpatient medical clinics only or other allied health clinics like physio, speech pathology
2	No privately insured patients except if no service elsewhere. No long term previously therapised patient unlikely to improve with further treatment of the type we offer, that is, probably needy and in hospital
3	Only if involved with acute outpatient treatment. Patients who can't be appropriately managed elsewhere i.e. those social issues are directly & specifically related to medical O/P treatment
4	Children under 12 years of age not accepted but have taken occasional child for iontophoresis
5	Mental health must be 'in-house' hospital patients, paediatrics not severe handicap, 'hands' if not really neuro (i.e CVA treatment)
6	Do not accept compensible or privately insured patients
7	Must have some connection to this hospital & be health related problem which has been seen by a hospital outpatient clinic that refers to this service
8	Short term intervention in above category, also see Diagnosis codes, No 8
9	HCC or PHBS holders only/ no neuro or early intervention referrals accepted
10	HCC, PHBS holders only, must live in area and need medical referral
11	As in Diagnosis codes No. 12, also intellectual impairment not seen unless coupled with 'acute' condition
12	Restrictions are related to our criteria
13	Referral source local hospital only or community health service for acute musculoskeletal conditions only
14	Same as Diagnosis codes, No. 15, geographic restrictions
15	Referrals accepted according to policy manual
16	Education dept. paediatric clients not seen, although we accept referrals they are low priority
17	No self referrals or referrals from outside the hospital eg. GP
18	Patient must be referred by a paediatrician or Dr. accredited with the hospital
19	Inpatients from the hospital, speech problem in association with chronic medical condition & which falls within our specialist responsibility. Do not see those who do not meet eligibility for IDSC / CCA, pre-schoolers in catchment area, requests for second opinions and school age children who attend independent schools and who have not been previously treated only given one assessment.
20	Less priority given to long term cases i.e. developmental delay, deafness or mild speech & language cases , non organic articulation
21	Referrals for assessment of patients with acute gynae problems are dealt with immediately, all else on waiting list
22	GP referrals only accepted for HIV, entry to group programs in Diabetes Centre (not 1:1 consults), if a GP wants a patient seen, they can refer to a hospital clinic which refers to Dietetic services (rarely done)
23	Only see clients who have been inpatients, or have been previously treated as outpatients. Anyone else new offered an assessment and advice only
24	Must have GP referral, priority given HCC & PHBC holders but anyone else still seen if time
25	We have open referral system and will not refuse a referral
26	Relationship counselling - lack of time and expertise - refer to other agencies
27	No neurological rehabilitation undertaken

Code lists for reference (cont'd)

Codes for referral restriction (cont'd)

Code	Explanation of Code
28	Usually only for conditions and services (as stated in Diagnosis codes No 26) - general home visits and rehab go to community centres
29	School age children only seen in special circumstances eg. cleft palate, children of staff, private school children only in exceptional circumstances - post stroke, post head injury, speech pathology services mostly provided in other settings in community
30	Accept referrals relevant to profession
31	Although we accept referrals from children at public schools [DECS] they are a very low priority, given that they can already access services through schools
32	Biomechanics & orthoses are referred to orthotic department in general. DVA and other compensible patients are seen privately.

Codes for relevant outpatients

Code	Explanation of Code
1	>18 y.o patients only at this hospital
2	Adults only
3	Refer to Referral codes, No. 2
4	Try to restrict patients with chronic problems to 6 visits & concentrate on self management approach
5	Compensenable patients are asked to consider going privately
6	Long waiting lists up to three months
7	Patient must have some connection to the hospital & problem must be health related
8	As in Diagnosis codes No. 8
9	Not able to see patients with neuro problems
10	No palliative nail care provided unless at risk
11	Only patients from hospital or feeder community area accepted
12	High risk patients a priority, no restriction on health cover status ie. see public & private patients
13	Same as Diagnosis codes No 15.
14	Patients must hold pensioner or HCC to receive treatment. Others to see private practitioners in most circumstances
15	Refer to Referral codes, No. 19
16	No restrictions, but older age school children with no medical history may be encouraged to go elsewhere for assessment
17	Only see clients who have been inpatients at this hospital
18	Due to lack of staff and experience, Lymphodema patients not given hands-on - given splints only and advice
19	Will not see those clients with very specific diagnosis eg. dynamic hand splinting or severe autism, there are limited resources for therapy.
20	School aged children are lowest priority as they have access to other services - generally regular treatment is not offered, but all referrals are accepted and vetted

Code lists for reference (cont'd)

Codes for relevant outpatients

Code	Explanation of Code
21	Children as per Referral code No. 26
22	School age children lowest priority as speech pathology input is available through DECS
23	Only by specific diagnoses & we do not accept compensible or private patients
24	As for Referral code No 29
25	Public patients only -Pensioners & H.C.C. holders

Unique Services on Offer

Explanation
Best available in terms of skills, resources and commitment for neck and head, cancer and aphasia, voice problems.
Provide service relating to patient's ability to access hospital services eg travel, accommodation information re hospital / treatment options, physiological social support to country outpatients deciding treatment options
Iontophoresis, pressure garments, adult burns
Eating disorders clinic linked to weight disorders unit
Cardiac rehab, multidisciplinary treatment of mixed incontinence
High risk ulcer management, hexcalite backslab casts and accommodation insoles
We have no waiting list for outpatient appointments, general counselling offered, there is limited availability of this locally
Not anything really unique although the way services are offered is different
Supervise program for chronic pain management group
Most audiology services overlap in large hospitals, duplicated in some sense in community.
Similar services provided at all large hospitals
Rehab outpatient program and multidisciplinary amputee clinic
Treatment of ulcers including total contact casting and wound dressing consultation
Multidisciplinary amputee clinic & hand therapy, lymphodaema, incontinence although available privately, are few in number
OT services not provided in community health centres

Code lists for reference (cont'd)

Unique Services on Offer

Explanation
Lymphodema clinic, only one in rural setting
Provide a lot of "outreach" services to small, very remote towns up to 500kms away by vehicle and aircraft
Cochlea implant assessment and rehabilitation
Feeding groups & intervention via clinic infant team, feeding team, upper limb & prosthesis training, post neurological & medical rehabilitation, burns, behavior management & encopresis programs
School age children treatment for stuttering and voice disorder, infant and feeding teams
Paediatric cochlea implant evaluation and management (there is one other but in a school environment)
Cleft palate clinic (unique), stuttering groups emphasis, children's assessment team
Pelvic pain management, service delivered as part of multidisciplinary team approach to management of range of paediatric conditions - burns, Cystic Fibrosis, neurological conditions and craniofacial surgery, heart/liver/lung transplants, genetic termination of pregnancy
Specialised knowledge in renal disease, home enteral feeding etc only other large hospital would provide these services
Availability of cheap, ongoing diet supplements i.e. sustagen
Prosthetics / early rehab Lymphodema
Laryngectomy - voice prosthesis, cleft palate
clinic, child diet team, feeding clinic & videofluoroscope
As rural practitioners we require skills in every area - so we see all the specialities eg traumatic hands, spinal, neuro, women's health, community, health promotion etc
All services available in large centres
This service is unique in that we are not specialists but rather multi-skilled professionals who are required to manage all facets of the dept. and clients
Rural setting cover all dietetic specialty areas
All speech pathology services as no other service provider in district
Thoraction lamp for treatment of psoriasis
Breast prosthesis & wig provision/fitting, burns, Lymphodema garments, RSD treatment
Adult voice & stuttering therapy, & videofluoroscopy
Scar management & Lymphodema
A thorough & comprehensive knowledge of foot conditions & their treatment

Code lists for reference (cont'd)

Costs for patients

Code	Explanation of Code
1	Medical footwear up to $40 a pair
2	Patient not on a pension asked to purchase small aids if possible
3	No cost at present
4	People requiring weight gain - charge for consumables. Public pay $2.60 for goods, private patients pay hospital cost price
5	Only compensible patients charged by hospital finance dept
6	$10 for healthy lifestyle program (2 lectures and 8 weight ins. $2.60 - $6.00 for nutritional supplements)
7	None at present, significant percentage on social security benefits
8	No public contributions
9	Patients requiring oral supplements and enteral feed $2.60 per month
10	May be asked to make donation for small items for home based exercise programs
11	DVA private and non HCC holders charged for appliances and nominal fee for consultation in line with association recommendations
12	No charge
13	Scar management, Lymphodema clients have to pay, particularly for pressure garments, gel sheets but not for actual treatment time
14	Small equipment $3 or more to parents of children with fine motor difficulties
15	A few years ago, we surveyed paediatric families, most replied they would seek free service elsewhere if had to pay
16	No costs, not even home enteral nutritional supplies
17	Cost of outpatient supplement $2.70 per month on any amount of any supplement
18	None - we do 'encourage' patients to purchase own long term splints (sports)
19	Nil i.e. no public outpatient asked to contribute to costs
20	No charge
21	No charge
22	Non-pensioners pay for soft goods eg braces, corsets, abdominal binders
23	Mastectomy patients - cost breast prosthesis for pensioners, or $58 private health cover, $50 if no cover or HCC. First wig free, subsequent wigs, cost or $50, subsequent Lymphodema garments - full cost, ready made splints / small aids only supplied to hospital patients
24	Laryngectomees pay $10 towards the cost of bibs and valves, $50 towards the cost of electro-larynxes (this money goes to PADP who cover the rest of the cost)
25	Lymphodema maximum $400, scar management $15 & splints $20

Code lists for reference (cont'd)

Patients who could be seen in community

Code	Explanation of Code
1	Patients with psychological or emotional problems (but no medical or psychological comorbidity) because it is a more 'normalised' and convenient setting for them and does not give new problems an 'illness' connotation
2	Any of them could be if a competent service was available elsewhere but head and neck patients need a one-stop shop for follow-up medical and allied health management, at present public hospital is most appropriate
3	"Old age hearing loss " should be (is able) referred directly by G.P. to Aust. Hearing service without need to come via hospital.
4	NIDDM'S :strong G.P. involvement & treatment modules better suited to community environment.
5	Chronic disability & long term treatment for rehabilitation patients (eg. neuro. problems) - note day therapy centres are providing more of this now, closer to home and with community support in mind. This is good as long as patients get treated and not just left with co-ordinator and no outcome
6	Lymphodema, chronic conditions are resource intensive. Self management strategies for neuro and respiratory (chronic) outpatients would leave better access for paediatric gym groups (MDC) and post natal exercise education
7	Routine foot care for patients with diabetes who are not at risk of complications
8	Home visits for paediatric feeding problems - better assessment of home situation and more tailored service
9	Bear in mind that some public hosp. outpatient departments are in community settings
10	All children with developmental difficulties who do not require medical input. Chronic disabilities, arthritis, pain, back problems, post acute conditions.
11	Our department is both partially hospital & community based - it is quite difficult to separate the activities & criteria eg. pregnancy fitness is available to all women including pensioners
12	Palliative care - stable diabetes
13	Audiology assessment and treatment generally needs major hospital facility, to be performed adequately
14	Weight reduction, cholesterol lowering are mainly lifestyle problems that take on sickness profiles when dealt with in hospital - thus outcomes tend not to be the best
15	Chronic, long term patients who do not have immediate treatment needs and who are hard to discharge.
16	Geriatric patients/paediatric/sporting injuries - basically patients who don't require an acute setting with medical backup facilities, post stroke patients are already directed to community health centres
17	Paediatrics more appropriate in community than acute hospital setting, as more integrated with the environment, also self maintenance treatments i.e. chronic disability
18	Paediatrics - allows hospital setting greater liaison with other workers, often in a more appropriate environment
19	In our area patients from hospital and community are treated in the one facility
20	Exercise groups, arthritis education & asthma.
21	No particular preference if requiring clinical care, will require the proper set up and equipment etc, location not really relevant
22	Aural rehabilitation for hearing loss - groups including family members

