

Cross Border Flow over the ACT/NSW Border – a State of Origin Study into Emergency and Outpatient Services

Including Supplement

**Centre for Health Service Development
University of Wollongong**

January 2000

Cross Border Flow over the ACT/NSW Border – a
State of Origin Study into Emergency and
Outpatient Services

Robert Gordon

Janette Green

Kathy Eagar

**Centre for Health Service Development
University of Wollongong
January 2000**

Table of Contents

EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
2. PROJECT OVERVIEW	1
3. SCOPE OF THE DATA COLLECTION/SELECTION OF SITES AND SERVICES	2
3.1 ACT SERVICES	2
3.2 NSW SERVICES	3
4. STUDY METHODOLOGY	5
4.1 EMERGENCY DEPARTMENT SERVICES	5
4.2 OUTPATIENT DEPARTMENT SERVICES	6
4.3 DATA QUALITY	6
5 RESULTS	8
5.1 EMERGENCY SERVICES	8
5.1.1 USAGE OF ACT EMERGENCY DEPARTMENTS	8
5.1.2 USAGE OF SOUTHERN AREA HEALTH SERVICE EMERGENCY DEPARTMENTS	14
5.1.3 SEASONAL FLUCTUATIONS IN USAGE OF EMERGENCY DEPARTMENTS	22
5.1.4 ESTIMATED COSTS – ACCIDENT AND EMERGENCY DEPARTMENTS	24
5.1.4.1 Non-Admitted Emergency Department Patients	27
5.2 OUTPATIENT SERVICES	29
5.2.1 USAGE OF ACT OUTPATIENT SERVICES	29
5.2.1.1 Privately Referred Outpatients	32
5.2.2 USAGE OF NSW OUTPATIENT SERVICES	32
5.3 ESTIMATED NET COST OF PATIENT FLOW	33
6 DISCUSSION AND RECOMMENDATIONS	35
6.1 METHODOLOGY	37
6.2 DATA ITEMS AND QUALITY	37
6.3 SCOPE	38
6.4 APPROPRIATENESS OF SERVICE DELIVERY	38
APPENDIX 1 LIST OF STUDY HOSPITALS	40
APPENDIX 2 URGENCY DISPOSITION AGE GROUP (UDAG) CLASSES	41
APPENDIX 3 QUEENSLAND AMBULATORY CLASSIFICATION SYSTEM (QACS) CLASSES	42
SUPPLEMENTARY ANALYSIS 1	
INVESTIGATING PRICES OF OUTPATIENT PRESENTATIONS	43
APPENDIX S1	47
SUPPLEMENTARY ANALYSIS 2	
APPLYING A VARIETY OF QACS PRICES TO THE DATA	48
APPENDIX S2	52

List of Tables

Table 1	1998 ACT emergency department presentations by site.....	8
Table 2	1998 ACT emergency department presentations by gender and region of residence	9
Table 3	1998 ACT emergency department presentations by average age, gender and region of residence..	9
Table 4	1998 ACT emergency department presentations by region of residence and age group	9
Table 5	1998 ACT emergency department presentations by region of residence and Aboriginality.....	10
Table 6	1998 ACT emergency department presentations by region of residence and triage category	10
Table 7	1998 ACT emergency department presentations by percentage of patients by triage category from each region of residence	10
Table 8	1998 ACT emergency department presentations - average age by region of residence and triage category	11
Table 9	1998 ACT emergency department presentations by region of residence and departure status	12
Table 10	1998 ACT emergency department presentations - percentage of patients by residential region by departure status category.....	12
Table 11	1998 ACT emergency department presentations by average age of patients by region of residence and departure status	12
Table 12	1998 ACT emergency department presentations - number of patients by triage category and departure status.....	13
Table 13	1998 ACT emergency department presentations - departure status as a percentage of triage category	13
Table 14	1998 ACT emergency department presentations - triage category as a percentage of departure status groups	14
Table 15	1998 SAHS emergency department presentations	15
Table 16	1998 SAHS emergency department presentations by gender and region of residence	15
Table 17	1998 SAHS emergency department presentations by average age, gender and region of residence	15
Table 18	1998 SAHS emergency department presentations by region of residence and age group	16
Table 19	1998 SAHS emergency department presentations by region of residence and Aboriginality.....	16
Table 20	1998 SAHS emergency department presentations by region of residence and triage category...	17
Table 21	1998 SAHS emergency department presentations by percentage of patients from each region of residence in each triage category.....	17
Table 22	1998 SAHS emergency department presentations – average age by region of residence and triage category.....	17
Table 23	1998 SAHS emergency department presentations by region of residence and departure status .	18
Table 24	1998 SAHS emergency department presentations - percentage of patients from residential region by departure status category.....	18
Table 25	1998 SAHS emergency department presentations by average age of patients by region of residence and departure status	19
Table 26	1998 SAHS emergency department presentations by triage category and departure status	19
Table 27	1998 SAHS emergency department presentations - departure status as a percentage of triage category	20
Table 28	1998 SAHS emergency department presentations - triage category as a percentage of departure status groups	20
Table 29	1998 SAHS emergency department presentations - number and proportion of patients by visit type.....	21
Table 30	1998 SAHS emergency department presentations - number of patients by visit type and referral source.....	21
Table 31	1998 SAHS emergency department presentations - percentage of patients by source of referral for each visit type.....	22
Table 32	Occasions of service in SAHS and ACT not able to have a cost assigned by region of residence	24
Table 33	1998 ACT emergency department presentations - frequency and estimated cost of patients by region of residence	24
Table 34	Frequency and estimated cost of patients using SAHS emergency departments for all visit types during 1998 by region of residence	25
Table 35	Frequency and estimated cost of patients using SAHS emergency departments for emergency visit types during 1998 by region of residence	25
Table 36	Patients using emergency departments during 1998 by region of residence and area of treatment	26

Table 37 Cost of all patients using emergency departments during 1998 by region of residence and area of treatment.....	26
Table 38 The number of emergency patients using emergency departments during 1998 by region of residence and area of treatment (excludes some outpatient-type visits).....	26
Table 39 The cost of emergency patients using emergency departments during 1998 by region of residence and area of treatment (outpatient-type visits excluded).....	27
Table 40 1998 ACT emergency department presentations who were not admitted - frequency and estimated cost of patients by region of residence	27
Table 41 1998 frequency and estimated cost of patients using SAHS emergency departments for non-admitted emergency visit types by region of residence	28
Table 42 The number of non-admitted emergency patients using emergency departments during 1998 by region of residence and area of treatment (excludes some outpatient-type visits).....	28
Table 43 The cost of non-admitted emergency patients using emergency departments during 1998 by region of residence and area of treatment (outpatient-type visits excluded)	28
Table 44 Number of occasions of service in ACT outpatient units during 1998.....	30
Table 45 Frequency and estimated cost of outpatient presentations at ACT hospitals during 1998 by region of residence	31
Table 46 Distribution of Non-ACT Outpatient Costs	31
Table 47 Distribution of Non-ACT Outpatient Costs adjusted for patients referred by private medical practice	32
Table 48 Number of patients presenting at SAHS emergency departments by region of residence	32
Table 49 Estimated cost of patients presenting for outpatient services at SAHS by region of residence	33
Table 50 The bottom line	33
Table 51 The bottom line using data adjusted for source of referral	34
Table 52 The bottom line excluding emergency patients who were subsequently admitted.....	34
Table 53 The bottom line using data adjusted for source of referral and excluding emergency patients who were subsequently admitted.....	34
Table 54 Total costs of ambulatory care reported in the study.....	35

List of Figures

Figure 1- Number of Attendances per Week at ACT Emergency Departments during 1998 by Region of Residence.....	23
Figure 2- Number of Attendances per Week at Southern Area NSW Emergency Departments during 1998 by Region of Residence	23
Figure 3- Cost of All Ambulatory Services by Region of Residence	36

Acknowledgements

The Centre for Health Service Development would like to thank the many individuals who contributed to this project. In particular, we would like to express our appreciation to:

- Ms Liz Treglown and Ms Janette McDonnell from the ACT Department of Health and Community Care for support and assistance throughout the project.
- Ms Janette Farelly and Mr David Dowling from Calvary Hospital and Ms Judy Redmond and Ms Helen McNeil from The Canberra Hospital for their invaluable assistance in compiling data from the ACT hospitals.
- Ms Robyn Ballis and Ms Leone Coolihan from the Southern Area Health Service for the understanding and continued assistance in co-ordinating the extraction of data from the 15 NSW hospitals.
- Ms Susan Miris for assistance in the analysis of costs contained in the QACS study database.
- The staff from each of the 15 NSW hospitals who willingly gave up their time to assist the project team in obtaining the data that allowed this study to be completed. Although too numerous to mention individually, the project could not have been conducted without their enthusiasm and commitment.

Executive Summary

This report presents the findings of a study commissioned jointly by the ACT Department of Health and Community Care and the NSW Department of Health. The study was conducted by the Centre for Health Service Development, University of Wollongong between March 1999 and June 1999. The primary objective of the study was to provide an independent analysis of cross border emergency and outpatient services undertaken between the ACT and NSW.

The study captured data on emergency and outpatient services in the ACT and from those NSW hospitals most likely to treat ACT residents. Data were collected on 1998 calendar year activity from two hospitals in the ACT and 15 hospitals in NSW.

Community and admitted patient services were excluded from the current study. Data on admitted patient services are readily available and are already used to inform cross-border payments between the two jurisdictions. Data on community health activity are not currently collected in a way that would allow for an analysis of cross-border flow. A prospective data collection would be required to understand the flow patterns for community health. Such a study is under consideration by the two jurisdictions.

The selection of hospitals was based on the likelihood of emergency and/or outpatient services being provided to residents of the other jurisdiction. Having selected individual hospitals, it was then necessary to identify the range of emergency and outpatient services provided at each site.

In total, \$36 million of ambulatory hospital-based care was costed in the study. Approximately, 72% was provided by the ACT and 28% by the SAHS. Nearly two-thirds of the total costs are in emergency department services and one-third in outpatient services. For the ACT, the split is almost 50:50.

The study results show that there is an imbalance of flow between the ACT and NSW for ambulatory hospital services. The net effect is that NSW residents utilise an estimated \$2,996,043 of ambulatory services in the ACT each year. Summary results are shown below:

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$345,693	
Other NSW Residents Using ED Services	\$359,139		
SAHS Residents Using ED Services	\$964,813		
ACT Residents Using Outpatient Services		\$5,144	
Other NSW Residents Using Outpatient Services	\$581,054		
SAHS Residents Using Outpatient Services	\$1,441,874		
Total	\$3,346,880	\$350,837	\$2,996,043

The results section of the report includes a number of caveats on the figures shown above. They include the use of estimates in some cases, the omission of certain data. (Specifically, the cost of services to ACT residents treated outside the SAHS and the cost of patients treated in SAHS Outpatient Clinics are excluded. The above figures include outpatient-type work delivered in emergency departments in the SAHS but not work delivered in outpatient clinics).

Both the study methodology and the study results have implications for future negotiations between the two jurisdictions and for the refinement of current data collections. In the final section of the report we make recommendations with respect to 4 issues – methodology; data items and quality; scope; and appropriateness of service delivery.

The recommendations included in the report are that:

1. The use of routine data collections be the agreed methodology for paying for non-admitted patient services for interstate residents.
2. The analysis reported here be replicated each twelve months in sufficient time to inform the negotiations between the parties. Once the methodology is agreed and understood, it should be possible for the whole analysis to be undertaken 'in-house' by either or both jurisdictions.
3. The Queensland Ambulatory Classification System (QACS) classification and prices be used as the agreed methodology for paying for outpatient services for interstate residents until such time as a system is developed that is assessed as being better than the QACS system.
4. The Urgency, Disposition and Age Groups (UDAGS) classification and prices be used as the agreed methodology for paying for non-admitted patient services for interstate residents until such time as a system is developed that is assessed as being better than the UDAGS system.
5. Both the ACT and NSW begin to routinely use the information that is already collected. The cost of routinely collecting data is significant and these costs can only be justified if the data are used to inform tasks such as service planning, evaluation, contracting and benchmarking. The data reported in this study provide useful examples of the type of information which is routinely collected and show the type of data that could be routinely extracted. The use of routine data, including the provision of timely feedback to those who collect it, is the single most important strategy to improve data quality.
6. Both jurisdictions include their requirements in relation to ambulatory data in their contracts/service agreements with the relevant hospitals.
7. The SAHS provide training and then audit the data being collected in its emergency department information system. A specific issue here is data quality, an issue that was raised by several hospitals themselves.
8. The ACT change its current outpatient systems to separately identify NSW residents.
9. The ACT change its current outpatient systems so that it can collect accurate information on privately charged outpatient visits. This includes privately referred patients, DVA cardholders and other chargeable patients.
10. NSW either establish an outpatients collection at the larger hospitals in the SAHS or extend the current emergency department collection so that it is also used to collect outpatient data. The volume of work at the small hospitals does not warrant such a system.
11. NSW decide whether it wishes to collect data about ACT residents receiving ambulatory care in areas beyond the SAHS. If so, it will need to establish routine systems for the required data to be collected.
12. Consideration be given to undertaking a *prospective* study of patterns of community health care along the lines of "The State of Origin" study (Centre for Health Service Development, 1997) and the study on "Measuring and Classifying Primary and Extended Care Services in the Northern Rivers" (Centre for Health Service Development, 1999)
13. Until such time as a methodology is developed to measure and cost community health services, allied health services currently provided in ACT hospitals be classified as outpatient services whether or not they are managed by ACT Community Care.

-
14. The ACT and NSW agree on a methodology to review the appropriateness of the ambulatory services being provided, with a particular focus on outpatient and outreach services. Future ambulatory service provision for NSW residents in the ACT should be based on joint planning between the two jurisdictions.

1. Introduction

This report presents the findings of a study commissioned jointly by the ACT Department of Health and Community Care and the NSW Department of Health. The study was conducted by the Centre for Health Service Development, University of Wollongong between March 1999 and June 1999. The primary objective of the study was to provide an independent analysis of cross border emergency and outpatient services undertaken between the ACT and NSW.

The study captured data on emergency and outpatient services in the ACT and from those NSW hospitals most likely to treat ACT residents. Data were collected on 1998 calendar year activity from two hospitals in the ACT and 15 hospitals in NSW.

It is expected that the major use of the study results will be to inform the negotiation process between the ACT and NSW on cross-border flow funding arrangements. The methodology developed for the data collection and analysis recognised this as the principle objective of the study. It was also recognised that the study would provide useful information that would lead to an improved overall understanding of the structure and delivery of emergency and outpatient services. In compiling the results contained in this report, we have also attempted to fulfil this secondary objective.

Arrangements for funding of cross-border emergency and outpatient activity between the ACT and NSW have been in place for some years. The 1998/99 cross-border agreement allows for NSW to pay ACT \$1.4 million for outpatient services and \$0.6 million for emergency department services. In addition, the ACT bills privately referred patients directly to the Health Insurance Commission.

2. Project Overview

The major tasks undertaken during the course of this study can be summarised as follows:

- ❑ Conduct initial consultation with key stakeholders including the ACT Health Department, the NSW Health Department, the Southern Area Health Service and potential participant hospitals;
- ❑ Development of a conceptual framework for the study including a list of agreed project deliverables;
- ❑ Recruitment of participating hospitals;
- ❑ Review of existing information systems to identify the capacity to utilise routinely collected data;
- ❑ Collection of 1998 calendar year emergency and outpatient services data from all participating hospitals;
- ❑ Development of a database to undertake quality checks of data and compile data for analysis purposes;
- ❑ Generation of reports describing the utilisation of emergency and outpatient services across the catchment area;
- ❑ Development of a set of recommendations regarding cross-border funding arrangements; and
- ❑ Presentation of final report to project sponsors.

3. Scope of the Data Collection/Selection of Sites and Services

The overall scope of this study was agreed by the project sponsors to include hospitals in each jurisdiction that provide emergency and/or outpatient services. Community and admitted patient services were excluded from the current study. Data on admitted patient services are readily available and are already used to inform cross-border payments between the two jurisdictions. Data on community health activity are not currently collected in a way that would allow for an analysis of cross-border flow. A prospective data collection would be required to understand the flow patterns for community health. Such a study is under consideration by the two jurisdictions.

The selection of hospitals was based on the likelihood of emergency and/or outpatient services being provided to residents of the other jurisdiction. Having selected individual hospitals, it was then necessary to identify the range of emergency and outpatient services provided at each site.

3.1 ACT Services

The selection of hospitals in the ACT was straightforward. The Canberra Hospital and Calvary Hospital are the only providers of outpatient and emergency services in the ACT. All outpatient and emergency services provided at these sites were therefore included as potentially in scope. It was then necessary, however, to assess the availability of data from individual areas within each hospital.

