HEALTHCARE MANAGEMENT ADVISORS

DEPARTMENT OF HUMAN SERVICES, VICTORIA

Development of a Resource Allocation Model for the Post Acute Care Program

FINAL REPORT

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EXECUTIVE SUMMARY

The Department of Human Services (DHS) engaged Healthcare Management Advisors (HMA) in August 1999 to develop a new model for the equitable allocation of Post Acute Care (PAC) Program funds. The PAC Program is a joint initiative of the Acute Health and the Aged, Community and Mental Health Divisions of the DHS. It commenced in 1996/97 with the establishment of six pilot projects and has now grown to incorporate some eighteen projects. As with many new health services delivery programs; growth in the PAC Program has generated a need for more equitable and transparent methods of resources allocation.

Once a program concept has been validated it is important that operational resources are allocated to the areas that return the greatest benefit. The Post Acute Care Resource Allocation Model (PACRAM) has been designed to improve the equity in resource allocation to PAC Projects in order to promote increased accessibility, efficiency, effectiveness and quality of services. PACRAM distributes the available PAC Program budget ($13 million during 2000/2001) as equitably as possible to projects. It is the responsibility of the PAC Projects to then determine how the allocated funds are best used in providing PAC services to the populations they serve.

Project methodology

PACRAM was developed as a result of a comprehensive methodology, implemented over a period of some twelve months including a broadly based process of stakeholder consultation. The methodology included six PAC project case studies up-front so as to ensure that the final PACRAM had regard to the PAC Program management issues being experienced "in the field". It also included an evaluation of alternative resource allocation models through an interactive process with stakeholders to determine which approach best fitted the needs of the PAC Program.

Program overview

The rationale of the PAC Program is to fund short-term post acute intervention services that assist patients to recuperate following an acute hospital admission and facilitate their independence or transition to continuing care where necessary. At the beginning of 1999/2000 the PAC program comprised a total of sixteen projects with a total operating budget of $8.5 million. The existing funding arrangements have evolved since 1996/97, when the six initial PAC projects were established. Historically PAC Program funds have been allocated on the basis of approximately $600,000 per annum for metropolitan PAC projects and $300,000 per annum for rural PAC projects with some adjustment based on previous year's expenditure. In February 2000 an increase in funding for the PAC Program over the next four financial years was announced. The funding is sourced from the Government's new Hospital to Home policy and will be directed to achieving statewide coverage for the Program by 1 July 2000. PAC Program funding for 2000/2001 is anticipated to be around $13 million, thereby increasing the level of PAC project service provision across the state.

Resource Allocation Model Options

In developing, PACRAM, five approaches to resource allocation models suitable for use in a health services context were considered as follows:

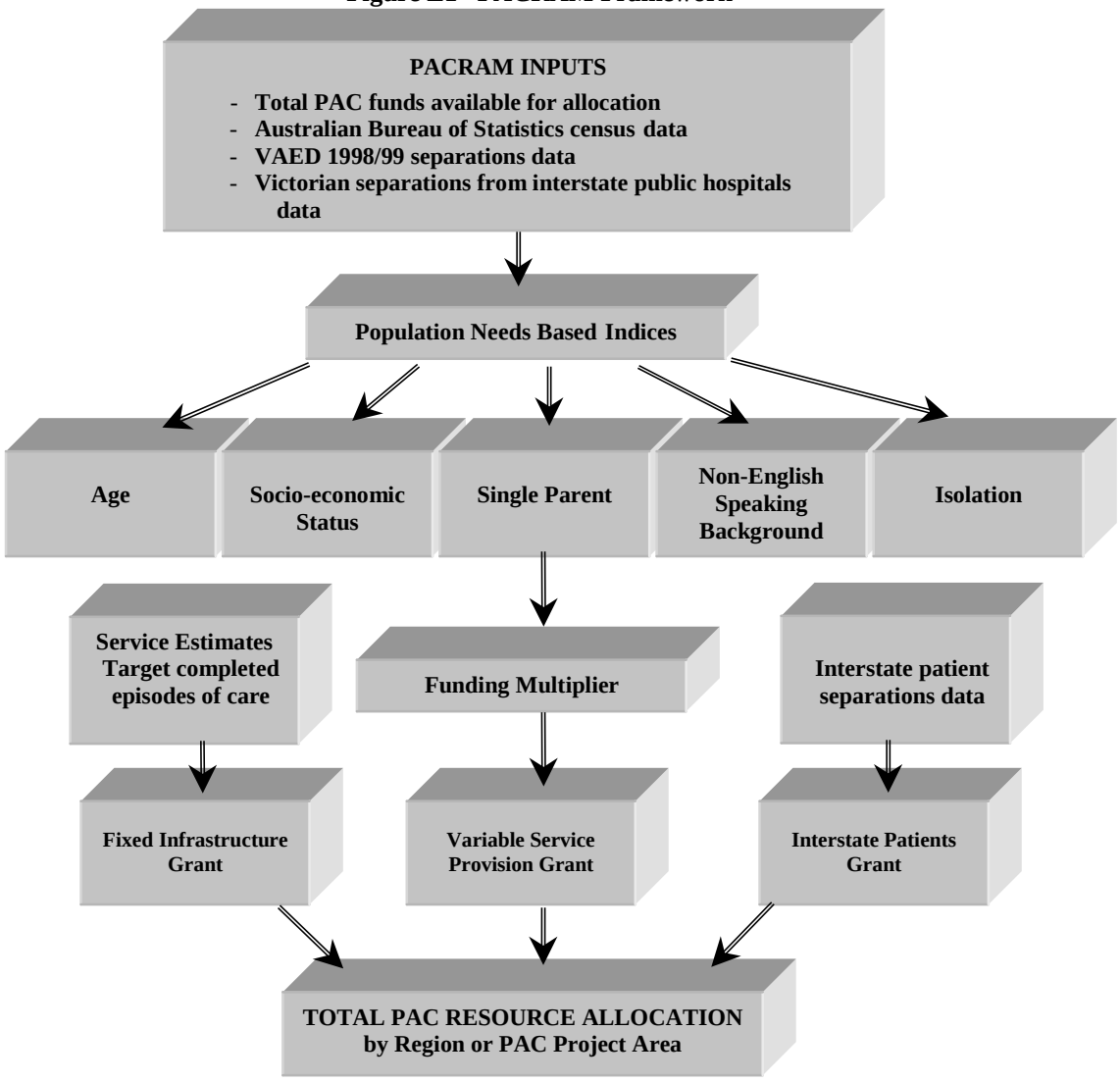
- Inputs-based Resource Allocation Model;
- Outputs-based Resource Allocation Model;
- Population needs based Resource Allocation Model;
- Outcomes based Resource Allocation Model; and
- Hybrid (Population & Outputs Based) Resource Allocation Model.

We evaluated the strengths and weaknesses of each of the candidate models (Refer Chapter 5) and the analysis concluded that the best funding method, given the state of development of the PAC Program, would be to combine features of the population needs based approach with an output based approach.

PACRAM conceptual framework

PACRAM has been designed to utilise both a population needs based and activity based approach to resource allocation and is depicted in Figure E1 below.

Figure E1 –PACRAM Framework



One of the key inputs to the model is the target population. Given that the PAC Program was established to provide individually tailored packages of care to patients needing assistance

with their recuperation post discharge from hospital, hospital discharges form the basis of the target population. The target population comprised all acute care inpatient separations of Victorian residents discharged home from Victorian public hospitals (exclusive of same day patients) as derived from the VAED database including public patients discharged from Bush Nursing Hospitals.

We then identified and analysed a suite of adjustment factors that reflect both population needs and expected resource use for PAC services and determined that from the data available five key population needs adjustment factors would be utilised in the PACRAM as follows:

- Age;
- Socioeconomic Status;
- Non-English Speaking Background;
- Single Parent; and
- Isolation.

Other factors such as "self care problems", "living alone", and "carer responsibilities" were considered to be suitable for inclusion in the PACRAM, but suitable data were not available to support the calculation of indices from either the VAED or the ABS population census.

PACRAM model

PACRAM fundamentally allocates funds to seventeen PAC Project Areas. It has been designed to provide three separate funding grants blending both a needs adjusted population based and outputs based approach to resource allocation as follows:

(1) A variable Service Provision Grant calculated by taking 72% (the balance of the budget once the infrastructure and interstate patients grants have been provided for) of the overall budget available for allocation and distributing it using the composite needs adjusted funding multiplier (this is the needs adjusted population based component of the model).

(2) A fixed Infrastructure Grant which has been set at 25% of the overall PAC budget and is calculated using estimated target completed episodes of care for each PAC Project Area (this is an outputs based component of the model).

(3) An Interstate Patients Grant estimated at 3% (this varies slightly depending on the approach used to estimate the number of patients to be serviced) of the total budget allocation has been established to fund those PAC Projects providing services to interstate residents discharged from Victorian public hospitals and for Victorian residents discharged from interstate public hospitals (this is an outputs based component of the model).

It is important to note that the PACRAM is designed to achieve equity in resource allocation across geographic areas based on population needs. The model does not specify what services should be purchased or how the money should be used by PAC Projects. Purchasing strategies need to be determined by the auspice organisations responsible for the geographic area for which services are being funded.

A computer-based representation of PACRAM has been developed to allow examination of the changes in results when many of the key assumptions are varied.

DHS PAC Project Areas Model

The results of using PACRAM to calculate the resource allocation to PAC Project Areas for 2000/2001 are illustrated in Table E1 below. The full PACRAM output data is included in Appendix D.

Table E1
DHS PAC Project Areas Model – 2000/01 Resource Allocation

PAC Project Areas	Total Service Estimates (including Interstate)	Total 2000/2001 Budget Allocation
Barwon PAC	1,100	$715,641
Wannon PAC	839	$553,772
Central Highlands PAC	614	$410,271
Grampians PAC	691	$459,739
Loddon Mallee PAC	1,527	$968,636
Northern Mallee PAC	330	$222,860
Hume PAC	1,853	$1,150,197
East Gippsland PAC	345	$233,243
Latrobe & Wellington PAC	647	$431,345
South/West Gippsland PAC	522	$351,941
Western PAC	3,160	$1,875,899
Royal Children's PAC	420	$331,810
North Eastern PAC	1,755	$1,095,700
Outer Eastern PAC	1,687	$1,057,550
Inner Melbourne PAC	831	$548,416
Inner South East PAC	951	$624,559
Peninsula PAC	981	$643,676
Southern PAC	2,168	$1,324,743
TOTAL	**20,419**	**$13,000,000**

It is important to appreciate that population based funding reflected in PACRAM represents a significant departure from current practice. Under the previous (largely inputs-based) resource allocation arrangements, PAC Projects tended to be responsible for PAC services provided to patients discharged from hospitals in their areas. Under PACRAM (population based funding), PAC Projects are responsible for the provision of PAC services to patients who reside in their catchment area, irrespective of the public hospital from which the patient was discharged. This arrangement is much more logical in a home based services program in that it brings the point of coordination of the services (the PAC project) much closer to the point of the delivery of the services (the patient's home).

Minimising disruptive effects of implementation

Implementation of the PACRAM requires a series of implementation issues to be addressed. Given the significant changes to resource allocation using the per capita needs based approach, it is imperative that PACRAM be phased in to minimise the disruptive effects of implementation all at once. As already indicated, the Government has provided for additional funds to be allocated for the expansion of the PAC Program in 2000/2001. As a result it should be feasible to introduce resource allocation changes whereby transition arrangements can be made for those continuing PAC Projects which will experience a decrease in funding under the PACRAM.

Geographic level at which model is used

The other major implementation issue is the geographic level at which the model is used. Experience in the funding of health services shows that population based approaches work best with larger populations. Given the history of the PAC Program, we suggest that PACRAM be initially implemented at the PAC Project Area level. It is important that the DHS undertake progressive reviews of the PAC Program operations in order to determine the need for PAC project aggregation or disaggregation in accordance with directions emerging from health service reforms.

Resource allocation for hospitals providing specialist services

As already indicated, PACRAM is designed to allocate resources to PAC Project Areas based on the target population living in the area. We believe that this approach is the most equitable in terms of access to service but it represents a change in the way PAC services are provided to patients discharged from specialist hospitals, in particular the Peter MacCallum Cancer Institute, The Royal Women's Hospital, the Royal Children's Hospital and the Royal Victorian Eye and Ear Hospital.

The DHS has decided to specifically fund the RCH for patients discharged from this hospital. As such, the RCH will be responsible for providing all PAC services to patients discharged from the RCH. This recognises the complex post acute care needs of many of the RCH's patients and the integrated arrangements and service provider networks the hospital has already established for the delivery of home and community care services. The PACRAM model is considered appropriate for the delivery of PAC services to patients of the other specialist hospitals. Due to the changes inherent in this approach, we recommend that limited funds be made available to these hospitals in 2000/2001 outside of the PACRAM allocations to support PAC promotion and education activities, and referral of patients to the appropriate geographically based PAC Project. The funding amount should be relative to the number of separations for each hospital. The specialist hospitals could also provide a consultative service to the providers regarding any special needs of their specialist client group.

Further refinement of PACRAM

We believe it is important that the DHS plan for the progressive refinement of the PACRAM in order to improve the robustness and accuracy of the resource allocation process. PACRAM represents a considerable change in the way in which resources are to be allocated in the PAC Program. It introduces equity into the resource allocation process through the use of a needs adjusted population approach and it makes the resource allocation process transparent to stakeholders. As with the development of any new approach to resource allocation, PACRAM needs to be refined over time, partly to address issues which were identified in its

development but could not be dealt with due to lack of data, and partly to address issues as they emerge. We have set out below an initial list of issues to be included in the work plan.

Table E2
Potential PACRAM refinements to be included in work plan

Description of issue	Proposed Action Required
Current population needs based resource allocation approach does not entirely address all the needs based factors	• Study of the target population to identify true characteristics of need to be undertaken. • Identify and refine appropriate needs adjustment factors, for example living alone, self-care problems, prior use of services and carer responsibilities, casemix of a hospital, service availability, service substitution, drug addiction, and homelessness. • Review the PAC service needs of Aboriginal and Torres Strait Islander people.
Need to ensure target population takes into consideration other areas of service provision such as Emergency Department patients.	• Evaluate the relevance of the existing target population definition with respect to the provision of post acute care and assess the appropriateness of including sameday patients and Emergency admissions. • Review the assumption that the distribution of factors in the general population will be the same in the target population as these factors may in fact be more prevalent in the target population (eg lower health status and higher use of public rather than private hospitals).
Impact of HACC service availability	• Further consider the availability of HACC services in particular areas and the resultant impact on post acute care services.
Service targets	• Review the methodology for establishing service targets including client eligibility and relevant data reporting requirements.
Enhancement of PACIS	• Carry out work to ensure the consistent, reliable and accurate reporting of data on the PAC program via the PACIS system
Extension of the VAED	• Evaluate the merit of extending the VAED to collect data required to calculate the population needs adjustment indices.

Table E2 does not exhaust the issues, but it provides a solid basis for the development of a work plan. In our view, refinement of quality of the PACIS data and further development of the needs adjustment indices should be accorded a high priority.

LIST OF RECOMMENDATIONS

R1 **It is recommended that the DHS devise an implementation plan for PACRAM for 2000/2001 providing transition arrangements for those continuing PAC Projects which will experience a decrease in funding under the PACRAM.**

R2 **It is recommended that PACRAM be initially implemented at the PAC Project Area level and be kept under ongoing review to ensure consistency with directions emerging from health services reforms.**

R3 **It is recommended that funding be provided to specialist hospitals outside PACRAM for promotion, education, and referral activities.**

R4 **It is recommended that the DHS consider the collection of "self-care problems" and 'living alone" variables as part of the VAED for non-sameday patients.**

R5 **It is recommended that the definitions and counting rules for the PACIS system be reviewed and a process (possibly including some data quality assurance activities) be put in place to improve the quality of the PAC Program activity data reported to the DHS.**

R6 **It is recommended that a specific plan to carry out work to refine PACRAM be developed, based on the issues identified in this study, with a high priority being accorded to enhancing the PACIS system and further developing the population needs adjustment indices.**

1
Introduction

The Department of Human Services (DHS) engaged Healthcare Management Advisors (HMA) in August 1999 to develop a new model for the equitable allocation of Post Acute Care (PAC) Program funds. The PAC Program is a joint initiative of the Acute Health and the Aged, Community and Mental Health Divisions of the DHS. It commenced in 1996/97 with the establishment of six pilot projects and has now grown to incorporate some eighteen projects. As with many new health services delivery programs, growth in the PAC Program has generated a need for more equitable and transparent methods of resources allocation.

Once a program concept has been validated it is important that operational resources are allocated to the areas that return the greatest benefit. In a health service program context, benefits are generally measured in terms of accessibility, efficiency, effectiveness and quality of services. The funding model that has been developed for the PAC Program has regard to all of these factors. In particular, in an environment where there is far greater involvement of, and expectations from, the community in health service delivery programs, equity of access to services becomes an even more important consideration. Within limited resources, equity of access is best achieved by directing resources to the patients with the greatest needs. The resource allocation model developed in this project therefore aims to distribute the available PAC Program budget ($13 million during 2000/2001) as equitably as possible to projects. It is the responsibility of the PAC Projects to then determine how the allocated funds are best used in providing PAC services to the populations they serve.

Given the diversity of the eighteen PAC projects, it was important for the Post Acute Care Resource Allocation Model (PACRAM) to have regard to a range of factors. Patients' needs were determined by drawing on the VAED data on hospital separations and ABS population characteristics. The DHS had developed a screening tool that assesses the risk of patients requiring services following discharge from acute care. Wherever possible, measurement of the significant risk factors as determined by this screening tool were also provided as an indication of the need for PAC Program services. Other factors such as the location of services and patients, the range of services already provided in the area, the capacity to provide additional (rather than substitute) services were also considered in arriving at an equitable resource allocation model.

HMA applied a comprehensive project methodology, which included a broadly based consultative process to develop the PACRAM. The methodology included PAC project case studies up-front so as to ensure that the final PACRAM had regard to the PAC Program management issues being experienced "in the field". It also included an evaluation of alternative resource allocation models through an interactive process with stakeholders to determine which approach best fitted the needs of the PAC Program. A description of the work undertaken in key stages in the methodology is set out below.

Stage 1: Detailed project planning

This stage included project initiation; identification of key stakeholders to be consulted; and the design and distribution of a questionnaire to all the existing (at the time) sixteen PAC Projects to provide specific quantitative and qualitative data on the type of service delivery models in use and descriptions of the services provided. It should be noted that the Women's and Children's PAC Project started in October 1999 and the Northern Mallee PAC Project started in December 1999, therefore no questionnaires were submitted by these projects.

A Steering Committee was established for the project comprising representatives of the PAC Projects, Auspice Agencies, DHS Regional Offices and DHS Central Office. A full list of Steering Committee Members is provided in Appendix A.

Stage 2: Development of existing service profile

The objective of this stage was to develop a profile of the existing PAC services. This work included consultation with PAC Program management staff of the DHS and analysis of the returned questionnaires. As a result of analysis of program data, six (6) PAC Projects were selected as case studies, that is to undergo comprehensive examination so as to identify the issues that HMA needed to consider as part of the funding model development process.

Our objective was to ensure that the Projects selected provided adequate representation of the range of services and client types. In selecting the six case study sites we decided to examine three metropolitan and three rural projects because of the expected differences in the service needs and cost drivers (and hence issues) between the sectors. Based on the analysis of the types of service delivery models, ranges and types of services provided, total client services and total PAC expenditure reported for 1998/99 the following sites were selected:

Metropolitan PACs	***Rationale for selection***
Inner Melbourne PAC	Diverse client base with multiplicity of needs. (commenced services 1 September 1998)
Western PACFU	Mature well established service provider. (commenced services 1 June 1996)
Outer Eastern PAC	Range of client services provided. (commenced services 1 January 1998)

Rural PACs	***Rationale for selection***
Barwon PAC	Mature and well established service provider. (commenced services 1 June 1996)
Grampians PAC	Range of services provided. (commenced services 1 July 1996)
Central Highlands PAC	Range of services provided. (commenced services 8 May 1998)

Consultations with these six PAC Projects were undertaken resulting in the preparation of an issues paper. This paper synthesised the information obtained through the case studies and the questionnaire-based data collection process. It was presented to the Steering Committee and to a Focus Group Workshop where nominated representatives of the seventeen existing PAC Projects attended. The objective of the workshop was to ensure that the issues presented

in the paper reflected and exhausted the views of stakeholders. Based on those discussions the paper was refined and then formed a key input into our consideration of alternative funding models.