Code lists for reference (cont'd)

Patients who could be seen in community

Code	Explanation of Code
23	School age children with writing and fine motor problems should be seen in a school setting to minimise withdrawal time from educational programs and maximise impact to develop school performance abilities. Developmental programs for pre-schoolers could happen within community centres or schools. Group treatments have been found to be useful in developing child's performances and interaction skills. Feeding programs work well when home visiting is a major focus of therapy.
24	Shorter waiting lists & weekly therapy available in community, so clients would be happy to access local services rather than place pressure on this hospital to accept them as patients
25	School age children for routine "screening" of hearing because of concern re educational progress, if there is suspicion of central auditory processing problems then they should be referred for full audiological evaluation.
26	Non acute conditions, not always using other hospital facilities for long term treatments which reduce case turnover & may be treated off site if not associated with other hospital departments
27	Weight control/reduction/diabetes/(without complications)hyperlipodema/lifestyle chronic illness may be more appropriately seen in the community therefore maintain inpatient/outpatient service for people with problems related to hospital stay.
28	I feel the system at our hospital is appropriate ie. nutrition outpatients for clients that have been inpatients. Community members with health issues that do not require hospitalization should be linked with local community health services funded to meet these needs.
29	All patients who do not have immediate treatment needs.
30	Some paediatric clients, and some elderly [CVA] due to access problems & inadequate facilities.
31	Arthritis & self management issues [still need backup for acute episodes though]
32	Arthritis -for self management issues.
33	Pre-school aged children & early intervention clients, as they respond best to treatment in familiar settings & in groups offering treatment at pre - school or home, also gives the opportunity to provide appropriate modeling to caregivers
34	All clients - more wellness oriented in community setting & more accessible.
35	N/A - flexible due to domicillary circumstances.
36	Multifactional, musculoskeletal conditions in the elderly need slower stream rehabilitation, not as appropriate in more acute musculoskeletal settings
37	None of these currently provided here - all are specialist areas
38	This hospital speech pathology dept. provides a number of specialised services in a central location. If these services were not provided, then either the service may not be readily available to all the population, or there would be a reduction in the expertise available.
39	Community visits are done from public outpatient services where needed.
40	It depends on what sort of services you provide. From our hospital outpatients we provide regional outreach, local outreach [to schools etc.] ,community focused services, inpt .etc. This is appropriate in a rural setting because clients don't have any other options & it is an expensive service to operate- travel time, greater professional development, higher costs, support staff & high turnover of staff.
41	Diabetic education in community setting might encourage self-care rather than needing treatment at hospital. Basically education should be more in community setting but it gets expensive to have treatment areas in both hospital & community settings.

Appendices for Chapter 7

Frequency distributions of diagnosis per hospital

Audiology

HOSPITAL M1

Diagnosis	% total
Acoustic neuroma	0.4
Balance	7.2
Bilateral acoust	0.2
Blocked ears	0.2
Cerebello pontine angle tumour	0.2
Cholesteatoma	1.2
Chronic serous otitis media	0.6
Ear canal obstruction	0.2
Exostoses	0.2
Facial palsy	0.2
Grommett insertion	0.2
HEARING LOSS	
• asymmetric h/loss	1.6
• bilateral h/loss	18.9
• conductive h/loss	7.0
• congenital h/loss	0.4
• h/l & balance problem	1.2
• head injury h/loss	0.4
• mixed h/l bilateral	5.9
• noise induced h/loss	2.2
• ototoxic h/loss	0.4
• profound h/loss	0.4
• s/neural h/loss	10.2
• sudden h/loss	1.4
• unilateral h/loss	0.2
• unilateral mixed h/loss	0.2
Middle ear problems	0.4
Normal hearing	24.0
Otosclerosis	0.8
Perforated ear drum	2.4
Perforation/tinnitus	0.2
Post op ear surg	1.9
Post op ossicular reconstruction	0.4
Post op stapedec	0.4
Post-op eardrum	0.4
Presbyacusics	1.2
Tinnitus	6.5
Vertigo + tinnitus	0.4

Audiology (cont'd)

HOSPITAL M2

This hospital did not record Diagnosis for the Audiology service

HOSPITAL M3

Diagnosis	% total
Normal	2.4
Otitis Externa	1.6
TM Perforation	10.6
Otitis Media	6.5
Eustachian Tube Dysf.	3.3
Otosclerosis	3.3
Cholesteatoma	1.6
Conductive Loss, unspec	2.4
Presbycusis	4.1
Cochlear Loss	10.6
Presbycusis/ noise induced H/loss	0.8
Sensorineural H/loss	2.4
Sudden deafness	5.7
Congenital sensori-neuralhearing loss	0.8
Sensorineural ototox	4.1
Acoustic Neuroma	0.8
Tinnitus	8.9
Vestibular dysf	9.8
Vestibular neuronitis	0.8
Labrynthitis	0.8
Inner ear fistula	1.6
Acoustic trama	1.6
Post op Tymanoplasty / Myringoplasty	5.7
Post-op stapendectomy	1.6
Post-op Ossicular reconstruction	0.8
Post-op mastoidectomy	4.9
Post-op Meurnier's Disease	1.6

(Clinical) Nutrition & Dietetics

HOSPITAL M1

Diagnosis	% total
Dysphasia	1.3
Upper GIT	2.5
Lower GIT	3.8
Coeliac disease	1.3
Malabsorption	1.3
Liver disease	2.5
IDDM	1.3
NIDDM	8.8
Weight Loss	2.5
Eating Disorder	1.3
Obesity BMI > 30	33.3
Gastric bypass	2.5
For investigation	1.3
Food intolerance/allergy	3.8
Hyperlipidaemia	17.5
HIV/AIDS	1.3
Intake	2.5
NDM87	1.3

HOSPITAL M2

Diagnosis	% total
Normal nutritional counselling	1.5
Cardiovascular disease	0.3
Diabetes NIDDM	19.1
Diabetes IDDM	12.8
Eating disorders	14.1
Enteral feeds	2.9
Failure to thrive	5.1
Food sensitivity, allergy	4.9
Hypertension	2.2
Lipid disease	5.2
Malabsorption, functional GI disease	2.1
Liver, pancreatic disease	0.3
Obesity	20.9
Post surgical	0.2
Pregnancy	0.7
Chronic renal failure	2.5
Renal dialysis	0.2
Respiratory disease	0.7
Weight loss	4.4

(Clinical) Nutrition & Dietetics (cont'd)

HOSPITAL M3

Diagnosis	% total
Diabetes/IHD	1.4
NIDDM	1.4
NIDDM/Obesity	1.4
NIDDM/CRF	2.8
Ischaemic Heart Disease	2.8
Hyperlipideama	11.3
Overweight/obesity	43.7
Anorexia Nervosa	2.8
Weight loss/Malnutrition	1.4
Degenerative Dysphagia	1.4
Functional GI Disease	1.4
Functional GI Dis (const)	1.4
Functional GI Dis irritable bowel	1.4
Renal Disease CRF	4.2
Renal Dis, Transplant	4.2
General nutritional counselling	4.2
Pregnancy	1.4
Pregnancy/ Obesity	1.4
Anaemia	1.4
Hypertension	8.5

HOSPITAL M4

Diagnosis	% total
Cows milk intolerance	9.1
Excess flatulence	9.1
Fussy selective eater	9.1
Gastritis	9.1
Hyperlipidaemia	9.1
IDDM	9.1
NIDDM	18.2
Nutritional advice	9.1
Obesity	9.1
Osteoporosis	9.1

(Clinical) Nutrition & Dietetics

HOSPITAL C3

Diagnosis	% total
Allergies/intolerance	1.9
Borderline diabetic	1.9
Diabetic diet	42.7
Healthy low fat diet	1.9
High energy diet	1.9
High fibre diet	1.9
Low fat & high fibre diet	1.9
Low fat & low salt diet	1.9
Low fat diet	29.7
Low fat, high fibre	3.7
Low iron intake	1.9
Low salt diet	1.9
Low saturated fat diet	1.9
Low sat. fat/high fibre diet	1.9
Low saturated fat	1.9
Low sugar, diabetic	1.9

HOSPITAL C2

Diagnosis	% total
Oncology	2.3
Disaccharidase deficiency	2.3
Lower git	4.7
Glutenenteropathy	2.3
Diabetes type 2	7.0
Insulin resistance	4.7
Glucose intolerance	2.3
Diabetes/gestational	2.3
Renal disease	2.3
Obesity/overweight	32.6
Infection	2.3
Rheum/arthritis	2.3
Paediatric - feeding problems	4.7
Hypertension	2.3
Coronary heart disease	2.3
Hyperlipidaemia	16.3
Failure to thrive	2.3
Food intolerance	2.3
Default	2.3

Occupational Therapy

HOSPITAL M1

Diagnosis	% total
Tumour, other site	0.6
Parkinson's Disease	0.6
Congenital Abnormalities	0.6
Rheumatoid Arthritis	10.5
Osteo-arthritis	1.2
Systemic Lupus erythematosis	0.6
Arthritis - other	2.3
Dupuytren's contracture	1.2
Reflex Sympathetic Dystrophy	0.6
Carpal Tunnel Syndrome	2.9
De Quervains Syndrome	1.2
Major burns	1.2
Burns to hands / upper limb	5.3
Minor burns	0.6
Amputation, single digit	2.9
Replantation	0.6
Crush injury, single digit	1.2
Crush Injury, multiple digits	0.6
Crush injury, hand	0.6
Flexion deformity	0.6
Fractures, single digit	7.6
Fracture, multiple digits	2.9
Fractures, carpals	2.3
Fractures, forearm	2.9
Fractures, multiple trauma	1.8
Dislocations, digit	1.8
Fracture, upper limb	0.6
Joint replacement, IP/MCP joints	1.2
soft tissue injury	12.8
Epicondylitis, hand	4.7
Epicondylitis, hand, extensor tendon	8.2
Degloving injury, hand	0.6
Degloving injury, forearm	0.6
Laceration	0.6
Other, scar	2.9
Other, oedema	0.6
Brachial nerve plexus injury	2.3
Shoulder, radial nerve	0.6
Shoulder, multiple nerve injury	0.6
Elbow, ulnar nerve	1.2

Occupational Therapy (cont'd)

HOSPITAL M1 (cont'd)

Diagnosis	% total
Elbow, radial nerve	0.6
Elbow, multiple nerve injury	0.6
Wrist, ulnar nerve	0.6
Wrist, radial nerve	0.6
Wrist, multiple nerve injury	0.6
Digits, median nerve	0.6
Digits, radial nerve	0.6
Digits, ulnar nerve	0.6
None of the above	0.6
Undiagnosed pain	0.6

HOSPITAL M2

DIAGNOSIS	% TOTAL
other learning difficulties	2.2
co-ordination disorder	4.4
mixed developmental disorder	4.4
other develop. disorder	1.1
unspec develop. delays	3.3
carpal tunnel (excl obstets)	6.6
lymphoedema	1.1
carpal tunnel syndrome, obsts	6.6
depression, obstets	1.1
fasciitis, unspecified	1.1
Rheumatoid arthritis	3.3
Osteoarthritis	3.3
joint stiffness	1.1
tenosynovitis	3.3
Dupuytren's contracture	1.1
Downs syndrome	1.1
hypersensitivity	1.1
closed fracture, forearm	6.6
closed fracture, carpal	1.1
open fracture, carpal	1.1
closed fracture, metacarpal	3.3
open fracture, metacarpal	1.1
closed fracture, finger	1.1
closed multiple fracture finger	1.1
open fracture finger	3.3
open intra artic fracture	1.1
tendon rupture/ injury	17.6