For emergency department services, the data capture process was straightforward. Each hospital provides emergency services in a designated department and routinely records data in an electronic information system. The data collection process was therefore able to include all patients treated in emergency departments in the ACT at each site during the 1998 calendar year. The recommendations contained in the discussion section of this report presume that the current level of data collection will continue.

For outpatient services, the objective was to collect utilisation data on occasions of service provided in all outpatient clinics. The recording of outpatient clinic data does not however, currently occur consistently across ACT sites, or in some cases, between clinics within sites. Our consultations with hospital staff suggest that at The Canberra Hospital this is due primarily to the incremental implementation of new information systems across the wide range of outpatient clinics that operate. At Calvary Hospital, it is largely a function of the limited range of outpatient services that are provided.

It was agreed that all available outpatient data would be obtained from each site and included in the data analysis for the purposes of this study. Where particular data items were not available, informed judgements were made about the assignment to appropriate clinical classes. A description of the steps taken in the data analysis is provided in Section 5.2.1. The routine availability of outpatient data will need to be addressed in developing data collection protocols for use in calculating cross-border funding levels. This issue is raised in the discussion in Section 6 as it has particular ramifications for identifying privately referred outpatient activity billed to the Health Insurance Commission.

3.2 NSW Services

The selection of sites in NSW required the identification of hospitals most likely to provide emergency and outpatient services to ACT residents. It was recognised that whilst any NSW hospital could potentially treat a resident of the ACT, it would not be cost effective to undertake even a cursory investigation of data across all NSW hospitals.

An alternative approach was agreed upon, whereby the study was limited to hospitals located geographically near the ACT and, in particular, those hospitals within the Southern Area Health Service (SAHS). On this basis, a total of 15 NSW hospitals were selected ranging in size from 20 to 100 beds. The majority of the hospitals have between 20 and 30 beds. A complete list of study sites is provided in Appendix 1.

Two areas of activity have not been captured as a result of the decision to limit the study to hospitals in the SAHS. The first is emergency services provided in NSW hospitals outside the SAHS. It is difficult to estimate the extent of this type of cross-border activity, although experience suggests that it is likely to be limited to holiday travellers and a small quantity of emergency transfers to Sydney. The second is outpatient services provided in NSW hospitals outside the SAHS, most of which are probably pre and post admission outpatient services provided to ACT residents receiving super-specialty inpatient services in Sydney. Again, it is difficult to estimate the materiality of this omission. However, as an indication, only 486 ACT patients were admitted to Sydney hospitals in 1996 for tertiary level care. Nevertheless, these patients represented 2,074 cost weighed separations, indicating the complexity of the super-speciality services they received.

Having identified the 15 NSW hospitals to include in the study, SAHS and hospital staff were consulted to ascertain the type of data that were available on emergency and outpatient services. All but one of the 15 selected hospitals operate emergency departments and record details of each presentation in an information system known as Epi Info/ EDIS. The remaining site records emergency department data in an information system known as HAS/ EDIS. The data collection process was therefore able to include all patients treated in the emergency department at each site during the 1998 calendar year.

Outpatient services at the NSW hospitals are generally not provided in formal outpatient clinic settings. In a small number of cases, sites advised that outpatient clinics are conducted by visiting medical or allied health staff on either a monthly or quarterly basis. Unfortunately, data on these services are not routinely captured in an electronic format. It was not therefore possible to include them in the data analysis. As the volume of patients treated in these clinics is low, we believe that their omission will not have a significant impact on the results of the study. It will, however, require consideration in developing data collection protocols to be used in calculating cross-border funding levels in the future.

A final issue regarding outpatient data collected from the NSW sites is raised here and discussed further in Section 5.1.2. The Epi Info/ EDIS system has a facility to record a 'visit type' for each emergency department presentation. Several of the visit type codes refer to outpatient type services. For example, visit type codes exist for 'outpatient/clinic', 'return visit planned' and 'privately referred/ non-admitted'. Sites routinely assign these codes against patients treated within the emergency department.

For the purposes of the data analysis reported here, two sets of results have been generated. The first treats presentations with an outpatient visit type as an emergency department presentation, assigns them to a UDAG class and attaches the corresponding dollar amount. The second set of results excludes these presentations from the emergency department data analysis and includes them in the results reported for outpatient services. Determining cross-border service prices will depend on whether emergency department presentations with outpatient visit types are to be treated as outpatient or emergency services. We recommend that, although they occur in emergency departments, they be classified as outpatient visits for the purposes of calculating cross-border payments.

4. Study Methodology

The primary objective of this study was to analyse cross-border emergency and outpatient services between the ACT and NSW for the purpose of informing cross-border funding negotiations. To achieve this objective, it was necessary to develop a methodology that would effectively serve two purposes.

Firstly, it was important to obtain sufficient data to allow an analysis of current cross-border service utilisation patterns. Secondly, it was necessary to ensure that the data collected would provide a basis for developing proposals on future cross-border funding arrangements.

The approach used has been to collect retrospective utilisation data from the 1998 calendar year from hospitals most likely to provide cross-border services. The data have been compiled in a database that allows a detailed description of the demographic and clinical character of current cross-border services. Each outpatient occasion of service and emergency department presentation has then been assigned to a class using existing casemix classifications of outpatient and emergency services. The classes within each casemix system include an indicative cost for each class.

Finally, the combination of utilisation data and casemix data have been analysed to produce a series of estimates of the cost of cross-border services. These estimates provide a starting point to address critical cross-border funding issues such as variations in current data collection practices and differences in data item definitions within and between jurisdictions.

The remainder of this section provides a description of the method used to compile the data sources for emergency and outpatient department services respectively.

4.1 Emergency Department Services

As noted, all participating hospitals provided data on all emergency department presentations in 1998. The two ACT sites routinely record emergency department utilisation data in an electronic information system. The 15 NSW sites routinely record emergency department data in the EDIS system, stored in either the Epi Info or the HAS information systems.

A key aim of the data analysis was to produce estimates of the financial implications of cross-border services. This required costs to be determined at the level of the individual patient. Emergency department costing data are not routinely collected at the patient level at any of the participating sites. In order to estimate costs, emergency department presentations were grouped using the 'Urgency, Disposition, Age Group' (UDAGs) classification system. The data items required for grouping to UDAG classes are all routinely recorded in the information systems maintained in both the ACT and NSW.

The UDAG classification assigns patients to groups based on urgency (triage rating), disposition (admitted or discharged) and age (up to four age groups) and contains 32 classes. The use of the UDAG classification allowed patients to be grouped consistently as well as providing an indicative cost for each patient attendance. The UDAG costs include not only direct emergency department costs, but also overheads, pathology, imaging and pharmacy costs and are based on studies in South Australia. A complete list of UDAG classes and their respective costs is included at Appendix 2. Two of the variables required to assign an emergency department visit to a UDAG class are robust – age and disposition – and there is no need to assess the consistency of clinical definitions and interpretations across sites for these items.

The data item 'triage category' could potentially be interpreted differently across sites, particularly given the considerable variation in hospital size between jurisdictions. However, triage rating is a nationally accepted measure in use in emergency departments across Australia and it is beyond the scope of this study to assess differences in its application. Studies conducted elsewhere suggest that it is robust enough for the current purpose.

Having assigned each emergency department presentation from each hospital to a UDAG class, the cost was calculated by the use of standard UDAG cost weights. The costs used are shown in Appendix 2. Occasions of service were then grouped according to the patient's region of residence. Thus the costs of treating residents from the various regions could be estimated. Of course, all the ACT data were collected, so that an accurate picture of the treatment of non-ACT residents within ACT emergency departments could be obtained. However, as already discussed, NSW data were restricted to the Southern Area Health Service, thus preventing a complete picture of the treatment of ACT residents in NSW hospital emergency departments.

4.2 Outpatient Department Services

The collection and analysis of outpatient data was limited to the two ACT hospitals. As was the case with emergency department services, information on the cost of providing outpatient services is not routinely collected at the patient level at either site. In order to estimate costs for these services, outpatient occasions of service were grouped using the Queensland Ambulatory Classification System (QACS).

The QACS classification contains 69 classes for individual consultations and 8 classes for group consultations. Patients are assigned to classes based on clinic type and in some cases, age and whether it is a new or repeat visit. Costs for each QACS class, updated in 1998/99, were applied. The use of the QACS system allows patients to be grouped consistently as well as providing an indicative cost for each occasion of service. The cost of each class includes imaging, pathology, pharmacy and overhead costs. A complete list of the QACS classes and their respective costs is included at Appendix 3.

As noted, the data items required for grouping to QACS classes are not all routinely recorded in information systems used at the study sites. Whilst it was possible to assign a clinic type for all patients in the ACT hospitals, details on age and new/repeat visit were not always available. Details of the steps taken to assign ACT occasion of service data to QACS classes are provided in Section 5.2.1. A different approach was required for the NSW data, the details of which are included in Sections 5.1.2 and 5.2.2.

4.3 Data Quality

All data analysed in this study were collected retrospectively from existing information systems. This largely precluded the possibility of capturing specific information of interest to the two jurisdictions. Instead, the approach used was to make best use of the available data, subject to any caveats about the quality of the routine data.

Staff from participating sites were consulted to ascertain their level of confidence in the data supplied. Two issues are worth highlighting. Firstly, there are few inbuilt data integrity checks in the Epi Info/ EDIS system to prevent the entering of incorrect values in any of the data fields. This allows the possibility of inconsistencies in the data recorded to remain undetected. Secondly, some inconsistencies were evident between the raw data and the summary level data from the Medilinc system at The Canberra Hospital.

It is our view that the overall quality of the data provided is reliable and can be used confidently in the analysis process reported here. If the data recorded in the Epi Info/ EDIS system are to be used routinely as the basis for calculating cross-border services, it would be advisable to undertake routine training and quality audits of the data recorded in the Epi Info/ EDIS system.

5. Results

This section separately presents the results of the analysis for emergency and outpatient services. In each section, patients are reported against one of five residential groups, namely:

- ACT;
- Southern Area Health Service (SAHS);
- Other NSW;
- Other Australian State; and
- Overseas/ Unknown.

5.1 Emergency Services

5.1.1 Usage of ACT Emergency Departments

The data sets from the two ACT sites have been merged for the purposes of the data analysis. The following tables provide characteristics of patients who presented for emergency treatment in the ACT.

Table 1 presents details of the number of patients treated in each of the hospitals. It includes for each hospital the percentage breakdown of the region of residence of patients. It can be seen that more than 85% of the patients at each emergency department are ACT residents. Of the NSW residents using ACT emergency services, three-quarters present at the Canberra Hospital (TCH) and one-quarter at Calvary Hospital. Of those NSW residents treated at Calvary, 62% live within the boundaries of the Southern Area Health Service. The equivalent figure is 75% for TCH. When the two data sets are combined, 9.4% of emergency department patients reside in NSW.

Table 1 1998 ACT emergency department presentations by site

Region of Residence	Calvary		TCH		Total	
ACT	28953	91.2%	41432	86.2%	70385	88.2%
Other Australian State	650	2.1%	782	1.6%	1432	1.8%
Other NSW	723	2.3%	1432	3.0%	2155	2.7%
SAHS	1187	3.7%	4167	8.7%	5354	6.7%
Unknown/Overseas	227	0.7%	248	0.5%	475	0.6%
Total	31740	100.0%	48061	100.0%	79801	100.0%

From Table 2 it can be seen that more males than females made use of these two ACT emergency departments. On average, females were older than males (Table 3). Both of these relationships hold for all regions of residence. It should be noted that missing values for gender have not been reported. These only occurred amongst the group whose address was unknown or overseas. This has resulted in a different total number of patients in these tables.

Table 2 1998 ACT emergency department presentations by gender and region of residence

Region of Residence	Male	Female	Total
ACT	36956	33429	70385
Other Australian State	759	673	1432
Other NSW	1160	995	2155
SAHS	3063	2291	5354
Unknown/Overseas	237	205	442
Total	42175	37593	79768

Table 3 1998 ACT emergency department presentations by average age, gender and region of residence

Region of Residence	Male	Female	All
ACT	30.5	33.6	31.9
Other Australian State	32.1	35.1	33.5
Other NSW	34.3	38.8	36.4
SAHS	33.7	36.1	34.7
Unknown/Overseas	35.8	39.0	37.3
Overall Average Age	30.9	33.9	32.3

In Table 4, more detailed information regarding the ages of patients from the different regions is presented. The percentages in each age group have been calculated for all regions of residence. It can be seen that there is a larger proportion of young people from all regions.

Table 4 1998 ACT emergency department presentations by region of residence and age group

Age	ACT		Other Aust State		Other NSW		SAHS		Unknown/Overseas		Total
0-4	8293	12%	116	8%	173	8%	652	12%	22	5%	9256
5-9	4428	6%	65	5%	90	4%	301	6%	13	3%	4897
10-14	4865	7%	174	12%	154	7%	336	6%	17	4%	5546
15-19	6792	10%	154	11%	180	8%	413	8%	49	10%	7588
20-24	7229	10%	117	8%	249	12%	418	8%	61	13%	8074
25-29	6201	9%	124	9%	203	9%	390	7%	44	9%	6962
30-34	4981	7%	95	7%	140	6%	347	6%	24	5%	5587
35-39	4430	6%	63	4%	126	6%	342	6%	37	8%	4998
40-44	3697	5%	91	6%	110	5%	310	6%	40	8%	4248
45-49	3517	5%	61	4%	99	5%	280	5%	33	7%	3990
50-54	3302	5%	61	4%	80	4%	294	5%	20	4%	3757
55-59	2448	3%	47	3%	84	4%	269	5%	10	2%	2858
60-64	1972	3%	56	4%	74	3%	229	4%	27	6%	2358
65-69	1837	3%	43	3%	95	4%	253	5%	20	4%	2248
70-74	1931	3%	86	6%	102	5%	198	4%	19	4%	2336
75-79	1764	3%	35	2%	96	4%	151	3%	6	1%	2052
80-84	1461	2%	29	2%	38	2%	100	2%	8	2%	1636
85-89	868	1%	14	1%	42	2%	56	1%	6	1%	986
90-94	321	0%	1	0%	17	1%	14	0%	2	0%	355
95-99	38	0%	0	0%	2	0%	1	0%	0	0%	41
100-104	10	0%	0	0%	1	0%	0	0%	0	0%	11
Unknown	0	0%	0	0%	0	0%	0	0%	17	4%	17
Total	70385		1432		2155		5354		475		79801

Data relating to the patient's race were also collected, but as Aboriginality rather than nationality. The number of Aboriginal and Torres Strait Islanders (ATSI) are presented by region of residence in Table 5. Other nationalities are grouped together, as further details were not available.

Table 5 1998 ACT emergency department presentations by region of residence and Aboriginality

Region of Residence	ATSI		Other		Total
ACT	763	1.1%	69622	98.9%	70385
Other Aust State	11	0.8%	1421	99.2%	1432
Other NSW	20	0.9%	2135	99.1%	2155
SAHS	50	0.9%	5304	99.1%	5354
Unknown/Overseas	12	2.5%	463	97.5%	475
Total	856	1.1%	78945	98.9%	79801

The next three tables, Tables 6-8, detail the distribution of patients across the triage categories, in terms of volume, actual numbers and percentages, and the age of the patients presenting. There were relatively few patients allocated a triage category of 1 or 2, so that for these categories it is hard to reliably estimate a pattern of usage. Also, the ages recorded for a number of Unknown/Overseas patients with a triage of 1 or 2 were inaccurate, so it was impossible to meaningfully calculate the average ages for these categories or any totals in which these inaccurate ages were involved. Those patients with a triage of 3 were slightly older than those with a triage of 4 or 5.

Table 6 1998 ACT emergency department presentations by region of residence and triage category

Region of Residence	Triage Category					Total
	1	2	3	4	5	
ACT	396	1846	14290	32328	21450	70310
Other Australian State	6	26	264	700	434	1430
Other NSW	30	76	436	942	670	2154
SAHS	97	190	1370	2196	1494	5347
Unknown/Overseas	15	24	96	213	117	465
Total Number of Patients	544	2164	16459	36383	24170	79706

Table 7 1998 ACT emergency department presentations by percentage of patients by triage category from each region of residence

Region of Residence	Triage Category					Total
	1	2	3	4	5	
ACT	0.6%	2.6%	20.3%	46.0%	30.5%	100.0%
Other Australian State	0.4%	1.8%	18.5%	49.0%	30.4%	100.0%
Other NSW	1.4%	3.5%	20.2%	43.7%	31.1%	100.0%
SAHS	1.8%	3.6%	25.6%	41.1%	27.9%	100.0%
Unknown/Overseas	3.2%	5.2%	20.7%	45.8%	25.2%	100.0%
Total Percentage of Patients	0.7%	2.7%	20.7%	45.6%	30.3%	100.0%

Table 8 1998 ACT emergency department presentations - average age by region of residence and triage category

Region of Residence	Triage Category					All
	1	2	3	4	5	
ACT	41.5	43.9	39.2	30.3	28.3	31.9
Other Australian State	40.5	54.9	39.3	31.7	31.6	33.5
Other NSW	44.5	49.9	45.0	32.9	33.9	36.4
SAHS	46.4	44.4	38.9	32.8	31.7	34.7
Unknown/Overseas	-	-	43.0	33.2	36.2	-
All	-	-	39.4	30.6	28.7	-

Departure status (disposition) refers to where a patient goes after leaving an emergency department. The ACT data have been grouped by departure status for each of the regions. The number of patients presenting, the percentage of patients from each residential region in each departure status category and the average age of the patients in each of the residential region/ departure status groups are presented in Tables 9-11. The ages for some of the patients in the Unknown/Overseas residential group were inaccurate, so for some groups and for some totals the average age is missing. Patients presenting at Calvary's emergency department are sometimes transferred to TCH. This departure status category has been included, but is only relevant for Calvary data.