Stage 3: Data collection and literature review

This stage included a complete analysis of data collected and a literature review. Data from the Post Acute Care Information System (PACIS) and Victorian Admitted Episodes Dataset (VAED) information systems were used to supplement information already gathered. Analyses, which included details of client services, trend data on service provision, and projections of future service needs were carried out.

Stage 4: Definition of target population

The objectives of this stage were to define the target population for PAC services and to estimate how it may change over time. Data were drawn from the VAED, the PACIS and the Australian Bureau of Statistics (ABS) population census databases in the process of defining the target population.

Stage 5: Development of Resource Allocation Models

In this stage, the objective was to identify alternate resource allocation models for the PAC Program and evaluate strengths and weaknesses of each model. An evaluation paper was submitted to a workshop comprising representatives of stakeholders to further discuss the relative merits of the funding model options leading to the identification of a preferred resource allocation model.

HMA then produced a model that implemented the preferred approach. This (computer-based) model allowed a number of the key assumptions to be varied. The principles underlying the model were presented to the Steering Committee and a number of refinements were made to the model as a result of their feedback. Discussions with the DHS PAC Program management staff also assisted us to focus on some of the implementation issues associated with the model.

Stage 6: Final report

The final stage was the production of a final report. The final report (as presented in this document) describes both the PACRAM project and the model itself. It also expresses some views on implementation strategies. The final report was distributed in draft form to stakeholders for comment over a six-week period. This process resulted in some changes to the draft, in particular, the allocation of postcodes to PAC Project Areas was redefined and the needs adjustment indices and the resultant PACRAM were recalculated. This final report reflects these changes and addresses the comments made on the draft final report.

2

The Post Acute Care Program

In this Chapter, we present an overview of the existing PAC Program in terms of its rationale, the types of services provided, the types of service delivery models in use and 1998/99 staffing and funding levels. This descriptive material is provided to set the context for the development of the Resource Allocation Model.

2.1 PROGRAM OVERVIEW

The rationale of the PAC Program is to provide services as a short-term intervention post acute care, thereby assisting patients to recuperate following an acute hospital admission and to facilitate their independence or transition to continuing care where it is required. The objectives of the PAC Program are to:

- improve care planning for patients discharged from hospital;
- provide additional post acute care services for individuals who require them; and
- improve the linkages between hospitals and other health and community care providers.

For the newly established PAC Projects, an objective is also to assist hospitals and other health and community care providers to develop innovative models for the delivery of post acute care. The aim is to identify and assist those patients needing additional health services to recover and regain independence in the community and to facilitate the transition to continuing care when required.

At the beginning of 1999/2000 the PAC program comprised of a total of sixteen projects with a total operating budget of $8.5 million. Table 1 overleaf identifies all eighteen PAC Projects (that were active during the course of this study) and their commencement dates.

Table 1
Current PAC Projects with commencement date

PROJECT	DATE COMMENCED
Barwon Post Acute Care Project	25/03/96
Wannon Post Acute Care Program	1/07/99
Central Highlands Post Acute Care Project	6/04/98
Grampians Post Acute Care Program	Apr-96
Loddon Mallee Post Acute Care Program	Jan-98 (Stage 1) / Jul-99 (Stage 2)
Northern Mallee Post Acute Care Project	December 1999
Hume Region Post Acute Care Project	Jan-96
East Gippsland Post Acute Care Project	Feb-98
South/West Gippsland Post Acute Care Project	Oct-99
Latrobe & Wellington Post Acute Care Program	Aug-99
Western Post Acute Care Facilitation Unit	Apr-96
North Eastern Post Acute Care Program	4 May 1998
Inner Melbourne Post Acute Care	Apr-98
Outer Eastern Post Acute Care Program	Jan-98
Inner South East Post Acute Care	1996
Peninsula (PENPAC) Post Acute Care Program	9 January 98
Southern Post Acute Care Project	Feb-96
Women's & Children's Post Acute Care Project	Oct-99

Some of the subsequent analyses in this report are based on 1998/99 data and therefore exclude the Women's and Children's PAC and Northern Mallee PAC Projects.

In February 2000 an increase in funding for the PAC Program over the next four financial years was announced. The funding is sourced from the Government's new Hospital to Home policy and is directed to achieving state wide coverage for the PAC Program by 1 July 2000 and increasing the level of PAC project service provision across the State.

This policy initiative represents a substantial increase in funding for the PAC Program and makes the development of an equitable Resource Allocation Model for the Program even more important. It also emphasises the role of the PACRAM, that is to equitably allocate the available funding, rather than to determine the absolute amount of funds required.

2.2 TYPES OF PAC SERVICES PROVIDED

During the consultation phase, our review of the six case study PAC Projects highlighted that the range of post acute care services provided to clients varies considerably from Project to Project as presented in Table 2. In many instances PACs were required to provide a top up to existing services particularly with respect to nursing and home care when existing community services are not available. There were instances cited where the Home and Community Care (HACC) Program services had long waiting lists and as a result PAC tended to provide top up services until the other providers could take over the service needs requirement.

Table 2
Summary of the types of services provided by (thirteen of the eighteen) PAC Projects.

Services Provided		Barwon	Wannon	Central Highlands	Grmpians	Loddon Mallee	Hume	East Gippslnd	Latrobe/ Wellingtn	Sth/West Gippslnd	Western	North Eastern	Inner Melb	Outer Eastern	Inner S/East	Peninsula (PENPAC)	Southern
								N/A	N/A	N/A							
1	Nursing	X	X	X	X	X	X				X	X	X	X	X	X	X
2	Home help	X	X	X	X	X	X				X		X	X	X	X	X
3	Meals	X	X	X	X	X	X				X		X	X	X	X	X
4	Personal care	X	X	X	X	X	X				X	X	X	X	X	X	X
5	Transport	X		X	X	X	X				X		X	X	X	X	X
6	Home maintenance			X	X	X	X				X		X	X	X	X	
7	Respite care			X	X		X				X		X	X	X	X	X
8	Overnight stays			X									X				X
9	Medical supplies						X				X		X	X	X	X	X
10	Allied health	X			X		X				X	X	X	X	X	X	X
11	Childcare				X	X	X				X		X	X		X	X
12	Food & clothing												X				
13	Health education				X		X				X	X	X	X		X	X
14	Equipment provision										X		X		X		
15	Palliative care				X												
16	Parenting support										X		X				X
17	Convalescent accom										X		X				X
18	Escort to appointment						X				X		X				X
20	Accommodation	X											X	X		X	X
21	Veteran Affairs						X					X	X				X
22	Help for carers											X	X				X
23	Medication review											X	X				
24	Short term monitoring & reassurance											X	X				X
25	Continence supplies												X			X	
26	Other					X											

2.3 STAFFING

Staff composition across PAC projects varies significantly, as outlined in Table 3 below.

Table 3
Composition of staff across projects

Staff Type	Rural 1	Rural 2	Rural 3	Rural 4	Rural 5	Rural 6	Rural 7	Rural 8
	EFT	EFT	EFT	EFT	EFT	EFT	EFT	EFT
Manager	1.0	1.0	1.0	1.0	1.0	N/A	N/A	N/A
Care Coordinators	1.5	1.9		1.3	Pay per case	N/A	N/A	N/A
Office Coordinators						N/A	N/A	N/A
Admin Assistant	0.6		0.68	0.5		N/A	N/A	N/A
Total EFT	**3.1**	**2.9**	**1.68**	**2.8**	**> 2.0**	**N/A**	**N/A**	**N/A**
Staff Type	**Metro 1**	**Metro 2**	**Metro 3**	**Metro 4**	**Metro 5**	**Metro 6**	**Metro 7**	**Metro 8**
	EFT	EFT	EFT	EFT	EFT	EFT	EFT	EFT
Manager	N/A	1.0	0.5	1.0	0.75	0.5	0.47	0.8
Care Coordinators	N/A	3.0	5.0	2.0	2.25	2.0	1.45	3.7
Office Coordinators	N/A	0.8						1.0
Admin Assistant	N/A	0.8	1.0	0.8	0.65	1.0	0.63	0.3
Total EFT	**N/A**	**5.6**	**6.5**	**3.8**	**3.65**	**3.5**	**2.55**	**5.8**

Each PAC project employs a Manager, with a mix of care coordinators who are either nurses or allied health professionals. These care coordinators are generally designated responsibility for arranging post-acute services for eligible patients discharged from specific hospitals. Most PACs also employ a part time Administrative Assistant who also provides data entry support.

2.4 FUNDING

The existing funding arrangements have evolved since 1996/97 with the establishment of the initial six PACs. The general distribution of funding has been approximately $600,000 to Metropolitan PACs with $300,000 being allocated to Rural Projects with some adjustment based on previous year's expenditure. Review of the historical financial data shows that all but one of the PACs reported an operating surplus to budget in 1998/99. There are several reasons for these reported surpluses. A number of the Projects were still not operating at full capacity (having been established in mid 1998), whilst for others proposed new initiatives have required implementation time.

All six case study units indicated that given existing client numbers serviced the level of grant funding was adequate. However if there were a significant increase in the demand for services, through the implementation of the Effective Discharge Strategy or more extensive use of the Risk Screening Tool there would be resourcing constraints. In addition it was expected that for the 2000/2001 financial year, there would be a significant rise in the cost of services purchased from HACC funded service providers which would need to be taken into account in developing the resource allocation model for PAC Projects.

3

PAC Program Issues Impacting on Resource Allocation Model Development

This Chapter presents an overview of the key issues identified with respect to providing PAC services and indicates their potential impact on the development of a Resource Allocation Model. Information derived from the six case study sites supported by the results of the PAC projects survey and stakeholder workshop (convened to review the issues paper derived from the case studies) has been used to identify the relevant issues.

3.1 PAC SERVICE MODEL

To a large extent all of the PAC projects function on the basis of a brokerage model, whereby client needs are assessed, service needs are determined, and services are purchased for clients in the PAC Program from community service providers. PAC project staff generally provide service coordination only (in one project service coordination is also purchased). Each PAC has the discretionary power to purchase a range of post acute services in accordance with individual client needs. These services are identified following an assessment of the client's requirements and the preparation of a formal care plan.

Community service providers generally enter into an annual Service Agreement with the relevant PAC for an agreed unit price per service. Our review indicated that the mix between public and private service providers varied across PACs and whilst there was a preference to use public service providers, it was not always possible to do so due to prevailing resource constraints in the public sector. In such circumstances private providers were engaged at a cost competitive price.

We found a number of operational differences between rural and metropolitan PACs. A major difference was that many of the metropolitan PACs were not physically located on-site with the acute hospitals but perform a regional service on behalf of a number of acute care institutions. Patient referrals and consultations were generally undertaken by telephone, fax or email. In addition, we were advised that there were insufficient resources to enable PAC project staff to be outposted to hospitals for long periods of time. This arrangement clearly impacts on the degree of PAC staff involvement in educational and promotional activities and the effectiveness of communicating across multiple hospitals and post acute care service providers within the region. The geographic isolation from hospitals also impacts on the facilitative role of the metropolitan PACs to ensure more efficient risk screening practices are introduced across all hospitals within the health service. It is noted however that DHS PAC Guidelines clearly stipulate that hospitals are responsible for implementing and providing effective discharge procedures for patients including risk screening.

One of the major advantages of rural PACs was their co-location with (at least) the auspicing hospital. We noted that in these instances the PAC care coordinators were able to work collaboratively with hospital staff to facilitate a much smoother transition for the patient from the acute care arena to the community. In addition, on site location encouraged the provision

of more comprehensive educational and promotional programs to the acute care sector that supported more effective discharge planning practices.

There were also other differences in PAC management models. In the case of rural PACs there was greater involvement in the discharge planning process, with many care coordinators making assessments at the bedside prior to patient discharge. Whilst for many metropolitan PACs, there was a clear delineation for discharge planning with the responsibility residing with the auspicing hospital. The metropolitan PACs tended to provide more of a consultative and advisory role, with responsibility for screening, assessment and discharge planning being considered integral parts of the acute care episode. It was noted that the efficiency of discharge planning processes across wards within a hospital was highly variable.

3.2 LINKAGES WITH OTHER SERVICE PROVIDERS

Interviews with the six case study PACs and associated external service providers indicated that the Program had been an outstanding success. Key perceptions of the stakeholders included:

- There have been significant improvements made in forging close links with community service providers and facilitating the smooth transition of clients from the acute care sector back into the community.
- Everyone interviewed considered that the PAC Program and staff had been instrumental in establishing these linkages and had assisted considerably in delivering coordinated care by providing a much needed interface between the hospitals and community sector.
- There was anecdotal evidence that the PAC Program had led to reduced lengths of stay in hospitals. This belief was particularly evident in rural PACs where staff were working collaboratively with nursing and medical staff on discharge planning activities.
- There were instances cited where PAC had also contributed to improved bed management and reduced rate of readmission.
- All PACs had undertaken consumer satisfaction surveys, which had yielded positive outcomes.

We found that the view that the PAC Program had been a success was widespread. Equally, a number of stakeholders emphasised that it was important that any change to funding arrangements for the Program supported (rather than hindered) the continuing enhancement of PAC services.

3.3 CLIENT SERVICE NEEDS

One of the most important issues in formulating an equitable resource allocation model for the PAC Program is to identify the key client service needs for post acute services. During our consultative process, we identified the following issues that needed to be considered as part of the resource allocation model design process.

3.3.1 Application of Risk Screening Tool

The DHS has developed a comprehensive Post Acute Discharge Risk Screening Tool to assess the needs for post acute care following discharge from an acute care facility. The Risk

Screening Tool is applied first to the patient and results in a decision by the clinician and/or PAC project staff to initiate further assessment if deemed appropriate to determine the need for post acute care services. The subsequent application of the assessment tool results in a set of recommendations about the profile of services that is required for each patient. Our review identified that the tool was not being uniformly applied across hospitals participating in PACs with PACs based at rural hospitals having greater influence in introducing the tool as an ongoing hospital administration process. In the case of metropolitan PACs, there were added difficulties associated with introducing the tool due to clinicians viewing the process as being duplicative and providing limited value to support the discharge planning process. The key issues identified were:

- For two rural PACs the Risk Screening Tool was generally completed at the point of admission for all patients. The other PACs did not apply the tool universally for all patients. In some hospitals, nursing care plans have similar questions and hence nurses were disinclined to complete the form due to duplication of effort. In this instance, the tool was applied to only those patients referred to the PAC.

- There have been a number of adaptations to the tool. In two of the three rural case study sites, the Anne Blaylock tool was also being applied in combination with the Risk Screening Tool. Blaylock assesses each client's needs and derives an aggregate score. All patients scored above 10 were considered at risk, and likely to require PAC services, scores of over 19 indicating a need for nursing home/hostel placement. Clients with scores of less than 10 were still assessed if nurses or other health professionals considered it was warranted. The Central Highlands PAC Project has also modified the Blaylock tool for assessment of paediatric needs. Clinicians indicated that the Blaylock tool provided a more accurate identification of patients with more complex discharge needs.

- For Metropolitan PACs the application of the Risk Screening Tool was extremely varied. There was little consistency within each PAC Project Area, with risk assessments being undertaken by nursing staff at each hospital as part of discharge planning practices. In a few instances these assessments were undertaken at the point of admission however that was not universal. A special risk screening tool had been developed for the Mercy Hospital for Women to more adequately reflect the needs of mothers with infants.

Given the lack of consistency in the use of the Risk Screening Tool, there is a high probability that not all clients requiring PAC services have been identified. Accordingly, we concluded that there is a situation of potential unmet demand, which we were not able to estimate due to wide variety of practices associated with the Risk Screening Tool.

3.3.2 Needs of mothers and newborns

PACs identified that post acute services for some mothers with newborn babies represented a growing target group for the provision of services, in that their situation was complicated by a number of clinical and social risk factors.

3.3.3 Needs of NESB Clients

A number of PACs identified a high proportion of Non English Speaking Background (NESB) clients requiring post acute care. In many instances, these clients consumed a higher level of resources due to a need to provide a greater number of visits by assessment staff (instead of the usual one) and additional visits from home care workers and interpreters.

3.3.4 Accessibility to services in rural and remote regions

Accessibility to a range of services was identified as a significant problem in the rural area. This problem not only related to the distances but also to socioeconomic factors, such as available transport, ability to pay for travel, ability to travel distances due to health, and home and work commitments.

3.3.5 Impact on resource allocation model

These issues related to client needs provided important information about the factors that may be relevant in developing a funding model. We were able to conclude that the factors in the Risk Screening Tool could be important measures of need in the funding model. We also identified that in developing the funding model it would be important to consider special needs groups such as mothers and infants, clients with NESB backgrounds and clients living in rural and remote areas.

3.4 CLIENT REFERRAL ARRANGEMENTS

Across the six PAC case studies, there were a number of issues relating to client referral arrangements identified. Various issues were raised and considered as part of designing the funding model set out below.

3.4.1 Nursing Home placements

Some regions identified problems associated with referring clients to Nursing Homes where there was an average minimum eight-week waiting time for placement. The inability to place clients into Nursing Homes has a significant impact on the length of the PAC episode of care and ultimately the level of resources expended.

3.4.2 Referrals to remote areas

Referrals to remote and isolated areas posed a significant problem due to lack of service providers and the distances required for commuting to and from clients. The cost of additional resources required to provide services to older persons living alone and in social isolation in some rural communities, with a high prevalence of ill health and chronic disease requires consideration.

3.4.3 Client referrals

Referral arrangements within metropolitan PACs vary significantly. For example, Inner Melbourne PAC case managed post acute clients irrespective of their geographic location (no referral). Other metropolitan PACs limited their client base to the confines of their geographic area. Referrals were generally received from hospital staff who had responsibility for ensuring an assessment of each patient in order to determine the level of PAC services required. In the case of Outer East PAC, 10% of patients discharged from the hospitals within the region did not live in the catchment area. Servicing these clients was becoming problematic, as there were no service agreements with providers in those areas; thereby making care management and coordination extremely difficult. Both rural and metropolitan PAC Projects considered the client referral process lacked coordination and often proved problematic to manage.

3.4.4 Cross Border Issues

The impact of providing post acute services to patients hospitalised in Victorian but residing outside Victoria was identified as a resource allocation issue requiring further consideration. Equally, the issue of Victorian residents who are admitted to non-Victorian public hospitals and require PAC services post discharge also needs to be considered.

3.4.5 Impact on resource allocation model

The issues related to referrals need to be managed in the context of any new resource allocation model. We were able to conclude that there was a range of referral practices in use. Also, it was highlighted again that remote area referrals impact on cost, as does any restrictions on other services available within a region to which PAC clients can be referred.

3.5 SERVICE DELIVERY

The case studies also identified a number of key service delivery issues that would need to be considered in the formulation of a PAC resource allocation model.

3.5.1 Utilisation of different mix of public/private service providers

As already indicated, we found different approaches (across PAC projects) to contracting service providers. For example, rural PACs had a greater tendency than metropolitan PACs to use private providers when public providers were unavailable. However, the availability of private service providers in rural sector was considerably less than for metropolitan areas. In economic terms, the availability of service providers, and their location, would impact significantly on the costs of service provision, which is a factor that must be considered in the formulation of a resource allocation model.

3.5.2 Service delivery to young low income earning clients

The full post acute care needs of young, low income clients (such as single mothers with small children, with low income and few relatives to provide necessary support), who required a period of care after surgery, were picked up by the PAC program as they did not meet HACC eligibility criteria. HACC services are provided to frail older people, or those with a physical, functional, sensory, intellectual, psychiatric disability, or with acquired brain damage. This eligibility issue was one example of a series of program boundary issues that were highlighted during the course of the case studies.

3.5.3 HACC services

In some regions, due to budgetary constraints being experienced by HACC, there was a requirement for PAC Projects to provide additional resources to ensure the needs of HACC eligible clients were met. Under “maintenance of effort” arrangements, PAC clients who were receiving HACC services prior to admission to hospital, should continue to receive the same level of service from HACC (on discharge), but should also received additional top up services from PAC if required.

3.5.4 Impact on resource allocation model

The case studies also identified a number of key service delivery issues that would need to be considered in the formulation of a PAC resource allocation model. A key consideration was how to deal with the issue of program boundaries in formulating the PACRAM.

3.6 SUMMARY AND CONCLUSIONS

In summary, our review of the PAC Program identified the following issues that would need to be addressed as a consequence of the resource allocation model design process:

- Given the achievements of the PAC Program, we felt that is was particularly important that any new funding model did not stifle the ability of PAC Projects to creatively meet the service needs of their target populations. The Steering Committee was also of this view and the retention of flexibility to meet service needs became a key evaluation criterion in considering alternative funding approaches.