Occupational Therapy (cont'd)

HOSPITAL M2 (Cont'd)

DIAGNOSIS	% TOTAL
Lacerations	3.3
Median nerve injury	3.3
Ulnar nerve injury	1.1
Radial nerve injury	1.1

HOSPITAL M3

Diagnosis	% total
Malignancy	1.0
Neurological disorders	3.0
Mental disorders	13.0
Cardiovascular disorders	7.0
Musculoskeletal disorders	76.0

HOSPITAL C1

Diagnosis	% total
Anxiety	1.4
Neurological	30.4
Skin Subcutaneous Tissue	26.0
Musculoskeletal	29.4
Burns	1.4
Stress management	2.9
Frail aged	1.4
other non specific	2.9
• Concussion	1.4
• Venous insufficiency	1.4
• DVT	1.4

HOSPITAL C3

Diagnosis	% total
Musculoskeletal	33.3
other	66.7

Occupational Therapy (cont'd)

HOSPITAL M4

Diagnosis	% total
Burn to lower limb	3.8
Encopresis	3.8
Low birth weigh	7.7
Lung cancer	3.8
Mastectomy	57.7
Oncology	11.5
Paediatrics	3.8
Rheumatoid arthritis	3.8
Spinal tumour	3.8

HOSPITAL M5

Diagnosis	% total
Unknown	12.7
Autism	3.8
Attention deficit disorder	2.6
Amputee	1.3
Behavior	1.3
Developmental delay	10.3
Feeding difficulties	1.3
Fine motor/Co-0rd. difficulties	24.1
Hemiplegia	2.5
Learning difficulties	5.1
Tendon injury	3.8
Other	5.1
Perceptual - motor	17.5

HOSPITAL C2

Diagnosis	% total
Neurological disorders	4.5
Musculoskeletal disorders	4.5
Skin, hair, nails disorders	4.5
Ill-defined disorders	9.1
Unknown	45.5
Neurological	4.5
Developmental delay	4.5
Specific learning disorders	13.6
Other paediatric condition	9.1

Physiotherapy

HOSPITAL M1

1. The frequency distribution of categories of condition

Condition	% total
Genitourinary	0.4
Neurological	1.4
• Neuroloical/ Musculoskel.	0.1
Cardiovascular	0.4
Respiratory	0.9
Skin and Subcutanous Tissue	1.1
• Skin / Musculoskeletal	0.1
Musculoskeletal nonspecified	1.2
• acute soft tissue / joint	19.0
• fracture	8.0
• acute deg	4.7
• chronic deg	15.5
• mixed presentation	0.1

2. Body part associated with musculoskeletal conditions, or finer definition of musculoskeletal presentation

Body Part	% total
Undefined	23.3
Carpal tunnel release	0.2
Replacement of major joint	0.1
Reflect sympathetic dystrophy	0.1
Scar management	0.4
OA of shoulder	0.1
OA CMC joint	0.1
Joint instability	0.1
Joint pain	0.1
Post traumatic stiffness	0.1
Frozen shoulder	0.1
Rotator cuff syndrome	0.9
Capsulitis	0.1
Tenosynovitis wrist hand flexors	0.1
Tendon sheath infection	0.1
Dequervain's disease	0.1
Adhaesions in tendon finger	0.1
Dupuytren's contracture	0.1
Mallet finger	0.1
Oedema	0.1
MCPJ arthroscopy	0.1
Suspension arthroscopies CMCJ	0.1

Physiotherapy (cont'd)

HOSPITAL M1 (cont'd)

2. Body part associated with musculoskeletal conditions, or finer definition of musculoskeletal presentation

Body Part	% total
Shoulder acromioplasty	0.2
Fracture humerus	0.3
Fracture of both bones, forearm	0.4
Colles fracture	1.0
Fracture of carpal bones	0.1
Scaphoid fracture	0.1
Fracture Metacarpal bone	0.3
Bennett's fracture	0.1
Fracture of phalanges	0.5
Multiple fractures of hand	0.1
Fasciectomy for Dupuytrens contract	0.3
Flexor tendon repair	0.8
Extensor tendon repair,Boutonniere	0.1
Dislocation of shoulder	0.1
Dislocation of wrist	0.1
Dislocation of finger	0.1
Terminalisation of finger	0.1
Carpal instability	0.1
Gamekeepers / skier's thumb	0.1
Suture of lacerations	0.1
Grafting post burn	0.1
Lacerated flexor extensor tendon hand	0.1
Lacerated flex/ext. tendon finger/ thumb	0.3
Injury to blood vessel, upper extrem	0.1
Late effects of injury to skin	0.1
Crush injury to upper limb	0.1
Burn of shoulder, arm, forearm	0.1
Burn of wrist and hand	0.1
Burns of multiple specified sites	0.7
Brachial Plexus injury	0.1
Injury to peripheral nerve of upper limb	0.1
Injury to median nerve	0.1
Injury other and specified	0.7
Shoulder	8.8
Neck, shoulder	0.1
Elbow	0.4

Physiotherapy (cont'd)

HOSPITAL M1 (cont'd)

2. Body part associated with musculoskeletal conditions, or finer definition of musculoskeletal presentation

Body Part	% total
Chest complaints	0.8
Wrist	14.9
Wrist, ankle	0.1
Hip	1.8
Knee	9.1
Knee, ankle	0.1
Ankle	4.2
Whole spine	0.2
Neck	6.9
Neck, thoracic spine	0.1
Neck, lumbar spine	0.1
Thoracic spine	1.3
Lumbar spine	8.3
Multiple sites	4.9

HOSPITAL M2

1. The frequency distribution of categories of condition

Condition	% total
Pregnancy/ childbirth	2.5
• Pregnancy, Musculoskeletal	0.5
Genito-urinary	5.3
Neurological	1.8
• Neurological/Musculoskeletal	0.3
Cardiovascular	1.4
• Cardiovascular/Musculoskeletal	0.3
Skin and subcutaneous tissue	2.5
Congenital abnormalities	0.5
Musculoskeletal, nonspecified	6.0
• Acute soft tissue/ joint	35.5
• Mixed musculoskeletal presentation	0.6
• Fracture	7.6
• Acute degenerative	8.0
• Chronic degenerative	27.2

Physiotherapy (cont'd)

HOSPITAL M2

2. Body part associated with musculoskeletal conditions, or finer definition of musculoskeletal presentation

Body Part	% total
Shoulder, elbow	0.2
Shoulder, knee	0.3
Abdomen	0.2
Ankle	8.9
Elbow, forearm	0.2
Breasts	0.2
Neck, elbow	0.2
Elbow, Lumbar spine	0.2
Hip, knee	0.2
Elbow	3.1
Whole spine	0.2
Hand	6.4
Hip	7.5
Neck, Thoracic spine	0.5
Neck, Lumbar spine	0.2
Lumbar spine, hip	0.2
Lumbar spine, other joints	0.2
Knee	18.1
Lymphodema, upper limb	0.2
Lymphodema, lower limb	0.3
Lumbar spine	20.0
Multiple joints	3.5
Miscellaneous	1.6
Neck	10.6
Shoulder	11.0
Soft tissue injury	0.9
Thoracic spine	3.0
Temporo-mandibular joint	0.2

HOSPITAL M3

DID NOT COLLECT PHYSIOTHERAPY DIAGNOSIS

Physiotherapy (cont'd)

HOSPITAL C1

1. The frequency distribution of categories of condition

Condition	% total
Pregnancy	0.3
Neurological	2.0
Neuro/Musculoskeletal	0.3
Cardiovascular	0.6
Repiratory	2.6
Skin	0.6
Musculoskeletal (nonsp)	4.8
• Acute Soft tissue/joint	41.6
• Fracture	13.4
• Acute degenerative	7.7
• Chronic degenerative	25.9
• Amputee	0.3

2. Body part associated with Category 8 (8, 8.1, 8.2, 8.3, 8.4, 8.5)

Body Part	% total
Multiple spinal joints	1.2
• Neck only	12.1
• Thoracic spine only	3.5
• Lumbar spine only	19.0
Multiple joints, unspecified	3.7
Multiple joints, unrelated	0.3
Neck and upper limb involvement	1.8
Shoulder only	12.1
Upper arm	1.2
Elbow, forearm	4.3
Hand	10.4
Hip	1.4
Knee	20.5
Ankle, foot	7.8
Unspecified	0.9

Physiotherapy (cont'd)

HOSPITAL C3

1. The frequency distribution of categories of condition

Condition	% total
Neurological	3.8
Cardiovascular	0.5
Musculoskeletal (not defined)	5.5
• Acute soft tissue/joint	27.3
• Fracture	1.6
• Acute degenerative	15.3
• Chronic degenerative	45.9

2. The body parts associated with Musculoskeletal Conditions

Body Part	% total
Site unspecified	0.5
Shoulder	7.4
Upper arm	0.5
Elbow, forearm	4.2
Wrist, hand, fingers	1.6
Pelvis, upper thigh	3.7
Knee, lower thigh & upper leg	12.2
Multiple sites	23.2
Ankle, foot & toes	4.2
Whole spine	1.6
Cervical spine & head	13.7
Thoracic spine	2.1
Lumbar spine	24.9

Hospital M4

1. The frequency distribution of categories of condition

Condition	% total
Genito-urinary	8.6
Neurological	0.9
Cardiovascular	25.9
Respiratory	8.0
Skin	6.1
Musculoskeletal	24.7
Acute Soft tissue	25.5
Fracture	4.5
Acute Degenerative	1.8
Chronic Degenerative	0.9

Physiotherapy (cont'd)

HOSPITAL M4 (cont'd)

2. The body parts associated with Musculoskeletal Conditions

Body Part	% total
Unspecified	7.1
Shoulder	7.4
Elbow, forearm	2.5
Ankle	7.4
Calf	0.3
Cervical spine	9.6
Coccyx	0.3
Hand/finger/thumb	22.2
Foot	0.6
Forearm	0.6
Forefoot	0.3
Hip region	1.7
Knee	7.4
Laminectomy	0.3
Lower limb	1.1
Lumbar spine	15.7
Multiple joints	0.6
Midfoot	0.6
Unspecified	2.8
Paed.musculoskel	0.3
Pat/fem.joint	0.6
Psoriasis	0.3
Pubic symphysis	0.3
Sacroiliac joint	0.3
Spinal column	0.6
Thigh	0.3
Thoracic spine	2.0
Wrist	4.0

HOSPITAL C2

This hospital did not record diagnosis for the Physiotherapy service

HOSPITAL M5

This hospital did not record diagnosis for the Physiotherapy service

Speech Pathology

Hospital M1

Diagnosis	% total
Cognitive problem, acquired brain injured	1.1
Dysarthria	1.1
Developmental disorder	0.6
Dysfluency	2.8
Total laryngectomy with TOPP	1.7
Supraglottic laryngectomy	0.6
Assessment only, No Abn. Detected	1.7
Organic disorder, head and neck	0.6
Dysphagia	1.1
Dysphasia	5.0
Dysphonia	54.2
Tracheostomy	1.1
Unknown	2.2
Unable to diagnose	1.1
Nil recorded	23.5

Hospital M2

Diagnosis	% total
Cognitive problem	3.3
Dysarthria anarthria	3.3
Dysfluency cluttering	20.0
Dysphagia feeding	6.7
Dysphonia aphonia	6.7
Dyspraxia apraxia	3.3
language delay develop	10.0
language disorder dev	20.0
No disorder, no risk	3.3
Speech delay, phon del	10.0
Speech disorder, phon disorder	13.3

Hospital M3

Diagnosis	% total
Dysphasia	9.1
Tracheostomy	4.5
Oral Surgery	13.6
Voice	70.5
Cough	2.3

Speech Pathology (cont'd)