As seen in Table 9 and Table 10, almost three-quarters of all patients go home after leaving the emergency department, with fewer than 20% being admitted. This result applies to the combined data set, as well as to patients from each individual residential region, except for residents of towns in the Southern Area Health Service. The rate of admission for this group is double that for the other residential groups. One explanation may be that more of this group are admitted because it is too far for them to travel home. Another possible explanation is that these patients have travelled to the ACT specifically for treatment and have a different range of problems to those experienced by patients from different residential regions. This second explanation is partially (but not fully) supported by the data. Residents of the SAHS are more likely to be assigned a Triage Category of 1, 2 or 3 and less likely to be triaged to categories 4 or 5, indicating a higher level of acuity than residents of the ACT.

A comparatively large number of patients whose address is unknown or overseas did not wait for treatment. Presumably many of them left before all their details were recorded.

When examining the average age for each departure status/residential region group (Table 11), it can be seen that patients who died or were admitted to the hospital at which they presented were generally older. Those who were transferred from Calvary's emergency department to TCH were, on average, younger. However, a closer inspection of this group revealed a particularly low average age for the patients who came from NSW addresses outside the Southern Area Health Service. As the number of patients in this group is small (only 14), it is not possible to draw any valid conclusions.

Table 9 1998 ACT emergency department presentations by region of residence and departure status

Region of Residence	Departure Status									Total
	Admitted	Transfer to TCH*	Home	Did Not Wait/Left at Own Risk	Local Medical Officer	Died	Other	Transfer to Other Hospital	Unknown	
ACT	13024	698	52824	2182	319	52	154	271	861	70385
Other Aust State	206	19	1146	35	3	0	3	7	13	1432
Other NSW	431	14	1559	83	19	2	4	14	29	2155
SAHS	2009	31	3039	125	16	6	26	31	71	5354
Unknown/Overseas	90	13	279	52	3	0	2	14	22	475
Total	15760	775	58847	2477	360	60	189	337	996	79801

* Patients in Calvary only

Table 10 1998 ACT emergency department presentations - percentage of patients by residential region by departure status category

Region of Residence	Departure Status									Total
	Admitted	Transfer to TCH*	Home	Did Not Wait/Left at Own Risk	Local Medical Officer	Died	Other	Transfer to Other Hospital	Unknown	
ACT	18.5%	1.0%	75.1%	3.1%	0.5%	0.1%	0.2%	0.4%	1.22%	100.0%
Other Aust State	14.4%	1.3%	80.0%	2.4%	0.2%	0.0%	0.2%	0.5%	0.91%	100.0%
Other NSW	20.0%	0.7%	72.3%	3.9%	0.9%	0.1%	0.2%	0.7%	1.35%	100.0%
SAHS	37.5%	0.6%	56.8%	2.3%	0.3%	0.1%	0.5%	0.6%	1.33%	100.0%
Unknown/Overseas	19.0%	2.7%	58.7%	11.0%	0.6%	0.0%	0.4%	3.0%	4.63%	100.0%
Total	19.8%	1.0%	73.7%	3.1%	0.5%	0.1%	0.2%	0.4%	1.25%	100.0%

* Patients in Calvary only

Table 11 1998 ACT emergency department presentations by average age of patients by region of residence and departure status

Region of Residence	Departure Status									Total
	Admitted	Transfer to TCH*	Home	Did Not Wait/Left at Own Risk	Local Medical Officer	Died	Other	Transfer to Other Hospital	Unknown	
ACT	42.0	27.1	29.8	25.5	27.4	60.7	32.6	40.9	30.2	31.9
Other Aust State	41.5	38.2	32.2	26.1	52.0	N/A	29.0	41.0	32.4	33.5
Other NSW	49.9	17.2	33.1	28.0	34.9	62.5	55.8	39.0	32.3	36.4
SAHS	41.0	33.9	30.9	28.8	21.6	59.7	36.3	44.1	28.9	34.7
Unknown/Overseas	46.8	32.5	35.6	27.7	25.0	N/A	41.5	-	-	-
Total	42.1	26.4	30.0	25.8	27.7	60.7	33.6	-	-	-

* Patients in Calvary only

In tables 12-14, the distribution of patients amongst the different triage groups and departure status categories is detailed. Table 12 shows the number of patients in each departure status/triage category group. The percentage distribution of patients in each triage category across the departure status classes is shown in Table 13, while Table 14 sets out the percentage assigned to each triage value for each departure status category. The results are logical. Patients with a triage of 1 or 2 are most likely to be admitted, while those requiring less urgent attention are more likely to be sent home after treatment.

Table 12 1998 ACT emergency department presentations - number of patients by triage category and departure status

Triage Category	Departure Status									Total
	Admitted	Transfer to TCH*	Home	Did Not Wait/Left at Own Risk	Local Medical Officer	Died	Other	Transfer to Other Hospital	Unknown	
1	392	12	70	0	0	49	1	13	7	544
2	1248	39	797	3	0	4	5	26	40	2162
3	6950	231	8803	66	8	6	32	111	249	16456
4	6010	441	28282	982	57	0	64	151	392	36379
5	1136	52	20838	1425	295	1	85	32	301	24165
Unknown	24	0	57	1	0	0	2	4	7	95
Total	15760	775	58847	2477	360	60	189	337	996	79801

* Patients in Calvary only

Table 13 1998 ACT emergency department presentations - departure status as a percentage of triage category

Triage Category	Departure Status									Total
	Admitted	Transfer to TCH*	Home	Did Not Wait/Left at Own Risk	Local Medical Officer	Died	Other	Transfer to Other Hospital	Unknown	
1	72.1%	2.2%	12.9%	0.0%	0.0%	9.0%	0.2%	2.4%	1.3%	100.0%
2	57.7%	1.8%	36.9%	0.1%	0.0%	0.2%	0.2%	1.2%	1.9%	100.0%
3	42.2%	1.4%	53.5%	0.4%	0.1%	0.0%	0.2%	0.7%	1.5%	100.0%
4	16.5%	1.2%	77.7%	2.7%	0.2%	0.0%	0.2%	0.4%	1.1%	100.0%
5	4.7%	0.2%	86.2%	5.9%	1.2%	0.0%	0.4%	0.1%	1.3%	100.0%
Unknown	25.3%	0.0%	60.0%	1.1%	0.0%	0.0%	2.1%	4.2%	7.4%	100.0%
Total	19.8%	1.0%	73.7%	3.1%	0.5%	0.1%	0.2%	0.4%	1.3%	100.0%

* Patients in Calvary only

Table 14 1998 ACT emergency department presentations - triage category as a percentage of departure status groups

Triage Category	Departure Status									
	Admitted	Transfer to TCH*	Home	Did Not Wait/Left at Own Risk	Local Medical Officer	Died	Other	Transfer to Other Hospital	Unknown	All
1	2.5%	1.6%	0.1%	0.0%	0.0%	81.7%	0.5%	3.9%	0.7%	0.7%
2	7.9%	5.0%	1.4%	0.1%	0.0%	6.7%	2.7%	7.7%	4.0%	2.7%
3	44.1%	29.8%	15.0%	2.7%	2.2%	10.0%	16.9%	32.9%	25.0%	20.6%
4	38.1%	56.9%	48.1%	39.6%	15.8%	0.0%	33.9%	44.8%	39.4%	45.6%
5	7.2%	6.7%	35.4%	57.5%	81.9%	1.7%	45.0%	9.5%	30.2%	30.3%
Unknown	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	1.1%	1.2%	0.7%	0.1%
All	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

* Patients in Calvary only

5.1.2 Usage of Southern Area Health Service Emergency Departments

Data were collected from 15 hospitals within the Southern Area Health Service (SAHS) and combined into one database. Variables collected included personal details, such as date of birth, sex, Aboriginality and language spoken, as well as details of their emergency department visit, such as triage category, departure status, source of referral, type of visit and a compensable field. Unfortunately, the records from three of the hospitals were incomplete. Not all variables were collected at one of the sites. Only data relating to ACT residents were available at another hospital. A summary of patient records over a three month period was all that was available at the third of these hospitals. However, wherever possible, service usage and costs at these hospitals were estimated. None of the hospitals was large. Together they treat about 6% of the ACT residents that attend emergency or outpatient departments in the SAHS.

An examination of the variable relating to type of visit revealed that some emergency department activity would perhaps have been conducted in an outpatients clinic if one were available. This required a decision as to whether all patients should be regarded as emergency episodes and be costed accordingly, or whether those visits that seemed more like outpatient occasions of service should be separated out. The difficulty with this latter approach is that the type of outpatient service provided is unknown. Only a very approximate cost could be estimated for these patients using this approach. Our view is that these visits are best classified as outpatient rather than emergency department attendances. However all patients were included as emergency department visits for the following descriptive tables, Tables 15-31. Table 35 below shows the effect of treating these emergency department presentations as outpatient services.

Most occasions of service within the Southern Area Health Service were for the treatment of local residents, as seen in Table 15. When this dataset is analysed with all hospitals included, the proportion of ACT residents treated is 3.4%. Some hospitals in the Area treat a larger proportion than this, notably Batemans Bay (6.25%), Queanbeyan (5.66%) and Moruya (4.84%).

Table 15 1998 SAHS emergency department presentations

Region of Residence	Total Presentations	Percentage per Region
ACT	2597	3.4%
Other Australian State	2372	3.1%
Other NSW	4401	5.8%
SAHS	65441	86.0%
Unknown/Overseas	1302	1.7%
Total	76112	100.0%

As with the ACT data, emergency services were utilised by more males than females (Table 16). This pattern was also true for all regions of residence. However, unlike the ACT data, males were not always younger than females (Table 17). Gender data had not been collected for all patients so the totals here are different from those in the previous table.

Table 16 1998 SAHS emergency department presentations by gender and region of residence

Region of Residence	Male	Female	Total
ACT	1488	1095	2583
Other Australian State	1288	638	1926
Other NSW	2369	2363	4732
SAHS	35214	29914	65128
Unknown/Overseas	746	421	1167
Total	41105	34431	75536

Table 17 1998 SAHS emergency department presentations by average age, gender and region of residence

Region of Residence	Male	Female	All
ACT	25.52	26.80	26.06
Other Australian State	39.05	35.46	37.52
Other NSW	30.96	32.78	31.80
SAHS	34.26	35.60	34.87
Unknown/Overseas	34.26	37.27	35.31
Overall Average Age	33.86	35.17	34.45

In Table 18, more detailed information regarding the ages of patients from the different regions is presented. The percentages in each age group have been calculated for all regions of residence. It can be seen that there is a larger proportion of young people from all regions, though the spread across the age groups is slightly more noticeable than in the ACT data.

Table 18 1998 SAHS emergency department presentations by region of residence and age group

Age	ACT		Other Aust State NSW		Other		Southern		Unknown/Overseas		Total
0-4	400	15%	296	12%	525	12%	7823	12%	73	6%	9117
5-9	210	8%	219	9%	373	8%	4234	6%	30	2%	5066
10-14	230	9%	166	7%	306	7%	4064	6%	43	3%	4809
15-19	205	8%	133	6%	292	7%	4674	7%	50	4%	5354
20-24	236	9%	135	6%	352	8%	3979	6%	85	7%	4787
25-29	259	10%	131	6%	362	8%	4426	7%	63	5%	5241
30-34	205	8%	141	6%	321	7%	3868	6%	58	4%	4593
35-39	181	7%	152	6%	282	6%	4157	6%	64	5%	4836
40-44	133	5%	134	6%	231	5%	3862	6%	61	5%	4421
45-49	101	4%	113	5%	216	5%	2970	5%	32	2%	3432
50-54	114	4%	115	5%	216	5%	2901	4%	40	3%	3386
55-59	73	3%	100	4%	187	4%	2818	4%	38	3%	3216
60-64	46	2%	130	5%	141	3%	2563	4%	34	3%	2914
65-69	60	2%	107	5%	162	4%	2716	4%	27	2%	3072
70-74	32	1%	109	5%	188	4%	2706	4%	27	2%	3062
75-79	36	1%	54	2%	101	2%	2141	3%	16	1%	2348
80-84	11	0%	96	4%	44	1%	1669	3%	11	1%	1831
85-89	5	0%	24	1%	32	1%	804	1%	7	1%	872
90-94	1	0%	2	0%	7	0%	260	0%	0	0%	270
95-99	1	0%	0	0%	1	0%	37	0%	3	0%	42
Unknown	57	2%	15	1%	62	1%	2769	4%	540	41%	3443
Total	2596		2372		4401		65441		1302		76112

Data relating to the patient's race were also collected, again as Aboriginality rather than nationality. The number of Aboriginal and Torres Strait Islanders (ATSI) are presented by region of residence in Table 19. Other nationalities are grouped together, as further details were not available. The proportion of Aboriginal and Torres Strait Islanders treated in the Southern Area of NSW is still small, but larger than in the ACT. Aboriginality was not collected for all occasions of service.

Table 19 1998 SAHS emergency department presentations by region of residence and Aboriginality

Region of Residence	ATSI		Other		Total
ACT	49	2.0%	2466	97.9%	2515
Other Aust State	48	2.3%	2324	97.7%	2372
Other NSW	122	2.9%	4279	97.1%	4401
SAHS	2987	4.5%	62654	95.5%	65641
Unknown/Overseas	78	6.4%	1196	93.6%	1274
Total	3284	4.3%	72919	95.7%	76203

The next three tables, Tables 20-22, detail the distribution of patients across the triage categories, in terms of volume, actual numbers and percentages, and the age of the patients presenting. There were relatively few patients allocated a triage of 1 or 2, so that for these categories it is hard to reliably estimate a pattern of usage. More than half the patients from all regions had a triage category of 5, indicating a significant primary care workload. The groups were fairly homogeneous with respect to age, though the ACT residents tended to be a little younger than residents of the other regions.

Table 20 1998 SAHS emergency department presentations by region of residence and triage category

Region of Residence	Triage Category					Total
	1	2	3	4	5	
ACT	10	39	230	851	1348	2478
Other Australian State	3	26	167	480	739	1415
Other NSW	10	73	425	1368	2216	4092
SAHS	177	1119	5985	20447	34375	62103
Unknown/Overseas	8	35	99	216	698	1056
Total Number of Patients	208	1292	6906	23362	39376	71144

Table 21 1998 SAHS emergency department presentations by percentage of patients from each region of residence in each triage category

Region of Residence	Triage Category					Total
	1	2	3	4	5	
ACT	0.4%	1.6%	9.3%	34.3%	54.4%	100.0%
Other Australian State	0.2%	1.8%	11.8%	33.9%	52.2%	100.0%
Other NSW	0.2%	1.8%	10.4%	33.4%	54.2%	100.0%
SAHS	0.3%	1.8%	9.6%	32.9%	55.4%	100.0%
Unknown/Overseas	0.8%	3.3%	9.4%	20.5%	66.1%	100.0%
% of all patients	0.3%	1.8%	9.7%	32.8%	55.3%	100.0%

Table 22 1998 SAHS emergency department presentations – average age by region of residence and triage category

Region of Residence	Triage Category					All
	1	2	3	4	5	
ACT	45.0	34.2	29.3	23.9	26.6	26.1
Other Australian State	28.3	54.8	38.4	35.2	38.3	37.6
Other NSW	32.1	45.6	32.5	29.6	32.6	31.8
SAHS	45.8	48.0	39.2	32.0	35.4	34.9
Unknown/Overseas	27.5	47.2	37.6	33.9	35.0	35.3
All	44.1	47.6	38.4	31.64	35.0	34.5

Departure status refers to where a patient goes when she/he leaves an emergency department.

The NSW data have been grouped by departure status for each of the regions. The number of patients presenting, the percentage of patients from each residential region in each departure status category and the average age of the patients in each of the residential region/ departure status groups are presented in Tables 23-25.

As with ACT hospitals, more than 75% of all patients are not admitted, and go home after being treated in the emergency department. Fewer than 15% are admitted. This percentage is lower for ACT residents, and higher for residents of other Australian states.

When examining the average age for each departure status/residential region group, it can be seen that patients who were admitted to the hospital or an inpatient unit were generally older. Other than this group and the group who departed after treatment was completed, numbers are too small in any category to infer any age differences amongst the departure status groups.