- The different service management models (across metropolitan and rural services) highlighted that current funding arrangements had allowed the PAC project to adapt to local circumstances. Once again, the need for the new funding arrangements to allow flexibility to adapt to local circumstances was highlighted.

- The case studies revealed that definition of program boundaries is clearly an issue. After consultation with the Steering Committee, it was re-affirmed that the principal objective of this project was to produce an equitable funding model for PAC Program services. In particular, the Steering Committee considered that the development of a new resource allocation model for the PAC Program could not effectively address what were perceived to be resource allocation imbalances in other (related) programs.

- Significant work had been undertaken with regard to the development of a Risk Screening Tool for clients likely to need post acute care services. However, the tool is not being applied consistently across all hospitals participating in PAC Projects. Rural hospitals used the tool to a much greater extent than metropolitan hospitals. In metropolitan areas the tool was often seen as an overhead and duplicative of the care planning process undertaken by nurses. This issue has major implications regarding the accurate measurement of demand for post acute care services and ultimately the level of resources required for funding post acute care needs.

- The case studies highlighted that in order to achieve greater equity in the resource allocation process we needed to take account of the specific needs of socio-economically disadvantaged clients and those affected by social and geographic isolation (such as single mothers, NESB and rural clients).

4

Options for the development of the Resource Allocation Model

Having identified the issues relevant to introducing a new funding model into the PAC Program, we set out in this Chapter the options for the development of the Resource Allocation Model. We have also set out a number of attributes that are desirable in any funding model for health services. In considering the possible options we have added comments about the possible application of a particular funding approach in the PAC Program context.

4.1 PRINCIPLES OF FUNDING MODEL DESIGN

The funding allocation model to be developed must have regard to issues of accessibility, efficiency, effectiveness and quality of service provision. More specifically, given the maturing nature of the PAC Program and its success, equity of access to services must be an important consideration. Equity of access is best achieved by directing resources to the patients with the greatest needs. Our objective was to consider the options that will best provide for an equitable allocation of funds to PAC Projects, not to specify how the funds are used by the PACs. Given the diversity of these projects, it is important that the design of the resource allocation model recognises the range of factors that impact on the need for, and the provision of, PAC Program services.

The first stage of designing a funding allocation model requires the definition of desirable attributes. Based on our experience the key features may include:

(1) Funding allocation should take account of variations in costs of care, but only those that reflect client needs. Cost variations and needs can be determined using data on:

- hospital separations;
- population characteristics;
- location of services;
- range of services provided in the area; and
- capacity to provide additional (rather than substitute) services.

(2) The funding allocation model should ensure equity for post acute care programs. Equity can be enhanced by the introduction of valid measures of patient need differences, which result in differences in funding.

(3) The model should address service delivery in terms of accessibility, efficiency, effectiveness and quality.

(4) The operation of the model should involve no significant administrative effort.

(5) There should be a good reason to believe that the starting model is purposeful (and therefore has the ability to be progressively refined).

(6) The model should encourage increased value for money, and must therefore address both the costs and the utility of care.

(7) The funding model should give significant incentives to alleviate identified major problems of care provision.

(8) The funding model must contain features which formally encourage maximisation of health outcomes for any given resource use.

In developing the PAC Program Resource Allocation Model, we attempted to produce an approach that gives effect to as many of these features as possible. Our model represents a very important first step in this process. We believe that it will be important to continually refine the model in practice as experience grows and data improve, particularly to address some of the desirable attributes relating to improving outcomes.

4.2 RESOURCE ALLOCATION OPTIONS

There has been considerable research, particularly over recent years, into the design of resource allocation models in health services. We have not repeated the literature here as it is widely available. Much of the recent work relates to hospital funding, but there is a rapidly expanding literature base on resource allocation approaches for community-based services. For the purposes of the practical development of a funding model for the PAC program, it is relevant to note that there are five principal methods that are used to solve most health care resource allocation problems namely:

- Inputs-based Resource Allocation Model;
- Outputs-based Resource Allocation Model;
- Population needs based Resource Allocation Model;
- Outcomes based Resource Allocation Model; and
- Hybrid (Population & Outputs Based) Resource Allocation Model.

We considered each of these approaches as a candidate for use in the PAC Program as described below.

4.2.1 Inputs-based Resource Allocation Model

The first and historically the most common, is the inputs-based approach to funding. This method essentially relies on estimating the operating costs of a health services program and providing a quantum of funds to meet these costs. The method is now generally used with an expenditure cap (ie services are provided up until the point where the estimated operating costs (or budget) is exhausted). In practice, demand is managed so that expenditure is contained within budget for a given period. What tends to happen, is that changes in the scale and functions over time have a tendency to result in periodic ad-hoc adjustments to allow services to expand or provide new services.

In short, an input allocation model reflects inputs, but only in a very rough and inconsistent manner, within the overall arbitrary constraint of global budget ceilings. Despite the fact that

these models validate varying levels of cost efficiency, inputs based funding models receive a measure of acceptance by service providers, since they assure a degree of certainty from year to year and for longer periods, and consequently minimise pressures for change. It is fair to say that inputs based funding models do not satisfactorily address equity, efficiency or effectiveness issues in health services.

The existing method of funding PAC projects can be characterised as input based, as it involves an estimation of a financial budget for each PAC Project on the basis of historical operating costs. One of the main problems with this approach is that, over time, inequities in funding allocation across PAC Projects begin to emerge as the model is not sufficiently sensitive to changes in client demographic characteristics, service utilisation, client needs, or resource cost of services provided. Since the introduction of the PAC Program there has been an increasing concern that inputs based funding does not provide the most equitable approach to resource allocation, and does not provide incentives for improving operational efficiency.

4.2.2 Outputs-based Resource Allocation Model

The second method, and the one that has come to prominence relatively recently, is outputs-based resource allocation. An outputs based approach sets a price for the provision of a unit of service (an output) and funds each service generated at the set price. Outputs based resource allocation requires a system of classification of outputs and a schedule of prices. For the PAC Program, prices would be typically derived from estimates of the actual costs of service provision. Outputs based methods of resource allocation are sometimes implemented with expenditure caps. If an expenditure cap is used, demand management becomes an important technique for balancing budgets.

In implementing output based funding it is important to determine an appropriate system of classification of outputs or units of service. Classes representing similar resource utilisation could be achieved in several ways including on a per visit, episode of care, or client needs basis. Studies in Australia and overseas have identified that DRGs are considered to be inappropriate for classification of PAC clients as the primary drivers and cost of care has little bearing on the reason for admission to hospital. For PAC clients, other methods of classification based on client characteristics, and complexity of needs would more adequately reflect the variability of resource use.

Funding PAC Projects on an outputs basis would enable prices to be set for the provision of predetermined units of service, such as type of services provided eg episodes of nursing care. In order to implement this approach it would be necessary, in the first instance, to agree on the units of service (classification of outputs) and then agree on a pricing schedule to be used for the payment of each unit of service. This funding approach would provide a more equitable approach to funding PAC Projects due to the propensity of the model to more accurately fund on the basis of activity undertaken, and would ultimately encourage greater efficiencies in service delivery.

4.2.3 Population needs based Resource Allocation Model

The third method is a population based resource allocation. A population based approach normally starts with a measure of the needs of the population for services. Funds are then typically allocated on a per capita basis using the needs measure. The method is generally used to distribute funds equitably to a regional health services purchaser (and/or provider). An attractive part of the method for the funder is that the risks associated with the need for

services for the target population pass to the purchaser/provider. It also has the advantage of promoting equitable access to services as the available funding (needs adjusted per capita) is the same for each service delivery region.

In the PAC Program context a funding allocation model that recognises population alone is considered insufficient from a number of perspectives:

- The inconsistency of application of risk screening tools across PACs, which can potentially lead to problems due to inaccurate client projections and incorrectly perceived diseconomies of scale.
- The variability of resource utilisation in providing PAC services due to specific differences in client complexity across regions.
- Differences of availability and access to PAC service providers across regions and particularly in rural areas.

From a PAC Program perspective, the population needs-based funding approach will facilitate the measurement of the post acute care needs of the community serviced by each PAC Project, taking into account specific demographic characteristics such as the needs and additional resource requirements in providing post acute care for NESB clients and the accessibility of services for lower socioeconomic status clients. This method would enable resources to be allocated on a regional basis using pre-determined needs measures. An issue with using this approach is that it does not adequately take account of variability in resource utilisation due to changes in volume and cost of service provision.

4.2.4 Outcomes based Resource Allocation Model

The fourth method of resource allocation is based on the generation of specific outcomes. An outcomes based approach provides funding for the achievement of specific outcomes for a group of consumers (patients/clients). Although attractive in theory, outcomes based approaches are extremely complex to implement in practice. Generally it is too difficult to define an acceptable system of classification of outcomes. Even if such a classification could be defined, it is normally necessary to define a person's health status before intervention, as different levels of resources are required to achieve the same outcome for many people.

The application of this method of resource allocation for the PAC Program would be contingent upon the identification of agreed outcomes of post acute care service delivery for clients. We feel that the outcome indicators suitable for use in a funding model for the PAC Program are too difficult to define at this stage. Even if outcomes could be defined, the costs of achieving a given outcome are likely to be extremely variable (depending on many client characteristics). Therefore, the design of an appropriate system to classify client outcomes would be extremely complex to implement and highly information and resource intensive to maintain. For these reasons we have eliminated this option as a viable model for funding PAC services.

4.2.5 Hybrid (Population & Outputs based) Resource Allocation Model

The importance of this discussion is that most resource allocation methods are based on some hybrid of the four approaches described above. For the PAC program it is desirable to develop a method that balances the production efficiency incentives of an outputs-based approach, the allocative efficiency of a needs-based approach with the practical effectiveness of an inputs-based approach. This balance needs to be struck whilst preserving the incentives

for quality services and ensuring that PAC services are provided in addition to, rather than duplicating, existing services.

In the PAC Program context, a hybrid funding allocation model would allow variations in cost of care associated with specific client demographic needs across PAC Project Areas to be considered. It would also provide for a more equitable method for funding inter-PAC referrals. These functions would be achieved by combining features of the needs-based and outputs-based models.

5

Evaluation of Resource Allocation Model Options

In this Chapter we evaluate each of the issues to be considered in the formulation of a Resource Allocation Model for PAC Programs, in terms of the respective strengths and weaknesses for each of the four principal methods outlined in the previous Chapter. As part of the analysis the strengths and weaknesses are presented under each of the key issues identified as being relevant to the development of the resource allocation model as a result of our program review.

5.1 INPUTS-BASED RESOURCE ALLOCATION MODEL

Strengths	Weaknesses
Application of Risk Screening Tool	
• Is easily understood and represents minimal change from current approach. • Has allowed local flexibility in the implementation of the PAC Program services, thereby promoting service delivery models that meet local needs and circumstances. • Has facilitated the creation of a Program that is judged to be successful by stakeholders.	• Does not adequately account for variations in levels of services and increased utilisation of resources due to changes in case complexities. • Does not adequately deal with potential unmet demand due to lack of consistency in application of the tool across PACs. • Provides limited incentives to PAC Projects to improve efficiency of service delivery, as the tendency is to maintain operations consistent with previous years.
Needs of mothers and newborns, NESB and other clients from lower socioeconomic backgrounds	
	• Is not sufficiently robust to deal with variations in resource requirements for clients from lower socioeconomic backgrounds.
Accessibility to services in rural and remote regions	
	• Not sufficiently sensitive to estimate differences in funding required to provide services to clients residing in rural and remote regions.
Referrals between PACs, to remote regions and cross border flows	
	• Does not adequately address resource requirements of referring clients from one PAC to another and to remote regions, as the funding does not move with the client. • Does not adequately deal with the reimbursement of services provided to non-Victorian clients.
Utilisation of different mixes of public/private service providers	
	• Does not deal with differences in public/private service mix.
Changes in the cost and availability of HACC services	
	• Does not adequately deal with changes in the availability and cost of HACC services.

5.2 OUTPUTS-BASED RESOURCE ALLOCATION MODEL

Strengths	Weaknesses
Application of Risk Screening Tool	
• Provides some capability to improve allocative efficiency to account for variations in client needs. • Provides an equitable method of resource allocation for variations in service volumes and case complexity.	• Not effective in estimating unmet demand for services. • Does not adequately discriminate for differences in disproportionate shares of higher resource need clients across PAC Projects.
Needs of mothers and newborns, NESB and other clients from lower socioeconomic backgrounds	
	• Very difficult to make any specific funding adjustment to deal with clients from lower socioeconomic backgrounds unless socioeconomic status is built into the outputs classification. • Classification of outputs would tend to group clients on the basis of types of services provided. To the extent that client characteristics influenced the costs of services, the averaging process would disadvantage those PACs with a disproportionate share of high cost clients.
Accessibility to services in rural and remote regions	
	• Not sufficiently sensitive to estimate funding for differences in resources required to provide services to clients residing in rural and remote regions.
Referrals between PACs, to remote regions and cross border flows	
• Can improve funding for inter-PAC referrals through direct payment for services provided. • Can improve resource allocation for non-Victorian residents receiving PAC services by making an output based payment.	• Does not deal with referrals to remote areas well. • A cost per unit of service approach may unnecessarily restrict the evolution of creative service models to meet local needs.
Utilisation of different mixes of public/private service providers	
• Provides an incentive for PACs to ensure cost efficiency of service provision as determined by the payment price. • Enables PAC services to be appropriately costed and classified and provides a common output measure on which to base funding per client episode. • Has the potential to create a situation of price competitiveness between public and private providers.	• Has the potential to shift the focus from client needs to cost considerations.
Changes in the cost and availability of HACC services	
• Once HACC services prices are known, the costs associated with service provision can be built into the average payment to PACs.	

5.3 POPULATION NEEDS-BASED RESOURCE ALLOCATION MODEL

Strengths	Weaknesses
Application of Risk Screening Tool	
• Provides an equitable surrogate method of estimating resource allocation requirements based on community need and addresses the potential problem of estimating unmet need.	• Not sufficiently sensitive to funding variations in throughput or differences in case complexity.
Needs of mothers and newborns, NESB and other clients from lower socioeconomic backgrounds	
• Deals specifically with the issue of determining an equitable funding base for clients of varying socioeconomic needs.	
Accessibility to services in rural and remote regions	
• Can deal specifically with the issue of adjusting funding for rural services by inclusion of needs adjustment index on rurality.	
Referrals between PACs, to remote regions and cross border flows	
• Provides a good option for addressing the problems of inter-PAC referrals and transfers of clients to remote regions as resource allocation is based on where the client resides.	
Utilisation of different mixes of public/private service providers	
	• Does not deal with differences in the cost of resource utilisation between public and private service providers.
Changes in the cost and availability of HACC services	
• Allows for the evolution of new service models without the restriction of fixed payments per unit of service inherent in an output funding approach.	• Is less rigorous in addressing variations to unit costs of service provision.

5.4 HYBRID NEED/OUTPUTS-BASED RESOURCE ALLOCATION MODEL

Strengths	Weaknesses
Application of Risk Screening Tool	
• Provides the benefit of allocative efficiency both in terms of funding on the basis of community need and addressing variations in case complexity.	
Needs of mothers and newborns, NESB and other clients from lower socioeconomic backgrounds	
• Provides a higher level of robustness in estimating client needs and dealing with variations of increased client activity.	
Accessibility to services in rural and remote regions	
• Provides an equitable mechanism for determining the access needs for rural and remote clients based on community need.	
Referrals between PACs, to remote regions and cross border flows	
• Provides a good option for addressing the problems of inter-PAC referrals and transfers of clients to remote regions as resource allocation is based on where the client resides	
Utilisation of different mixes of public/private service providers	
• Provides an incentive for PACs to ensure cost efficiency of service provision as determined by the payment price. • Enables PAC services delivered to be appropriately classified and costed and provides a common output measure on which to base funding per client episode.	
Changes in the cost and availability of HACC services	
• Is the best method of ensuring funding equity, providing the future availability costs of HACC services are known, the costs associated with service provision can be built into the average cost.	

5.5 SUMMARY AND CONCLUSIONS

It is clear from this analysis that the best funding method, given the state of development of the PAC Program, is to combine features of the population needs based approach with an output based approach. Because equity is such an important consideration, a heavier emphasis on the population needs approach is appropriate but some aspects of the outputs based approach can be adopted.

The analysis of options was discussed with the Project Steering Committee and also used as the basis of part of the stakeholder workshop. From these two processes, it was clear that there was considerable support for the population needs based approach modified by some elements of output based funding. We then took this conceptual preference and crafted a specific funding model for the PAC Program.

6

Conceptual Framework for the Post Acute Care Resource Allocation Model

This Chapter presents the conceptual framework for the proposed Post Acute Care Resource Allocation Model (PACRAM), which evolved over a series of discussions with the Project Steering Committee and the DHS PAC Program management staff and other stakeholders.

6.1 DESIGN PRINCIPLES FOR THE PACRAM

In essence the PACRAM is a population needs based resource allocation model that can be applied to a set of geographically defined areas. After much discussion with the Steering Committee and stakeholders, it was decided that the model would be applied to PAC Project Areas, which were defined for the purposes of PACRAM by officers of the DHS working collaboratively with representatives of the PAC Projects. The model is designed to:

- Take specific account of the target population of the PAC Program, that is acute care patients discharged from public hospital.

- Provide an equitable method of estimating the relative needs for post acute care services based on needs-adjustment of the target population.

- Distribute the total available resources for the Post Acute Care Program as equitably as possible, but not to determine the absolute amount of money to be allocated nor specify how the allocated funds are to be used by PAC Projects.

- Maintain the flexibility for PAC Projects to provide client services in accordance with prescribed service delivery modalities.

- Achieve greater equity by directing funding to the PAC Project in the area where the client resides (which seems the best method for services that are largely provided in the client's home).

- Eliminate unjustified funding variations between PAC Project Areas. The current funding method, which started by allocating $600,000 to metropolitan PACs and $300,000 to rural PACs results in funding inequities. This decision worked well in establishing the Program but it is not equitable in the current context.

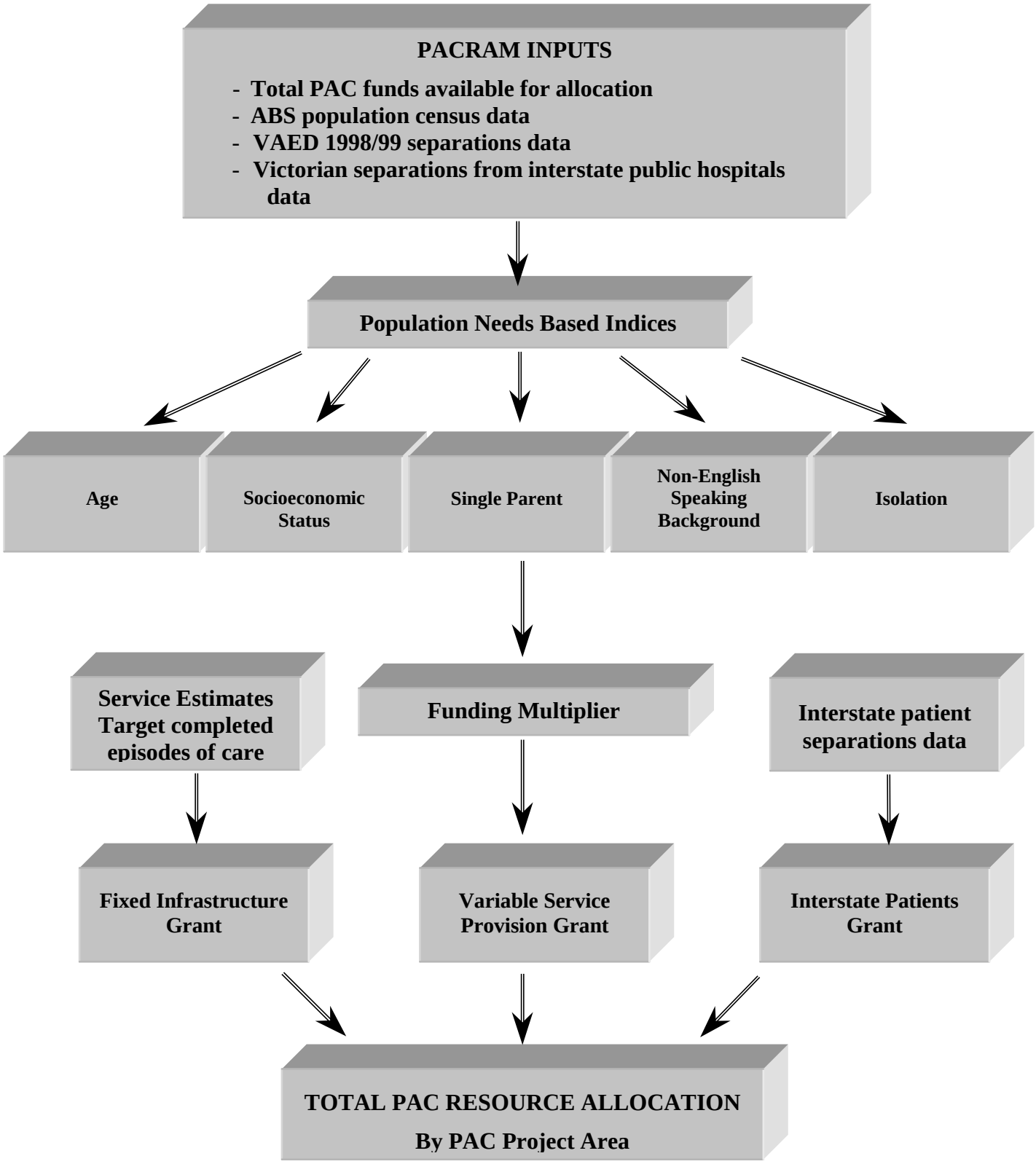
- Ensure the resource allocation process is efficiently administered and easily understood by all stakeholders.