Hospital C1

Diagnosis	% total
Dysarthria	2.6
Dysfluency	10.3
Dysphagia	2.6
Dysphasia	2.6
Dysphonia	7.9
Language delay Developmental	7.5
Language disorder developmental	17.7
Reading disorder developmental	7.7
Speech delay articulation	12.8
speech disorder articulation	20.5
Velopharyngeal disorder	7.7

Hospital C3

Diagnosis	% total
Dysarthria/anarthria	2.2
Dysfluency/stuttering, stammering etc	2.2
Dysphasia/aphasia	4.3
Language delay - developmental	26.1
Language & speech delay	6.5
Language disorder - developmental	2.2
No apparent disorder - not at risk	2.2
Reading disorder	2.2
Speech delay	47.8
Speech disorder	4.3

Hospital M4

Diagnosis	% total
Dysphonia/Voice disorder	33.3
Not at risk, no disorder	66.7

Speech Pathology (cont'd)

Hospital M5

Diagnosis	% total
Unkown	2.8
Prematurity	2.8
No medical condition	44.4
Otitis media	22.2
Epilepsy	2.8
Autism	8.3
Asthma	5.6
Cleft lip &/or palate	2.8
Tongue tie/ankyglosia	2.8
Tongue thrust	2.8
Head injury	2.8

Hospital C2

Diagnosis	% total
Articulation Disorder (Organic)	6.1
Dysfluency	3.7
Dysphasia/Aphasia	2.4
Dysphonia/Voice Disorder	12.2
Dyspraxia (Verbal Dyspraxia)	1.2
Global Delay	2.4
Language Delay	30.5
Language Disorder (Childhood)	2.4
Phonological Delay	25.6
Phonological Disorder	7.3
Resonance Disorders	1.2
Within Normal Limits	4.9

Podiatry

Hospital M5

Diagnosis	% total
Arthritic Condition	4.7
Biomechanical Abnormality	23.5
Bony Abnormality	0.7
Hallux Valgus	2.1
Other Bony abnormality	1.3
Diabetes Education	13.4
Diabeteic foot complication	2.0
Foot pain	0.7
Metatarsalgia	1.3
Plantar faciitis	6.7
Calcaneal spur	1.3
Foot Pain other	4.0
Footwear Advice	4.0
Fungal infection	1.3
IGTN - surgical	0.7
Lesion debridement	11.4
Nail treatment	9.4
Neuroma	9.4
Verruca	0.7

Hospital M3

Diagnosis	% total
No problem	9.3
No problem, diabetic	7.0
Routine Palliative	5.1
Routine palliative, diabetic	22.8
Routine pall, at risk diabetic	31.6
Rountine pall, at risk	6.3
Ulcer, Infection, Diabetic	1.3
Ulcer, Infection, At risk diabetic	11.4
IGTN, at risk diabetic	1.3
Biomechanical problem, diab	1.3
Biomech prob., at risk	1.3

Hospital M4

Diagnosis	% total
Biomechanical Abnormality	50.0
Footwear Advice	50.0

Podiatry (cont'd)

Hospital M2

Diagnosis	% total
Arthritic condition	1.4
Biomechanical abnorm	22.8
Hammer toe	1.4
Other bony abnormality	1.4
Diabetes education	29.7
• + Nail treatment	0.7
• + Diabetic foot complic	0.7
• + Footwear advice	0.7
Diabetic foot complication	4.8
Metatarsalgia	1.4
Plantar fasciitis	2.1
Calcaneal spur	2.1
Aphphysitis	1.4
Other foot pain	4.1
Footwear advice	4.8
• + Fungal infection	0.7
• + Lesion debridement	0.7
Fungal infection	0.7
IGTH - surgical	0.7
Lesion debridement	6.2
Nail treatment + lesion deb	0.7
Neuroma	2.1

Hospital C2

Diagnosis	% total
Biomechanical Examination	6.8
Default	0.6
Diabetic Assessment	0.9
nsoles - Plain/Pair	0.3
nsoles - Padded/Pair	0.6
Manipulation Of Joints Of Feet	0.3
Orthotitic Fabrication/Adjustments	2.4
Phenol & Alcohol Matrixectomy	0.6
Routine Treatment	85.5
Verrucae Pedis	2.1

Neuropsychology

Hospital M1

Diagnosis	% total
Acute psychotic event	1.2
Alcohol abuse	1.2
Anorexia nervosa	1.2
Anxiety disorder	3.6
Bipolar disorder	1.2
Brain tumour	2.4
Carbon mon. Pois	8.9
CVA	3.6
Closed head injury	19.0
Cranio facial fractures	2.4
CVA & dementia	1.2
Decompression illness	3.6
Dementia	9.6
Depression	2.4
Depression & dementia	2.4
Epilepsy	2.4
Facial injury	1.2
HIV	2.4
Hypoxic Brain damage	1.2
Learning disability	3.6
Lobar atrophy	1.2
Meningitis	1.2
Multiple sclerosis	4.8
Myocardial infarction	2.4
Normal pressure hydroc	1.2
Organic delusion	1.2
Pain	1.2
Respiratory failure	1.2
Schizophrenia	1.2
Spinal injury	2.4
Subarachnoid haem .	8.4
Temporal Lobe epilepsy	1.2

Social Work

Hospital M2

Diagnosis	% total
Emotional problems	100.0

Hospital C3

Diagnosis	% total
Poor anger management	25.0
Poor relationships	25.0
Relationship problems	25.0
Stress relating	25.0

Hospital M4

Diagnosis	% total
Other	0.8
Accommodation	12.3
Adolescent issues	0.8
Advocacy	4.8
Organisation of Transport	4.6
Pregnancy related	7.1
Alcohol/substance abuse	2.4
Treatment related	17.3
Child Issues	2.4
Disease Counselling	11.3
Psycho-social issues	10.6
Relationship counselling	15.9
Financial assistance	3.8
Referrals	5.1
Unknown	0.8

Hospital M5

Diagnosis	% total
Acute Lymphocytic Leukemia	0.5
Asthma	0.5
Burns	0.2
Cystic Fibrosis	0.5
Chronic Renal Failure	0.2
Pregnancy Related	97.8
Diabetes	0.2

Appendices for Chapter 8

- Questionnaire and letters to GP's
- Post code areas of GP respondents (Adelaide Metro area)
- Post code areas of GP respondents (085 telephone area)
- Post code areas of GP respondents (096, 087, 088 telephone area)
- Questionnaire and letter to RAH doctors

Questionnaire and letter to GP's

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ph 2225783
fax 2225802
Project Manager: Karen Grimmer

Dear Doctor,

I am seeking information regarding general practitioner referrals to the Allied Health Outpatient Clinics at the Royal Adelaide Hospital.

Your name has been systematically selected from the telephone listings of Medical Practitioners in metropolitan Adelaide and surrounding country districts. I would be pleased if you would complete the questionnaire enclosed and return it in the envelope supplied to the Royal Adelaide Hospital at your earliest convenience. Your participation in this project is purely voluntary, your name will not be recorded and your reply is confidential.

The purpose of the project

This project aims to investigate Allied Health Outpatient services at the Royal Adelaide Hospital by identifying those individuals who use Allied Health Outpatient services, where these individuals live, how many Allied Health Outpatient services they consult and how they were referred to them. The project also aims to identify how many Allied Health Outpatient services are provided following, and prior to, hospitalisation. As a potential referrer to Allied Health Outpatient services at the RAH, your help with some of these issues is much appreciated. Any queries on the project can be directed to me on the above number or at home (08 3526371) or to Dr Richenda Webb (The Chairman of the Research Ethics Committee, ph 08 2225355).

Information that you may find useful

1. This project is using a draft definition of Allied Health services:
   those tertiary trained individuals other than medical practitioners, nurses dentists and pharmacists, who act in a clinical capacity and who could enter into a care-based and/or primary investigative and/or primary diagnostic relationship with ambulant patients , be they from the public or private sector.

2. The Allied Health services at the RAH that are identified by this definition are:

   1. Physiotherapy
   2. Occupational Therapy
   3. Clinical Nutrition
   4. Speech Pathology
   5. Podiatry
   6. Audiology
   7. Psychology
   8. Social Work
   9. Health Promotion
   10. Orthotics and Prosthetics

Thanking you in anticipation of your help. Please find enclosed a self addressed and stamped envelope for your convenience in returning the questionnaire.

Yours sincerely,

Karen Grimmer

Questionnaire and letter to GP's (cont'd)

ALLIED HEALTH AMBULATORY CARE REFORM PROJECT

ph 2225783
fax 2225802
Project Manager: Karen Grimmer

CONFIDENTIAL RESPONSE (PLEASE RETURN PROMPTLY)

Post code of medical practitioner's practice address ☐

Your gender **M** ☐ **F** ☐

Years since graduation ☐

With which Allied Health Outpatient services at RAH are you familiar? (please circle)

1. PHYSIOTHERAPY
2. OCCUPATIONAL THERAPY
3. CLINICAL NUTRITION
4. SPEECH PATHOLOGY
5. PODIATRY
6. AUDIOLOGY
7. PSYCHOLOGY
8. SOCIAL WORK
9. HEALTH PROMOTION
10. ORTHOTICS AND PROSTHETICS

About which of these departments would you like to know more? ☐
(Write the numbers from the list provided above)

To which Allied Health Outpatient departments at the Royal Adelaide Hospital or at the Hampstead Centre have you referred patients **IN THE LAST 12 MONTHS?** ☐
(Write the numbers from the list provided above)

For which reasons do you usually refer patients to Allied Health Outpatients clinics at the Royal Adelaide Hospital?

a) because of a unique and/or specialist service?
b) for continuity of care at RAH
c) because the service is free?
d) because it is the closes place for the patient for treatment?
e) because you know the patient will be seen quickly?
f) other? _____

Have any of your patients been denied access to treatment at Allied Health Outpatient Departments or Clinics? **YES** ☐ **NO** ☐
If Yes, do you know why? _____

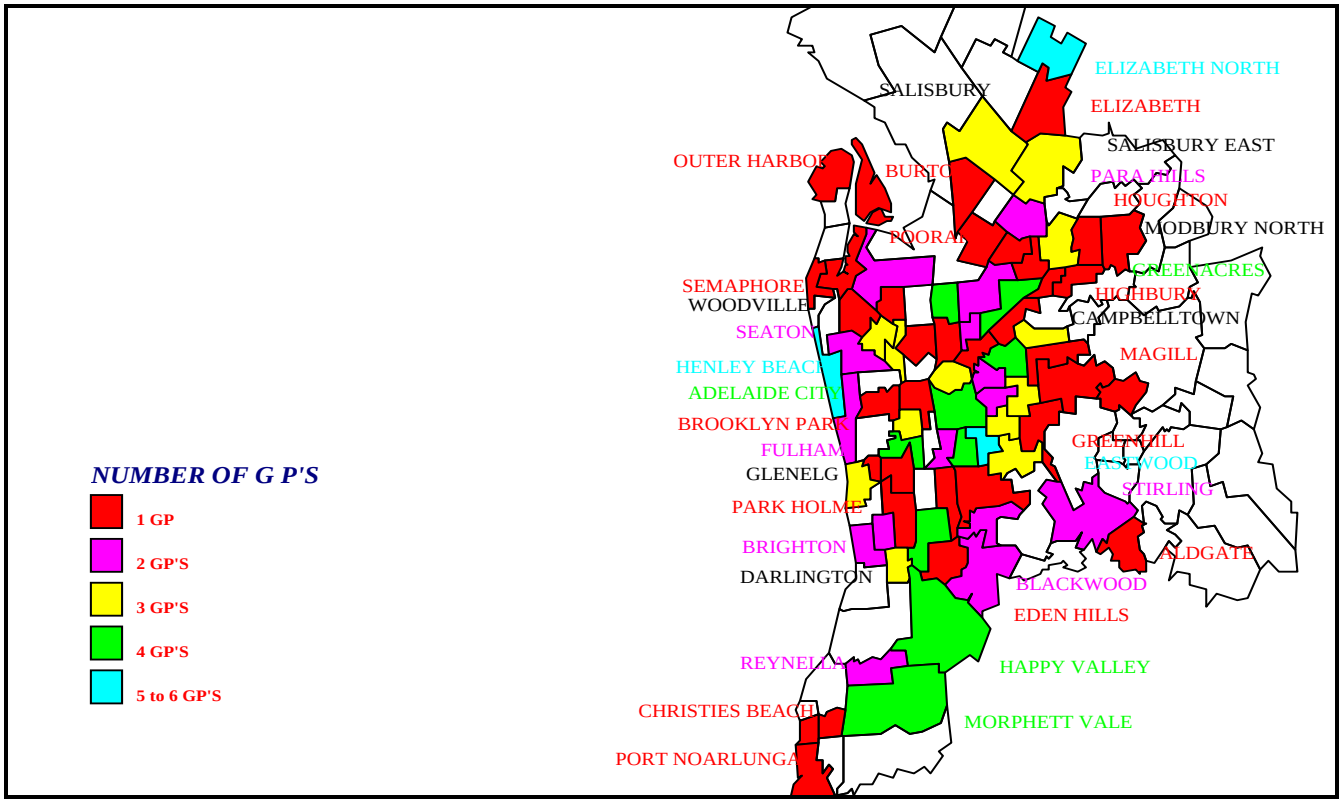
List additional services that you would like these Allied Health Outpatient Departments or Clinics to provide, that they currently do not: _____
_____