Table 23 1998 SAHS emergency department presentations by region of residence and departure status

Region of Residence	Departure Status									Total
	Admitted to Ward/ Inpatient Unit	Admit & discharge as inpat in ED	Admitted: Died in ED	Departed: Treatment Complete d	Departed: Transfer to Other Hospital	Departed: Did Not Wait	Departed: Left At Own Risk	Dead On Arrival	Unknown	
ACT	149	27	1	2098	62	40	7	7	124	2596
Other Aust State	252	15		1083	21	14	3	4	980	2372
Other NSW	516	42	5	3331	101	67	9	3	327	4401
SAHS	8352	578	80	50693	1050	662	195	129	3702	65441
Unknown/Overseas	114	8	1	855	33	15	8	11	257	1302
Total	9383	670	87	58060	1267	798	222	154	5390	76112

Table 24 1998 SAHS emergency department presentations - percentage of patients from residential region by departure status category

Region of Residence	Departure Status									Unknown
	Admitted to Ward/ Inpatient Unit	Admit & discharge as inpat in ED	Admitted: Died in ED	Departed: Treatment Complete d	Departed: Transfer to Other Hospital	Departed: Did Not Wait	Departed: Left At Own Risk	Dead On Arrival	Unknown	
ACT	5.7%	1.0%	0.0%	80.8%	2.4%	1.5%	0.3%	0.3%	4.8%	
Other Aust State	10.6%	0.6%	0.0%	45.7%	0.9%	0.6%	0.1%	0.2%	41.3%	
Other NSW	11.7%	1.0%	0.1%	75.7%	2.3%	1.5%	0.2%	0.1%	7.4%	
SAHS	12.8%	0.9%	0.1%	77.5%	1.6%	1.0%	0.3%	0.2%	5.7%	
Unknown/Overseas	8.8%	0.6%	0.1%	65.7%	2.5%	1.2%	0.6%	0.8%	19.7%	
Total	12.3%	0.9%	0.1%	76.3%	1.7%	1.0%	0.3%	0.2%	7.1%	

Table 25 1998 SAHS emergency department presentations by average age of patients by region of residence and departure status

Region of Residence	Departure Status									Total
	Admitted to Ward/ Inpatient Unit	Admit & discharge as inpat in ED	Admitted: Died in ED	Departed: Treatment Completed	Departed: Transfer to Other Hospital	Departed: Did Not Wait	Departed: Left At Own Risk	Dead On Arrival	Unknown	
ACT	34.9	24.2	71.0	25.0	40.4	28.1	19.6	36.3	25.8	26.0
Other Aust State	43.8	35.9	-	36.3	38.2	21.9	33.7	58.3	35.1	37.5
Other NSW	38.8	32.8	38.2	30.6	34.5	29.7	28.8	31.5	30.8	31.8
SAHS	49.5	33.6	41.4	32.4	35.4	26.9	29.7	51.0	35.8	34.8
Unknown/Overseas	47.1	23.8	28.0	33.3	37.7	22.4	25.0	56.5	30.2	34.4
Total	48.5	33.0	41.4	32.1	35.7	27.0	29.3	50.5	34.7	34.4

In the following three tables, Tables 26-28, the distribution of patients amongst triage groups and departure status categories is detailed. Table 26 gives the number of patients in each departure status/triage category group. The percentage distribution of patients in each triage category across the departure status classes is contained in Table 27, while Table 28 sets out the percentage assigned to each triage value for each departure status category. The results are again logical. Patients with a triage of 1 or 2 are most likely to be admitted, while those requiring less urgent attention are more likely to be sent home after treatment. Again, caution must be exercised in interpreting these figures, as some categories consist of only a few presentations.

Table 26 1998 SAHS emergency department presentations by triage category and departure status

Triage Category	Departure Status									Total
	Admitted to Ward/ Inpatient Unit	Admit & discharge as inpat in ED	Admitted: Died in ED	Departed: T/ment Completed	Departed: Transfer to Other Hospital	Departed: Did Not Wait	Departed: Left At Own Risk	Dead On Arrival	Unknown	
1	75	0	26	47	47	0	0	9	4	208
2	715	4	7	363	160	3	13	1	26	1292
3	2879	53	5	3317	432	23	52	7	138	6906
4	4233	327	22	17699	462	216	74	13	316	23362
5	1400	284	27	36206	161	535	80	110	573	39376
Unknown	81	2		428	5	21	3	14	4414	4968
Total	9383	670	87	58060	1267	798	222	154	5471	76112

Table 27 1998 SAHS emergency department presentations - departure status as a percentage of triage category

Triage Category	Departure Status									All
	Admitted to Ward/ Inpatient Unit	Admit & discharge as inpat in ED	Admitted: Died in ED	Departed: Treatment Completed	Departed: Transfer to Other Hospital	Departed: Did Not Wait	Departed: Left At Own Risk	Dead On Arrival	Unknown	
1	36.1%	0.0%	12.5%	22.6%	22.6%	0.0%	0.0%	4.3%	1.9%	100.0%
2	55.3%	0.3%	0.5%	28.1%	12.4%	0.2%	1.0%	0.1%	2.0%	100.0%
3	41.7%	0.8%	0.1%	48.0%	6.3%	0.3%	0.8%	0.1%	2.0%	100.0%
4	18.1%	1.4%	0.1%	75.8%	2.0%	0.9%	0.3%	0.1%	1.4%	100.0%
5	3.6%	0.7%	0.1%	91.9%	0.4%	1.4%	0.2%	0.3%	1.5%	100.0%
Unknown	1.6%	0.0%	0.0%	8.6%	0.1%	0.4%	0.1%	0.3%	88.8%	100.0%
Total	12.3%	0.9%	0.1%	76.3%	1.7%	1.0%	0.3%	0.2%	7.2%	100.0%

Table 28 1998 SAHS emergency department presentations - triage category as a percentage of departure status groups

Triage Category	Departure Status									Total
	Admitted to Ward/ Inpatient Unit	Admit & discharge as inpat in ED	Admitted: Died in ED	Departed: Treatment Completed	Departed: Transfer to Other Hospital	Departed: Did Not Wait	Departed: Left At Own Risk	Dead On Arrival	Unknown	
1	0.8%	0.0%	29.9%	0.1%	3.7%	0.0%	0.0%	5.8%	0.1%	0.3%
2	7.6%	0.6%	8.0%	0.6%	12.6%	0.4%	5.9%	0.6%	0.5%	1.7%
3	30.7%	7.9%	5.7%	5.7%	34.1%	2.9%	23.4%	4.5%	2.5%	9.1%
4	45.1%	48.8%	25.3%	30.5%	36.5%	27.1%	33.3%	8.4%	5.8%	30.7%
5	14.9%	42.4%	31.0%	62.4%	12.7%	67.0%	36.0%	71.4%	10.5%	51.7%
Unknown	0.9%	0.3%	0.0%	0.7%	0.4%	2.6%	1.4%	9.1%	80.7%	6.5%
All	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

In some of the NSW hospitals, patients go to the emergency department for services that would normally be performed in an outpatient clinic if one were available. The extent to which this happens can be assessed by investigating the variable visit type and is confirmed by the percentage of patients with a triage category of 5. In Table 29, the categories for this variable are given, together with the number and proportion of presentations for each type. A number of these categories could be considered to be outpatient activity – return visit planned, outpatient/ clinic, privately referred/ non-admitted, patient in transit and the three prearranged admission groups. These comprise just over 15% of total presentations.

Table 29 1998 SAHS emergency department presentations - number and proportion of patients by visit type

Visit Type	Number of Presentations	Proportion
Emergency presentation	58736	77.17%
Return visit planned	4812	6.32%
Unplanned return for continuing condition	828	1.09%
Outpatient/ clinic	3690	4.85%
Privately referred/ non-admitted	2741	3.60%
Prearranged admission - clerical only	17	0.02%
Prearranged admission - clerical and nursing	180	0.24%
Prearranged admission - full clinical	67	0.09%
Patient in transit	12	0.02%
Dead on arrival	121	0.16%
Unknown	4908	6.44%
Total	76112	100.00%

To gain an insight into the different types of visits, the variable Visit Type was tabulated against referral source in Table 30. Some of the possible sources of referral were used so rarely that they have been grouped together as Other/ Unknown. Percentages of each referral source for all visit types are presented in Table 31. These two tables confirm the idea that there are different types of services being provided. For those identified as being emergency services, as this concept is generally understood, the vast majority of attendances are referred by self, family or friends. On the other hand, of those types of visit that could be considered outpatient attendances, a large proportion were referred by the community-based GP

Table 30 1998 SAHS emergency department presentations - number of patients by visit type and referral source

Visit Type	Referral Source							Total
	Self/ Family/ Friends	Specialist Community Based	Outpatients	G.P Community Based	Nursing Home	Other Hosp in Area	Other/ Unknown	
Emergency presentation	56327	110	71	1545	61	49	573	58736
Return visit planned	671	289	704	3030	21	5	92	4812
Unplanned return for continuing condition	619	18	21	142	5	1	22	828
Outpatient/ clinic	1616	106	192	1536	169	11	60	3690
Privately referred/ non-admitted	40	111	8	2500	7	11	64	2741
Prearranged admission – clerical only	0	3	0	11	0	3	0	17
Prearranged admission – clerical and nursing	5	26	1	128	1	14	5	180
Prearranged admission – full clinical	0	5	2	53	0	7	0	67
Patient in transit	1	0	0	2	0	1	8	12
Dead on arrival	55	1	1	6	0	0	58	121
Other/Unknown	96	2	0	15	0	0	4795	4908
Total	59430	671	1000	8968	264	102	5677	76112

Table 31 1998 SAHS emergency department presentations - percentage of patients by source of referral for each visit type

Visit Type	Referral source							Total
	Self/ Family/ Friends	Specialist Community Based	Outpatients	GP Community Based	Nursing Home	Other Hosp in Area	Other/ Unknown	
Emergency presentation	95.9%	0.2%	0.1%	2.6%	0.1%	0.1%	1.0%	100.0%
Return visit planned	13.9%	6.0%	14.6%	63.0%	0.4%	0.1%	1.9%	100.0%
Unplanned return for continuing condition	74.8%	2.2%	2.5%	17.1%	0.6%	0.1%	2.7%	100.0%
Outpatient/ clinic	43.8%	2.9%	5.2%	41.6%	4.6%	0.3%	1.6%	100.0%
Privately referred/ non-admitted	1.5%	4.0%	0.3%	91.2%	0.3%	0.4%	2.3%	100.0%
Prearranged admission – clerical only	0.0%	17.6%	0.0%	64.7%	0.0%	17.6%	0.0%	100.0%
Prearranged admission – clerical and nursing	2.8%	14.4%	0.6%	71.1%	0.6%	7.8%	2.8%	100.0%
Prearranged admission – full clinical	0.0%	7.5%	3.0%	79.1%	0.0%	10.4%	0.0%	100.0%
Patient in transit	8.3%	0.0%	0.0%	16.7%	0.0%	8.3%	66.7%	100.0%
Dead on arrival	45.5%	0.8%	0.8%	5.0%	0.0%	0.0%	47.9%	100.0%
Other/Unknown	2.0%	0.0%	0.0%	0.3%	0.0%	0.0%	97.7%	100.0%
Total	78.1%	0.9%	1.3%	11.8%	0.3%	0.1%	7.5%	100.0%

Although the variable, compensable status was collected for the NSW data, summary tables using this variable have not been included here. It was not possible to collect this variable for the ACT data, so no comparison between the ACT and NSW is possible.

5.1.3 Seasonal Fluctuations in Usage of Emergency Departments

The number of attendances per week at emergency departments in both NSW and the ACT have been calculated. These were then grouped according to the patient's postcode. Residents within the Southern Health Area were grouped with other NSW residents, while patients from other states were grouped with the Other/ Unknown category. This enabled graphs to be drawn that clearly show the relativity between the numbers of ACT and NSW residents treated in each of the areas and any seasonal fluctuations.

Figure 1 depicts the number of attendances per week in the ACT emergency departments. The number attending remains fairly steady throughout the year, although there seems to be a reduction in the number of ACT residents during January and around Easter (weeks 15 and 16). A reasonably large number of patients are from NSW. This number remains fairly steady throughout the year, with perhaps a slight rise in the September/ October school holidays (weeks 39 and 40) and around Christmas.

The number of emergency attendances per week in the Southern Area NSW are graphed in Figure 2. Most of the patients are residents of NSW. The numbers from the ACT and elsewhere are relatively very small. In fact, the ACT and the Other group closely follow the same pattern of numbers of attendances. Some of the areas covered by the Southern Health Area are popular holiday destinations. This is reflected in the number of emergency department attendances, particularly those by NSW residents. Peaks in the graph can be seen at Easter (week 15), during the September/ October school holiday (weeks 39 and 40) and during the December–January holiday season.

Figure 1- Number of Attendances per Week at ACT Emergency Departments during 1998 by Region of Residence

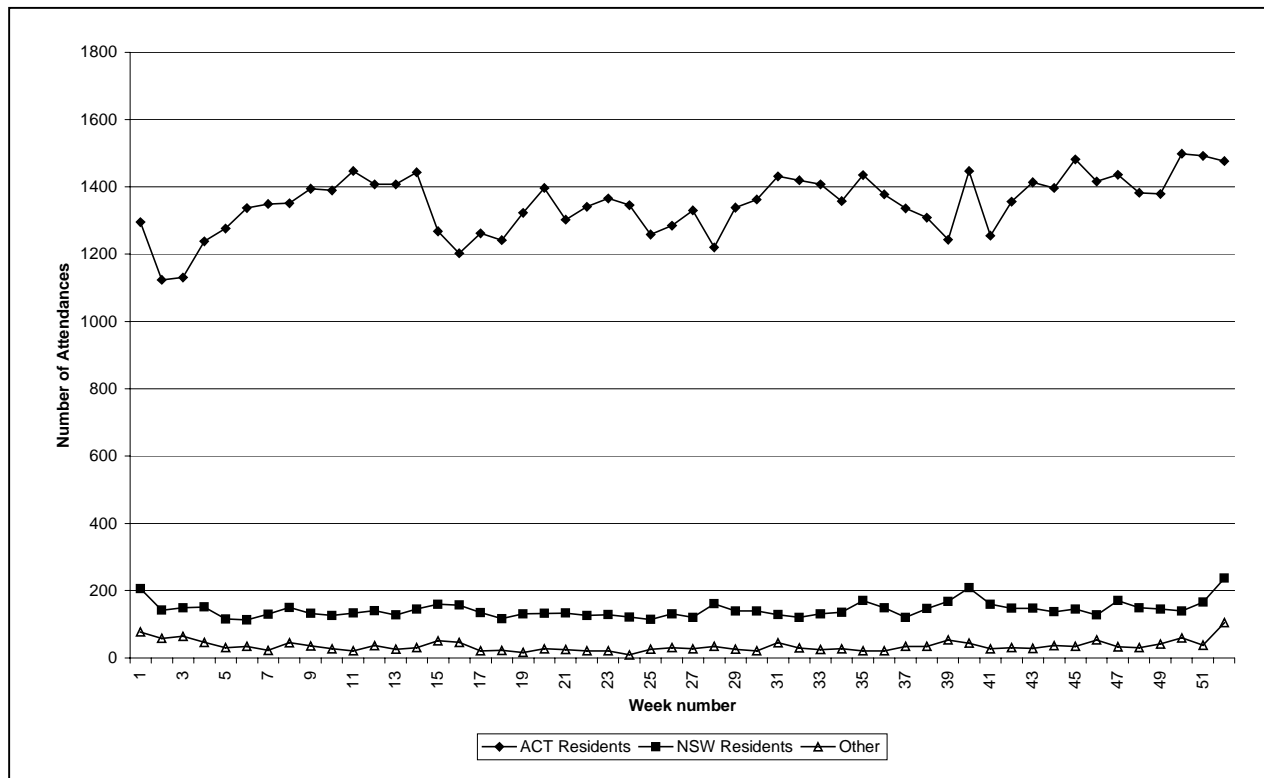
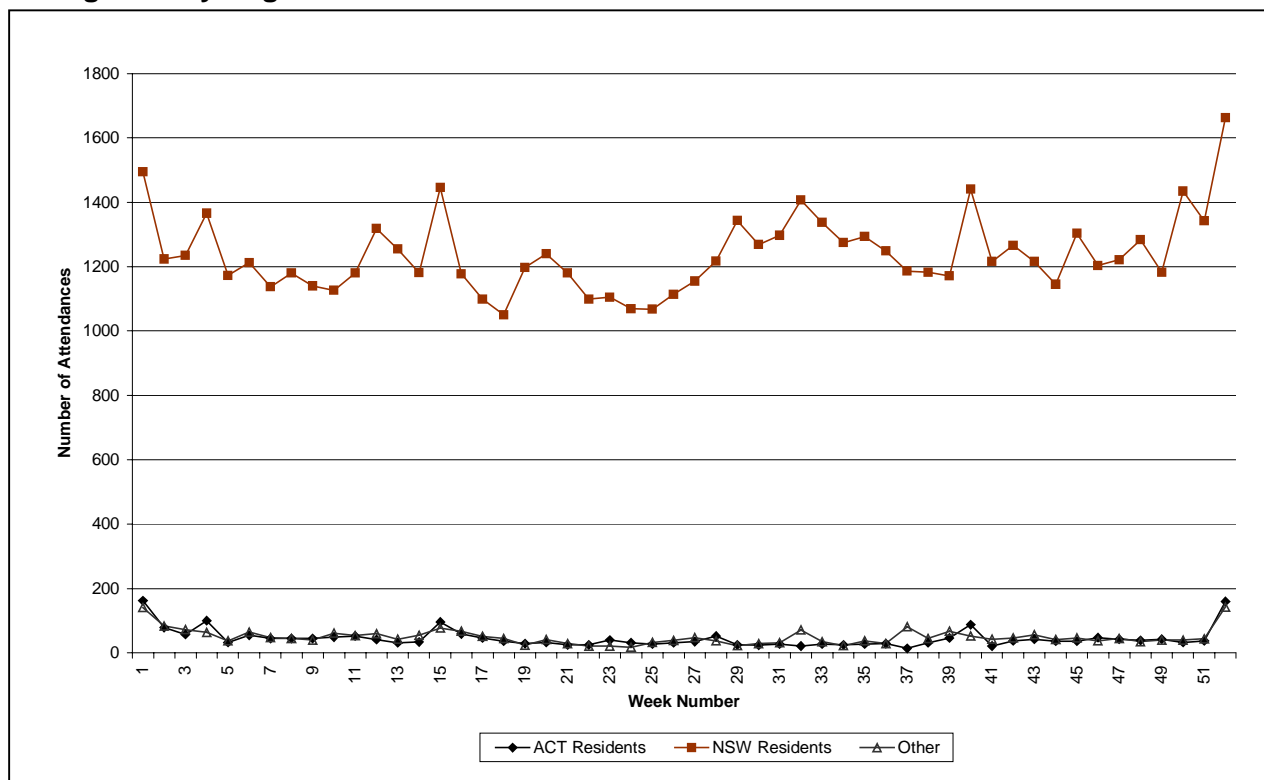