In designing the model we set out to achieve all these aims. In some areas it was possible, in our view, to give effect to the desired aim. In others, the PACRAM makes a start and further data will need to be collected to refine the model to achieve the desired objective.

6.2 OVERVIEW OF THE PACRAM

The following is an overview of the major components of the PACRAM, which is schematically illustrated in Figure 1 below.

Figure 1: POST ACUTE CARE RESOURCE ALLOCATION MODEL



As depicted in Figure 1, there are four major sources of inputs into the model:

(1) The total PAC funds available for allocation in any given financial year. These funds are determined by the DHS during the budget setting process.

(2) Australian Bureau of Statistics Census Data (1996), which is used to calibrate four population needs based indices including socioeconomic status, single parent, non-English speaking background and isolation.

(3) VAED 1998/1999 separations data, which are used to define the target population and to calibrate the age index.

(4) Separations data for Victorian residents discharged from non-Victorian public hospitals.

The balance of this Chapter examines the range of issues we considered in defining the target population and the population needs adjustment factors. Setting the total PAC Program funds available for distribution is a matter for policy and not a technical consideration. No further consideration of this key input is therefore required.

6.3 DEFINING THE TARGET POPULATION

One of the key inputs to the model is the target population. The Steering Committee determined that given the PAC Program was established to provide individually tailored packages of care to patients needing assistance with their recuperation post discharge from hospital, hospital discharges would form the basis of the target population. Essentially the target population comprised of:

> **All acute care inpatient separations of Victorian residents discharged home from Victorian public hospitals and public patients discharged from Bush Nursing hospitals (exclusive of sameday patients).**

During the development process, there was a view expressed that same day patients receiving same day chemotherapy treatments would be high users of PAC services and should possibly be included into the target population. We subsequently undertook analysis of the VAED data, which indicated that the inclusion of same-day chemotherapy patients in the target population had no material impact on the derived indices and outcomes of the model's resource allocation process. Accordingly all sameday patients are excluded from the target population (to some extent this exclusion is expected as one of the screening criteria for same day patients is generally related to the patient's ability to cope with being discharged home on the day of treatment).

Also, although not specifically included in the target population, PACRAM provides for the allocation of funds to provide PAC services to non-Victorian residents discharged from Victorian public hospitals and to Victorian residents discharged from non-Victorian public hospitals. These categories of PAC clients are dealt with in the Interstate Patients Grant component of the model (needs adjustment of the population of non-Victorian residents is not possible due to the unavailability of relevant data on these clients).

During the model formulation process the DHS decided to include the Royal Children's Hospital (RCH) PAC Project into the model. The RCH is a specialist paediatric hospital that

provides a statewide specialist service to children. Due to the nature and complexity of the post acute care required for patients discharged from RCH the DHS determined that responsibility for providing post acute care services would remain with the RCH (irrespective of the patient's domicile). This also recognises the integrated arrangements and service provider networks the RCH has already established for the delivery of home and community care services. To give effect to this policy decision, it was necessary to partition the target population into two segments as follows:

(1) The first segment included all geographic PAC Project Areas where the total patients discharged from public hospitals were adjusted to exclude those patients separated from RCH; and

(2) The second segment included all those patients separated from RCH.

6.4 DEFINING THE POPULATION NEEDS ADJUSTMENT FACTORS

It has been extensively argued that developments such as reductions in the length of stay in hospital and the trend towards early discharge has increased the need for post acute care services. Studies undertaken in Queensland, Victoria, Tasmania and South Australia over the last decade have reported that around 16% of occasions of service for home nursing services related to post acute care clients (Morris, A, 1994:81 *"Home but not alone"* Final report of the House of Representatives Standing Committee on Social Affairs Enquiry into Home and Community Care Program, AGPS Canberra).

During the process of consultation and literature review there were a number of needs adjustment factors identified. Some of these factors directly reflected increased need while others related more to the additional resources required to provide post acute care services to clients with the given characteristic. The objective was to identify a suite of adjustment factors that reflect both population needs and expected resource use. The key population needs adjustment factors identified together with relevant source databases (Australian Bureau of Statistics (ABS) data are all from the population census) are summarised in Table 4 (overleaf).

Table 4
Identification of PAC needs adjustment factors

Proposed Indicator	Method of Derivation	Possible Data Source
Isolation Index	Spatial distribution of people within 50,000 radius	ABS Census Data
Socioeconomic Status	Composite index derived using Income, Occupation and Education	ABS Census Data
Single Parents	Proportion of single parents	ABS Census Data
Population Density	Number of residents per square kilometer	ABS Census Data
Ethnicity – NESB	Proportion of non English speaking background people	ABS Census Data VAED Data
ATSI	Proportion of people with ATSI background	ABS Census Data VAED Data
Age	Proportion of target population aged over 65	VAED Data
DRG	Distribution of DRGs in target population	VAED Data
Carer Availability	Index unable to be derived	Data not available
Client Living Alone	Proportion of single person households	ABS census data
Carer Responsibility	Index unable to be derived	Data not available
Service Availability	Index unable to be derived	Data not available
Substitutability of other Programs	Index unable to be derived	Data not available
Drug Addiction	Index unable to be derived	Data not available
Refugees	Index unable to be derived	Data not available
Homeless	Index unable to be derived	Data not available
Previous use of services	Index unable to be derived	Data not available
Social Isolation	Index unable to be derived	Data not available
Disability	Index unable to be derived	Data not available
Functional Status	Index unable to be derived	Data not available

Based on our literature search findings, we investigated each of these needs adjustment factors to identify the extent of evidence supporting their use in a Resource Allocation Model of the type envisaged for the PAC Program. We also considered the issue of data availability to determine if it was possible to find a data source that allowed us to use the factor as part of the Resource Allocation Model. We have set out below the results of our investigations with respect to each factor identified in Table 4.

6.4.1 Isolation, rurality, social isolation and population density

The problem of rural isolation in terms of both accessibility and costs of providing post acute care services is well documented. Accessibility to services for rural groups relates to more than physical distance, it also relates to socioeconomic access, available transport, and ability to travel and to pay for the travel. There are data available to suggest that there is a high prevalence of ill health (particularly chronic diseases), accidents and stress placed on women in the role of caregiver within rural communities. Accordingly, we felt it appropriate to include an isolation index, developed from data in the ABS population census, as a needs adjustment factor in the PACRAM.

6.4.2 Socioeconomic status

Although income inequality has been the primary focus of socioeconomic status, recent studies have shown that socioeconomic status has a significant affect on health. World-wide research over many decades confirms that people with low socioeconomic status experience overall poorer health, have higher death rates, are more likely to suffer disability, have serious chronic illnesses, are more likely to suffer recent illnesses, and are more likely to report only fair to poor health compared to people with higher socioeconomic status. Many of the disorders which affect these people disproportionately are associated with particular behaviours which are more prevalent in those of low socioeconomic status (National Health Strategy, *"Enough to make you sick, how income & environment affect health"*, Research Paper No. 1, 1992:10). There are data available from the ABS on socioeconomic status across geographic areas. Accordingly, we felt it appropriate to include a socioeconomic index as a population needs adjustment factor in the PACRAM.

6.4.3 Single parents

There is a growing body of empirical data that addresses the post acute care service needs of single mothers managing early postpartum discharge, and the mothers' ability to function in various roles during the four week postpartum period. Lone mothers with dependent children have been found to have particularly poor psycho-social health. The presence of a long-standing disease/disability proved useful as a control for the influence of health selection in to and out of both employment and motherhood. (Macran S, Clarke L, Joshi H *"Women's health: dimensions and differentials" Soc Sci Med* 1996 May;42(9):1203-16). All these factors predispose single mothers in particular to require post acute care following discharge from hospital. Once again there are data available on single parents across geographic areas and we felt it appropriate to include a single parent index in the PACRAM.

6.4.4 Ethnicity and refugees

Studies show that whilst there are large differences in the health status of Non English Speaking Background (NESB) people according to region and country of birth, the results are not consistent across all health measures. Much of the variation in health status between immigrant groups is attributable to differentials in social and economic characteristics and in the reason for migration (refugee, non-refugee). Within regions of birth, the health status for individual immigrant groups often varies markedly. In Australia, NESB has been seen as an indicator of disadvantage and much of the focus of immigrant health studies has been on this group. From the perspective of utilisation of post acute care services, this category of client requires additional case management time and client services including interpreter services. Again, there are data available across geographic areas and we felt it appropriate to include an NESB index in the PACRAM.

6.4.5 Aboriginal and Torres Strait Islander (ATSI)

There have been a number of studies that have confirmed the clinical perception that caring for Aboriginal and Torres Strait Islander (ATSI) patients requires higher levels of resources relative to non-ATSI patients, and demonstrated a 39% overall differential cost. (*"The Aboriginal and Torres Strait Islander Casemix Study"*, MJA 1998; 169: S11-S16). From an inpatient perspective, the greater costs for ATSI patients are believed to be related to disease severity on admission as well as comorbidities and complicating factors. Other studies have also found that resource utilisation for ATSI patients is lower for mental disorders. Easier

reintegration of ATSI patients into their community may facilitate shorter lengths of stay. Social networks and supports may also favour outpatient psychiatric care.

As with ATSI patients in remote and rural hospitals, other socially disadvantaged groups including people of ATSI background in urban settings and immigrant sub-populations may also have a cost and utilisation profile different from the "typical" Australian population. From a post acute care perspective; PAC Projects caring for a significant proportion of such patients may equally need recognition for their "atypical" population in a resource allocation model. In the future it may be beneficial to develop indicators of social disadvantage, to ensure that PACs providing services to "atypical" populations are adequately recompensed. One of the great challenges of developing the PACRAM was to provide the basis by which PAC Projects could be funded appropriately for appropriate care. If this challenge is not met it is the sickest patients from the most disadvantaged sub-populations who will suffer.

For these reasons, we felt it appropriate to introduce a population needs adjustment index for ATSI background into PACRAM. Based on our experience in undertaking similar studies we are aware of the problems associated with the quality of identification data collected for indigenous people particularly those living in remote areas (Australian Bureau of Statistics, 1995 *"National Health Survey: Aboriginal and Torres Strait Islander Results").* We therefore chose to use the population census data on ATSI background as we expected it to be more reliable than that reported in the VAED. Accordingly, draft versions of PACRAM contained a population needs adjustment factor for ATSI background.

Based on extensive consultation with stakeholders following release of the draft final report, the DHS determined that the ATSI index should not be included in PACRAM at this stage. It was considered that the use of the ATSI index would distort the PACRAM results particularly due to the poor utilisation of PAC services by indigenous people. In taking this decision the DHS indicated that further work would be undertaken to investigate a range of issues for indigenous Australians in relation to post acute care.

6.4.6 Age

There is considerable evidence demonstrating that elderly patients aged over 65 use approximately three times more hospital days per year and more post acute care services once they are discharged than any other age group (Robertson & Rockwood, 1982). Furthermore, these clients are more likely to have multiple health problems and are high users of post acute care services after discharge (Daatland 1983, and Herman et al 1984). A study of hospital discharge and referral patterns to primary health services in New South Wales indicated that there was a greater tendency for the older patients with extended hospital stays and high complexities of care to be referred to post acute care nursing services. (Grosvenor, J 1994 *"Discharge Support, Primary Health Nursing Utilisation Rates and Client Outcomes in South Western Sydney"*, Master of Nursing Thesis, University of Sydney, Lidcombe). Once again we felt it appropriate to include an age index taken from the actual age profile of the target population defined using the VAED.

6.4.7 Diagnosis Related Groups (DRGs)

There have been several studies undertaken in Australia and overseas to develop casemix classification systems for post acute care clients in order to derive a subset of key indicators that would adequately explain the variations in the cost of care. Many of these studies evaluated the appropriateness of the DRG classification to categorise types of post acute care

services provided or types of clients receiving the services. All of these studies have demonstrated that in the case of post acute care requirements the DRG is not sufficiently robust to act as a predictor of cost, as post acute care services are not directly correlated to the reason for admission and associated complications and comorbidities. Rather the best predictors for these services were indicators of functional status and activities of daily living. (Smith et al 1992 and SAHC Classification and Costing of Domiciliary and Community Health Services Report 1998).

A study undertaken in a British teaching hospital on elderly patients (over 70 years) and geriatric patients (over 65 years) indicated that the most common medical diagnoses leading to requirement for post hospitalisation care were cardiac, respiratory, musculo-skeletal and vascular disorders, diabetes and confusion. These patients also suffered dyspnoea, limited mobility, bowel irregularity, depression and poor diet. It was found that the majority of these patients received post acute care services comprising between one and three visits per week, the maximum being 14 per week (Jackson, MF 1990 Journal of Advance Nursing).

Taking all studies into consideration, we considered that it was not appropriate to include a DRG index as a population needs adjustment factor. The preference is for an index related to activities of daily living (see below).

6.4.8 Carer availability

Studies undertaken in Australia and overseas have shown that the presence or absence of a carer has a significant impact on the level and type of post acute care services, and hence the degree of resource use, required by a client after being discharged from hospital. (Hawke et al. 1986 and SAHC Costing and Classification of Domiciliary and Community Health Services Report 1998). Unfortunately there still remains a paucity of information concerning carer availability with most studies of this type being involved in prospective data collection.

For the purpose of this project, there was no data source available to calculate an index for carer availability. Taking a line through the Risk Screening Tool tool the key predictor of need for post acute care services was living alone. If data collection is initiated, then it seems more appropriate to pursue the development of a living alone index.

6.4.9 Client living alone

Whether or not a client lives alone was identified as one of the four items within the Risk Screening Tool that predicted high levels of post acute service need. Analysis of the South Australian Health Commission's data relating to the Classification and Costing of Domiciliary and Community Care services identified that there was a correlation between living alone and the availability of carers and the types of post acute care services provided. We considered carefully the use of ABS data on single person households. Unfortunately these data could not be correlated with age. Thus if we had used a single person households index, many young people living alone would have been included in the needs adjustment process. Because this age group has a relatively low rate of hospital admissions, their inclusion in needs adjustment would have biased the results. We suggest that the best method of capturing these data is to consider extending the VAED to include this variable within the database.

6.4.10 Carer responsibilities for others

The extent of carer responsibilities for others was also identified as one of the four items within the Risk Screening Tool that predicted high levels of post acute service need. We considered the results of the validation analysis undertaken in the Risk Screening Tool Study, indicating that a substantial amount of variation in the need for post acute services is explained by this factor. Unfortunately data is not readily available relating to carer responsibilities. However in the future we believe this would provide a beneficial needs factor for the purposes of allocating resources, and should be considered for collection within the VAED database.

6.4.11 Service availability

Although service availability was raised a number of times, we found it very difficult to find a suitable data source. In many cases even though a service may be available in a given region, the length of the waiting list may effectively prevent access. We felt that the inclusion of an isolation index has regard to the concept that a smaller range of services is typically available in rural areas. No further action with this factor is suggested.

6.4.12 Service substitution

Based on our consultations with the DHS, PAC Projects and HACC service providers, we have been able to ascertain that there is significant variability in the range of services available within the existing service system in different regions. This affects the ability of PAC Projects to augment rather than substitute for services. It was noted that with respect to HACC services some regions were experiencing difficulties accessing these services due to budgetary constraints. Here again there is a paucity of available data for analysis and we suggest no further action with respect to this factor.

6.4.13 Drug addiction

Drug addiction was considered also to be an indicator of resource use for post acute care services. Here again there were limited data available to derive a needs based index. Our literature search did not reveal empirical data to support the view that clients with a drug addiction were intrinsically higher users of post acute care services, although anecdotally there were a number of PACs citing this to be the case. Furthermore, we were unable to identify a suitable database from which a drug addiction index could be calibrated. For this reason we suggest no further action with respect to this factor.

6.4.14 Homeless

We were unable to obtain population data from either the ABS or VAED to derive a needs based index for the homeless (the nature of homelessness is that these people are not recorded in the population census). Our literature search did not reveal empirical data to support that homeless clients were disproportional users of post acute care services, although anecdotally there were a number of PACs citing this to be the case. Again, we suggest no further action with respect to this factor.

6.4.15 Previous use of services

The Risk Screening Tool identifies the previous use of services prior to admission as a key predictor of need for post acute services. Unfortunately, there is no data source that enables the derivation of an index on this factor. We were therefore unable to include it in the

PACRAM. We do, however, suggest that consideration be given to collecting data on this factor to enable it to be included in future refinements of the PACRAM.

6.4.16 Functional status and disability

There have been several empirical studies to identify predictors of resource use, which could serve as the basis for funding post acute services (Report of the National Sub-acute and Non-Acute Casemix Classification Study, August 1977, SAHC Domiciliary Classification & Costing Study, 1998 and Heinemann, A et al, 1994 "*Prediction of Rehabilitation Outcomes with Disability Measures"*). These studies evaluated the extent to which post acute care resource use can be predicted by functional status measures. The results of these studies supported the use of functional independence measures and activities of daily living (ADLS) in the development of resource utilisation models for post acute care. Also the Risk Screening Tool identifies self care problems as a key predictor of the need for post acute services.

Unfortunately functional status measures such as the FIMS, Barthel Scores or RUG-ADL, are not currently collected by PAC Projects in automated format or indeed by the VAED (they are not relevant to all patients). There is evidence to suggest that these tools may need some modification to be useful for the post acute care setting in terms of clinical assessment and predictive cost ability. However, we suggest that consideration be given to collecting specific data on functional status with a view to including this factor in future refinements of the PACRAM.

6.5 SUMMARY AND CONCLUSIONS

From this analysis it is clear that there is sufficient evidence and data available to include five population needs adjustment factors in the PACRAM as follows:

- Age;
- Socioeconomic Status;
- Non English Speaking Background;
- Single Parents; and
- Isolation.

Use of these factors was endorsed by the Steering Committee. Although a number of factors have been left out due to the absence of data, it is important to appreciate that most of them would have very little impact on a model where the funding base is at the PAC Project Area level. The numbers are generally too small to have an impact.

Equally, it is clear that there are other factors that would have been suitable for use in the funding model that could not be included due to the unavailability or incompleteness of data as follows:

- Self care problems (functional status);
- Living alone;
- Caring responsibility for others; and
- Services in use before admission.

All of these factors have been found to be key predictors of resource use in the development of the Risk Screening Tool. We suggest that collection of data on these factors be pursued so that they may be considered for incorporation in refinements to the PACRAM.

In considering refinements to the PACRAM it is important to appreciate that the factors that have been identified are not independent. For example someone living alone will typically not have a carer available nor will they have caring responsibility for others. To the extent that the factors are dependent on each other then the use of more than one in the PACRAM will, in effect, give extra weight to that characteristic. Accordingly, the issue of duplication needs to be considered in adding population needs adjustment factors to the PACRAM.

It should also be noted that within the current framework of the PACRAM, the existing needs adjustment indices are not necessarily independent.

7

Post Acute Care Resource Allocation Model

The objective of this Chapter is to describe the construct of the PACRAM. We have also developed a computer-based version of the model that allows examination of the changes in results when many of the key assumptions are varied.