Do you have any comments that would help us regarding Allied Health Outpatient services at the Royal Adelaide Hospital or Hampstead?
_____
_____
_____

Thank you for your time and help
Please return this form in the envelope supplied, or fax it to (08) 222 5802

Post code areas of GP respondents from Adelaide metropolitan area.

TOTAL : 171 GP RESPONDENTS

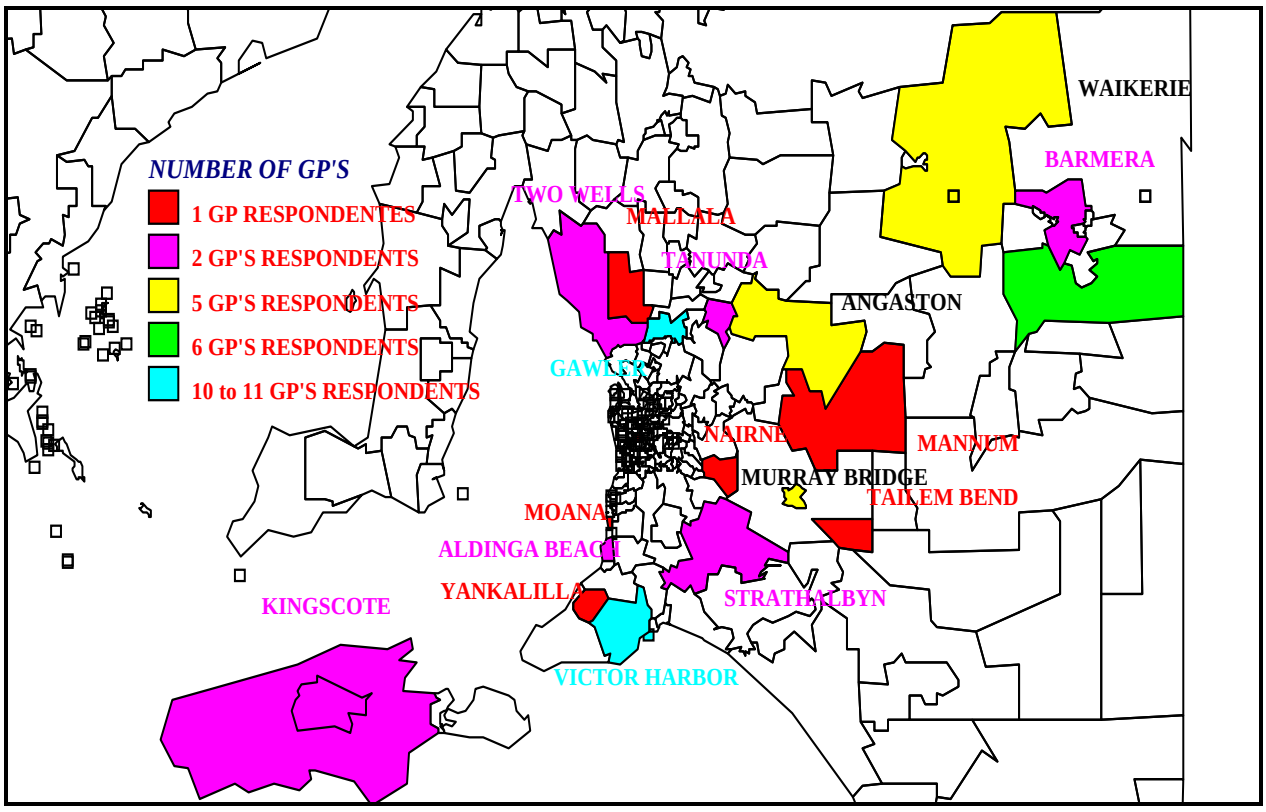


Includes areas not shown on map:-

5252 : 1 GP
5251 : 3 GP's
5244 : 1 GP
5241 : 1 GP
5171 : 1 GP
5172 : 1 GP
5169 : 1 GP
5118 : 3 GP's

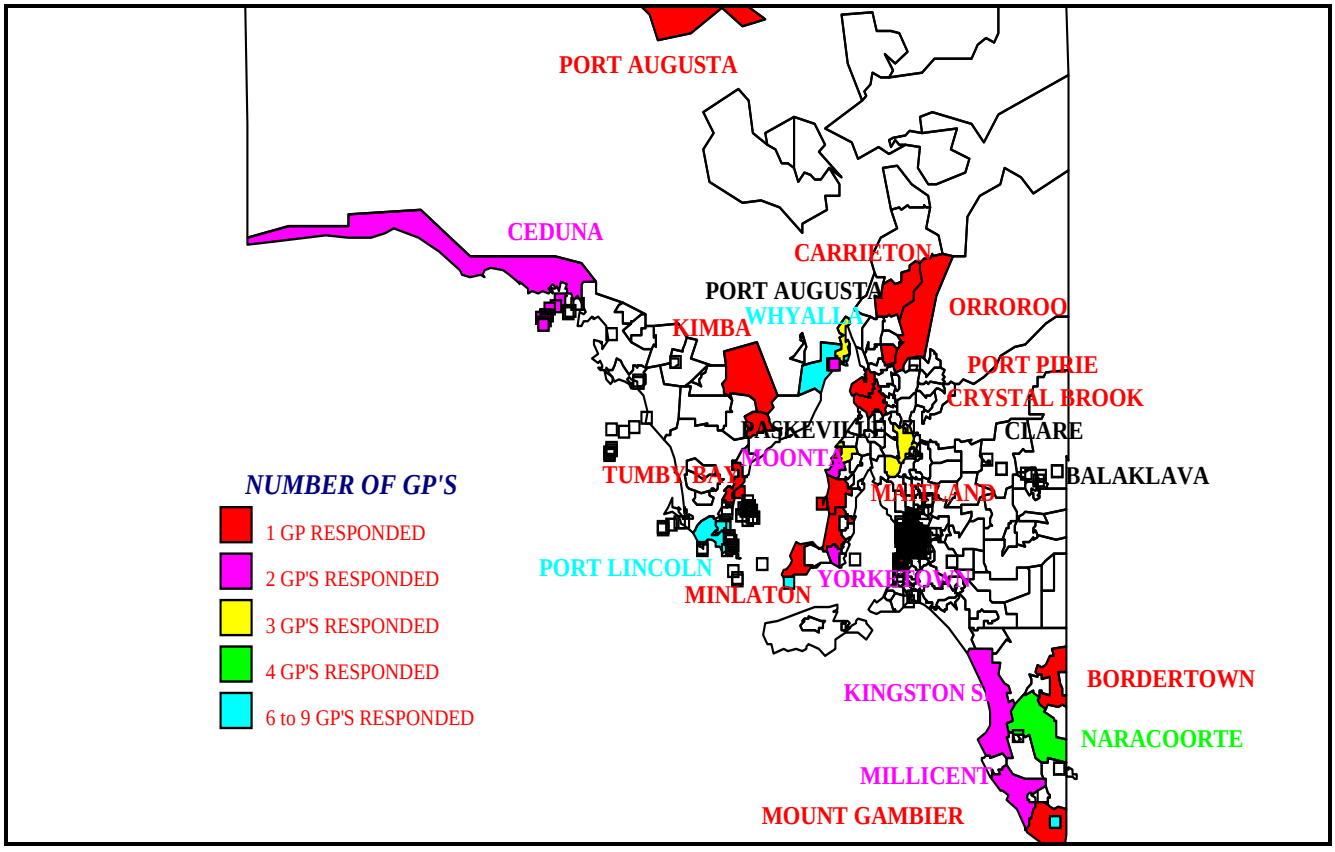
Post code areas of GP respondents from 085 telephone area.

TOTAL : 61 GP RESPONDENTS
FROM SOUTH AUSTRALIAN COUNTRY AREAS



Post code areas of GP respondents from 086, 087, 088 telephone areas.

TOTAL : 68 GP RESPONDENTS
FROM SOUTH AUSTRALIAN COUNTRY AREAS



Questionnaire and letter RAH Doctors

Allied Health Ambulatory Care Project
Royal Adelaide Hospital

ph 2225783
fax 2225802
Project Manager: Karen Grimmer

Dear Doctor,
I am seeking information regarding RAH outpatient clinic referrals to RAH Allied Health Outpatient Clinics. I am surveying all potential referrers in the RAH Outpatient clinics and your help in answering the following questions would assist this project enormously.

The purpose of the project

This project aims to investigate Allied Health Outpatient services at the Royal Adelaide Hospital by identifying those individuals who use Allied Health Outpatient services, where these individuals live, how many Allied Health Outpatient services they consult and how they were referred to them. The project also aims to identify how many Allied Health Outpatient services are provided following, and prior to, hospitalisation. Any queries on the project can be directed to me on the above number or at home (2352301) or to Dr Richenda Webb (The Chairman of the Research Ethics Committee, ph 2225355).

Allied Health Services

1. This project is using a draft definition of Allied Health services:

those tertiary trained individuals other than medical practitioners, nurses, dentists and pharmacists, who act in a clinical capacity and who could enter into a care-based, and/ or primary investigative and primary diagnostic relationship with ambulant patients, be they in the public or private sector.

2. The Allied Health services at the RAH that are identified by this definition are:

1. physiotherapy
2. occupational therapy
3. clinical nutrition
4. speech pathology
5. podiatry
6. audiology
7. psychology
8. social work
9. health promotion
10. orthotics and prosthetics

Thanking you in anticipation of you help,
Yours sincerely,

Karen Grimmer

Questionnaire and letter to RAH Doctors

Royal Adelaide Hospital Ambulatory Care Project

ph 2225783, fax 2225802
Project Manager: Karen Grimmer

Outpatient Clinic _____

Your position in the Outpatient Clinic
a) consultant
b) registrar
c) resident

Your gender | M | F |

Years since Graduation _____

With which Allied Health Outpatient services at RAH are you familiar?
_____

Would you like to know more about the services provided by any of the Allied Health Outpatient services at the RAH? | Yes | No |

Have you referred any patients to Allied Health Outpatient Departments at Royal Adelaide Hospital or at Hampstead Centre in the last month? | Yes | No |

To which clinics have you referred? _____
_____

For which reasons do you normally refer patients to Allied Health Outpatients clinics?
a) because they provide a unique or specialist service?
b) for continuity of care at RAH
c) because the service is free?
d) because it is the closest place for the patient for treatment?
e) because you know that the patient will be seen quickly?
f) other?_____

Have any of your patients been denied access to treatment at Allied Health Outpatient Departments? | Yes | o |
Do you know why? _____

List the services that you would like the Allied Health Outpatient departments to provide, that are currently not provided_____
_____

Do you have any comments regarding Allied Health Outpatient services at RAH or Hampstead?