Figure 2- Number of Attendances per Week at Southern Area NSW Emergency Departments during 1998 by Region of Residence



5.1.4 Estimated Costs – Accident and Emergency Departments

Costs were estimated by assigning occasions of service to the Urgency Disposition Age Group (UDAGs) classification. The corresponding cost, as listed in Appendix 2, was then assigned to each visit. Occasions of service were then grouped according to the patient's region of residence. Thus the costs of treating residents from the various regions could be estimated. Of course, all the ACT data were collected, so that a fairly accurate picture of the treatment of non-ACT residents within ACT emergency departments could be obtained. However, within NSW data were collected only in the SAHS. This would not give a complete picture of the treatment of non-NSW residents in NSW hospital emergency departments.

However, before doing so, the data were reviewed to identify visits that could not be costed to a jurisdiction. Both sets of data contained occasions of service that were ungroupable because of missing values. In Table 32 the number of patients that could not be assigned a cost is detailed for presentations in both NSW and the ACT. The majority of these presentations are within the patient's own area of residence. Of the presentations to Southern Area NSW emergency departments that did not have a cost assigned, just over one-fifth cannot be assigned to a region of residence. Overall, just over 1% of ACT presentations have not been included in the costs. For NSW presentations, this figure is just under 3.5%.

Table 32 Occasions of service in SAHS and ACT not able to have a cost assigned by region of residence

Region of Residence	SAHS presentations		ACT presentations	
ACT	89	3.53%	932	86.06%
Other Australian State	44	1.74%	15	1.39%
Other NSW	102	4.05%	30	2.77%
SAHS	1781	70.65%	78	7.20%
Unknown/Overseas	505	20.03%	28	2.59%
Total	2521		1083	

Table 33 shows the frequency and the estimated cost of patients attending ACT emergency departments during 1998 for each region of residence. Just over 10% of costs are attributable to residents of NSW. NSW patients, particularly those from within the Southern Area, are slightly more expensive to treat than ACT patients, reflecting variations in reasons for attendance.

Table 33 1998 ACT emergency department presentations - frequency and estimated cost of patients by region of residence

Region of Residence	COUNT OF ATTENDANCES		COST OF ATTENDANCES	
	Number	Proportion	Cost	Proportion
ACT	70385	88.20%	\$11,287,679	87.40%
Other Australian State	1432	1.79%	\$225,098	1.74%
Other NSW	2155	2.70%	\$359,139	2.78%
SAHS	5354	6.71%	\$964,813	7.47%
Unknown/Overseas	475	0.60%	\$77,806	0.60%
Total	79801		\$12,914,536	

Table 34 shows the frequency and the estimated cost of patients attending SAHS (NSW) emergency departments during 1998 for each region of residence. Roughly 87% of patients treated were local residents. The proportion of the costs for each region are virtually the same as the proportion of number of occasions of service. A little over 3% of Southern Area NSW emergency department costs are attributed to ACT residents.

Table 34 Frequency and estimated cost of patients using SAHS emergency departments for all visit types during 1998 by region of residence

Region of Residence	COUNT OF ATTENDANCES		COST OF ATTENDANCES	
	Number	Proportion	Cost	Proportion
ACT	2596	3.41%	\$356,164	3.25%
Other Australian State	2372	3.12%	\$351,248	3.21%
Other NSW	4401	5.78%	\$630,423	5.76%
SAHS	65441	85.98%	\$9,447,419	86.31%
Unknown/Overseas	1302	1.71%	\$161,493	1.47%
Total	76112		\$10,946,747	

As already noted, some occasions of service within Southern Area NSW emergency departments would not usually be considered to be emergency presentations. Accordingly, a second table of frequencies and costs (Table 35) was compiled using only those visit types that are unequivocally emergency activities. As a comparison of Table 34 and Table 35 shows, work that is not unequivocally 'emergency' accounts for approximately \$1.4 million per year.

Table 35 Frequency and estimated cost of patients using SAHS emergency departments for emergency visit types during 1998 by region of residence

Region of Residence	COUNT OF ATTENDANCES		COST OF ATTENDANCES	
	Number	Proportion	Cost	Proportion
ACT	2509	3.88%	\$345,693	3.64%
Other Aust State	2190	3.39%	\$326,842	3.44%
Other NSW	4065	6.29%	\$588,361	6.19%
SAHS	54602	84.53%	\$8,091,988	85.13%
Unknown/Overseas	1227	1.91%	\$152,018	1.60%
Total	64593		\$9,504,902	

A summary of the cross border flows is contained in tables 36-39. In Table 36 the number of emergency department presentations for residents of each residential region is given for treatment in both the ACT and for SAHS. It indicates a net flow from NSW to the ACT of 4,913 patients. Table 37 contains the corresponding costs. Table 37, which includes all presentations at emergency departments during 1998 in both the ACT and NSW, indicates a net flow from NSW to the ACT of \$967,789.

Table 36 Patients using emergency departments during 1998 by region of residence and area of treatment

Region of Residence	Region of Treatment		
	ACT	SAHS	Flow from NSW to ACT
ACT	70385	2596	-2596
Other Australian State	1432	2372	0
Other NSW	2155	4401	2155
SAHS	5354	65441	5354
Unknown/Overseas	475	1302	0
Total	79801	76112	4913

Table 37 Cost of all patients using emergency departments during 1998 by region of residence and area of treatment

Region of Residence	Area of Treatment		
	ACT	NSW	Flow from NSW to ACT
ACT	\$11,287,679	\$356,164	-\$356,164
Other Australian State	\$225,098	\$351,248	\$0
Other NSW	\$359,140	\$630,423	\$359,140
SAHS	\$964,813	\$9,447,419	\$964,813
Unknown/Overseas	\$77,806	\$161,493	\$0
Total	\$12,914,536	\$10,946,747	\$967,789

Table 38 includes all presentations at emergency departments during 1998 in the ACT but only the emergency visit types in NSW. It indicates a net flow from NSW to the ACT of 5,000 patients. Table 39 contain the equivalent financial details when only the subset of visit types that are clearly emergency presentations are included. It indicates a net flow from NSW to the ACT of \$978,260.

Table 38 The number of emergency patients using emergency departments during 1998 by region of residence and area of treatment (excludes some outpatient-type visits)

Region of Residence	Area of Treatment		
	ACT	NSW	Flow from NSW to ACT
ACT	70385	2509	-2509
Other Australian State	1432	2190	0
Other NSW	2155	4065	2155
SAHS	5354	54602	5354
Unknown/Overseas	475	1227	0
Total	79801	64593	5000

Table 39 The cost of emergency patients using emergency departments during 1998 by region of residence and area of treatment (outpatient-type visits excluded)

Region of Residence	Area of Treatment		
	ACT	NSW	Flow from NSW to ACT
ACT	\$11,287,679	\$345,693	-\$345,693
Other Australian State	\$225,098	\$326,842	\$0
Other NSW	\$359,140	\$588,361	\$359,140
SAHS	\$964,813	\$8,091,988	\$964,813
Unknown/Overseas	\$77,806	\$152,018	\$0
Total	\$12,914,537	\$9,504,902	\$978,260

5.1.4.1 Non-Admitted Emergency Department Patients

There already exists an arrangement for the funding of cross-border inpatient activity between the ACT and NSW. Some patients are admitted as inpatients from the emergency department, and the estimated cost of their inpatient episode includes a component relating to the treatment obtained in the emergency department. To avoid paying twice for these patients, once under the inpatient agreement and then again according to an emergency and outpatients funding arrangement, they need to be excluded from the cost calculations.

In the following tables (Tables 40-43), patients who were admitted from the emergency department have been excluded. They were identified by their "departure status". The number and cost of ACT emergency department presentations who were not subsequently admitted are presented in Table 40, while the corresponding figures for SAHS emergency departments are detailed in Table 41. All presentations at the ACT hospitals have been included. However only the emergency visit types have been included for the NSW data, as the other visit types are treated separately as outpatients.

Table 40 1998 ACT emergency department presentations who were not admitted - frequency and estimated cost of patients by region of residence

Region of Residence	COUNT OF ATTENDANCES		COST OF ATTENDANCES	
	Number	Proportion	Cost	Proportion
ACT	56775	88.65%	\$7,968,244	88.71%
Other Aust State	1223	1.91%	\$173,073	1.93%
Other NSW	2310	3.61%	\$320,630	3.57%
Southern	3345	5.22%	\$466,626	5.20%
Unknown/Overseas	388	0.61%	\$53,417	0.59%
Total	64041		\$8,981,990	

Table 41 1998 frequency and estimated cost of patients using SAHS emergency departments for non-admitted emergency visit types by region of residence

Region of Residence	COUNT OF ATTENDANCES		COST OF ATTENDANCES	
	Number	Proportion	Cost	Proportion
ACT	2313	4.29%	\$299,386	4.27%
Other Aust State	1708	3.17%	\$232,508	3.31%
Other NSW	3451	6.40%	\$451,518	6.43%
Southern	45366	84.14%	\$5,916,325	84.29%
Unknown/Overseas	1080	2.00%	\$119,227	1.70%
Total	53918		\$7,018,964	

The net flow of non-admitted emergency department patients from NSW to the ACT is detailed in Table 42. Table 43 contains the associated costs. It can be seen that the net flow to the ACT is 3,342 patients at a net cost of \$487,870. Note that some visit types were excluded, as it seemed more reasonable to treat them as outpatients.

Table 42 The number of non-admitted emergency patients using emergency departments during 1998 by region of residence and area of treatment (excludes some outpatient-type visits)

Region of Residence	Area of Treatment		
	ACT	NSW	Flow from NSW to ACT Difference
ACT	56775	2313	-2313
Other Aust State	1223	1708	0
Other NSW	2310	3451	2310
Southern	3345	45366	3345
Unknown/Overseas	388	1080	0
Total	64041	53918	3342

Table 43 The cost of non-admitted emergency patients using emergency departments during 1998 by region of residence and area of treatment (outpatient-type visits excluded)

Region of Residence	Area of Treatment		
	ACT	NSW	Flow from NSW to ACT Difference
ACT	\$7,968,244	\$299,386	-\$299,386
Other Aust State	\$173,073	\$232,509	\$0
Other NSW	\$320,630	\$451,518	\$320,630
Southern	\$466,626	\$5,916,325	\$466,626
Unknown/Overseas	\$53,417	\$119,227	\$0
Total	\$8,981,991	\$7,018,964	\$487,870

5.2 Outpatient Services

Different degrees of detail were contained in the outpatient data sets provided by hospitals. Data from The Canberra Hospital are sometimes extracted from a *Medilinc* file and sometimes extracted from manual records. Monthly summary tables were available from Calvary Hospital. The only data available for NSW outpatients was that included in the emergency department records, for services that would be provided in an outpatient clinic, if such a thing was available. Other outpatient services are available at some of the hospitals, but data for these were not available.

Costs were assigned to the patients attending a clinic using the Queensland Ambulatory Classification System (QACS). In this system, classification is based on the type of clinic attended. Some of these clinic-type groups are then further split, depending on the patient's age or whether it is a first or subsequent visit. Not all outpatient occasions of service are face-to-face presentations. Appropriate QACS classes for group consultations were assigned in cases where a group session was recorded. Telephone consultations were assigned one quarter of the cost that would have been applicable for a face-to-face consultation. The costs in the QACS classes include components for pathology, imaging and pharmacy as well as overhead costs.

5.2.1 Usage of ACT Outpatient Services

Data were obtained from the two ACT hospitals regarding presentations at a number of different outpatient clinics. Rather than having individual records, most of the data consisted of a summary of visits to the clinics. In some cases it was not possible to directly assign occasions of service to a QACS class as a range of services was provided by a particular clinic. For example, the Group Paediatric, Paediatric Oncology and Paediatric Short Stay clinics did not map directly to QACS classes. To overcome this problem, a weighted average of costs from relevant QACS class was calculated and assigned to the occasion of service.

The weights were calculated, whenever possible, using the more detailed *Medilinc* file. For example, when a particular clinic was indicated, but the QACS class required a split on age before a cost could be assigned, proportions of relevant patients from each age group could be determined from this file. If the detail required was not contained in the *Medilinc* file, an average was calculated applying equal weights to each class.

There was less information available relating to region of residence than had been available in the emergency department data. The data from Calvary differentiated between ACT, NSW and other residents. However, The Canberra Hospital only split their tables by ACT and non-ACT resident. This has therefore determined the level of detail to which results can be reported. Another consequence of the different reporting formats from the two hospitals is that an investigation of usage patterns is extremely difficult for the amalgamated data set.

provides details on the number of occasions of service provided to outpatients by ACT hospitals during 1998. At each of the functional units in scope for the study, patients were grouped into ACT and non-ACT residents. Telephone and group consultations have been included with the face-to-face consultations. Costs were assigned to occasions of service at each of the functional units by a proportional allocation of relevant QACS class costs.

Table 44 Number of occasions of service in ACT outpatient units during 1998

FUNCTIONAL UNIT	ACT Residents	Non-ACT Residents
Medical Division		
Cardiology / Cardiac Rehab Nurse	13914	2283
Endocrinology	3607	447
-Diabetes Educ.	10959	950
-Podiatry	733	44
Gastroenterology	3675	1113
Clinical Haematology	2927	2334
Infectious Diseases	951	240
Medical Oncology	9832	4597
Neurology	553	118
Psychiatry	15824	73
Renal Medicine	1562	948
Respiratory Medicine	8240	790
Rheumatology	295	58
Geriatrics	449	52
Surgical Division		
General Surgery	1084	310
Fracture Clinic/Orthopaedics	4804	1029
Plastic Surgery	2569	664
Urology	326	88
Vascular Surgery	420	153
Cardio Thoracic Surgery	338	133
Obstetrics/Gynaecology		
Antenatal Clinic	15558	1370
Gynaecology	750	147
Midwives Pre-admission	1518	162
Antenatal Ward	126	44
Midcall	8073	141
Birth Centre	3990	0
Genetics	463	129
Parent Educ. Unit	2890	38
NICU/NAPPS	3549	382
Fetal Medicine Unit	2664	595
Delivery Suite	5692	253
Paediatrics Division		
Paediatrics & Paed's Oncology & Paediatric Short Stay	1552	212
Paediatric Diabetes Educ.	822	120
Paediatric Surgery	511	95
Health Professionals		
Nutrition	3431	564
Occupational Therapy	6319	848
Physiotherapy	20445	1888
Social Work	6352	2208
Psychology	3156	303
Speech Therapy	1608	327
Other		
Radiation Oncology	12591	7880
Pre-Admission Clinic	2567	857
Total	187689	34987

The combined ACT data were then assigned QACS costs. The number of presentations and estimated costs are presented in Table 45.