7.1 GEOGRAPHIC LEVEL

As with any population based model the geographic areas to be covered by the model need to be defined. As already indicated, after discussion with the DHS PAC Program management staff and the Steering Committee, a PAC Project Area PACRAM was designed to allocate PAC resources to the areas serviced by seventeen of the existing PAC Projects. These areas effectively enabled resources to be allocated directly to each PAC project as the auspice body for the area based on population needs.

To support the development of the PAC Project Areas Model, the DHS determined the boundaries in consultation with PAC Projects based on referral patterns, Local Government Areas (LGAs), Metropolitan Health Service areas and Primary Care Partnerships catchments. Two tables identifying the allocation of PAC Project Areas by LGAs and postcodes are presented in Appendix E. The objective was to align the existing PAC Projects to a discrete area so there was no overlap between areas and so that all areas of the State were covered. In light of the work being conducted by DHS in relation to Metropolitan Health Services and Primary Care Partnerships, we anticipate that there may be some changes to the area definitions necessary in the future. We understand that the DHS aims to bring a greater level of consistency to the boundaries established for different programs including the PAC Program.

Whilst the model is designed to be used at the PAC Project Area level, the PACRAM concepts can be used on any other geographic area. However, the calculation of the index numbers from the ABS population census data is complex and cannot be automated within the EXCEL model we have developed.

7.2 PACRAM FUNDING GRANTS

The proposed PACRAM has been designed to provide three (3) separate funding grants blending both a needs adjusted population based and an outputs based approach to resource allocation as follows:

(1) A variable Service Provision Grant calculated by taking 72% (the balance of the budget once the infrastructure and interstate patients grants have been provided for) of the overall budget available for allocation and distributing it using the composite needs adjusted funding multiplier (this is the needs adjusted population based component of the model).

(2) A fixed Infrastructure Grant which has been set at 25% of the overall PAC budget and is calculated using estimated target completed episodes of care for each PAC Project Area (this is an outputs based component of the model).

(3) A variable Interstate Patients Grant estimated at 3% (this varies slightly depending on the approach used to estimate the number of patients to be serviced) of the total budget allocation has been established to fund those PAC Projects providing services to interstate residents discharged from Victorian public hospitals and for Victorian residents discharged from interstate public hospitals (this is an outputs based component of the model).

The key proportions of 72%, 25% and 3% have been set after consultation with the Steering Committee and are discussed further below. These proportions can be varied and the results obtained by doing so can be examined by using the computer-based PACRAM.

It is important to note that the PACRAM is designed to be used as a tool to achieve equity in resource allocation across geographic areas based on population needs. The model does not specify what services should be purchased or how the money should be used by PAC Projects. Purchasing strategies need to be determined by the auspice organisations responsible for the geographic area for which services are being funded.

7.3 DEVELOPMENT OF THE VARIABLE SERVICE PROVISION GRANT

As we have already indicated, the needs based component of the model relies on five population adjustment factors. For each factor, an index has been developed based either on ABS census data or VAED data. The five factors are:

- Age;
- Socioeconomic Status;
- Non English Speaking Background;
- Single Parents; and
- Isolation.

Professor Stephen Farish, an epidemiologist from the University of Melbourne, has developed indices for all of the factors (except age). Professor Farish has worked extensively in the field of resource allocation to human service areas. He drew on similar work he had carried out on resource allocation for schools across Australia to produce the five indices. Professor Farish derived the needs adjusted indices using standard regression analysis on ABS census data. In all cases, where averages were calculated across (population census) collection districts, the average is weighted by the population of the collection district and by the proportion of the collection district inside the region/area (usually 100%). The methodology used by Professor Farish in the development of the population based needs indices in presented in Appendix C.

Ideally the first four indices, which relate to characteristics of the target population, would be calculated using the VAED data (as this dataset exactly defines the target population). However, only one of the variables (age) is available on the VAED dataset. By using the census data to calculate the other indices we have implicitly made the assumption that the distribution of the factor in the target population (acute public hospital discharges) is the same

as it is in the PAC Project Areas as a whole. This assumption appears reasonable, but ideally all the data required to compute the indices would be available from the VAED.

For ease of comparison, and for the purposes of producing a composite index, all of the indices have been scaled so that the mean of the values is 100 and the standard deviation is 15. This scaling has the effect of "stretching" or "shrinking" the distribution while maintaining the relative positions of each of the observations. Composite means (either arithmetic or geometric) are more meaningful when the scaled distribution is used. The scaling can be thought of as giving effect to the principle of measuring each factor using the same ruler. We have presented the results of this process below.

7.3.1 Age index

An age index based on the proportion of the population 65 years and over was derived using the DHS VAED data for 1998/99 inpatient separations. This database was trimmed to include only the target population as defined in section 6.3. The age index calibrated using the seventeen PAC Project Areas is presented in Table 5 below. The lower the score, the older the age profile and hence the higher the expected need for post acute care services.

Table 5
Age Index

DHS PAC Project Area	Age Index
Barwon	94.06
Central Highlands	114.27
East Gippsland	78.74
Grampians	69.38
Hume	97.32
Inner Melbourne	92.48
Inner South East	88.88
Latrobe & Wellington	102.79
Loddon Mallee	93.16
Northern Mallee	114.44
North Eastern	109.58
Outer East	112.75
Peninsula	112.59
South/West Gippsland	88.31
Southern	128.16
Wannon	92.21
Western	110.88

7.3.2 Socioeconomic Status Index

Professor Farish derived a composite index for socioeconomic status using data on three factors: occupation, education and income from ABS census data. The socioeconomic status index is presented at PAC Project Areas level in Table 6 below. The lower the score the lower the socioeconomic status and hence the higher the expected need for post acute care services.

Table 6
Socioeconomic Status Index

DHS PAC Project Areas	Socioeconomic Status Index
Barwon	95.21
Central Highlands	95.17
East Gippsland	87.01
Grampians	89.04
Hume	94.42
Inner Melbourne	134.38
Inner South East	136.77
Latrobe & Wellington	93.60
Loddon Mallee	94.09
Northern Mallee	87.13
North Eastern	96.23
Outer East	117.31
Peninsula	99.85
South/West Gippsland	91.94
Southern	100.15
Wannon	92.48
Western	95.21

7.3.3 Non English Speaking Background Index

Professor Farish derived the non English speaking background index from ABS census data. Again the lower the score the more people from non English speaking backgrounds in the area and hence the higher the expected need (cost) for post acute care services. The non English speaking background index is presented at the PAC Project Areas level in Table 7 below.

Table 7
Non English Speaking Background Index

DHS PAC Project Areas	Non-English Speaking Index
Barwon	103.16
Central Highlands	110.74
East Gippsland	115.79
Grampians	115.05
Hume	103.37
Inner Melbourne	77.46
Inner South East	92.97
Latrobe & Wellington	109.43
Loddon Mallee	110.71
Northern Mallee	84.41
North Eastern	76.43
Outer East	100.17
Peninsula	112.73
South/West Gippsland	111.70
Southern	88.33
Wannon	115.17
Western	72.39

7.3.4 Single Parents Index

Professor Farish derived the single parent index from ABS census data. Again the lower the score the more single parents in the area and hence the higher the expected need for post acute care services. The single parent index is presented at the PAC Project Areas level in Table 8 below.

Table 8
Single Parents Index

DHS PAC Project Areas	Single Parent Index
Barwon	92.65
Central Highlands	65.70
East Gippsland	124.47
Grampians	128.77
Hume	105.34
Inner Melbourne	89.96
Inner South East	98.44
Latrobe & Wellington	85.03
Loddon Mallee	96.81
Northern Mallee	107.28
North Eastern	96.99
Outer East	109.90
Peninsula	85.32
South/West Gippsland	109.58
Southern	101.04
Wannon	108.58
Western	94.14

7.3.5 Isolation Index

Professor Farish computed an isolation index by drawing around each Collection District (CD) a circle of ever-increasing radius until a population of 50,000 people was achieved inside the circle. Where there is a wider circle radius it is an indicator of more isolation. These distances were averaged across CDs within each PAC Project Area. Again the lower the score the more spatial isolation in the area and hence the higher the expected need (cost) for post acute care services. The isolation index is presented at the PAC Project Areas level in Table 9 below.

Table 9
Isolation Index

DHS PAC Project Areas	Isolation Index
Barwon	107.75
Central Highlands	109.10
East Gippsland	70.51
Grampians	72.59
Hume	95.81
Inner Melbourne	113.61
Inner South East	113.56
Latrobe & Wellington	98.04
Loddon Mallee	96.68
Northern Mallee	79.47
North Eastern	112.98
Outer East	112.52
Peninsula	110.39
South/West Gippsland	97.98
Southern	112.55
Wannon	83.87
Western	112.58

7.3.6 Weightings for needs based indices

PACRAM provides the facility to weight the contribution of each of the five individual needs adjustment indices to a composite index to be applied to the target population. The simplest method would be to give each index equal weight, but this approach would not reflect the fact that some indices are likely to be better predictors of need than others. In reviewing the literature, it appeared that the two most important predictors of need for post acute services (for which there are index data available) were age and socioeconomic status. Accordingly we suggested to the Steering Committee that the weights for these two indices be doubled. The Steering Committee supported this approach for the presentation of the results. The computer-based model provides the facility to modify this decision and apply any set of relative weights to the five developed indices.

7.3.7 Derivation of a composite funding multiplier (based on population needs)

The composite needs adjustment index was derived by taking the geometric mean of the individual indices, weighted according to the agreed relativities. The geometric mean was chosen because it is less sensitive to extreme values in the individual indices. The geometric mean of five indices (where the weights are all one) is calculated as:

$$GeometricMean = \sqrt[n]{index_1 * index_2 * \ldots * index_n}$$

where n = the number of indices (in this case 5)

The resultant composite needs adjustment index is presented at the PAC Project Areas level in Table 10 below where the age and socioeconomic indices have been squared to reflect higher PAC resource use. Note that this index has been reversed so that the higher scores correspond to higher needs for post acute services (as measured by the composite index).

Table 10
Composite Needs Adjustment Index

DHS PAC Project Areas	Composite Funding Multiplier
Barwon	101.86
Central Highlands	100.08
East Gippsland	109.14
Grampians	111.04
Hume	100.97
Inner Melbourne	96.30
Inner South East	92.92
Latrobe & Wellington	101.56
Loddon Mallee	102.37
Northern Mallee	103.83
North Eastern	100.19
Outer East	87.60
Peninsula	94.93
South/West Gippsland	102.46
Southern	91.79
Wannon	102.96
Western	101.39

The PAC Project Areas Model indicates the highest need for post acute services is in Grampians with the lowest need being in the Outer East. It is also interesting to note that all of the non-metropolitan PAC Project Areas have needs adjustment indices greater than 100 while many of the metropolitan PAC Project Areas have needs adjustment indices below 100 . This trend suggests that PACRAM predicts that the need for post acute services and the costs associated with delivering them are generally higher per head of population in non-metropolitan areas.

7.3.8 Derivation of the needs adjusted population

The final step in the development of the variable Service Provision Grant is to calculate the needs adjusted population. This figure is calculated by multiplying the target population, by area, by the composite needs adjustment index. The needs adjusted population is presented at the PAC Project Areas level in Table 11 below. The higher the needs adjusted population the greater the Service Provision Grant.

Table 11
Needs Adjusted Population

PAC Project Area	Target Population	Composite Funding Multiplier	Needs adjusted population
Barwon	21,369	1.0186	21,767
Central Highlands	12,024	1.0008	12,034
East Gippsland	6,102	1.0914	6,660
Grampians	12,125	1.1104	13,464
Hume	30,808	1.0097	31,107
Inner Melbourne	16,364	0.9630	15,759
Inner South East	19,802	0.9292	18,401
Latrobe & Wellington	12,499	1.0156	12,694
Loddon Mallee	28,225	1.0237	28,894
Northern Mallee	4,751	1.0382	4,933
North Eastern	34,567	1.0019	34,634
Outer East	38,020	0.8760	33,307
Peninsula	20,453	0.9493	19,417
South/West Gippsland	10,076	1.0246	10,324
Southern	46,708	0.9179	42,874
Wannon	15,836	1.0296	16,304
Western	61,437	1.0139	62,289

7.4 DEVELOPMENT OF THE FIXED INFRASTRUCTURE GRANT

The fixed infrastructure component refers to the fixed costs incurred in the provision of PAC Services (eg salaries for Project Managers and support staff, rental, furniture, equipment and telephones etc.). Generally, these costs do not vary directly with variations in activity (eg a 10% increase (or decrease) in activity does not normally produce a 10% increase (or decrease) in infrastructure costs). We considered a number of options for calculating the total fixed infrastructure allocation:

(1) **Option 1:** Based on a fixed amount that is allocated equally to all PAC Project Areas. This option presupposes that the infrastructure costs across PAC Projects are the same;

(2) **Option 2:** Based on marginal payment approach related to service volumes, recognising that PAC infrastructures are not the same across all PAC Project Areas. For example, it can be argued that those PACs servicing a larger population, or providing higher levels of client services, will require additional infrastructures funds; or

(3) **Option 3:** Based on number of acute care hospital sites serviced within the PAC Project Areas. During our consultative process there were discussions regarding the perceived differences between the costs of servicing a number of small rural hospitals and servicing a large metropolitan hospital.

We suggested that the fixed infrastructure component be set at 25% of the total budget. This amount is consistent with our experience of overhead costs associated with fairly small health service delivery organisations. After discussion with the Steering Committee it was agreed that the infrastructure component should be allocated based on a step down function where the slope of the function decreases as the volume of activity increases (option 2). The volume

is determined by the service target set (as part of approving the Annual Service Agreement) between the DHS and the PAC Project.

There were detailed discussions on whether the results of using Option 2 should be modified by also incorporating the principle expressed in Option 3. After some consideration and discussion with stakeholders it was felt that the additional infrastructure costs associated with servicing multiple hospitals may be balanced by the additional infrastructure costs associated with servicing one large hospital. Servicing multiple hospitals means that there are multiple liaison points thereby increasing costs. Equally, because of sheer size, there are also multiple liaison points associated with servicing one large hospital. For this reason, we believe it is best to allocate infrastructure costs purely on anticipated (service target) volume.

For the purposes of illustrating the use of the PACRAM, we estimated the target number of clients for each of the PAC Projects by multiplying the inpatient population (weighted by the needs adjustment factor) by 5% for 1998/99. We then estimated the number of interstate clients and the number of Victorian clients hospitalised in interstate hospitals to be serviced by taking 5% of the actual number of these patients for 1998/99. These two figures added together formed the estimated number of clients, which was then used in the marginal payment per unit of service model. Using these assumptions, the fixed infrastructure payment, based on total funds available for allocation of $13 million is set out in Table 12.

Table 12
Fixed Infrastructure Grant Allocation

Infrastructure Level	Total Client Services	Proposed Infrastructure Payment per client
Level 1	First 500 clients @ 100%	$200.93
Level 2	Second 500 clients @ 80%	$160.75
Level 3	Third 500 clients @ 60%	$120.56
Level 4	Remaining clients @ 40%	$80.37

7.5 DEVELOPMENT OF THE INTERSTATE PATIENTS GRANT

There are instances where PAC Projects provide services to both interstate patients discharged from Victorian public hospitals and Victorian residents discharged from interstate public hospitals. The VAED and ABS population datasets used to derive the needs based indices exclude these patients. In order to ensure that PAC projects that provide services to these specific clients are not disadvantaged financially, a separate component of the PACRAM has been designed to provide funds for servicing these clients.

To calculate the Interstate Patients Grant, the DHS provided data for all separations of interstate residents from Victorian Public Hospitals and also Victorian residents separated from interstate public hospitals for 1998/99. The same parameters were used as for the general target population, that is, only acute, non same-day separations, discharged home and alive were included. Using these data, we estimated that 5% of these patients would potentially receive post acute services (consistent with the 5% estimate applied to the target population). Table 13 below provided the details of the derivation of the Interstate Patient Grant allocation by PAC Project Areas.

Table 13
Interstate Patients Grant Allocation (based on 1998/99 separations data)

PAC Project Areas	Victorian Residents discharged from Interstate Hospitals	Interstate Residents discharged from Victorian Hospitals	Total Interstate Discharges	Interstate Service Estimates	Interstate Patients Grant
Barwon	127	109	236	12	$5,607
Central Highlands	95	143	238	12	$5,654
East Gippsland	197	43	240	12	$5,702
Grampians	260	104	364	18	$8,648
Hume	3,051	2,911	5,962	298	$141,641
Inner Melbourne	276	582	858	43	$20,384
Inner South East	249	362	611	31	$14,516
Latrobe & Wellington	86	155	241	12	$5,726
Loddon Mallee	278	1,361	1,639	82	$38,938
North Eastern	193	280	473	24	$11,237
Northern Mallee	724	936	1,660	83	$39,437
Outer East	293	134	427	21	$10,144
Peninsula	138	58	196	10	$4,656
South/West Gippsland	74	39	113	6	$2,685
Southern	260	219	479	24	$11,380
Wannon	376	105	481	24	$11,427
Western	229	678	907	45	$21,548
Total	**6,906**	**8,219**	**15,125**	**756**	**$359,330**

By applying this methodology, we have estimated a total of 756 episodes of post acute care relating to interstate patients. These patients are funded on the basis of an average episode payment calculated for the total service estimates (less RCH service estimates). On this basis the total resource allocation for services to interstate patients is $359,330.

Inter PAC Referrals

The interstate patients grant should be contrasted with transfers relating to Victorian residents. Where PAC services are provided by PAC projects outside of the region of residence of the client, it will be necessary for a transfer payment to be processed from the host region to the one responsible for providing the service. For example this may occur when a client is discharged to a relative's home that is outside of the client's geographic region of residence. This transfer issue is quite separate to the cross-border situation and we believe transfer payments in these circumstances should be done via a process of negotiation between the regions concerned at the time services are being arranged.

7.6 RESOURCE ALLOCATION FOR SPECIALIST HOSPITALS

As already indicated, PACRAM is designed to allocate resources to PAC Project Areas based on the target population living in the area. We believe that this approach is the most equitable in terms of access to service but it represents a change in the way PAC services are provided to patients discharged from specialist hospitals, in particular the Peter MacCallum Cancer Institute, The Royal Women's Hospital, the Royal Children's Hospital and the Royal Victorian Eye and Ear Hospital. The tertiary and quaternary referral nature of these four hospitals is illustrated by reviewing the residence of target population inpatients for 1998/99 using the VAED data.

Table 14
Specialist hospital inpatients by PAC Project Areas, 1998/99

PAC Project Areas	Royal Children's Hospital	Royal Women's Hospital	Royal Victorian Eye & Ear Hospital	Peter MacCallum Cancer Institute
Barwon	345	124	67	27
Wannon	245	90	63	21
Central Highlands	57	17	49	62
Grampians	157	50	43	28
Loddon Mallee	637	218	250	231
Northern Mallee	1,415	1,221	530	300
Hume	909	733	460	333
East Gippsland	203	44	121	130
Latrobe & Wellington	772	220	156	311
South/West Gippsland	56	18	15	53
Western	3,021	2,833	886	303
North Eastern	1,717	563	924	467
Outer East	497	82	169	284
Inner Melbourne	175	17	111	114
Southern	917	307	631	551
Inner South East	189	44	42	22
Peninsula	5,072	4,575	1,425	886
Total	**16,384**	**11,156**	**5,942**	**4,123**

Examination of Table 14 illustrates the geographic dispersion of the patient separations from these four hospitals. Accordingly, any single PAC Project servicing these hospitals would need to coordinate home-based services across the State. Equally it is important to ensure that patients attending specialist hospitals are not disadvantaged with respect to access to PAC services simply because they reside considerable distances from the specialist hospitals.

The DHS has decided to specifically fund the RCH for patients discharged from this hospital. As such, the RCH will be responsible for providing PAC services to patients discharged from the RCH (refer 7.7 below). However, the PACRAM model is considered appropriate for the delivery of PAC services to patients of the other specialist hospitals. That is, PAC services will be provided by the PAC Project servicing the patient's area of residence.

Notwithstanding the decision regarding the RCH, it is important to appreciate that the population based funding reflected in PACRAM represents a significant departure from the current practice. Under the previous (largely inputs-based) resource allocation arrangements, PAC Projects tended to be responsible for PAC services provided to patients discharged from hospitals in their areas. Under PACRAM (population based funding), PAC Projects are responsible for the provision of PAC services to patients who reside in their catchment area, irrespective of the hospital the patient was discharged from. Depending on demand, PAC projects may develop further selection criteria to prioritise clients, however clients must not be discriminated against for attending a public hospital outside their PAC catchment area. This arrangement is much more logical in a home based services program in that it brings the point of coordination of the services (the PAC Project) much closer to the point of the delivery of the services (the patient's home).