Thank you very much for your time and help

Appendices for Chapter 9

Regions of the Adelaide Metropolitan area

Regions of the Adelaide Metropolitan area

Region 1 = City

5000	Adelaide
5000	Adelaide City
5000	Adelaide GPO
5000	Adelaide Parliament House
5000	Adelaide University
5000	Gouger Street PO
5000	Grenfell Street PO
5000	Halifax Street PO
5000	Hindley Street PO
5000	Hutt Street PO
5000	Parliament House Adelaide
5000	Rundle Mall PO
5000	Sturt Street PO

Region 2 = Nth Adelaide

5006 North Adelaide

Region 3 = North West (within 5kms of the city)

5009	Allenby Gardens
5009	Beverley
5007	Bowden
5007	Brompton
5008	Croydon
5008	Croydon Park
5008	Croydon Park South
5008	Devon Park
5008	Dudley Park
5007	Hindmarsh
5009	Kilkenny
5008	Renown Park
5008	Ridleyton
5007	Welland

Region 4 = West (within 5kms of the city)

5035	Ashford
5035	Black Forest
5032	Brooklyn Park
5034	Clarence Park
5033	Cowandilla
5035	Everard Park
5035	Forestville
5037	Glandore
5034	Goodwood
5033	Hilton
5035	Keswick
5035	Keswick Terminal
5034	Kings Park
5037	Kurralta Park
5032	Lockleys
5033	Marleston
5031	Mile End
5034	Millswood
5037	Netley
5037	North Plympton
5033	Richmond
5031	Thebarton
5031	Torrensville
5032	Underdale
5034	Wayville
5033	West Richmond

Region 5 = South (5kms of the city)

5038	Camden Park
5039	Clarence Gardens
5039	Edwardstown
5039	Melrose Park
5038	Plympton
5038	Plympton Park
5038	South Plympton
5052	Belair
5050	Bellevue Heights
5051	Blackwood
5062	Clapham
5051	Coromandel Valley
5063	Eastwood
5050	Eden Hills
5063	Frewville
5063	Fullarton
5052	Glenalta
5062	Hawthorn
5051	Hawthorndene
5063	Highgate

5061	Hyde Park
5049	Kingston Park
5062	Kingswood
5062	Lower Mitcham
5062	Lynton
5061	Malvern
5049	Marino
5062	Mitcham
5062	Netherby
5063	Parkside
5049	Seacliff
5049	Seacliff Park
5049	Seaview Downs
5062	Springfield
5062	Torrens Park
5061	Unley
5061	Unley Park

Region 6 = East (within 5kms of the city)

5066	Beaumont
5067	Beulah Park
5066	Burnside
5069	College Park
5065	Dulwich
5066	Erindale
5069	Evandale
5064	Glen Osmond
5064	Glen Osmond Depot
5065	Glenside
5064	Glenunga
5069	Hackney
5066	Hazelwood Park
5068	Heathpool
5068	Kensington
5068	Kensington Gardens
5068	Kensington Park
5067	Kent Town
5068	Leabrook
5065	Linden Park
5068	Marryatville
5069	Maylands
5064	Mount Osmond

Region 7 = North East (within 5kms of the city)

5081	Collinswood
5082	Fitzroy
5081	Gilberton
5081	Medindie
5081	Medindie Gardens
5082	Ovingham
5082	Prospect
5082	Prospect East
5082	Prospect West
5082	Thorngate
5081	Vale Park
5081	Walkerville
5064	Myrtle Bank
5067	Norwood
5067	Norwood South
5067	Rose Park
5064	St Georges
5068	St Morris
5069	St Peters
5069	Stepney
5066	Stonyfell
5065	Toorak Gardens
5068	Trinity Gardens
5065	Tusmore
5064	Urrbrae
5066	Waterfall Gully
5066	Wattle Park

Region 8 = North West (5-10kms oft he city)

5014	Albert Park
5014	Alberton
5010	Angle Park
5012	Athol Park
5014	Cheltenham
5010	Ferryden Park
5013	Gillman
5014	Hendon
5012	Mansfield Park
5013	Ottoway
5013	Pennington
5014	Queenstown
5010	Regency Park
5013	Rosewater
5013	Rosewater East
5014	Royal Park
5013	Wingfield
5011	Woodville
5012	Woodville Gardens
5012	Woodville North
5011	Woodville Park

Region 9 = West (5-10kms of the city)

5023	Findon
5025	Flinders Park
5024	Fulham
5024	Fulham Gardens
5022	Grange
5022	Grange South
5022	Henley Beach
5022	Henley Beach South
5025	Kidman Park
5022	Kirkcaldy
5023	Seaton
5023	Seaton North
5022	Tennyson
5024	West Beach

Region 10 = South (5-10kms of the city)

5043	Ascot Park
5042	Bedford Park
5048	Brighton
5042	Clovelly Park
5041	Colonel Light Gardens
5041	Cumberland Park
5047	Darlington
5041	Daw Park
5041	Daw Park Repatriation General Hospital
5048	Dover Gardens
5042	Flinders University
5042	Flinders University Bedford Park
5045	Glenelg
5045	Glenelg Jetty Road
5045	Glenelg North Aroona Place
5045	Glenelg South
5044	Glengowrie
5048	Hove
5043	Marion
5043	Mitchell Park
5043	Morphettville
5040	Novar Gardens
5046	Oaklands Park
5041	Panorama
5043	Park Holme
5042	Pasadena
5047	Seacombe Gardens
5047	Seacombe Heights
5044	Somerton Park
5048	South Brighton
5042	St Marys
5047	Sturt
5046	Warradale
5046	Warradale North
5041	Westbourne Park

Region 11 = East (5-10kms of the city)

5076	Athelstone
5072	Auldana
5074	Campbelltown
5075	Dernancourt
5070	Felixstow
5070	Firle
5070	Glynde
5073	Hectorville
5070	Joslin
5071	Kent Town Private Boxes
5072	Magill
5072	Magill North
5072	Magill South
5070	Marden
5074	Newton
5074	Newton Depot
5075	Paradise
5070	Payneham
5072	Rosslyn Park
5073	Rostrevor
5070	Royston Park
5072	Skye
5072	Teringie
5073	Tranmere
5073	Tranmere North
5072	Woodforde
5089	Highbury
5088	Holden Hill
5087	Klemzig
5087	Windsor Gardens

Region 12 = North East (5-10kms of the city)

5084	Blair Athol
5084	Blair Athol West
5083	Broadview
5085	Clearview
5085	Enfield
5086	Gilles Plains
5086	Greenacres
5086	Hampstead Gardens
5086	Hillcrest
5084	Kilburn
5084	Kilburn North

5086	Manningham
5083	Nailsworth
5085	Northfield
5083	Sefton Park

Region 13 = North West (10-15kms of the city)

5015	Birkenhead
5015	Ethelton
5019	Exeter
5015	Glanville
5016	Largs Bay
5016	Largs North
5018	North Haven
5017	Osborne
5018	Outer Harbor
5016	Peterhead
5015	Port Adelaide
5019	Semaphore
5019	Semaphore Park
5017	Taperoo
5021	West Lakes
5020	West Lakes Shore

Region 14 = South (15+ kms of the city)

5159	Aberfoyle Park
5154	Aldgate
5173	Aldinga
5173	Aldinga Beach
5157	Ashbourne
5137	Ashton
5138	Basket Range
5153	Biggs Flat
5157	Blackwood Roadside Delivery
5171	Blewitt Springs
5153	Bradbury
5155	Bridgewater
5157	Bull Creek
5144	Carey Gully
5159	Chandlers Hill
5157	Cherry Gardens
5164	Christie Downs
5165	Christies Beach
5165	Christies Beach North
5157	Clarendon
5157	Coromandel East
5152	Crafers
5152	Crafers West
5159	Craigburn
5150	Eagle on The Hill
5153	Echunga
5159	Flagstaff Hill
5153	Flaxley
5139	Forest Range
5159	Fountain Valley
5140	Greenhill
5163	Hackham
5163	Hackham West
5158	Hallett Cove
5159	Happy Valley
5153	Heathfield
5172	Hope Forest
5153	Ironbank
5157	Kangarilla
5158	Karrara
5172	Kuitpo Colony
5150	Leawood Gardens
5153	Longwood
5160	Lonsdale
5153	Macclesfield
5170	Maslin Beach
5171	McLaren Flat
5171	McLaren Vale
5169	Moana
5162	Morphett Vale
5162	Mount Hurtle
5152	Mount Lofty
5153	Mylor
5168	Noarlunga Centre
5168	Noarlunga Downs
5158	O'Halloran Hill
5166	O'Sullivan Beach
5168	Old Noarlunga
5161	Old Reynella
5163	Onkaparinga Hills
5172	Pages Flat
5151	Piccadilly
5167	Port Noarlunga
5160	Port Stanvac
5173	Port Willunga
5161	Reynella
5153	Scott Creek
5169	Seaford
5169	Seaford Rise
5158	Sheidow Park
5173	Silver Sands
5152	Stirling
5153	Stirling Forward
5141	Summertown
5158	Trott Park
5156	Upper Sturt
5142	Uraidla
5172	Willunga
5162	Woodcroft
5158	Woodend
5159	Woodlea
5172	Yundi

Region 15 =East (15+ kms of the city)

5114	Andrews Farm
5117	Angle Vale
5118	Bibaringa
5114	Blakeview
5134	Cherryville
5114	Craigmore
5113	Elizabeth Downs
5113	Elizabeth Field
5113	Elizabeth North
5113	Elizabeth Park
5113	Elizabeth West
5116	Evanston
5116	Evanston Gardens
5116	Evanston Park
5116	Evanston South
5126	Fairview Park
5118	Gawler
5118	Gawler East
5118	Gawler South
5118	Gawler West
5125	Golden Grove
5114	Gould Creek
5125	Greenwith
5116	Hillier
5131	Houghton
5114	Humbug Scrub
5133	Inglewood
5115	Kudla
5121	Macdonald Park
5134	Montacute
5115	Munno Para
5115	Munno Para Downs
5115	Munno Para West
5136	Norton Summit
5114	One Tree Hill
5114	Para Wirra
5132	Paracombe
5121	Penfield
5121	Penfield Gardens
5114	Sampson Flat
5114	Smithfield
5114	Smithfield Plains
5114	Smithfield West
5126	Surrey Downs
5114	Uleybury
5120	Virginia
5118	Willaston
5127	Wynn Vale
5126	Yatala Vale
5114	Yattalunga

Region 16 = North East (10+ kms from the city)

5091	Banksia Park
5110	Bolivar
5109	Brahma Lodge
5110	Burton
5094	Cavan
5110	Direk
5094	Dry Creek
5111	Edinburgh RAAF
5112	Elizabeth
5112	Elizabeth East
5112	Elizabeth Grove
5112	Elizabeth South
5112	Elizabeth Vale
5094	Gepps Cross
5107	Green Fields
5112	Hillbank
5090	Hope Valley
5098	Ingle Farm
5092	Modbury
5092	Modbury Heights
5092	Modbury North
5096	Para Hills
5096	Para Hills West
5093	Para Vista
5107	Parafield
5106	Parafield Airport
5107	Parafield Gardens
5108	Paralowie
5095	Pooraka
5097	Redwood Park
5097	Ridgehaven
5108	Salisbury
5108	Salisbury Downs
5109	Salisbury East
5109	Salisbury East Northbri Avenue
5109	Salisbury Heights
5108	Salisbury North
5108	Salisbury North Whites Road
5109	Salisbury Park
5109	Salisbury Plain
5097	St Agnes
5110	St Kilda
5091	Tea Tree Gully
5095	The Levels
5093	Valley View
5091	Vista
5098	Walkley Heights
5110	Waterloo Corner