Table 45 Frequency and estimated cost of outpatient presentations at ACT hospitals during 1998 by region of residence

Region of Residence	Number of Presentations	Estimated Cost
ACT	187689	\$10,117,819
Non-ACT	34987	\$2,747,014
Total	222676	\$12,864,833

In order to estimate net cross border flow for outpatients, it is necessary to make some assumptions about where non-ACT outpatients live. In Table 466, we have assumed that outpatient flow is proportional to emergency flow. On that basis, we distributed the non-ACT outpatient costs as shown in Table 46.

Table 46 Distribution of Non-ACT Outpatient Costs

Area of residence	Estimated cost
Other Australian State	\$419,036
Other NSW	\$628,554
SAHS	\$1,559,745
Unknown/Overseas	\$139,679
Total	\$2,747,014

5.2.1.1 Privately referred outpatients

One data item that could not be captured was an indication of whether a patient was publicly (non-chargeable) or privately referred (chargeable). The summary of outpatient occasions of service at Calvary in the ACT did provide numbers of private patients in some clinics. Almost all of these were in the physiotherapy and radiology units. However, this information was not available from the other hospitals. Instead, they provided us with a variable indicating the source of referral. One category of this variable was "private medical practice". Although this does not correspond exactly with a public/ private grouping, it would indicate the maximum number of privately referred (and therefore potentially chargeable) patients in the data set.

For privately referred patients, a different set of costs had to be used as the medical component can be billed to Medicare through the Health Insurance Commission. The costs for the QACs classes can be partitioned into their various components, and that pertaining to medical treatment could be subtracted. Using these non-medical components of the QACs classes would avoid the problem of including costs that are refundable through Medicare. Perhaps surprisingly, the medical component was not found to be very large. On average, the non-medical costs were about 88% of the full costs.

To determine the proportion of patients who could be considered private, the *Medilinc* file from TCH was used, as it contained the variable, Source of Referral. The proportions of patients referred by private medical practice for both ACT and non-ACT residents were calculated. These

values were then used to proportionally allocate the two sets of QACs costs - those with and those without the medical component. The result was a cost of \$9,305,484 for ACT residents and \$2,539,420 for non-ACT residents. In Table 47, this non-ACT resident cost is allocated to the various regions in the same proportion as was found in the emergency department data.

Table 47 Distribution of Non-ACT Outpatient Costs adjusted for patients referred by private medical practice

Area of residence	Estimated cost
Other Australian State	\$387,369
Other NSW	\$581,054
SAHS	\$1,441,874
Unknown/Overseas	\$129,123
Total	\$2,539,420

5.2.2 Usage of NSW Outpatient Services

Some of the NSW hospitals provide a small range of outpatient services, but do not record data in an electronic format. The only data that were available to assign costs to NSW outpatient services were those presentations at emergency departments that would probably have been provided in an outpatient clinic if one were available.

The number of patients from each region of residence assigned to the various visit types are presented in Table 48. Clearly, the vast majority of the patients assigned to visit types that could be regarded as outpatient occasions of service were residents within the Southern Area.

Table 48 Number of patients presenting at SAHS emergency departments by region of residence

Visit Type	ACT	Other Aust	Other NSW	Southern	Unknown/Overseas	Total
Emergency presentation	2370	1229	3730	50619	788	58736
Return visit planned	32	126	189	4440	25	4812
Unplanned return for continuing condition	20	6	37	752	13	828
Outpatient/ clinic	34	20	77	3518	41	3690
Privately referred/ non-admitted	20	20	64	2630	7	2741
Prearranged admission – clerical only	0	2	0	15	0	17
Prearranged admission – clerical and nursing	1	11	5	162	1	180
Prearranged admission – full clinical	0	2	1	64	0	67
Patient in transit	0	1	0	10	1	12
Dead on arrival	7	3	7	95	9	121
Unknown	112	952	291	3136	417	4908
Total	2596	2372	4401	65441	1302	76112

In Table 49, the estimated costs of the occasions of service at the Southern Area NSW hospitals are presented by region of residence. To estimate these costs, the QACS cost for pre-admission clinic was used for the three prearranged admission visit types. The other presentations were assigned to the class for internal medicine, new patient. No adjustments were made for privately

referred outpatients as all of these presentations occurred within an emergency department, thus ruling out charging of the HIC.

Table 49 Estimated cost of patients presenting for outpatient services at SAHS by region of residence

Region of Residence	COUNT OF ATTENDANCES		COST OF ATTENDANCES	
	Number	Proportion	Cost	Proportion
ACT	87	0.76%	\$5,144	0.80%
Other Australian State	182	1.58%	\$10,148	1.59%
Other NSW	336	2.92%	\$18,657	2.92%
SAHS	10839	94.10%	\$601,706	94.05%
Unknown/Overseas	75	0.64%	\$4,106	0.64%
Total	11519		\$639,761	

5.3 Estimated Net Cost of Patient Flow

In this section we synthesise the financial results presented above. In Table 50 the net effect of the various services is shown, but no adjustment is made for privately referred outpatients or for emergency department presentations who were subsequently admitted as an inpatient. Without either adjustment, we estimate that the net flow from NSW to ACT is equivalent to \$3,161,414 per year.

Table 50 The bottom line

Patient type	Area of Treatment		
	ACT	NSW	Difference
ACT Residents Using ED Services		\$345,693	
Other NSW Residents Using ED Services	\$359,139		
SAHS Residents Using ED Services	\$964,813		
ACT Residents Using Outpatient Services		\$5,144	
Other NSW Residents Using Outpatient Services	\$628,554		
SAHS Residents Using Outpatient Services	\$1,559,745		
Total	\$3,512,251	\$350,837	\$3,161,414

Table 51 estimates the net effect of the various services using the data adjusted for the patients who were referred by private medical practice, but not for emergency presentations who were subsequently admitted as inpatients. The net flow from NSW to the ACT is estimated to be \$2,996,043.

Table 51 The bottom line using data adjusted for source of referral

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$345,693	
Other NSW Residents Using ED Services	\$359,139		
SAHS Residents Using ED Services	\$964,813		
ACT Residents Using Outpatient Services		\$5,144	
Other NSW Residents Using Outpatient Services	\$581,054		
SAHS Residents Using Outpatient Services	\$1,441,874		
Total	\$3,346,880	\$350,837	\$2,996,043

Results for outpatient occasions of service and emergency department presentations are combined in Table 52. Emergency department patients who were subsequently admitted are excluded from these data. Without an adjustment for privately referred outpatients, the net flow from NSW to the ACT is estimated to be \$2,671,025.

Table 52 The bottom line excluding emergency patients who were subsequently admitted

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$299,386	
Other NSW Residents Using ED Services	\$320,630		
SAHS Residents Using ED Services	\$466,626		
ACT Residents Using Outpatient Services		\$5,144	
Other NSW Residents Using Outpatient Services	\$628,554		
SAHS Residents Using Outpatient Services	\$1,559,745		
Total	\$2,975,555	\$304,530	\$2,671,025

Table 53 estimates the net effect of the various services using the data adjusted for the patients who were referred by private medical practice. Again, emergency presentations who were subsequently admitted are excluded from the calculations. The net flow from NSW to the ACT is estimated to be \$2,505,654.

Table 53 The bottom line using data adjusted for source of referral and excluding emergency patients who were subsequently admitted

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$299,386	
Other NSW Residents Using ED Services	\$320,630		
SAHS Residents Using ED Services	\$466,626		
ACT Residents Using Outpatient Services		\$5,144	
Other NSW Residents Using Outpatient Services	\$581,054		
SAHS Residents Using Outpatient Services	\$1,441,874		
Total	\$2,810,184	\$304,530	\$2,505,654

There are a number of caveats on the figures shown above:

1. Net cross border flow for outpatients cannot be estimated reliably, as it is not known where the non-ACT residents treated at the ACT hospitals live. We have calculated the figures above based on the assumption that outpatient flow is proportional to emergency flow.
 2. Information is not available to estimate two NSW cost items:
 - 2.1. The cost of services to ACT residents treated outside the SAHS. This includes both emergency department and outpatient services.
 - 2.2. The cost of patients treated in SAHS Outpatient Clinics. The above figures include outpatient-type work delivered in emergency departments but not work delivered in outpatient clinics.
- The inclusion of these costs would have acted to reduce the net effect of flow from NSW to ACT. However, it is not possible to estimate the size of such a reduction.
3. We costed primary care type visits in the SAHS emergency departments as outpatient services on the basis that they would normally be performed in an outpatient clinic if one were available. The visits comprised just over 15% of total presentations. If they had been costed as emergency department visits the costs would have been about \$10,000 higher than costing them as outpatient visits.
 4. Some visits were excluded from both the SAHS and the ACT data sets because the visit was ungroupable. 108 ACT presentations by NSW residents and 89 NSW presentations by ACT residents were excluded on this basis. More importantly, no information on the residence of the patient was available for 505 SAHS presentations. Presumably some of these related to ACT residents.

Table 50 and Table 51 above suggest that the net cost of flow is in the range \$2,996,043 to \$3,161,414, a difference of only \$165,000. When the data are adjusted for emergency presentations who were subsequently admitted as inpatients Tables 52 and 53, the corresponding range is \$2,505,654 to \$2,671,025, again a difference of just over \$165,000. Given the caveats outlined above, the lower figure is more likely to be correct for either scenario. In particular, the cost of services to ACT residents treated outside the SAHS (both emergency department and outpatient services) would have acted to reduce the net cost if the information had been available.

6 Discussion and Recommendations

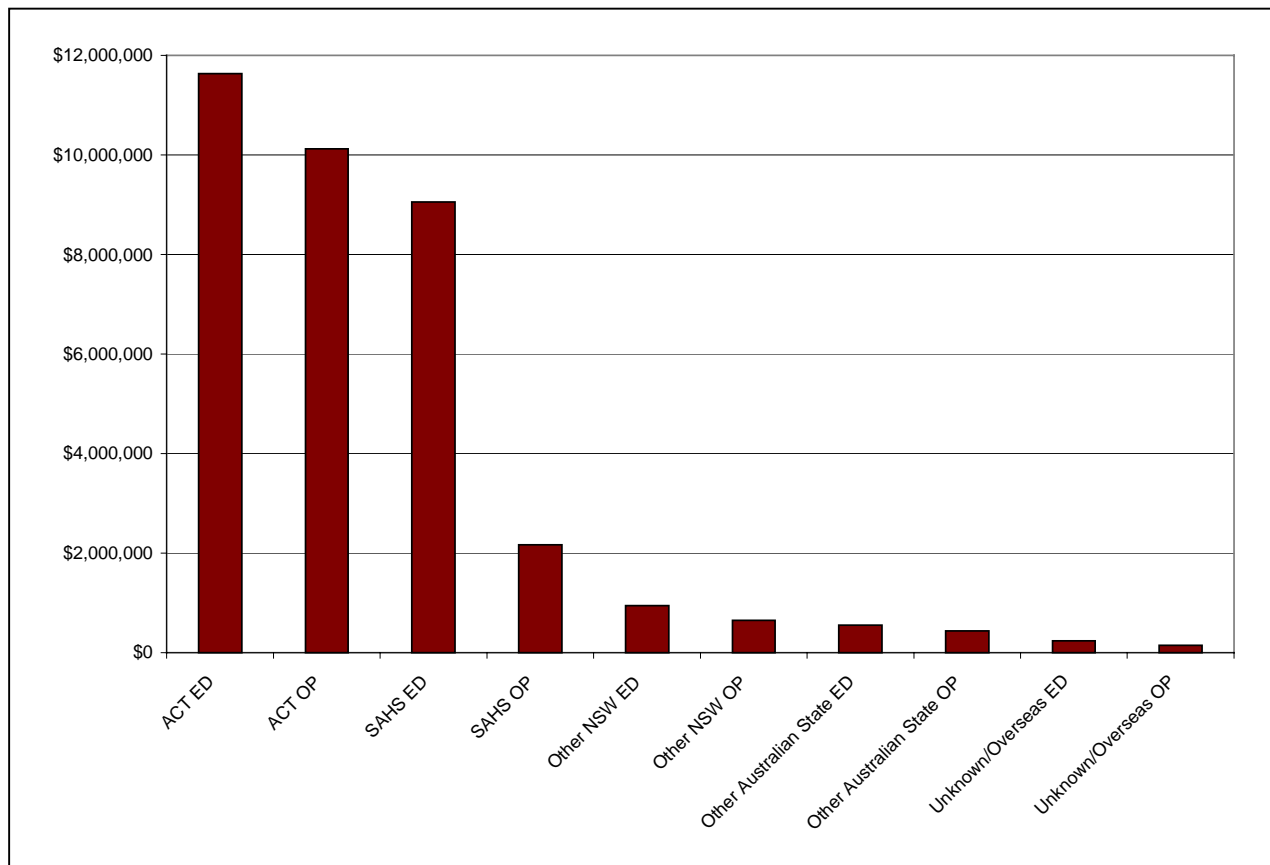
Table 54 shows the total costs of ambulatory hospital-based care reported in the study. Approximately \$36 million of services were costed, 72% provided by the ACT and 28% provided by the SAHS. Nearly two-thirds of the total costs are in emergency department services and one-third in outpatient services. For the ACT, the split is almost 50:50.

Table 54 Total costs of ambulatory care reported in the study

Service Type	Area of Treatment		Total
	ACT	NSW	
ED	\$12,914,536	\$9,504,902	\$22,419,438
Outpatient	\$12,864,833	\$639,761	\$13,504,594
Total	\$25,779,369	\$10,144,663	\$35,924,032

Figure 3 shows the distribution of costs by region of residence. Emergency department services for ACT residents is the single largest item followed by outpatient services for ACT residents and emergency department services for SAHS residents.

Figure 3 Cost of All Ambulatory Services by Region of Residence



The study results show that there is an imbalance of flow between the ACT and NSW for ambulatory hospital services. The net effect is that NSW residents utilise an estimated \$2,996,043 of ambulatory services in the ACT each year. This figure is surprisingly close to the \$2.8 million in the current agreement.

As Table 51 showed, the major flow is for SAHS residents using ambulatory services in the ACT. For emergency services, the casemix-adjusted flow is at the rate of about 4 to 1. Interestingly, use of emergency department services in the SAHS by ACT residents is almost equivalent to the use of ACT emergency services by NSW residents who do not live in the SAHS (with both groups using about \$350,000 of services per year). For outpatient services, the ratio of ACT to NSW costs is significantly higher. This is not surprising given the roles of the participating hospitals.

Both the study methodology and the study results have implications for future negotiations between the two jurisdictions and for the refinement of current data collections. The following comments arise from this study and are consistent with our Terms of Reference.

6.1 Methodology

This study demonstrates that it is possible to use routine data collections as the basis for negotiating payment arrangements for interstate residents. However, some changes and refinements to current systems would improve the robustness of future results.

We recommend that:

1. The use of routine data collections be the agreed methodology for paying for non-admitted patient services for interstate residents.
2. The analysis reported here be replicated each twelve months in sufficient time to inform the negotiations between the parties. Once the methodology is agreed and understood, it should be possible for the whole analysis to be undertaken 'in-house' by either or both jurisdictions.
3. The Queensland Ambulatory Classification System (QACS) classification and prices be used as the agreed methodology for paying for outpatient services for interstate residents until such time as a system is developed that is assessed as being better than the QACS system.
4. The Urgency, Disposition and Age Groups (UDAGS) classification and prices be used as the agreed methodology for paying for non-admitted patient services for interstate residents until such time as a system is developed that is assessed as being better than the UDAGS system.

6.2 Data items and quality

Implementation of the above recommendations will require some improvements to the quality and accuracy of current collections.

We recommend that:

5. Both the ACT and NSW begin to routinely use the information that is already collected. The cost of routinely collecting data is significant and these costs can only be justified if the data are used to inform tasks such as service planning, evaluation, contracting and benchmarking. The data reported in this study provide useful examples of the type of information which is routinely collected and show the type of data that could be routinely extracted. The use of routine data, including the provision of timely feedback to those who collect it, is the single most important strategy to improve data quality.
6. Both jurisdictions include their requirements in relation to ambulatory data in their contracts/service agreements with the relevant hospitals.
7. The SAHS provide training and then audit the data being collected in its emergency department information system. A specific issue here is data quality, an issue that was raised by several of the hospitals themselves.
8. The ACT change its current outpatient systems to separately identify NSW residents.
9. The ACT change its current outpatient systems so that it can collect accurate information on privately charged outpatient visits. This includes privately referred patients, DVA cardholders and other chargeable patients.
10. NSW either establish an outpatients collection at the larger hospitals in the SAHS or extend the current emergency department collection so that it is also used to collect outpatient data. The volume of work at the small hospitals does not warrant such a system.
11. NSW decide whether it wishes to collect data about ACT residents receiving ambulatory care in areas beyond the SAHS. If so, it will need to establish routine systems for the required data to be collected.