Following discussions between the DHS and the specialist hospitals, a decision has also been made to organise a training session for PAC Projects regarding the special needs of these hospitals' patients. This session will be organised in late 2000 and will enable the specialist hospitals to educate all PAC Projects about their patients.

Due to the changes inherent in this approach, we recommend that limited funds be made available to these hospitals in 2000/2001 outside of the PACRAM allocations to support PAC promotion and education activities, and referral of patients to the appropriate geographically based PAC Project. The specialist hospitals could also provide consultative services to the providers regarding any special needs of their specialist client group. The funding amount should be relative to the number of separations for each hospital and we understand that the DHS has consulted with each hospital regarding these arrangements.

7.7 ROYAL CHILDREN'S HOSPITAL (RCH)

Table 15 (see 8.1) reflects the inclusion of the RCH PAC as a PAC Project Area. Our original model (in the draft final report) excluded the RCH PAC on the basis that it does not service a specific geographic area of Victoria (as described above). However, many of the children receiving PAC services from the RCH have complex post acute care needs and are already involved in other programs managed by the RCH. The RCH has implemented an integrated approach for the delivery of home and community care services to its patients and has established extensive service provider networks. The DHS has therefore decided to fund a specific PAC project at the RCH.

We have given effect to this decision by including provision for funding of 35 PAC clients per month at a variable payment rate of $656 per client for the RCH PAC. This approach is based on a submission provided by the RCH in response to the draft final report, subsequent discussions between the DHS and RCH staff, and historical expenditure per client for the RCH PAC. The number of PAC clients per month represents a lesser proportion of RCH separations than for other hospitals. The need for PAC services is considered lower in the paediatric population than amongst adults as parents can often provide the level of support required to enable children to recover from an acute hospital admission. However, the variable payment rate per client for purchased services is higher than the average for other PAC Projects in recognition of the fact that those children who require PAC services often need more complex and expensive care.

Additionally, as per the DHS decision, fixed infrastructure funding has been provided at 2/3 the level of the other PAC Projects. This reduction reflects the infrastructure and integrated arrangements that already exist for the delivery of home and community care services at the RCH. The computer based PACRAM allows these input assumptions to be modified. The provision of this funding means that the RCH is responsible for providing PAC services to its patients and should not refer clients on to local PAC Projects unless an arrangement has been entered into to reimburse that PAC Project for services provided.

8

PACRAM Implementation Issues

This Chapter simulates the results of using the PACRAM for the 2000/2001 financial year based on total funds available for allocation of $13 million. This simulation provides a guide to the issues that need to be addressed as part of the possible introduction of the population needs based PACRAM.

8.1 PACRAM 2000/2001 RESOURCE ALLOCATION

The results of using PACRAM to calculate the resource allocation to PAC Project Areas for 2000/2001 are illustrated in Table 15 below. Table 15 reflects the decisions made by the DHS in respect of the RCH. The full PACRAM output data is included in Appendix D.

Table 15
DHS PAC Project Areas Model – 2000/01 Resource Allocation

PAC Project Areas	Total Service Estimates (including Interstate)	Total 2000/2001 Budget Allocation
Barwon PAC	1,100	$715,641
Wannon PAC	839	$553,772
Central Highlands PAC	614	$410,271
Grampians PAC	691	$459,739
Loddon Mallee PAC	1,527	$968,636
Northern Mallee PAC	330	$222,860
Hume PAC	1,853	$1,150,197
East Gippsland PAC	345	$233,243
Latrobe & Wellington PAC	647	$431,345
South/West Gippsland PAC	522	$351,941
Western PAC	3,160	$1,875,899
Royal Children's PAC	420	$331,810
North Eastern PAC	1,755	$1,095,700
Outer Eastern PAC	1,687	$1,057,550
Inner Melbourne PAC	831	$548,416
Inner South East PAC	951	$624,559
Peninsula PAC	981	$643,676
Southern PAC	2,168	$1,324,743
TOTAL	**20,419**	**$13,000,000**

8.2 IMPLEMENTATION ARRANGEMENTS

Given the significant changes to resource allocation using the per capita needs based approach, it is imperative that PACRAM be phased in to minimise the disruptive effects of implementation all at once. As already indicated, we understand that the Government has provided for additional funds to be allocated for the expansion of the PAC Program in 2000/2001 to a total of $13 million. This figure has been used to generate the suggested allocations shown in Table 15. Review of these data relative to historical funding levels suggests that it should be feasible to introduce resource allocation changes whereby transition arrangements can be made for those continuing PAC Projects which will experience a decrease in funding under the PACRAM. By using this approach large implementation problems should not be encountered. Given that the overall PAC Program resources are growing, this process should only take one year.

R1 It is recommended that the DHS devise an implementation plan for PACRAM over 2000/2001 providing transitional arrangements for those continuing PAC Projects which will experience a decrease in funding under the PACRAM.

The other major implementation issue is the geographic level at which the model is used. Experience in the funding of health services shows that population based approaches work best with larger populations. Equally important, there needs to be an auspice organisation that receives the population based funding allocation and puts in place the necessary service delivery arrangements. It is important that the DHS progressively review the PAC Program operations in order to determine the need for changes leading to project aggregation or dis-aggregation as deemed appropriate in accordance with proposed health service reforms. Because of the history of the program, PAC Projects exist at the PAC Project Area level and we have initially applied PACRAM at this geographic level.

R2 It is recommended that PACRAM be initially implemented at the PAC Project Area level and be kept under ongoing review to ensure consistency with directions emerging from health services reforms.

8.3 RESOURCE ALLOCATION FOR SPECIALIST HOSPITALS

As discussed in Chapter 7 (refer 7.6), with respect to post acute care services provided to patients discharged from specialist hospitals, (Peter MacCallum Cancer Institute, the Royal Women's Hospital and the Royal Victorian Eye and Ear Hospital), we are recommending limited funds be made available to these hospitals in 2000/2001 outside of the PACRAM allocations to support PAC promotion and education activities, and referral of patients to the appropriate geographically based PAC Project. The funding amount should be relative to the number of separations for each hospital and we understand that the DHS has consulted with each hospital regarding these arrangements.

R3 It is recommended that funding be provided to specialist hospitals outside PACRAM for promotion, education, and referral activities.

8.4 STATEWIDE PAC PROGRAM COVERAGE

The original project brief envisaged the use of the resource allocation model to assist in determining the resources required to achieve statewide coverage of the PAC Program. In effect, because of the needs adjusted population based funding approach taken by the model, PACRAM is suitable for use in funding the program across Victoria. PACRAM cannot determine the actual amount of funds to be invested in post acute services. That determination is a health policy decision. However, given a defined level of investment, PACRAM can equitably distribute the available funds over PAC Project Areas. The computer-based PACRAM that has been developed allows for sensitivity analysis to be carried out to assist in decisions on matters such as how to equitably distribute any additional program funds (or for that matter how to equitably make any necessary reductions to program funds).

8.5 FURTHER REFINEMENT OF PACRAM

We believe it is important that the DHS plan for the progressive refinement of the PACRAM in order to improve the robustness and accuracy of the resource allocation process. In the process of describing the formulation of the model we have indicated a number of areas where we believe refinements would be valuable. These areas with associated recommendations are set out below.

8.5.1 Formulation of additional needs adjustment factors

In developing the PACRAM sixteen potential needs adjustment factors were considered. The current version of the model uses five factors. As already indicated, many of the needs adjustment factors are not independent. Even if data were available to develop indices for each of the needs adjustment factors, it would not be sensible to use them all in the model. Equally there are a number of areas where additional factors (either in place of, or in addition to, existing factors) should be considered. In our view, the best factors to use are those that have been shown to be significant in the Risk Screening Tool. In addition further work needs to be undertaken on a statewide basis regarding meeting the post acute care needs of Aboriginal and Torres Strait Islander clients. Further evaluation is recommended on the feasibility of deriving the following needs indices:

- Self care problems (functional status);
- Living alone;
- Caring responsibility for others;
- Services in use before admission; and
- Aboriginal and Torres Strait Islander background.

Conceptually all of these data could be collected on admission, although that may introduce too large a reporting burden. For the data to be useful for the PACRAM, it need only be collected for non-sameday acute patients. It may be that only two of the four variables can be collected as part of the VAED. We suggest that the DHS consider the collection of at least self-care problems and living alone as part of the VAED.

R4 It is recommended that the DHS consider the collection of "self-care problems" and 'living alone" variables as part of the VAED for non-sameday patients.

8.5.2 Reporting of Estimated Target Completed Episodes of care

Based on the analysis of historical data provided from PACIS, we have identified a number of inconsistencies regarding the reporting of activity data by PAC Projects. Some of these inconsistencies have been attributed to differences in interpreting definitions and counting rules. We believe it is essential that PACs provide estimates of target completed episodes of care to the DHS as part of the Service Agreement negotiations. This information is a key input into the PACRAM and is used to calculate the resources allocated through the infrastructure grant.

R5 It is recommended that the definitions and counting rules for the PACIS system be reviewed and a process (possibly including some data quality assurance activities) be put in place to improve the quality of the PAC Program activity data reported to the DHS.

8.6 DEVELOPMENT OF A PACRAM REFINEMENT WORKPLAN

PACRAM represents a considerable change in the way in which resources are to be allocated in the PAC Program. It introduces equity into the resource allocation process through the use of a needs adjusted population approach and it makes the resource allocation process transparent to stakeholders. As with the development of any new approach to resource allocation PACRAM needs to be refined over time, partly to address issues which were identified in its development but could not be dealt with due to lack of data, and partly to address issues as they emerge. We have set out below in Table 16 an initial list of issues to be included in the work plan.

Table 16
Potential PACRAM refinements to be included in work plan

Description of issue	Proposed Action Required
Current population needs based resource allocation approach does not entirely address all the needs based factors	• Study of the target population to identify true characteristics of need to be undertaken. • Identify and refine appropriate needs adjustment factors, for example living alone, self-care problems, prior use of services and carer responsibilities, casemix of a hospital, service availability, service substitution, drug addiction, and homelessness. • Review the PAC service needs of Aboriginal and Torres Strait Islander people.
Need to ensure target population takes into consideration other areas of service provision such as Emergency Department patients.	• Evaluate the relevance of the existing target population definition with respect to the provision of post acute care and assess the appropriateness of including sameday patients and Emergency admissions. • Review the assumption that the distribution of factors in the general population will be the same in the target population as these factors may in fact be more prevalent in the target population (eg lower health status and higher use of public rather than private hospitals).
Impact of HACC service availability	• Further consider the availability of HACC services in particular areas and the resultant impact on post acute care services.
Service targets	• Review the methodology for establishing service targets including client eligibility and relevant data reporting requirements.
Enhancement of PACIS	• Carry out work to ensure the consistent, reliable and accurate reporting of data on the PAC program via the PACIS system
Extension of the VAED	• Evaluate the merit of extending the VAED to collect data required to calculate the population needs adjustment indices.

Table 16 does not exhaust the issues, but it provides a solid basis for the development of a work plan. In our view, refinement of quality of the PACIS data and further development of the needs adjustment indices should be accorded a high priority.

R6 It is recommended that a specific plan to carry out work to refine PACRAM be developed, based on the issues identified in this study, with a high priority being accorded to enhancing the PACIS system and further developing the population needs adjustment indices.

APPENDIX A

Project Steering Committee Members

Development of a Resource Allocation Model for the Post Acute Care Program Steering Committee

Sarah Goding (Chair)	Acting Manager, Sub-Acute and Continuity, Acute Health Department of Human Services
Vivien Adler	Manager, Continuity, Acute Health Department of Human Services
Lisa Basford	Project Officer, Continuity, Acute Health Department of Human Services
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Mike Debinski	Manager, Partnerships and Service Planning Eastern Metropolitan Region, Department of Human Services
Geoff Iles	Manager, Partnerships and Service Planning Grampians Region, Department of Human Services
Lyn MacKenzie	Coordinator, Grampians PAC Project Stawell District Hospital
John Belfrage	Program Manager, Inner Melbourne PAC Project North Richmond Community Health Centre
Anne Hastie (until August 1999)	Policy/Program Development Manager, Western Post Acute Care Facilitation Unit North Western Health Care Network
Chris Jones (from August 1999)	Manager, Southern PAC Project Southern Health
Anna Fletcher	General Manager, Community and Mental Health Barwon Health
Dr Sandy Leggat (until March 2000)	Chief Planning Officer Inner and Eastern Health Care Network
Kathy Wilson	Chief Executive Officer Inner South Community Health Service

APPENDIX B

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APPENDIX C

Development of Population Based Needs Adjustment Indices

DEVELOPMENT OF POPULATION BASED NEEDS ADJUSTMENT INDICES

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The following is a brief description of the process of indicator construction.

The indicators used in the PAC allocation formula are derived primarily from the ABS Collection District Summary File.

With the exception of the isolation component they are derived via a process called "Principal Components Analysis" (PCA). PCA is a well-documented statistical technique that can identify and quantify the common thread amongst several related measures. This new quantity is often called a "dimension" because it captures the essence of these measures in one number, which is thematically different from other dimensions.

Using the education dimension as an example, the underlying measures use the population aged 15+ as the denominator and calculate the percentage who:

- have a degree;
- have trade or other qualifications;
- are not attending an educational institution;
- who have no qualifications; and
- who left school before age 15 or never attended.

These 5 measures each form a narrow measure of education in a community. Through PCA they are combined such that the overall measure, called *education*, is a composite which includes each of them in proportion to the amount they have in common. Thus, rather than dealing with each of these measures, one can simply compare communities on their *education* score. To facilitate the interpretation of the *education* dimension, it is standardised (across Australia) so that the mean is 100 and the standard deviation is 15 (like IQ scores). Thus a score of 100 is average, a score of 90 is below average, and a score of 130 would be extremely high.

This methodology has been used by the ABS to derive its SEIFA (socio-economic indicators for Australia) package. Similarly, there are dimensions called *income*, *occupation*, *single parents*, *english-speaking ability*, and *aboriginality*. The three basic socio-economic dimensions of *occupation*, *education*, and *income* are often combined through averaging into one overall score, called *SES-A* by various agencies that use it for funding purposes.

The final dimension in the PAC allocation is *isolation.* It was derived by taking each collection district in Australia, and drawing around it a circle that encompassed 50,000 people. The radius of the circle is a measure of the isolation of that community. Clearly in remote areas the required radius is very large, whilst in urban areas it is very small.

One can identify the collection districts that fall within each region. The average of these dimension scores across the collection districts within a region is then used to characterise the region. The average radius was converted into an isolation index to resemble the other dimensions. This too was done by standardisation. This process of generating overall scores can be applied to regions or to PACs.

Finally, one needs to decide upon the mechanism for combining these dimensions into a single score. For this purpose, the geometric mean was employed. Thus the final score used is the geometric mean of these five dimensions:

- SES-A
- single parents
- english-speaking ability
- aboriginality
- isolation

This final score can be used to adjust funding. However, the actual value of this score is only a relative measure, and so one has to subjectively determine how the funding differential will relate to this score. This is a decision at the policy level, rather than the statistical level. For this purpose, a spreadsheet template has been provided to test the effect of various funding differential scenarios. It is important to realise that the methodology for identifying the relative SES of regions or PACs is well established, and widely used in slightly different forms, but that the actual conversion of such scores into dollar terms is always based on policy. There is no direct equation from research that converts relative SES into absolute dollars.

APPENDIX D

DHS Post Acute Care Resource Allocation Model

POST ACUTE CARE RESOURCE ALLOCATION MODEL
TOTAL PAC ALLOCATION $13,000,000 IN 2000/2001

PAC Project	Inpatient Population	Needs Adjusted Population	Service Estimates	Interstate Service Estimates	Total Service Estimates	Fixed Grant	Interstate Patients Grant	Variable Grant	Total Grant 2000/01
Barwon PAC	21,369	21,767	1,088	12	1,100	$192,914	$5,607	$517,121	$715,641
Wannon PAC	15,836	16,304	815	24	839	$155,002	$11,427	$387,343	$553,772
Central Highlands PAC	12,024	12,034	602	12	614	$118,726	$5,654	$285,890	$410,271
Grampians PAC	12,125	13,464	673	18	691	$131,231	$8,648	$319,860	$459,739
Loddon Mallee PAC	28,225	28,894	1,445	82	1,527	$243,262	$38,938	$686,437	$968,636
Northern Mallee PAC	4,751	4,933	247	83	330	$66,235	$39,437	$117,188	$222,860
Hume PAC	30,808	31,107	1,555	298	1,853	$269,530	$141,641	$739,026	$1,150,197
East Gippsland PAC	6,102	6,660	333	12	345	$69,321	$5,702	$158,221	$233,243
Latrobe & Wellington PAC	12,499	12,694	635	12	647	$124,054	$5,726	$301,566	$431,345
West Gippsland PAC	10,076	10,324	516	6	522	$103,981	$2,685	$245,276	$351,941
Western PAC	61,437	62,289	3,114	45	3,160	$374,526	$21,548	$1,479,825	$1,875,899
Royal Children's PAC			420		420	$56,290		$275,520	$331,810
North Eastern PAC	34,567	34,634	1,732	24	1,755	$261,645	$11,237	$822,818	$1,095,700
Outer Eastern PAC	38,020	33,307	1,665	21	1,687	$256,126	$10,144	$791,280	$1,057,550
Inner Melbourne PAC	16,364	15,759	788	43	831	$153,648	$20,384	$374,384	$548,416
Inner South East PAC	19,802	18,401	920	31	951	$172,896	$14,516	$437,148	$624,559
Peninsula PAC	20,453	19,417	971	10	981	$177,729	$4,656	$461,291	$643,676
Southern PAC	46,708	42,874	2,144	24	2,168	$294,784	$11,380	$1,018,579	$1,324,743
TOTAL	**391,166**	**384,860**	**19,663**	**756**	**20,419**	**$3,221,897**	**$359,330**	**$9,143,253**	**$13,000,000**

APPENDIX E

Postcodes & Local Government Areas Mapped to PAC Project Areas & Regions

PAC Project	Catchment Area (based on local government areas)	
Barwon		
	Borough of Queenscliff	
	City of Greater Geelong	
	Colac-Otway Shire	
	Golden Plains Shire:	3321 (Inverleigh)
		3322 (Cressy)
		3329 (Shelford area)
		3331 (Bannockburn/Maude area)
		3332 (Lethbridge)
		3333 (Meredith area)
	Surf Coast Shire	
Wannon		
	City of Warrnambool	
	Corangamite Shire:	not 3361 (Skipton area)
		not part 3324 (Mingay area)
		not part 3325 (Vite Vite area)
	Glenelg Shire	
	Moyne Shire	
	Southern Grampians Shire	
Central Highlands		
	City of Ballarat	
	Golden Plains Shire:	3330 (Rokewood)
		part 3351 (Berringa/Cape Clear/Scarsdale/Wallinduc area)
	Hepburn Shire	
	Moorabool Shire	
Grampians		
	Buloke Shire:	part 3395 (Rosebery East area)
		3480 (Donald area)
		3482 (Watchem area)
		3483 (Birchip area)
		part 3525 (Charlton area)
		3527 (Wycheproof area)
		3529 (Nullawil)
	Corangamite Shire:	3361 (Skipton area)
		part 3324 (Mingay area)
		part 3325 (Vite Vite area)
	Golden Plains Shire:	3360 (Linton area)
	Hindmarsh Shire	
	Northern Grampians Shire	
	Pyrenees Shire	

PAC Project	Catchment Area (based on local government areas)	
	Rural City of Ararat	
	Rural City of Horsham	
	West Wimmera Shire	
	Yarriambiack Shire	
Loddon Mallee		
	Buloke Shire:	3530 (Culgoa area)
		3531 (Berriwillock area)
		3533 (Sea Lake area)
	Campaspe Shire	
	Central Goldfields Shire	
	City of Greater Bendigo	
	Gannawarra Shire	
	Loddon Shire	
	Macedon Ranges Shire	
	Mount Alexander Shire	
	Rural City of Swan Hill:	not 3549 (Robinvale area)
Northern Mallee		
	Rural City of Mildura	
	Rural City of Swan Hill:	3549 (Robinvale area)
Hume		
	Alpine Shire	
	City of Greater Shepparton	
	Delatite Shire	
	Indigo Shire	
	Mitchell Shire	
	Moira Shire	
	Murrindindi Shire	
	Rural City of Wangaratta	
	Rural City of Wodonga	
	Strathbogie Shire	
	Towong Shire	
East Gippsland		
	East Gippsland Shire	
Latrobe & Wellington		
	La Trobe Shire	
	Wellington Shire	
South/West Gippsland		
	Bass Coast Shire	
	Baw Baw Shire	
	South Gippsland Shire	