Appendices for Chapter 11

Cost drivers per service

Podiatry

* *p value < 0.05* ** *p value < 0.01*

(no model resolution for time >= 120 minutes)

	independent variable	time >= 30 mins	time >= 50 mins	time >= 70 mins	O/S > 1
age in years	0-5	3.1	1.5	1.4	1.2
	6-16	3.6	0.3	0.3	0.4
	17-25	1.4	0.3	0.0	0.0
	26-39	1.1	1.1	1.2	0.8
	40-59	1.9	2.1	1.4	1.1
	60-74	1.3	1.2	0.9	0.6
	75+	1.0	1.0	1.0	1.0
-2 log L		*10.2**	*16.1***	*12.3***	*not sig*
gender	F	0.9	0.9	13.0	1.0
-2 log L		*not sig*	*not sig*	*sig*	*not sig*
referral mechanism	hospital	1.9	4.1	2.6	2.2
	community	0.9	1.4	1.1	1.0
	self	1.0	1.0	1.0	1.0
-2 log L		*7.3**	*15.4***	*6.1**	*not sig*
source of income	**wages**	1.0	1.0	1.0	1.0
	self funding	0.8	0.6	0.7	0.9
	Govt	0.4	0.7	0.9	1.0
-2 log L		*11.6***	*not sig*	*0.7*	*not sig*
chronicity	**acute**	1.0	1.0	1.0	1.0
	sub acute	0.9	2.4	1.8	2.4
	chronic	1.6	3.0	3.1	3.0
-2 log L		*not sig*	*not sig*	*8.5***	*7.4**
country of origin	**English**	1.0	1.0	1.0	1.0
	European	1.3	1.8	2.6	1.9
	African	0.0	0	0.0	0
	Asian	1.6	0	0.0	0
	Sth American	0.0	0	99.0	0
- 2 log L		*9.1**	*17.2***	*21.9***	*19.8***
Classification	**Category C**	1.0	1.0	1.0	1.0
	Category E1	0.5	0.3	0.5	0.7
	Category E2	1.2	0,4	0.6	0.7
- 2 log L		*9.9**	*13.9***	*not sig*	*not sig*
local treatment	none	0.7	0.8	0.6	0.8
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*
OP services	user of	1.7	2.5	3.0	2.9
-2 log L		*not sig*	*10.9***	*10.1***	*9.2***
travel	hospital	0.9	1.8	2.4	2.4
	self prop	5.0	1.3	0.5	1.1
	public	1.4	1.4	0.8	0.8
	other person	1.9	0.9	0.6	0.5
	car, free park	2.2	1.5	1.1	0.9
	car, paid park	1.0	1.0	1.0	1.0
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*
treatment elsewhere	any	0.8	0.7	0.9	1.3
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*
comorbidity	any noted	0.1	0.15	0.9	0.06
-2 log L		*13.3***	*5.5**	*not sig*	*not sig*
communication	difficulties	0.8	1.3	1.7	1.1
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*
hospital location	metro	2.6	4.6	13.0	1.0
-2 log L		*not sig*	*sig*	*sig*	*not sig*

Audiology

	independent variable	time >= 30 minutes	time >= 50 minutes	time >= 70 mins	O/S > 1
age in years	0-5	0.09	0.0	0.0	no model
	6-16	0.12	0.3	0.2	resolution
	17-25	2.4	0.07	0.0	
	26-39	1.4	0.3	0.05	
	40-59	1.4	0.8	0.5	
	60-74	0.9	0.6	0.5	
	75+	1.0	1.0	1.0	
-2 log L		*76.5***	*22.6***		
gender	F	1.3	1.2	1.6	2.4
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*
referral mechanism	hospital	1.0	0.8	no	no model
	community	1.4	2.4	model	resolution
	self	1.0	1.0	resolut ion	
-2 log L		*not sig*	*not sig*		
source of income	**wages**	1.0	1.0	1.0	1.0
	self funding	1.0	1.3	1.5	22.3
	Govt	1.2	1.1	1.2	1.6
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*
chronicity	**acute**	1.0	1.0	1.0	1.0
	sub acute	0.4	2.3	3.1	2.6
	chronic	0.1	1.2	1.1	0.7
-2 log L		*not sig*	*3.9 (0.05)*	*5.1**	*not sig*
country of origin	**English**	1.0	1.0	1.0	1.0
	European	1.6	2.2	3.4	2.3
	African	0.7	4.2	0.0	0.0
	Asian	0.5	0.9	2.2	1.4
	Sth American	0.0	0.0	0.0	0.0
-2 log L		*10.4***	*9.4**	*11.3**	*not sig*
Classification	**Category C**	1.0	1.0	1.0	1.0
	Category E1	1.1	1.3	0.8	0.8
	Category E2	0.7	1.0	1.3	0.0
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*
local treatment	none	2.0	1,3	1.2	0.5
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*
OP services	user of	0.8	0.9	1.0	0.3
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*
travel	hospital	0.05	0.03	0.0	no model
	self prop	1.4	0.8	0.6	resolution
	public	1.7	1.7	2.3	
	other person	1.0	1.4	2.8	
	car, free park	0.8	1.4	2.8	
	car, paid park	1.0	1.0	1.0	
-2 log L		*14.3***	*4.9***	*not sig*	
treatment elsewhere	any	0.07	1.1	0.9	0.7
-2 log L		*18.3***	*not sig*	*not sig*	*not sig*
comorbidity	any noted	n/a			
hospital location	no service in country areas				

Orthotics

	independent variable	time >= 30 minutes	time >= 50 minutes	O/S > 1
age in years	0-5	0.00	no model	no model
	6-16	0.4	resolution	resolution
	17-25	0.13		
	26-39	0.2		
	40-59	0.09		
	60-74	0.4		
	75+	1.0		
-2 log L		*13.3***		
referral mechanism	hospital	0.06		
	community	0.04		
	self	1.0		
-2 log L		*not sig*		
source of income	**wages**	1.0		
	self funding	0.6		
	Govt	2.1		
-2 log L		*not sig*		
chronicity	**acute**	1.0		
	sub acute	4.3		
	chronic	2.3		
-2 log L		*5.2**		
country of origin	**English**	------		
	European	0.8		
	African	------		
	Asian	0.6		
	Sth American	-------		
-2 log L		*not sig*		
Classification	**Category C**	1.0		
	Category E1	0.4		
	Category E2	0.5		
-2 log L		*not sig*		
local treatment	none	0.4		
-2 log L		*4.1***		
OP services	user of	0.6		
-2 log L		*not sig*		
travel	hospital	0.0		
	self prop	0.0		
	public	2.0		
	other person	1.8		
	car, free park	0.7		
	car, paid park	1.0		
-2 log L		*not sig*		
treatment elsewhere	any	0.5		
-2 log L		*not sig*		
comorbidity	any noted	0.4		
-2 log L		*not sig*		
communication	difficulties	n/a		
hospital location	no country services			

Physiotherapy

	independent variable	time >= 30 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
age in years	0-5	0.24	0.2	0.15	0.2	0.05
	6-16	0.39	0.2	0.2	0.3	0.1
	17-25	0.42	0.4	0.4	0.5	0.4
	26-39	0.46	0.3	0.4	0.5	0.4
	40-59	0.72	0.7	0.7	0.9	0.7
	60-74	0.58	0.7	0.8	1.1	0.8
	75+	1.0	1.0	1.0	1.0	1.0
-2 log L		*30.3***	*85.4***	*109.8***	*102.4***	*169.0***
gender	F	0.9	0.89	0.97	1.04	0.9
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
referral mechanism	hospital	1.2	0.9	0.8	0.7	0.9
	community	1.3	1.3	1.1	0.9	1.3
	self	1.0	1.0	1.0	1.0	1.0
-2 log L		*not sig*	*11.8***	*11.8***	*13.3***	*13.6***
source of income	**wages**	1.0	1.0	1.0	.0	1.0
	self funding	0.9	0.9	1.1	0.9	0.9
	Govt	1.3	1.6	1.6	1.6	1.7
-2 log L		*7.6***	*26.7***	*32.5***	*32.9***	*41.8***
chronicity	**acute**	.0	1.0	1.0	1.0	1.0
	sub acute	1.1	1.3	1.3	1.5	1.5
	chronic	0.9	1.1	1.1	0.9	1.0
-2 log L		*not sig*	*not sig*	*not sig*	*10.3***	*8.8***
country of origin	**English**	1.0	1.0	1.0	11.0	1.0
	European	2.3	1.9	2.2	2.1	2.3
	African	2.2	1.4	1.1	0.9	1.3
	Asian	1.3	1.4	1.8	1.2	1.6
	Sth American	0.6	0.6	0.8	0.5	0.8
-2 log L		*27.3***	*28.6***	*46.1***	*45.6***	*46.9***
Classification	**Category C**	1.0	1.0	1.0	1.0	1.0
	Category E1	1.2	1.1	1.1	1.1	1.2
	Category E2	0.9	0.9	0.9	0.9	0.9
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*6.9**
local treatment	none	0.8	1.0	1.1	1.1	1.2
-2 log L		not sig	not sig	not sig	not sig	5.1*
OP services	user of	1.2	1.0	1.1	1.0	1.0
-2 log L		*3.4 0.06*	*not sig*	*not sig*	*not sig*	*not sig*
travel	hospital	1.8	2.5	2.7	1.6	2.6
	self prop	1.3	1.6	1.6	1.2	2.2
	public	2.1	1.9	2.1	1.6	2.2
	other person	1.2	1.2	1.3	1.0	1.3
	car, free park	1.3	1.2	1.1	0.9	1.3
	car, paid park	1.0	1.0	1.0	1.0	1.0
-2 log L		*18.3***	*27.3***	*38.3***	*24.7***	*38.7***
treatment elsewhere	any	1.2	0.9	0.9	0.8	0.9
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
comorbidity	any noted	0.6	0.7	0.6	0.7	0.6
-2 log L		*13.6***	*8.3***	*13.2***	*9,4***	*9.7***
communicn	any difficulties	1.4	1.7	1.5	1.2	1.8
-2 log L		*not sig*	*4.5**	*3.6(0.05)*	*not sig*	*7.1***
hospital location	metro	1.9	1.5	1.8	2.0	0.9
-2 log L		*not sig*	*not sig*	*not sig*	*sig*	*not sig*