6.3 Scope

The scope of the current study was limited to hospital-based ambulatory care (outpatients and emergency departments). It specifically excluded community health, as it would not have been possible to undertake a study using retrospective data.

We recommend that:

12. Consideration be given to undertaking a *prospective* study of patterns of community health care along the lines of "The State of Origin" study (Centre for Health Service Development, 1997) and the study on "Measuring and Classifying Primary and Extended Care Services in the Northern Rivers" (Centre for Health Service Development, 1999)

If and when the ACT transfers its allied health staff to ACT Community Care, a decision will be required as to whether, for the purposes of cross-border agreements, they be classified as outpatient or community services.

We recommend that:

13. Until such time as a methodology is agreed to measure and cost community health services, allied health services currently provided in ACT hospitals be classified as outpatient services whether or not they are managed by ACT Community Care.

6.4 Appropriateness of service delivery

This study has measured what is currently provided, rather than what might be regarded as the best mix and location of services to provide 'appropriate care'. There are three specific issues here that warrant joint planning by the two jurisdictions:

- *Access issues for NSW travelling to the ACT for outpatient services.* It is reasonable to assume that many NSW patients would travel long distances to receive services that are not dependent on hospital technology. The question to be addressed is whether at least some of these patients could receive appropriate services closer to where they live. This question could only be addressed on a speciality by speciality and clinic by clinic basis.
- *Ambulance costs for NSW residents transferred to and from the ACT.* It appears that the costs of ambulance transfers are completely met by the relevant NSW hospital. Unlike the usual situation within NSW, the NSW hospital pays for both the 'transfer in' and the 'transfer out'. This is a particular issue for small hospitals transferring to and from the emergency department. These hospitals clearly have an incentive to transfer to another hospital in NSW rather than to transfer to a hospital in the ACT. Both parties need to assess whether the current ambulance charging policy is creating the incentives they desire.
- *The role of satellite and outreach clinics.* The questions of interest here are the roles, locations and costs of satellite and outreach clinics. Outpatient clinics have historically had the dual role of providing services for patients whilst at the same time providing training opportunities for clinicians in training. This dual role raises issues about what proportion of their costs are best attributed to patient care and what proportion to clinical training. The needs of NSW patients need to be balanced against the training needs of ACT clinicians.

We recommend that:

14. The ACT and NSW agree on a methodology to review the appropriateness of the ambulatory services being provided, with a particular focus on outpatient and outreach services. Future ambulatory service provision for NSW residents in the ACT should be based on joint planning between the two jurisdictions.

Appendix 1 List of Study Hospitals

ACT Hospitals

The Canberra Hospital
Calvary Hospital

NSW Hospitals

Bateman's Bay District
Bega District
Bombala District
Boorowa District
Braidwood District
Cooma Hospital and Health Service
Crookwell District
Delegate District
Goulbourn Base
Moruya District
Murrumburrah-Harden
Queanbeyan District Hospital and Health Service
Yass District
Young District

Appendix 2 Urgency Disposition Age Group (UDAG) Classes

UDAG	Disposition	Triage	Age Group	Trimmed Cost
1	Admitted, transferred, DOA	1	0 - 14	\$573.06
2	Admitted, transferred, DOA	1	15 - 34	\$555.35
3	Admitted, transferred, DOA	1	35 - 64	\$467.00
4	Admitted, transferred, DOA	1	65 and over	\$378.96
5	Admitted, transferred, DOA	2	0 - 14	\$200.02
6	Admitted, transferred, DOA	2	15 - 34	\$338.47
7	Admitted, transferred, DOA	2	35 - 64	\$280.61
8	Admitted, transferred, DOA	2	65 and over	\$301.36
9	Admitted, transferred, DOA	3	0 - 14	\$169.58
10	Admitted, transferred, DOA	3	15 - 34	\$257.46
11	Admitted, transferred, DOA	3	35 - 64	\$279.28
12	Admitted, transferred, DOA	3	65 and over	\$303.15
13	Admitted, transferred, DOA	4	0 - 14	\$159.29
14	Admitted, transferred, DOA	4	15 - 34	\$215.77
15	Admitted, transferred, DOA	4	35 - 64	\$229.96
16	Admitted, transferred, DOA	4	65 and over	\$272.16
17	Admitted, transferred, DOA	5	All	\$230.17
18	Treated - not admitted	1	All	\$239.37
19	Treated - not admitted	2	0 - 14	\$154.04
20	Treated - not admitted	2	15 - 34	\$201.86
21	Treated - not admitted	2	35 - 64	\$209.91
22	Treated - not admitted	2	65 and over	\$213.12
23	Treated - not admitted	3	0 - 14	\$139.43
24	Treated - not admitted	3	15 - 34	\$182.72
25	Treated - not admitted	3	35 - 64	\$190.64
26	Treated - not admitted	3	65 and over	\$203.19
27	Treated - not admitted	4	0 - 14	\$133.34
28	Treated - not admitted	4	15 - 34	\$148.79
29	Treated - not admitted	4	35 - 64	\$149.13
30	Treated - not admitted	4	65 and over	\$166.39
31	Treated - not admitted	5	All	\$120.50
32	Did not wait	All	All	\$92.67

Appendix 3 Queensland Ambulatory Classification System (QACS) Classes 1998/99

Class	Description	Cost (\$) Group 1	Cost (\$) Group 2	Class	Description	Cost (\$) Group 1	Cost (\$) Group 2
1	Allergy	63.18	48.23	40	Other allied health repeat patient	44.71	34.13
2	Cardiology new patient	60.88	46.47	41	Paediatric surgery	57.04	43.54
3	Cardiology repeat patient	41.85	31.95	42	Pain Clinic	54.55	41.64
4	Clinical Measurement age <=10	54.43	41.55	43	Physiotherapy	43.73	33.38
5	Clinical Measurement age >10	38.17	29.14	44	Plastic surgery new patient	51.10	39.01
6	Dental	74.42	56.81	45	Plastic surgery repeat patient	47.74	36.44
7	Dermatology	44.53	33.99	46	Podiatry	22.39	17.09
8	Diabetes new patient	62.68	47.85	47	Pre-admission	83.39	63.66
9	Diabetes repeat patient	53.79	41.06	48	Primary care	72.55	55.38
10	Drug & Alcohol new patient	67.78	51.74	49	Prosthetics	158.79	121.21
11	Drug & Alcohol repeat patient	28.49	21.75	50	Psychiatry new patient	75.08	57.31
12	Endocrinology new patient	106.78	81.51	51	Psychiatry repeat patient	46.02	35.13
13	Endocrinology repeat patient	77.30	59.01	52	Psychology new patient	75.08	57.31
14	ENT age <=10	47.15	35.99	53	Psychology repeat patient	46.02	35.13
15	ENT age >10	37.92	28.95	54	Pulmonary	52.45	40.04
16	Gastroenterology new patient	95.55	72.94	55	Rheumatology new patient	140.45	107.21
17	Gastroenterology repeat patient	66.51	50.77	56	Rheumatology repeat patient	78.05	59.58
18	General Surgery	49.81	38.02	57	Social Work new patient	71.77	54.79
19	Gynaecology new patient	83.00	63.36	58	Social Work repeat patient	56.36	43.03
20	Gynaecology repeat patient	66.25	50.57	59	Speech path/audio age <=10	94.56	72.18
21	Haematology	160.29	122.36	60	Speech path/audiol age >10	71.07	54.25
22	Infectious diseases	115.54	88.20	61	Transplants	94.00	94.00
23	Internal medicine new patient	76.46	58.37	62	Urology	62.55	47.75
24	Internal medicine repeat patient	59.53	45.44	63	Vascular surgery	105.47	80.51
25	Nephrology new patient	106.36	81.19	64	Wound Management	32.74	24.99
26	Nephrology repeat patient	112.45	85.84	65	Dialysis	58.95	45.00
27	Neurology new patient	80.07	61.12	66	Endoscopy & Related Procedures	58.95	45.00
28	Neurology repeat patient	62.59	47.78	67	Community Health Service	39.30	30.00
29	Neurosurgery	84.78	64.72	68	District Nursing Services	39.30	30.00
30	Nutrition	116.11	88.63	69	Other Outreach Services	39.30	30.00
31	Obstetrics	53.34	40.72	70	Multi-Disciplinary/Groups - General Outpatients	51.26	39.13
32	Occupational Therapy	72.01	54.97	71	Multi-Disciplinary/Groups - Psychiatry	58.70	44.81
33	Oncology new patient	150.60	114.96	72	Multi-Disciplinary/Groups - Physiotherapy	49.82	38.03
34	Oncology repeat patient	162.74	124.23	73	Multi-Disciplinary/Groups - Other Allied Health	90.18	68.84
35	Ophthalmology age <=10	52.24	39.88	74	Multi-Disciplinary/Groups - Community Health	39.30	30.00
36	Ophthalmology age >10	25.10	19.16	75	Multi-Disciplinary/Groups - District Nursing Service	39.30	30.00
37	Orthopaedics age <=10	72.76	55.54	76	Multi-Disciplinary/Groups - Other Outreach	39.30	30.00
38	Orthopaedics age >10	44.70	34.12	77	Multi-Disciplinary/Groups - Other	39.30	30.00
39	Other allied health new patient	58.47	44.63	99	Other		

SUPPLEMENTARY ANALYSIS 1

Investigating Prices of Outpatient Presentations

The Centre for Health Services Development at the University of Wollongong recently completed a study into the flow of patients utilising outpatient and emergency services across the ACT/NSW border. Data were collected from ACT and Southern Area Health Service facilities. Costs of occasions of service were estimated using the Urgency Disposition Age Group (UDAG) classes for emergency encounters and the Queensland Ambulatory Classification System (QACS) for outpatient clinics. It was found that there was a net flow from NSW to the ACT.

The best way to accurately assess the cost of this flow of patients is to measure the actual cost of treatment, including associated costs, such as overheads, goods and services etc. For this study, such costs were not available. Instead, they had to be estimated by assigning each emergency and outpatient presentation to a particular class in an ambulatory casemix classification system. Prices have been derived for the various classes. These were assigned to each occasion of service, thus enabling the total net cost to be estimated. This paper addresses issues relating to the classification and costs of outpatient visits.

The Choice of Classification System

There are several classification systems available for ambulatory data. The choice of which to use should be made on the basis of the criteria by which patients are classified. A second and quite distinct issue related to a classification system is the price to be applied to the classes. This can vary from region to region. The first thing to do is to decide which classification is better and then to determine an appropriate price for the classes.

Ambulatory casemix classifications are sometimes based on clinic visits and sometimes based on diagnosis. An example of a diagnosis-based system is the Developmental Ambulatory Classification System (DACS). Patients are grouped according to their Major Diagnostic Category (MDC). These groups are then split further according to whether the occasion of service is a new or a repeat visit, a procedure or something else. This system is quite complicated. It was not possible to classify the ACT outpatient data by DACS because the patients' diagnoses were not available.

Two classification systems based on clinic visits are the Queensland Ambulatory Classification System (QACS) and the Victorian Ambulatory Classification System (VACS) (see Appendix 1). The QACS was developed after the VACS and is substantially based on VACS. QACS is, in fact, the second generation of VACS. Both use the same logic and they are similar in that they group patients according to the type of clinic where treatment was provided. The types of clinic included in the two systems are roughly the same, though there is perhaps a slightly more comprehensive set of clinic types covered by QACS.

In the QACS system, many of the groups based on clinic type are split further according to whether the occasion of service is a first or a repeat visit. Some other groups are split according to the age of the patient. QACS also includes eight classes for group consultations. These refinements are not included in VACS.

The decision to use QACS in the study was made on the basis of these differences. It was considered that QACS provided an appropriate refinement to the classes offered in VACS, and was therefore a better means of classifying patients.

Assigning Outpatient Presentations to QACS Classes

As the QACS classes are based on clinic type and the data were provided as the number of presentations at the different clinics, the choice of class for most occasions of service was limited to one or two. Where there was a choice, it was either between first or subsequent visit or between age above or below 10. It was generally possible to estimate the proportions for these within-clinic splits by using the large Medilinc file supplied by the Canberra Hospital. In this file, there is a field denoting Previous Episode Type. From this, it was possible to calculate the proportion of patients within each clinic type who had previously presented at the same type of outpatient clinic. These proportions were used to assign patients to the two classes for that clinic type. For instance, of the 5,495 cardiology presentations, 3,518 (or 64%) had a previous outpatient visit. Consequently, 64% of the cardiology patients were mapped to QACS class 3, Cardiology repeat patient, and 36% were mapped to QACS class 2, Cardiology new patient. The same method could be used when the clinic type split on age, as these data were also available in this file. If it was not possible to estimate such proportions, such as for the Calvary hospital data, then half the occasions of service were assigned to each of the appropriate classes.

Prices Applied to the Classes

Once the best classification system has been selected, appropriate prices need to be set for each class. These prices should be reflective of the costs incurred in the provision of the outpatient services. A set of prices that is appropriate in one state or region may not be appropriate in another.

This can be seen in a comparison of VACS and QACS prices. Although the classes are fairly similar, there is a big difference in the prices, with the average cost of \$52.51 for a QACS class (using the 1998/1999 costs), \$109.68 for a VACS class (using 1998/1999 costs) and \$118.48 for a VACS class (using 1999/2000 costs). If we were to classify the ACT outpatient data by VACS, we would certainly find a larger net flow of costs from NSW to the ACT. However, it is not possible to determine whether this value is a more accurate representation of the true costs than that obtained using the QACS classes and prices.

In order to investigate the difference between the prices, it is necessary to investigate how they were derived and what they include, as well as the funding arrangements with the relevant Health Department, to see what other payments (if any) are made to the outpatient clinics.

In QACS, there is not a single set of prices. Hospitals in Queensland were placed into one of two groups depending on their critical care category as determined by the Intensive Care Services Advisory Panel for the 1998/1999 funding model. At the time there were no reliable costing data, so these groups were believed to serve as a proxy for cost. For the 1999/2000 funding model, it was possible to refine these groups using information from the National Hospital Cost Data Collection. For this financial year three groups with separate sets of prices have been formed. The different sets of prices reflect facilities with different levels of activity. For VACS, on the other hand, only a single set of prices is available because only 18 Victorian hospitals are VACS funded.

In the derivation of prices for the QACS classes, several components were incorporated including staff costs (both direct and indirect), consumables costs (both direct and indirect), overheads, radiology, pathology and pharmacy costs. The price of each QACS class includes components for pathology, imaging and pharmacy, as well as overhead and medical costs. It was therefore not necessary to cost radiology and pharmacy separately when the data were classified by QACS. When the prices were derived, the cost of ancillary services utilised within the two weeks preceding and the two weeks succeeding the clinic visit were incorporated.

Queensland hospitals receive funding consisting of a variable component related to the number and casemix of patients treated, as well as fixed components of teaching grants (medical staff, nursing staff, allied health and other professional staff), research grants and special grants.

VACS classifies patient encounters. An encounter is defined as the clinic visit, plus all ancillary services (pathology, radiology and pharmacy) provided within the 30 days either side of the clinic visit. Since July 1997, output based funding using VACS has been in place for sixteen Group A hospitals as well as Ballarat Health Services and the Bendigo Health Care Group.

Funding in Victoria consists of the variable case payment, as well as a VACS base grant for fixed or non-variable activities (about 13% of the historical budget), a VACS teaching grant, an allied health grant and specified grants.

In summary, the method to assign costs in the two States was fundamentally the same. The only difference is that QACS includes all costs incurred within 2 weeks of the visit while VACS includes all costs incurred within 1 month of the visit. In terms of the payment model used in the two States, there appears to be one significant difference. Victoria does not fund private outpatients at all while Queensland does. If the VACS prices were to be applied in the ACT and NSW, it would be necessary to remove all privately referred outpatients from any calculations. This was not done in our analysis. Instead, we allocated 88% of the cost for privately referred patients.

Even taking this difference into account, the difference in prices paid in Queensland and Victoria is significant (\$52.51 in Queensland and \$109.68 in Victoria). We looked at South Australia to provide another model. The benchmark price in South Australia is \$81.00, although South Australia pays significantly less (around \$30) for private patients seen by VMOs.

It is not entirely clear why there are such differences between the various jurisdictions, although it is probably a mixture of factors. The way that medical costs for private patients are handled appears to be one such factor. A further possible factor is that different methods have been used to split overhead costs between inpatient and outpatient care.

If local data were available, it would be possible to determine which of the 3 benchmark prices (Queensland, South Australia and Victoria) is closest to the actual cost of the services being provided in the ACT and Southern NSW. In the absence of any local cost data, it is clearly a matter of judgement about what set of prices is most appropriate for cross-border negotiations between NSW and the ACT. Judgement is also required to determine how particular services are handled. For example, radiation oncology units receive block Commonwealth payments for their medical component and are funded outside the VACS arrangements in Victoria. In contrast, we included radiation oncology at TCH in our calculations.