PAC Project	Catchment Area (based on local government areas)	
Western		
	City of Brimbank	
	City of Hobson's Bay	
	City of Hume:	3043 (Tullamarine/Gladstone Park area)
		3429 (Sunbury area)
	City of Maribyrnong	
	City of Moonee Valley	
	City of Moreland	
	City of Wyndham	
	Melton Shire	
North Eastern		
	City of Banyule	
	City of Darebin:	3072 (Preston/Bell area)
		3073 (Reservoir area)
		3083 (Bundoora area)
	City of Hume:	not 3043 (Tullamarine/Gladstone Park area)
		not 3429 (Sunbury area)
	City of Whittlesea	
	Nillumbik Shire	
Outer East		
	City of Knox	
	City of Manningham	
	City of Maroondah	
	City of Whitehorse	
	Yarra Ranges Shire	
Inner Melbourne		
	City of Boroondara	
	City of Darebin:	3070 (Northcote area)
		3071 (Thornbury area)
		3078 (Alphington/Fairfield area)
	City of Melbourne	
	City of Yarra	
Southern		
	Cardinia Shire	
	City of Casey	
	City of Greater Dandenong	
	City of Kingston	
	City of Monash	

PAC Projects	Catchment Area (based on local government areas)	
Inner South East		
	City of Bayside	
	City of Glen Eira	
	City of Port Phillip	
	City of Stonnington	
Peninsula		
	City of Frankston	
	Mornington Peninsula Shire	

POST ACUTE CARE PROGRAM: Postcode & Local Government Areas

Legend: C = City S = Shire

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
2999	9399	Unincorporated Vic	100	
3000	4600	Melbourne (C)	100	Inner Melbourne
3002	4600	Melbourne (C)	100	Inner Melbourne
3003	4600	Melbourne (C)	100	Inner Melbourne
3004	4600	Melbourne (C)	19.1	Inner Melbourne
3004	5900	Port Phillip (C)	80.9	Inner South East
3006	4600	Melbourne (C)	100	Inner Melbourne
3011	4330	Maribyrnong (C)	97.1	Western
3011	4600	Melbourne (C)	2.9	Inner Melbourne
3012	1180	Brimbank (C)	1.6	Western
3012	4330	Maribyrnong (C)	98.4	Western
3013	4330	Maribyrnong (C)	100	Western
3015	3110	Hobsons Bay (C)	96.5	Western
3015	4330	Maribyrnong (C)	3.5	Western
3016	3110	Hobsons Bay (C)	100	Western
3018	3110	Hobsons Bay (C)	100	Western
3019	4330	Maribyrnong (C)	100	Western
3020	1180	Brimbank (C)	98.3	Western
3020	4330	Maribyrnong (C)	1.7	Western
3021	1180	Brimbank (C)	100	Western
3022	1180	Brimbank (C)	100	Western
3023	1180	Brimbank (C)	100	Western
3024	7260	Wyndham (C)	100	Western
3025	3110	Hobsons Bay (C)	100	Western
3027	7260	Wyndham (C)	100	Western
3028	3110	Hobsons Bay (C)	100	Western
3028	7260	Wyndham (C)	0	Western
3029	7260	Wyndham (C)	100	Western
3030	7260	Wyndham (C)	100	Western
3031	4600	Melbourne (C)	25.1	Inner Melbourne
3031	5060	Moonee Valley (C)	74.9	Western
3032	4330	Maribyrnong (C)	20.6	Western
3032	5060	Moonee Valley (C)	79.4	Western
3033	5060	Moonee Valley (C)	100	Western
3034	5060	Moonee Valley (C)	100	Western
3036	1180	Brimbank (C)	100	Western
3037	4650	Melton (S)	100	Western
3038	1180	Brimbank (C)	100	Western
3039	5060	Moonee Valley (C)	100	Western
3040	5060	Moonee Valley (C)	100	Western
3041	5060	Moonee Valley (C)	100	Western
3042	1180	Brimbank (C)	17.4	Western
3042	5060	Moonee Valley (C)	82.6	Western
3043	1180	Brimbank (C)	4	Western
3043	3270	Hume (C)	96	Western
3044	5250	Moreland (C)	100	Western
3045	3270	Hume (C)	100	North Eastern
3046	5250	Moreland (C)	100	Western
3047	3270	Hume (C)	100	North Eastern
3048	3270	Hume (C)	100	North Eastern
3049	3270	Hume (C)	100	North Eastern
3051	4600	Melbourne (C)	73.8	Inner Melbourne
3051	5060	Moonee Valley (C)	26.2	Western
3052	4600	Melbourne (C)	100	Inner Melbourne
3053	4600	Melbourne (C)	100	Inner Melbourne

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3054	4600	Melbourne (C)	6.7	Inner Melbourne
3054	7350	Yarra (C)	93.3	Inner Melbourne
3055	5250	Moreland (C)	100	Western
3056	5250	Moreland (C)	100	Western
3057	5250	Moreland (C)	100	Western
3058	5250	Moreland (C)	100	Western
3059	3270	Hume (C)	100	North Eastern
3060	5250	Moreland (C)	100	Western
3061	3270	Hume (C)	100	North Eastern
3064	3270	Hume (C)	97.4	North Eastern
3064	7070	Whittlesea (C)	2.6	North Eastern
3065	7350	Yarra (C)	100	Inner Melbourne
3066	7350	Yarra (C)	100	Inner Melbourne
3067	7350	Yarra (C)	100	Inner Melbourne
3068	5250	Moreland (C)	4.7	Western
3068	7350	Yarra (C)	95.3	Inner Melbourne
3070	1890	Darebin (C)	100	Inner Melbourne
3071	1890	Darebin (C)	100	Inner Melbourne
3072	1890	Darebin (C)	100	North Eastern
3073	1890	Darebin (C)	100	North Eastern
3074	7070	Whittlesea (C)	100	North Eastern
3075	7070	Whittlesea (C)	100	North Eastern
3076	7070	Whittlesea (C)	100	North Eastern
3078	1890	Darebin (C)	78.8	Inner Melbourne
3078	7350	Yarra (C)	21.2	Inner Melbourne
3079	660	Banyule (C)	100	North Eastern
3081	660	Banyule (C)	100	North Eastern
3082	7070	Whittlesea (C)	100	North Eastern
3083	660	Banyule (C)	44.7	North Eastern
3083	1890	Darebin (C)	24	North Eastern
3083	7070	Whittlesea (C)	31.3	North Eastern
3084	660	Banyule (C)	100	North Eastern
3085	660	Banyule (C)	100	North Eastern
3087	660	Banyule (C)	100	North Eastern
3088	660	Banyule (C)	81.9	North Eastern
3088	5710	Nillumbik (S)	18.1	North Eastern
3089	5710	Nillumbik (S)	100	North Eastern
3091	5710	Nillumbik (S)	100	North Eastern
3093	660	Banyule (C)	100	North Eastern
3094	660	Banyule (C)	100	North Eastern
3095	660	Banyule (C)	9.7	North Eastern
3095	5710	Nillumbik (S)	90.3	North Eastern
3096	5710	Nillumbik (S)	100	North Eastern
3097	5710	Nillumbik (S)	100	North Eastern
3099	5710	Nillumbik (S)	100	North Eastern
3101	1110	Boroondara (C)	100	Inner Melbourne
3102	1110	Boroondara (C)	100	Inner Melbourne
3103	1110	Boroondara (C)	100	Inner Melbourne
3104	1110	Boroondara (C)	100	Inner Melbourne
3105	4210	Manningham (C)	100	Outer East
3106	4210	Manningham (C)	100	Outer East
3107	4210	Manningham (C)	100	Outer East
3108	4210	Manningham (C)	100	Outer East
3109	4210	Manningham (C)	100	Outer East
3111	4210	Manningham (C)	100	Outer East
3113	4210	Manningham (C)	68.3	Outer East
3113	5710	Nillumbik (S)	31.7	North Eastern

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3114	4210	Manningham (C)	100	Outer East
3115	4210	Manningham (C)	79.1	Outer East
3115	7450	Yarra Ranges (S)	20.9	Outer East
3116	7450	Yarra Ranges (S)	100	Outer East
3121	7350	Yarra (C)	100	Inner Melbourne
3122	1110	Boroondara (C)	100	Inner Melbourne
3123	1110	Boroondara (C)	100	Inner Melbourne
3124	1110	Boroondara (C)	100	Inner Melbourne
3125	1110	Boroondara (C)	44.2	Inner Melbourne
3125	4970	Monash (C)	12.1	Southern
3125	6980	Whitehorse (C)	43.7	Outer East
3126	1110	Boroondara (C)	100	Inner Melbourne
3127	1110	Boroondara (C)	44.5	Inner Melbourne
3127	6980	Whitehorse (C)	55.5	Outer East
3128	6980	Whitehorse (C)	100	Outer East
3129	1110	Boroondara (C)	4.6	Inner Melbourne
3129	6980	Whitehorse (C)	95.4	Outer East
3130	6980	Whitehorse (C)	100	Outer East
3131	4210	Manningham (C)	2.2	Outer East
3131	6980	Whitehorse (C)	97.8	Outer East
3132	4210	Manningham (C)	3.6	Outer East
3132	6980	Whitehorse (C)	96.4	Outer East
3133	4410	Maroondah (C)	2.7	Outer East
3133	6980	Whitehorse (C)	97.3	Outer East
3134	4210	Manningham (C)	2.5	Outer East
3134	4410	Maroondah (C)	97.5	Outer East
3135	4410	Maroondah (C)	100	Outer East
3136	4410	Maroondah (C)	100	Outer East
3137	4410	Maroondah (C)	32.9	Outer East
3137	7450	Yarra Ranges (S)	67.1	Outer East
3138	7450	Yarra Ranges (S)	100	Outer East
3139	7450	Yarra Ranges (S)	100	Outer East
3140	7450	Yarra Ranges (S)	100	Outer East
3141	4600	Melbourne (C)	27.2	Inner Melbourne
3141	6350	Stonnington (C)	72.8	Inner South East
3142	6350	Stonnington (C)	100	Inner South East
3143	6350	Stonnington (C)	100	Inner South East
3144	6350	Stonnington (C)	100	Inner South East
3145	6350	Stonnington (C)	100	Inner South East
3146	1110	Boroondara (C)	52.8	Inner Melbourne
3146	6350	Stonnington (C)	47.2	Inner South East
3147	1110	Boroondara (C)	60.7	Inner Melbourne
3147	4970	Monash (C)	39.3	Southern
3148	4970	Monash (C)	55.5	Southern
3148	6350	Stonnington (C)	44.5	Inner South East
3149	4970	Monash (C)	100	Southern
3150	4970	Monash (C)	100	Southern
3151	6980	Whitehorse (C)	100	Outer East
3152	3670	Knox (C)	100	Outer East
3153	3670	Knox (C)	49.1	Outer East
3153	4410	Maroondah (C)	50.9	Outer East
3154	3670	Knox (C)	100	Outer East
3155	3670	Knox (C)	100	Outer East
3156	3670	Knox (C)	92.4	Outer East
3156	7450	Yarra Ranges (S)	7.6	Outer East
3158	7450	Yarra Ranges (S)	100	Outer East
3159	7450	Yarra Ranges (S)	100	Outer East

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3160	7450	Yarra Ranges (S)	100	Outer East
3161	2310	Glen Eira (C)	100	Inner South East
3162	2310	Glen Eira (C)	100	Inner South East
3163	2310	Glen Eira (C)	100	Inner South East
3165	2310	Glen Eira (C)	100	Inner South East
3166	4970	Monash (C)	95.4	Southern
3166	6350	Stonnington (C)	4.6	Inner South East
3167	2310	Glen Eira (C)	37.3	Inner South East
3167	3430	Kingston (C)	29.7	Southern
3167	4970	Monash (C)	33	Southern
3168	4970	Monash (C)	100	Southern
3169	3430	Kingston (C)	100	Southern
3170	4970	Monash (C)	100	Southern
3171	2670	Greater Dandenong (C)	100	Southern
3172	2670	Greater Dandenong (C)	56.1	Southern
3172	3430	Kingston (C)	43.9	Southern
3173	2670	Greater Dandenong (C)	100	Southern
3174	2670	Greater Dandenong (C)	100	Southern
3175	2670	Greater Dandenong (C)	100	Southern
3177	1610	Casey (C)	100	Southern
3178	3670	Knox (C)	100	Outer East
3179	3670	Knox (C)	100	Outer East
3180	3670	Knox (C)	100	Outer East
3181	4600	Melbourne (C)	3.6	Inner Melbourne
3181	5900	Port Phillip (C)	4.9	Inner South East
3181	6350	Stonnington (C)	91.5	Inner South East
3182	5900	Port Phillip (C)	100	Inner South East
3183	2310	Glen Eira (C)	19	Inner South East
3183	5900	Port Phillip (C)	81	Inner South East
3184	910	Bayside (C)	10.1	Inner South East
3184	5900	Port Phillip (C)	89.9	Inner South East
3185	910	Bayside (C)	20.7	Inner South East
3185	2310	Glen Eira (C)	71.2	Inner South East
3185	5900	Port Phillip (C)	8.1	Inner South East
3186	910	Bayside (C)	100	Inner South East
3187	910	Bayside (C)	100	Inner South East
3188	910	Bayside (C)	100	Inner South East
3189	910	Bayside (C)	28.9	Inner South East
3189	2310	Glen Eira (C)	28.1	Inner South East
3189	3430	Kingston (C)	43	Southern
3190	910	Bayside (C)	73.5	Inner South East
3190	3430	Kingston (C)	26.5	Southern
3191	910	Bayside (C)	100	Inner South East
3192	910	Bayside (C)	22.4	Inner South East
3192	3430	Kingston (C)	77.6	Southern
3193	910	Bayside (C)	100	Inner South East
3194	3430	Kingston (C)	100	Southern
3195	3430	Kingston (C)	100	Southern
3196	3430	Kingston (C)	100	Southern
3197	3430	Kingston (C)	100	Southern
3198	2170	Frankston (C)	100	Peninsula
3199	2170	Frankston (C)	100	Peninsula
3200	2170	Frankston (C)	100	Peninsula
3201	2170	Frankston (C)	100	Peninsula
3202	3430	Kingston (C)	100	Southern
3204	2310	Glen Eira (C)	100	Inner South East
3205	5900	Port Phillip (C)	100	Inner South East

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3206	5900	Port Phillip (C)	100	Inner South East
3207	5900	Port Phillip (C)	100	Inner South East
3211	2750	Greater Geelong (C)	100	Barwon
3212	2750	Greater Geelong (C)	100	Barwon
3214	2750	Greater Geelong (C)	100	Barwon
3215	2750	Greater Geelong (C)	100	Barwon
3216	2750	Greater Geelong (C)	100	Barwon
3218	2750	Greater Geelong (C)	100	Barwon
3219	2750	Greater Geelong (C)	100	Barwon
3220	2750	Greater Geelong (C)	100	Barwon
3221	1750	Colac-Otway (S)	1.1	Barwon
3221	2750	Greater Geelong (C)	84	Barwon
3221	6490	Surf Coast (S)	14.9	Barwon
3222	2750	Greater Geelong (C)	100	Barwon
3223	2750	Greater Geelong (C)	100	Barwon
3224	2750	Greater Geelong (C)	100	Barwon
3225	2750	Greater Geelong (C)	16.7	Barwon
3225	6080	Queenscliffe (B)	83.3	Barwon
3226	2750	Greater Geelong (C)	100	Barwon
3227	2750	Greater Geelong (C)	100	Barwon
3228	6490	Surf Coast (S)	100	Barwon
3230	6490	Surf Coast (S)	100	Barwon
3231	6490	Surf Coast (S)	100	Barwon
3232	6490	Surf Coast (S)	100	Barwon
3233	1750	Colac-Otway (S)	100	Barwon
3236	1750	Colac-Otway (S)	100	Barwon
3237	1750	Colac-Otway (S)	100	Barwon
3238	1750	Colac-Otway (S)	100	Barwon
3239	1750	Colac-Otway (S)	100	Barwon
3240	6490	Surf Coast (S)	100	Barwon
3241	6490	Surf Coast (S)	100	Barwon
3242	1750	Colac-Otway (S)	100	Barwon
3243	1750	Colac-Otway (S)	80.6	Barwon
3243	6490	Surf Coast (S)	19.4	Barwon
3249	1750	Colac-Otway (S)	100	Barwon
3250	1750	Colac-Otway (S)	100	Barwon
3251	1750	Colac-Otway (S)	100	Barwon
3254	1750	Colac-Otway (S)	100	Barwon
3260	1750	Colac-Otway (S)	5	Barwon
3260	1830	Corangamite (S)	95	Wannon
3264	1830	Corangamite (S)	100	Wannon
3265	1830	Corangamite (S)	22.5	Wannon
3265	5490	Moyne (S)	77.5	Wannon
3266	1830	Corangamite (S)	100	Wannon
3267	1830	Corangamite (S)	100	Wannon
3268	1830	Corangamite (S)	76.8	Wannon
3268	5490	Moyne (S)	23.2	Wannon
3269	1830	Corangamite (S)	100	Wannon
3271	5490	Moyne (S)	100	Wannon
3272	5490	Moyne (S)	100	Wannon
3273	5490	Moyne (S)	100	Wannon
3274	5490	Moyne (S)	100	Wannon
3277	5490	Moyne (S)	100	Wannon
3280	6730	Warrnambool (C)	100	Wannon
3281	5490	Moyne (S)	67.1	Wannon
3281	6730	Warrnambool (C)	32.9	Wannon
3282	5490	Moyne (S)	100	Wannon

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3284	5490	Moyne (S)	100	Wannon
3284	9399	Unincorporated Vic	0	Wannon
3286	5490	Moyne (S)	100	Wannon
3287	5490	Moyne (S)	100	Wannon
3289	6260	Southern Grampians (S)	100	Wannon
3292	2410	Glenelg (S)	100	Wannon
3293	6260	Southern Grampians (S)	100	Wannon
3294	6260	Southern Grampians (S)	100	Wannon
3300	6260	Southern Grampians (S)	100	Wannon
3302	6260	Southern Grampians (S)	100	Wannon
3303	2410	Glenelg (S)	100	Wannon
3304	2410	Glenelg (S)	93	Wannon
3304	5490	Moyne (S)	7	Wannon
3305	2410	Glenelg (S)	100	Wannon
3309	2410	Glenelg (S)	100	Wannon
3310	2410	Glenelg (S)	100	Wannon
3311	2410	Glenelg (S)	100	Wannon
3312	6890	West Wimmera (S)	100	Grampians
3314	6260	Southern Grampians (S)	100	Wannon
3315	6260	Southern Grampians (S)	100	Wannon
3317	6890	West Wimmera (S)	100	Grampians
3318	6890	West Wimmera (S)	100	Grampians
3319	6890	West Wimmera (S)	100	Grampians
3321	2490	Golden Plains (S)	100	Barwon
3322	1750	Colac-Otway (S)	48	Barwon
3322	2490	Golden Plains (S)	52	Barwon
3323	1830	Corangamite (S)	100	Wannon
3324	1830	Corangamite (S)	16.2	Grampians
3324	1830	Corangamite (S)	83.8	Wannon
3325	1830	Corangamite (S)	16.1	Grampians
3325	1830	Corangamite (S)	83.9	Wannon
3329	2490	Golden Plains (S)	100	Barwon
3330	2490	Golden Plains (S)	100	Central Highlands
3331	2490	Golden Plains (S)	100	Barwon
3332	2490	Golden Plains (S)	100	Barwon
3333	2490	Golden Plains (S)	100	Barwon
3334	5150	Moorabool (S)	100	Central Highlands
3335	4650	Melton (S)	100	Western
3337	4650	Melton (S)	100	Western
3338	4650	Melton (S)	100	Western
3340	2750	Greater Geelong (C)	1.5	Barwon
3340	5150	Moorabool (S)	98.5	Central Highlands
3341	5150	Moorabool (S)	100	Central Highlands
3342	5150	Moorabool (S)	100	Central Highlands
3345	5150	Moorabool (S)	100	Central Highlands
3350	570	Ballarat (C)	100	Central Highlands
3351	260	Ararat (RC)	7.8	Grampians
3351	570	Ballarat (C)	14.3	Central Highlands
3351	2490	Golden Plains (S)	68.9	Central Highlands
3351	5990	Pyrenees (S)	9	Grampians
3352	570	Ballarat (C)	66.1	Central Highlands
3352	5150	Moorabool (S)	24.7	Central Highlands
3352	5990	Pyrenees (S)	9.2	Grampians
3355	570	Ballarat (C)	100	Central Highlands
3356	570	Ballarat (C)	100	Central Highlands
3357	570	Ballarat (C)	100	Central Highlands
3360	2490	Golden Plains (S)	100	Grampians