Occupational Therapy

	independent variable	time >= 30 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
age in years	0-5	1.0	1.0	1.9	3.1	0.0
	6-16	1.4	1.0	1.1	0.6	0.2
	17-25	0,4	0.3	0.3	0.8	0.4
	26-39	0,7	0.3	0.4	1.2	0.5
	40-59	0,6	0.3	0.5	1.2	0.5
	60-74	1.0	0.5	0.4	1.0	0.5
	75+	1.0	1.0	1.0	1.0	1.0
-2 log L		*not sig*	*not sig*	*11.4**	*not sig*	*14.7**
gender	F	0.87	0.87	0.94	0.85	0.91
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
referral mechanism	hospital	0.9	0.9	0.8	1.0	1.0
	community	0.8	0.9	0.9	1.2	2.0
	self	1.0	1.0	1.0	1.0	1.5
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
source of income	**wages**	1.0	1.0	1.0	1.0	1.0
	self funding	0.5	0.5	0.6	0.5	0.6
	Govt	1.0	1.2	0.9	0.9	0.8
-2 log L		*5.2**	*6.0**	*not sig*	*not sig*	*not sig*
chronicity	**acute**	1.0	1.0	1.0	1.0	1.0
	sub acute	0.8	0.6	0.6	0.6	0.6
	chronic	2.0	1.8	1.4	1.2	0.9
-2 log L		*5.8**	*6.8**	*not sig*	*not sig*	*not sig*
country of origin	**English**	1.0	1.0	1.0	1.0	1.0
	European	1.7	1.6	1.3	1.1	1.6
	African	0.2	0.3	0.4	0.7	0.6
	Asian	2.9	2.2	1.2	1.0	1.1
	Sth American	0.3	0.5	0.8	1.5	1.1
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
Classification	**Category C**	1.0	1.0	1.0	1.0	1.0
	Category E1	0.7	0.7	0.7	0.5	0.4
	Category E2	0.5	0.6	0.6	0.4	0.2
- 2 log L		*not sig*	*not sig*	*not sig*	*8.8**	*21.7**
local treatment	none	1.2	0.9	0.9	0.9	0.7
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
OP services	user of	1.1	1.1	1.2	1.2	1.1
-2 log L		*not sig*	*0.3*	*not sig*	*not sg*	*not sig*
travel	hospital	0	0.0	0.01	0.0	0.0
	self prop	1.2	0.8	0.9	0.7	0.6
	public	1.0	1.3	1.0	1.1	1.3
	other person	0.6	0.8	0.8	0.7	6.7
	car, free park	0.8	0.7	0.5	0.4	0.4
	car, paid park	1.0	1.0	1.0	1.0	1.0
- 2 log L		*not sig*	*not sig*	*not sig*	*14.6**	*15.8**
treatment elsewhere	any	0.9	0.8	0.8	0.7	0.7
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
comorbidity	any noted	0.1	0.2	0.3	0.001	0.3
-2 log L		*4.8**	*3.1**	*not sig*	*4.2**	*not sig*
communication	difficulties	0.06	0.07	0.2	0.2	0.2
-2 log L		*30.4**	*24.8**	*14.0**	*6.4**	*10.3**
hosptial location	metro	18.9	12.1	8.9	27.1	11.9
-2 log L	*sig*	*sig*	*sig*	*sig*	*sig*	*sog*

(Clinical) Nutrition & Dietetics

	independent variable	time >= 30 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
age in years	0-5	0.4	1.5	1.2	0.0	0.0
	6-16	0.06	0.2	0.6	0.0	0.0
	17-25	1.4	0.7	1.7	0.7	1.4
	26-39	1.5	1.77	1.4	0.4	0.8
	40-59	3.2	1.4	1.4	0.5	0.7
	60-74	0.8	0.8	1.2	0.7	0.9
	75+	1.0	11.0	1.0	1.0	1.0
-2 log L		*11.8**	*not sig*	*not sig*	*not sig*	*not sig*
gender	F	1.1	0.86	1.1	1.1	1.3
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
referral mechanism	hospital	1.4	0.7	0.5	0.7	0.9
	community	0.8	1.2	1.7	1.7	2.7
	self	1.0	1.0	1.0	1.0	1.0
-2 log L		*not sig*	*not sig*	*16.6**	*6.6**	*6.6**
source of income	**wages**	1.0	1.0	1.0	1.0	1.0
	self funding	1.3	1,7	1.4	2.7	2.7
	Govt	1.1	1.2	0.9	0.8	0.8
-2 log L		*not sig*	*not sig*	*not sig*	*7.7**	*7.7**
chronicity	**acute**	1.0	1.0	1.0	1.0	1.0
	sub acute	1.0	1.4	1.4	1.1	1.1
	chronic	1.4	1.3	0.9	0.6	0.6
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
country of origin	**English**	1.0	1.0	1.0	1.0	1.0
	European	1.5	0.6	0.7	0.9	0.9
	African					
	Asian	0.3	0.4	0.0	0.0	0.0
	Sth American	0.9	0.9	0.9	0.9	0.9
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
Classification	**Category C**	1.0	1.0	1.0	1.0	1.0
	Category E1	1.3	1.5	1.3	1.7	1.7
	Category E2	0.7	1.6	1.9	3.1	3.1
- 2 log L		*not sig*	*not ssig*	*not sig*	*5.2**	*5.2**
local treatment	none	0.9	1.1	1.5	1.4	1.4
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
OP services	user of	1.6	0.5	0.3	0.9	0.9
-2 log L		*not sig*	*5.0**	*11.5**	*not sig*	*not sig*
travel	hospital	0.9	0.8	o.o	0.0	0.0
	self prop	1.7	2.2	2.2	0.7	0.7
	public	1.4	0.9	0.9	0.9	0.9
	other person	1.8	1.9	2.02	1.7	1.7
	car, free park	3.0	4.5	3.9	3.7	3.7
	car, paid park	1.0	1.0	1.0	1.0	1.0
- 2 log L		*not sig*	*16.6**	*19.5**	*13.5**	*13.5**
treatment elsewhere	any	4.2	1.7	1.1	1.7	1.7
- 2 log L		*8.5**	*3.2**	*not sig*	*not sig*	*not sig*
comorbidity	any noted	0.1	0.3	0.8	1.1	1.1
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
communication	difficulties	0.09	0.4	0.9	3.8	3.8
-2 log L		*4.5**	*not sig*	*not sig*	*not sig*	*not sig*
hospital location	metro/country	0.28	0.08	0.12	0.24	0.29
-2 log L		*sig*	*sig*	*sig*	*sig*	*sig*

Social Work

	independent variable	time >= 30 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
age in years	0-5	no model resolution	no model resolution	no model resolution	no model resolution	0.9
	6-16					1.0
	17-25					0.9
	26-39					0.9
	40-59					1.0
	60-74					1.0
	75+					
-2 log L						*not sig*
gender	F	5.1	3.7	2.7	0.6	0.6
-2 log L		*sig*	*sig*	*not sig*	*not sig*	*not sig*
referral mechanism	hospital	0.4	0.4	0.6	0.6	1.5
	community	0.8	0,9	0.9	0.2	0.3
	self	1.0	1.0	1.0	1.0	1.0
-2 log L		*11.1**	*13.6**	*not sig*	*6.7**	*not sig*
source of income	**wages**	1.0	1.0	1.0	1.0	1.0
	self funding	0.8	1.1	1.2	1.1	0.3
	Govt	0.7	0.7	0.8	1.6	0.9
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
chronicity	**acute**	1.0	1.0	1.0	1.0	1.0
	sub acute	0.5	0.4	0.5	4.3	5.1
	chronic	0.3	0.2	0.5	2.5	3.1
-2 log L		*20.2**	*34.5**	*6.4**	*4.7**	*not sig*
country of origin	**English**	1.0	1.0	1.0	1.0	1.0
	European	2.1	1.9	0.6	0.0	0.0
	African	0.9	0.9	3.9	8.2	0.0
	Asian	0.8	0.9	1.1	0.0	1.7
	Sth American	1.5	1.9	2.6	10.9	0.0
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
Classification	**Category C**	1.0	1.0	1.0	1.0	1.0
	Category E1	0.4	0.4	0.8	2.1	1.9
	Category E2	1.3	1.0	1.6	0.0	1.6
- 2 log L		*24.3**	*17.6**	*not sig*	*5.2**	*not sig*
local treatment	none	0.6	0.6	0.8	4.8	1.4
- 2 log L		*7.8**	*not sig*	*not sig*	*9.6**	*not sig*
OP services	user of	0.8	0.8	0.9	2.2	2.6
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
travel	hospital	0.2	0.2	0.6		0.0
	self prop	1.0	1.2	0.4		0.0
	public	1.2	1.2	1.2		0.6
	other person	1.6	1.2	0.9		0.5
	car, free park	1.9	1.7	1.4		0.9
	car, paid park	1.0	1.0	1.0		1.0
- 2 log L		*15.3**	*10.1**	*not sig*		*not sig*
treatment elsewhere	any	1.4	1.6	1.3	99.9	1.8
- 2 log L		*not sig*	*4.7**	*not sig*	*not sig*	*not sig*
comorbidity	any noted	0.2	0.14	0.3	0.4	0.7
-2 log L		*69.8**	*56.3**	*14.9**	*not sig*	*not sig*
communication	difficulties	0.04	0.06	0.2	3.7	0.0
-2 log L		*32.1**	*22.5**	*4.6*	*not sig*	*not sig*
hospital location	metro	no model resolution				

Speech Pathology

	independent variable	time >= 30 mins	time >= 50 mins	time >= 70 mins	time >= 120 mins	O/S > 1
age in years	0-5	no model	no model	0.1	0.1	0.0
	6-16	resolution	resolution	0.04	0.2	0.0
	17-25			0.4	1.3	0.2
	26-39			0.4	1.1	0.3
	40-59			0.3	1.1	0.4
	60-74			0.4	0.8	0.3
	75+			1.0	1.0	1.0
-2 log L				*20.9**	*26.0**	*59.5**
gender	F	0.7	1.03	1.04	1.1	0.9
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
referral mechanism	hospital	0.4	11.8	0.9	0.7	0.7
	community	0.4	1.7	0.9	0.9	0.8
	self	1.0	1.0	1.0	1.0	1.0
-2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
source of income	**wages**	1.0	1.0	1.0	1.0	1.0
	self funding	2.1	1.0	1.2	1.1	0.6
	Govt	3.0	3.1	2.1	1.7	2.2
-2 log L		*5.8**	*8.2**	*4.8**	*not sig*	*11.5**
chronicity	**acute**	1.0	1.0	1.0	1.0	1.0
	sub acute	2.4	5.1	1.8	1.2	0.9
	chronic	1.2	1.6	1.1	0.9	0.9
-2 log L		*not sig*	*9.0**	*not sig*	*not sig*	*not sig*
country of origin	**English**	1.0	1.0	1.0	1.0	1.0
	European	5.5	2.9	2.2	1.9	2.7
	African	0.9	0.9	0.9	0.9	0.9
	Asian	0.9	0.9	0.9	0.9	4.6
	Sth American					
- 2 log L		*6.9**	*7.7**	*9.1**	*13.3**	*14.3*
Classification	**Category C**	1.0	1.0	1.0	1.0	1.0
	Category E1	0.9	0.9	1.1	1.3	0.7
	Category E2	1.2	0.9	0.6	0.8	0.5
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
local treatment	none	0.9	1.1			0.9
- 2 log L		*not sig*	*not sig*			*not sig*
OP services	user of	1.6	2.1			0.8
-2 log L		*not sig*	*3.5**			*not sig*
travel	hospital	0.24	0.3	1.0	1.0	1.0
	self prop	0.4	0.5	0.8	2.0	3.3
	public	2.5	2.3	2.7	1.7	1.7
	other person	0.7	0.5	1.1	2.4	2.9
	car, free park	0.5	0.3	0.8	1.2	2.2
	car, paid park	1.0	1.0	1.0	0.5	0.5
- 2 log L		*not sig*	*15.1**	*not sig*	*13.9*	*22.4**
treatment elsewhere	any	1.1	0.8	0.8	0.7	0.8
- 2 log L		*not sig*	*not sig*	*not sig*	*not sig*	*not sig*
comorbidity	any noted	0.001	0.00	0.00	0.000	0.000
-2 log L		*4.0**	*not sig*	*not sig*	*not sig*	*not sig*
communication	difficulties					
-2 log L						
hospital location	metro	13.4	6.0	6.5	4.9	1.0
-2 log L		*sig*	*sig*	*sig*	*sig*	*sig*