In the following table we applied the 3 different benchmark prices to the QACS classes and the ACT outpatient data to illustrate the impact of varying the benchmark price. Note that we simply inflated the initial QACS prices to equal the prices paid in Victoria and South Australia. We have not made the adjustments for privately referred outpatients that would be necessary to apply either the full Victorian or South Australian models as the ACT data on privately referred outpatients are not sufficiently reliable.

Table S1 Net Cash Flow to ACT using Three Different Sets of Prices

	Area of Treatment		Difference
	ACT	NSW	
Queensland prices			
ACT Residents Using ED Services		345,693.00	
Other NSW Residents Using ED Services	359,139.00		
SAHS Residents Using ED Services	964,813.00		
ACT Residents Using Outpatient Services		5,144.00	
Other NSW Residents Using Outpatient Services	581,054.00		
SAHS Residents Using Outpatient Services	1,441,874.00		
Total	3,346,880.00	350,837.00	\$2,996,043
Vic prices			
ACT Residents Using ED Services		345,693.00	
Other NSW Residents Using ED Services	359,139.00		
SAHS Residents Using ED Services	964,813.00		
ACT Residents Using Outpatient Services		11,665.35	
Other NSW Residents Using Outpatient Services	1,317,690.16		
SAHS Residents Using Outpatient Services	3,269,822.05		
Total	5,911,464.21	357,358.35	\$5,554,106
SA prices			
ACT Residents Using ED Services		345,693.00	
Other NSW Residents Using ED Services	359,139.00		
SAHS Residents Using ED Services	964,813.00		
ACT Residents Using Outpatient Services		7,934.95	
Other NSW Residents Using Outpatient Services	896,312.59		
SAHS Residents Using Outpatient Services	2,224,181.95		
Total	4,444,446.53	353,627.95	\$4,090,819

As this table shows, the effect is to increase the net cash flow to ACT by \$1 million (using the South Australian price) or \$2.5 million (using the Victorian price). Note however, that these figures only illustrate the relativities because the data are not available to accurately apply the full South Australian and Victorian models.

Recommendation

We recommend:

1. The use of QACS as the preferred classification system for outpatients in both the ACT and NSW.
2. That a benchmark price for the classes be negotiated between NSW and ACT Health.
3. NSW and the ACT agree on a costing methodology that can be implemented in both jurisdictions to help inform negotiation on future prices, noting that routine data collections may have to be altered to incorporate cost components and the items required for classification by QACS.

Centre for Health Service Development
December, 1999.

Appendix S1

VACS: 1999-2000 Prices and Cost Weights

Class No.	Cost	Cost Weight	Description
101	\$119.90	1.1	General medicine
102	\$157.07	1.441	Allergy
103	\$210.48	1.931	Cardiology
104	\$88.84	0.815	Diabetes
105	\$143.77	1.319	Endocrinology
106	\$126.99	1.165	Gastroenterology
107	\$221.38	2.031	Haematology
108	\$279.37	2.563	Nephrology
109	\$120.23	1.103	Neurology
110	\$196.53	1.803	Oncology
111	\$159.47	1.463	Respiratory
112	\$126.88	1.164	Rheumatology
113	\$107.80	0.989	Dermatology
114	\$210.15	1.928	Infectious diseases
115	\$229.45	2.105	Developmental neurological disability
201	\$94.61	0.868	General surgery
202	\$195.44	1.793	Cardiothoracic
203	\$146.50	1.344	Neurosurgery
204	\$64.86	0.595	Ophthalmology
205	\$71.61	0.657	Ear, nose and throat
206	\$77.61	0.712	Plastic surgery
207	\$110.74	1.016	Urology
208	\$118.16	1.084	Vascular
209	\$141.37	1.297	Pre-admission
301	\$106.38	0.976	Dental
310	\$111.73	1.025	Orthopaedics
311	\$85.24	0.782	Orthopaedic applications
350	\$109.22	1.002	Psychiatry and behavioural disorders
401	\$127.86	1.173	Family Planning
402	\$107.69	0.988	Obstetrics
403	\$112.38	1.031	Gynaecology
404	\$163.61	1.501	Reproductive medicine
405	\$95.16	0.873	Dysplasia and colposcopy
501	\$124.48	1.142	Paediatric surgical
502	\$151.73	1.392	Paediatric medical
550	\$156.96	1.44	Emergency medicine
601	\$40.00		Audiology
602	\$40.00		Nutrition
603	\$40.00		Optometry
604	\$40.00		Occupational therapy
605	\$40.00		Physiotherapy
606	\$40.00		Podiatry
607	\$40.00		Speech pathology
608	\$40.00		Social work
609	\$40.00		Other allied health services

NOTE: The 1999-2000 cost weights have been set on the basis of a "three year rolling average cost" based on the past three cost weight study results.

Weights are not detailed for VACS 550-609, as these categories are funded as fixed grants for 1999-2000.

SUPPLEMENTARY ANALYSIS 2

Applying a Variety of QACS Prices to the ACT/NSW Data

Each year the Queensland Ambulatory Classification System (QACS) is reviewed and the prices updated. Both the 1998/1999 and the 1999/2000 versions comprise more than one set of prices. To determine which set of prices is relevant to a hospital, consideration must be given to the size of the hospital and the facilities it provides. The ACT/NSW data have been reanalyzed in a number of different ways. Different QACS prices have been used and there have been a couple of changes to the outpatient clinics that are included.

Radiation oncology is partly funded by a block capital grant from the Commonwealth. However, staff and administration costs are borne by the hospital. Other imaging data have not been separately included as the QACS classes contain an imaging component. It would appear that this area should be the subject of separate negotiations between the NSW and ACT Health Departments. To assist in this process, net cash costs to the ACT have been calculated twice for each scenario, once with and once without radiation oncology. When it has been included, the price applied has been the same as that used for medical oncology.

All of the following eight tables contain data from the Gilmour Clinic which was previously not included. Outpatient data have been adjusted for source of referral in all tables, to adjust for patients who have been privately referred. Data relating to the medical component of the QACS prices are only available for the 1998/99 prices for Group 2. On average, 88% of the costs relate to non-medical components. For the sets of prices where the actual medical/ non-medical breakdown was not available, it was assumed that this same proportion would apply.

The cost of patients who are admitted as an inpatient from an emergency department is currently covered in the inpatient agreement between the two Health Departments. However it is possible that this may change in the near future. Consequently, the net cash flow for all scenarios have been calculated twice, once with these patients (Tables S2-1 – S2-4) and once without them (Tables S2-5 – S2-8).

Two separate sets of prices have been applied. The 1998/99 QACS prices were provided for two sets of hospitals (see Appendix 3 of the main report). These have been used in Tables S2-1, S2-2, S2-5 and S2-6. The Canberra Hospital (TCH) was regarded as belonging to Group 1 and Calvary and the SAHS hospitals were placed into Group 2. Hospitals were separated into three groups in the 1999/00 QACS classification (see Appendix S2). In Tables S2-3, S2-4, S2-7 and S2-8, the 1999/00 prices were applied, with TCH placed into Group A, Calvary and Goulburn into Group B and the other SAHS facilities into Group T. The prices for the UDAG classes have not altered, so emergency department costs are constant over the two time periods.

Table S2-1 Net cost to the ACT using 1998/99 prices including radiation oncology and all emergency presentations, adjusted for source of referral

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$345,693	
Other NSW Residents Using ED Services	\$359,139		
SAHS Residents Using ED Services	\$964,813		
ACT Residents Using Outpatient Services		\$5,144	
Other NSW Residents Using Outpatient Services	\$750,256		
SAHS Residents Using Outpatient Services	\$2,014,955		
Total	\$4,089,163	\$350,837	\$3,738,326

Table S2-2 Net cost to the ACT using 1998/99 prices excluding radiation oncology and including all emergency presentations, adjusted for source of referral

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$345,693	
Other NSW Residents Using ED Services	\$359,139		
SAHS Residents Using ED Services	\$964,813		
ACT Residents Using Outpatient Services		\$5,144	
Other NSW Residents Using Outpatient Services	\$506,386		
SAHS Residents Using Outpatient Services	\$1,359,994		
Total	\$3,190,332	\$350,837	\$2,839,495

Table S2-3 Net cost to the ACT using 1999/00 prices including radiation oncology and all emergency presentations, adjusted for source of referral

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$345,693	
Other NSW Residents Using ED Services	\$359,139		
SAHS Residents Using ED Services	\$964,813		
ACT Residents Using Outpatient Services		\$7,126	
Other NSW Residents Using Outpatient Services	\$1,042,851		
SAHS Residents Using Outpatient Services	\$2,800,774		
Total	\$5,167,577	\$352,819	\$4,814,758

Table S2-4 Net cost to the ACT using 1999/00 prices excluding radiation oncology and including all emergency presentations, adjusted for source of referral

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$345,693	
Other NSW Residents Using ED Services	\$359,139		
SAHS Residents Using ED Services	\$964,813		
ACT Residents Using Outpatient Services		\$7,126	
Other NSW Residents Using Outpatient Services	\$703,873		
SAHS Residents Using Outpatient Services	\$1,890,384		
Total	\$3,918,209	\$352,819	\$3,565,390

In the final four tables (Tables S2-5 – S2-8), emergency department presentations who were subsequently admitted as inpatients have been excluded from the analysis.

Table S2-5 Net cost to the ACT using 1998/99 prices including radiation oncology, adjusted for emergency presentations and source of referral

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$299,386	
Other NSW Residents Using ED Services	\$320,630		
SAHS Residents Using ED Services	\$466,626		
ACT Residents Using Outpatient Services		\$5,144	
Other NSW Residents Using Outpatient Services	\$750,256		
SAHS Residents Using Outpatient Services	\$2,014,955		
Total	\$3,552,467	\$304,530	\$3,247,937

Table S2-6 Net cost to the ACT using 1998/99 prices excluding radiation oncology, adjusted for emergency presentations and source of referral

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$299,386	
Other NSW Residents Using ED Services	\$320,630		
SAHS Residents Using ED Services	\$466,626		
ACT Residents Using Outpatient Services		\$5,144	
Other NSW Residents Using Outpatient Services	\$506,386		
SAHS Residents Using Outpatient Services	\$1,359,994		
Total	\$2,653,636	\$304,530	\$2,349,106

Table S2-7 Net cost to the ACT using 1999/00 prices including radiation oncology, adjusted for emergency presentations and source of referral

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$299,386	
Other NSW Residents Using ED Services	\$320,630		
SAHS Residents Using ED Services	\$466,626		
ACT Residents Using Outpatient Services		\$7,126	
Other NSW Residents Using Outpatient Services	\$1,042,851		
SAHS Residents Using Outpatient Services	\$2,800,774		
Total	\$4,630,881	\$306,512	\$4,324,369

Table S2-8 Net cost to the ACT using 1999/00 prices excluding radiation oncology, adjusted for emergency presentations and source of referral

Patient type	Area of Treatment		Difference
	ACT	NSW	
ACT Residents Using ED Services		\$299,386	
Other NSW Residents Using ED Services	\$320,630		
SAHS Residents Using ED Services	\$466,626		
ACT Residents Using Outpatient Services		\$7,126	
Other NSW Residents Using Outpatient Services	\$703,873		
SAHS Residents Using Outpatient Services	\$1,890,384		
Total	\$3,381,513	\$306,512	\$3,075,001

In summary, if an adjustment for emergency presentations is appropriate, the net cost to the ACT is \$3,247,937 using 1998/99 prices and \$4,324,369 using 1999/00 prices when radiation oncology is included. With this same adjustment for emergency presentations, but radiation oncology excluded, 1998/99 prices produce a net cost of \$2,349,106 while 1999/00 prices produce a cost of \$3,075,001.

If, on the other hand, it is appropriate to incorporate the cost of emergency patients who are subsequently admitted as inpatients, the study found that, based on 1998 data, the net cost to the ACT is \$3,738,326 using 1998/99 prices and \$4,814,758 using 1999/00 prices when radiation oncology is included. With this same adjustment for emergency presentations, but radiation oncology excluded, 1998/99 prices produce a net cost of \$2,839,495 while 1999/00 prices produce a cost of \$3,565,390.

Appendix S2

Queensland Ambulatory Classification System (QACS) Classes and Prices 1999/00

Class	Description	Cost (\$)		
		Group A	Group B	Group T
1	Allergy	87.82	67.04	48.23
2	Cardiology new patient	84.62	64.59	46.47
3	Cardiology repeat patient	58.17	44.41	31.95
4	Clinical Measurement age <=10	75.66	57.75	41.55
5	Clinical Measurement age >10	53.06	40.50	29.14
6	Dental courses of care: general	270.00	270.00	270.00
7	Dental courses of care: emergency	80.00	80.00	80.00
8	Dermatology	61.90	47.25	33.99
9	Diabetes new patient	87.13	66.51	47.85
10	Diabetes repeat patient	74.77	57.07	41.06
11	Drug & Alcohol new patient	94.21	71.92	51.74
12	Drug & Alcohol repeat patient	39.60	30.23	21.75
13	Endocrinology new patient	148.42	113.30	81.51
14	Endocrinology repeat patient	107.45	82.02	59.01
15	ENT age <=10	65.54	50.03	35.99
16	ENT age>10	52.71	40.24	28.95
17	Gastroenterology new patient	132.81	101.39	72.94
18	Gastroenterology repeat patient	92.45	70.57	50.77
19	General Surgery	69.24	52.85	38.02
20	Gynaecology new patient	115.37	88.07	63.36
21	Gynaecology repeat patient	92.09	70.29	50.57
22	Haematology	222.80	170.08	122.36
23	Infectious diseases	160.60	122.60	88.20
24	Internal medicine new patient	106.28	81.13	58.37
25	Internal medicine repeat patient	82.75	63.16	45.44
26	Nephrology new patient	147.84	112.85	81.19
27	Nephrology repeat patient	156.31	119.32	85.84
28	Neurology new patient	111.30	84.96	61.12
29	Neurology repeat patient	87.00	66.41	47.78
30	Neurosurgery	117.84	89.96	64.72
31	Nutrition	161.39	123.20	88.63
32	Obstetrics	74.14	56.60	40.72
33	Occupational Therapy	100.09	76.41	54.97
34	Oncology new patient	209.33	159.79	114.96
35	Oncology repeat patient	226.21	172.68	124.23
36	Ophthalmology age <=10	72.61	55.43	39.88
37	Ophthalmology age >10	34.89	26.63	19.16
38	Orthopaedics age <=10	101.14	77.20	55.54
39	Orthopaedics age >10	62.13	47.43	34.12
40	Other allied health new patient	81.27	62.04	44.63
41	Other allied health repeat patient	62.15	47.44	34.13
42	Paediatric surgery	79.29	60.52	43.54
43	Pain Clinic	75.82	57.88	41.64
44	Physiotherapy	60.78	46.40	33.38
45	Plastic surgery new patient	71.03	54.22	39.01
46	Plastic surgery repeat patient	66.36	50.65	36.44
47	Podiatry	31.12	23.76	17.09
48	Pre-admission	115.91	88.49	63.66
49	Primary care	100.84	76.98	55.38
50	Prosthetics	220.72	168.48	121.21
51	Psychiatry new patient	104.36	79.66	57.31
52	Psychiatry repeat patient	63.97	48.83	35.13
53	Psychology new patient	104.36	79.66	57.31
54	Psychology repeat patient	63.97	48.83	35.13
55	Pulmonary	72.91	55.66	40.04
56	Rheumatology new patient	195.23	149.02	107.21

57	Rheumatology repeat patient	108.49	82.82	59.58
58	Social Work new patient	99.76	76.16	54.79
59	Social Work repeat patient	78.35	59.81	43.03
60	Speech path/audio age <=10	131.44	100.33	72.18
61	Speech path/audiol age >10	98.79	75.41	54.25
62	Transplants	130.66	130.66	94.00
63	Urology	86.94	66.37	47.75
64	Vascular surgery	146.60	111.91	80.51
65	Wound Management	45.51	34.74	24.99
66	Dialysis	81.94	62.55	45.00
67	Endoscopy & Related Procedures	81.94	62.55	45.00
68	Community Health Service	54.63	41.70	30.00
69	District Nursing Services	54.63	41.70	30.00
70	Other Outreach Services	54.63	41.70	30.00
71	Multi-Disciplinary/Groups - General Outpatients	71.25	54.39	39.13
72	Multi-Disciplinary/Groups - Psychiatry	81.59	62.29	44.81
73	Multi-Disciplinary/Groups - Physiotherapy	69.25	52.86	38.03
74	Multi-Disciplinary/Groups - Other Allied Health	125.35	95.69	68.84
75	Multi-Disciplinary/Groups - Community Health	54.63	41.70	30.00
76	Multi-Disciplinary/Groups - District Nursing Service	54.63	41.70	30.00
77	Multi-Disciplinary/Groups - Other Outreach	54.63	41.70	30.00
78	Multi-Disciplinary/Groups - Other	54.63	41.70	30.00
99	Other			