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3361	1830	Corangamite (S)	100	Grampians
3363	2910	Hepburn (S)	100	Central Highlands
3364	570	Ballarat (C)	4.9	Central Highlands
3364	2910	Hepburn (S)	90.2	Central Highlands
3364	5430	Mount Alexander (S)	4.9	Loddon Mallee
3370	2910	Hepburn (S)	100	Central Highlands
3371	1670	Central Goldfields (S)	100	Loddon Mallee
3373	5990	Pyrenees (S)	100	Grampians
3375	260	Ararat (RC)	100	Grampians
3377	260	Ararat (RC)	93.6	Grampians
3377	5810	Northern Grampians (S)	6.4	Grampians
3379	260	Ararat (RC)	100	Grampians
3380	5810	Northern Grampians (S)	100	Grampians
3381	260	Ararat (RC)	10.6	Grampians
3381	3190	Horsham (RC)	8.6	Grampians
3381	5810	Northern Grampians (S)	65.2	Grampians
3381	5990	Pyrenees (S)	12	Grampians
3381	7630	Yarriambiack (S)	3.6	Grampians
3387	5810	Northern Grampians (S)	100	Grampians
3388	7630	Yarriambiack (S)	100	Grampians
3390	7630	Yarriambiack (S)	100	Grampians
3391	7630	Yarriambiack (S)	100	Grampians
3392	7630	Yarriambiack (S)	100	Grampians
3393	7630	Yarriambiack (S)	100	Grampians
3395	1270	Buloke (S)	37.9	Grampians
3395	7630	Yarriambiack (S)	62.1	Grampians
3396	7630	Yarriambiack (S)	100	Grampians
3400	3190	Horsham (RC)	100	Grampians
3401	3190	Horsham (RC)	100	Grampians
3407	3190	Horsham (RC)	16.4	Grampians
3407	6260	Southern Grampians (S)	83.6	Wannon
3409	3190	Horsham (RC)	100	Grampians
3412	6890	West Wimmera (S)	100	Grampians
3414	2980	Hindmarsh (S)	100	Grampians
3418	2980	Hindmarsh (S)	100	Grampians
3419	6890	West Wimmera (S)	100	Grampians
3423	2980	Hindmarsh (S)	100	Grampians
3424	2980	Hindmarsh (S)	100	Grampians
3427	4650	Melton (S)	100	Western
3428	3270	Hume (C)	100	North Eastern
3429	3270	Hume (C)	100	Western
3431	4130	Macedon Ranges (S)	100	Loddon Mallee
3432	4130	Macedon Ranges (S)	100	Loddon Mallee
3433	4130	Macedon Ranges (S)	100	Loddon Mallee
3434	4130	Macedon Ranges (S)	100	Loddon Mallee
3435	4130	Macedon Ranges (S)	84.9	Loddon Mallee
3435	4850	Mitchell (S)	15.1	Hume
3437	4130	Macedon Ranges (S)	100	Loddon Mallee
3438	4130	Macedon Ranges (S)	100	Loddon Mallee
3440	4130	Macedon Ranges (S)	100	Loddon Mallee
3441	4130	Macedon Ranges (S)	100	Loddon Mallee
3442	4130	Macedon Ranges (S)	100	Loddon Mallee
3444	2620	Greater Bendigo (C)	3.8	Loddon Mallee
3444	2910	Hepburn (S)	3.6	Central Highlands
3444	4130	Macedon Ranges (S)	92.6	Loddon Mallee
3446	4130	Macedon Ranges (S)	100	Loddon Mallee
3447	5430	Mount Alexander (S)	100	Loddon Mallee

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3448	5430	Mount Alexander (S)	100	Loddon Mallee
3450	5430	Mount Alexander (S)	100	Loddon Mallee
3451	5430	Mount Alexander (S)	100	Loddon Mallee
3453	5430	Mount Alexander (S)	100	Loddon Mallee
3458	2910	Hepburn (S)	76.1	Central Highlands
3458	5150	Moorabool (S)	23.9	Central Highlands
3460	2910	Hepburn (S)	100	Central Highlands
3461	2910	Hepburn (S)	100	Central Highlands
3462	5430	Mount Alexander (S)	100	Loddon Mallee
3463	3940	Loddon (S)	5.9	Loddon Mallee
3463	5430	Mount Alexander (S)	94.1	Loddon Mallee
3464	1670	Central Goldfields (S)	100	Loddon Mallee
3465	1670	Central Goldfields (S)	97.7	Loddon Mallee
3465	5990	Pyrenees (S)	2.3	Grampians
3467	5990	Pyrenees (S)	100	Grampians
3468	5990	Pyrenees (S)	100	Grampians
3472	1670	Central Goldfields (S)	84.8	Loddon Mallee
3472	3940	Loddon (S)	15.2	Loddon Mallee
3475	1670	Central Goldfields (S)	46.5	Loddon Mallee
3475	3940	Loddon (S)	53.5	Loddon Mallee
3478	5810	Northern Grampians (S)	100	Grampians
3480	1270	Buloke (S)	90.2	Grampians
3480	5810	Northern Grampians (S)	9.8	Grampians
3482	1270	Buloke (S)	100	Grampians
3483	1270	Buloke (S)	100	Grampians
3485	7630	Yarriambiack (S)	100	Grampians
3487	7630	Yarriambiack (S)	100	Grampians
3489	7630	Yarriambiack (S)	100	Grampians
3490	4780	Mildura (RC)	100	Northern Mallee
3496	4780	Mildura (RC)	100	Northern Mallee
3498	4780	Mildura (RC)	100	Northern Mallee
3500	300	Balranald (A)	1.9	Northern Mallee
3500	8200	Wentworth (A)	5.6	Northern Mallee
3500	4780	Mildura (RC)	92.5	Northern Mallee
3501	4780	Mildura (RC)	100	Northern Mallee
3505	4780	Mildura (RC)	100	Northern Mallee
3506	4780	Mildura (RC)	100	Northern Mallee
3507	4780	Mildura (RC)	100	Northern Mallee
3509	4780	Mildura (RC)	100	Northern Mallee
3512	4780	Mildura (RC)	100	Northern Mallee
3515	2620	Greater Bendigo (C)	100	Loddon Mallee
3516	3940	Loddon (S)	100	Loddon Mallee
3517	3940	Loddon (S)	100	Loddon Mallee
3518	3940	Loddon (S)	100	Loddon Mallee
3520	3940	Loddon (S)	100	Loddon Mallee
3521	4850	Mitchell (S)	100	Hume
3523	2620	Greater Bendigo (C)	100	Loddon Mallee
3525	1270	Buloke (S)	91.3	Grampians
3525	3940	Loddon (S)	8.7	Loddon Mallee
3527	1270	Buloke (S)	100	Grampians
3529	1270	Buloke (S)	100	Grampians
3530	1270	Buloke (S)	100	Loddon Mallee
3531	1270	Buloke (S)	100	Loddon Mallee
3533	1270	Buloke (S)	100	Loddon Mallee
3537	3940	Loddon (S)	100	Loddon Mallee
3540	2250	Gannawarra (S)	100	Loddon Mallee
3542	2250	Gannawarra (S)	100	Loddon Mallee

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3544	6610	Swan Hill (RC)	100	Loddon Mallee
3546	6610	Swan Hill (RC)	100	Loddon Mallee
3549	6610	Swan Hill (RC)	100	Northern Mallee
3550	2620	Greater Bendigo (C)	100	Loddon Mallee
3551	1370	Campaspe (S)	1.8	Loddon Mallee
3551	2620	Greater Bendigo (C)	91.8	Loddon Mallee
3551	3940	Loddon (S)	6.4	Loddon Mallee
3555	2620	Greater Bendigo (C)	100	Loddon Mallee
3556	2620	Greater Bendigo (C)	100	Loddon Mallee
3557	2620	Greater Bendigo (C)	100	Loddon Mallee
3558	1370	Campaspe (S)	21.9	Loddon Mallee
3558	2620	Greater Bendigo (C)	78.1	Loddon Mallee
3559	1370	Campaspe (S)	100	Loddon Mallee
3561	1370	Campaspe (S)	100	Loddon Mallee
3562	1370	Campaspe (S)	100	Loddon Mallee
3563	1370	Campaspe (S)	100	Loddon Mallee
3564	1370	Campaspe (S)	100	Loddon Mallee
3566	1370	Campaspe (S)	100	Loddon Mallee
3567	2250	Gannawarra (S)	100	Loddon Mallee
3568	2250	Gannawarra (S)	100	Loddon Mallee
3570	2620	Greater Bendigo (C)	85.6	Loddon Mallee
3570	3940	Loddon (S)	14.4	Loddon Mallee
3571	3940	Loddon (S)	100	Loddon Mallee
3572	1370	Campaspe (S)	62.4	Loddon Mallee
3572	3940	Loddon (S)	37.6	Loddon Mallee
3573	1370	Campaspe (S)	63.6	Loddon Mallee
3573	3940	Loddon (S)	36.4	Loddon Mallee
3575	3940	Loddon (S)	100	Loddon Mallee
3579	2250	Gannawarra (S)	100	Loddon Mallee
3580	2250	Gannawarra (S)	100	Loddon Mallee
3584	6610	Swan Hill (RC)	100	Loddon Mallee
3585	7800	Wakool (A)	6.5	Loddon Mallee
3585	6610	Swan Hill (RC)	93.5	Loddon Mallee
3589	6610	Swan Hill (RC)	100	Loddon Mallee
3594	6610	Swan Hill (RC)	100	Loddon Mallee
3595	6610	Swan Hill (RC)	100	Loddon Mallee
3596	6610	Swan Hill (RC)	100	Loddon Mallee
3597	6610	Swan Hill (RC)	100	Loddon Mallee
3607	6430	Strathbogie (S)	100	Hume
3608	6430	Strathbogie (S)	100	Hume
3610	2830	Greater Shepparton (C)	100	Hume
3612	1370	Campaspe (S)	100	Loddon Mallee
3614	2830	Greater Shepparton (C)	100	Hume
3616	2830	Greater Shepparton (C)	100	Hume
3618	2830	Greater Shepparton (C)	100	Hume
3620	1370	Campaspe (S)	93.9	Loddon Mallee
3620	2830	Greater Shepparton (C)	6.1	Hume
3621	1370	Campaspe (S)	100	Loddon Mallee
3622	1370	Campaspe (S)	100	Loddon Mallee
3623	1370	Campaspe (S)	100	Loddon Mallee
3624	1370	Campaspe (S)	100	Loddon Mallee
3629	2830	Greater Shepparton (C)	100	Hume
3630	2830	Greater Shepparton (C)	100	Hume
3631	2830	Greater Shepparton (C)	100	Hume
3633	2830	Greater Shepparton (C)	100	Hume
3634	2830	Greater Shepparton (C)	100	Hume
3635	4900	Moira (S)	100	Hume

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3636	4900	Moira (S)	100	Hume
3638	4900	Moira (S)	100	Hume
3639	4900	Moira (S)	100	Hume
3640	4900	Moira (S)	100	Hume
3641	4900	Moira (S)	100	Hume
3644	650	Berrigan (A)	13.8	Hume
3644	4900	Moira (S)	86.2	Hume
3646	2830	Greater Shepparton (C)	36	Hume
3646	4900	Moira (S)	64	Hume
3649	4900	Moira (S)	100	Hume
3658	4850	Mitchell (S)	88.1	Hume
3658	5620	Murrindindi (S)	11.9	Hume
3659	4850	Mitchell (S)	100	Hume
3660	4850	Mitchell (S)	96.2	Hume
3660	5620	Murrindindi (S)	3.8	Hume
3662	4850	Mitchell (S)	100	Hume
3663	6430	Strathbogie (S)	100	Hume
3664	4850	Mitchell (S)	29.5	Hume
3664	6430	Strathbogie (S)	70.5	Hume
3665	6430	Strathbogie (S)	100	Hume
3666	5620	Murrindindi (S)	1.6	Hume
3666	6430	Strathbogie (S)	98.4	Hume
3669	6430	Strathbogie (S)	100	Hume
3670	6430	Strathbogie (S)	100	Hume
3672	1950	Delatite (S)	100	Hume
3673	1950	Delatite (S)	100	Hume
3675	1950	Delatite (S)	14.4	Hume
3675	6700	Wangaratta (RC)	85.6	Hume
3677	6700	Wangaratta (RC)	100	Hume
3678	1950	Delatite (S)	4.7	Hume
3678	6700	Wangaratta (RC)	95.3	Hume
3682	6700	Wangaratta (RC)	100	Hume
3683	3350	Indigo (S)	100	Hume
3685	3350	Indigo (S)	100	Hume
3687	3350	Indigo (S)	100	Hume
3688	3350	Indigo (S)	47.8	Hume
3688	7170	Wodonga (RC)	52.2	Hume
3690	7170	Wodonga (RC)	100	Hume
3691	110	Alpine (S)	9.6	Hume
3691	3350	Indigo (S)	24.4	Hume
3691	6670	Towong (S)	12.6	Hume
3691	7170	Wodonga (RC)	53.4	Hume
3693	7170	Wodonga (RC)	100	Hume
3694	7170	Wodonga (RC)	100	Hume
3695	3350	Indigo (S)	100	Hume
3697	110	Alpine (S)	100	Hume
3699	110	Alpine (S)	100	Hume
3700	6670	Towong (S)	100	Hume
3701	6670	Towong (S)	100	Hume
3705	6670	Towong (S)	100	Hume
3707	6670	Towong (S)	100	Hume
3709	6670	Towong (S)	100	Hume
3711	5620	Murrindindi (S)	100	Hume
3712	5620	Murrindindi (S)	100	Hume
3713	5620	Murrindindi (S)	100	Hume
3714	5620	Murrindindi (S)	100	Hume
3715	1950	Delatite (S)	100	Hume

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3717	5620	Murrindindi (S)	100	Hume
3719	5620	Murrindindi (S)	100	Hume
3720	1950	Delatite (S)	100	Hume
3722	1950	Delatite (S)	100	Hume
3723	1950	Delatite (S)	100	Hume
3726	1950	Delatite (S)	100	Hume
3727	4900	Moira (S)	100	Hume
3728	4900	Moira (S)	100	Hume
3730	4900	Moira (S)	100	Hume
3732	6700	Wangaratta (RC)	100	Hume
3733	6700	Wangaratta (RC)	100	Hume
3735	6700	Wangaratta (RC)	100	Hume
3737	110	Alpine (S)	100	Hume
3740	110	Alpine (S)	100	Hume
3741	110	Alpine (S)	100	Hume
3747	3350	Indigo (S)	100	Hume
3749	3350	Indigo (S)	100	Hume
3752	7070	Whittlesea (C)	100	North Eastern
3753	4850	Mitchell (S)	100	Hume
3754	5710	Nillumbik (S)	48.7	North Eastern
3754	7070	Whittlesea (C)	51.3	North Eastern
3756	4850	Mitchell (S)	100	Hume
3757	5620	Murrindindi (S)	10.3	Hume
3757	5710	Nillumbik (S)	5.6	North Eastern
3757	7070	Whittlesea (C)	84.1	North Eastern
3758	4850	Mitchell (S)	100	Hume
3759	5710	Nillumbik (S)	100	North Eastern
3761	5710	Nillumbik (S)	100	North Eastern
3762	4850	Mitchell (S)	100	Hume
3763	5620	Murrindindi (S)	100	Hume
3764	4850	Mitchell (S)	100	Hume
3765	7450	Yarra Ranges (S)	100	Outer East
3766	7450	Yarra Ranges (S)	100	Outer East
3767	7450	Yarra Ranges (S)	100	Outer East
3770	7450	Yarra Ranges (S)	100	Outer East
3775	5710	Nillumbik (S)	17	North Eastern
3775	7450	Yarra Ranges (S)	83	Outer East
3777	7450	Yarra Ranges (S)	100	Outer East
3778	5620	Murrindindi (S)	100	Hume
3779	5620	Murrindindi (S)	100	Hume
3781	1450	Cardinia (S)	100	Southern
3782	1450	Cardinia (S)	88.4	Southern
3782	7450	Yarra Ranges (S)	11.6	Outer East
3783	1450	Cardinia (S)	100	Southern
3786	7450	Yarra Ranges (S)	100	Outer East
3787	7450	Yarra Ranges (S)	100	Outer East
3788	7450	Yarra Ranges (S)	100	Outer East
3789	7450	Yarra Ranges (S)	100	Outer East
3791	7450	Yarra Ranges (S)	100	Outer East
3792	7450	Yarra Ranges (S)	100	Outer East
3793	7450	Yarra Ranges (S)	100	Outer East
3795	7450	Yarra Ranges (S)	100	Outer East
3796	7450	Yarra Ranges (S)	100	Outer East
3797	7450	Yarra Ranges (S)	100	Outer East
3799	7450	Yarra Ranges (S)	100	Outer East
3802	1610	Casey (C)	100	Southern
3803	1610	Casey (C)	100	Southern

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3804	1610	Casey (C)	100	Southern
3805	1610	Casey (C)	100	Southern
3806	1610	Casey (C)	100	Southern
3807	1450	Cardinia (S)	78.6	Southern
3807	1610	Casey (C)	21.4	Southern
3808	1450	Cardinia (S)	100	Southern
3809	1450	Cardinia (S)	100	Southern
3810	1450	Cardinia (S)	100	Southern
3812	1450	Cardinia (S)	100	Southern
3813	1450	Cardinia (S)	100	Southern
3814	1450	Cardinia (S)	100	Southern
3815	1450	Cardinia (S)	100	Southern
3816	830	Baw Baw (S)	100	South/West Gippsland
3818	830	Baw Baw (S)	100	South/West Gippsland
3820	830	Baw Baw (S)	100	South/West Gippsland
3821	830	Baw Baw (S)	100	South/West Gippsland
3822	830	Baw Baw (S)	100	South/West Gippsland
3823	830	Baw Baw (S)	100	South/West Gippsland
3824	830	Baw Baw (S)	100	South/West Gippsland
3825	830	Baw Baw (S)	12.8	South/West Gippsland
3825	3810	La Trobe (S)	87.2	Latrobe & Wellington
3825	9399	Unincorporated Vic	0	Latrobe & Wellington
3831	830	Baw Baw (S)	100	South/West Gippsland
3833	830	Baw Baw (S)	100	South/West Gippsland
3835	830	Baw Baw (S)	100	South/West Gippsland
3840	3810	La Trobe (S)	100	Latrobe & Wellington
3842	3810	La Trobe (S)	100	Latrobe & Wellington
3844	3810	La Trobe (S)	95.9	Latrobe & Wellington
3844	6810	Wellington (S)	4.1	Latrobe & Wellington
3847	6810	Wellington (S)	100	Latrobe & Wellington
3850	6810	Wellington (S)	100	Latrobe & Wellington
3851	6810	Wellington (S)	100	Latrobe & Wellington
3852	6810	Wellington (S)	100	Latrobe & Wellington
3854	3810	La Trobe (S)	100	Latrobe & Wellington
3856	3810	La Trobe (S)	100	Latrobe & Wellington
3858	6810	Wellington (S)	100	Latrobe & Wellington
3859	6810	Wellington (S)	100	Latrobe & Wellington
3860	6810	Wellington (S)	100	Latrobe & Wellington
3862	2110	East Gippsland (S)	18	East Gippsland
3862	6810	Wellington (S)	82	Latrobe & Wellington
3865	2110	East Gippsland (S)	100	East Gippsland
3869	3810	La Trobe (S)	100	Latrobe & Wellington
3870	3810	La Trobe (S)	100	Latrobe & Wellington
3871	6170	South Gippsland (S)	100	South/West Gippsland
3874	6810	Wellington (S)	100	Latrobe & Wellington
3875	2110	East Gippsland (S)	93.8	East Gippsland
3875	6810	Wellington (S)	6.2	Latrobe & Wellington
3878	2110	East Gippsland (S)	100	East Gippsland
3880	2110	East Gippsland (S)	100	East Gippsland
3882	2110	East Gippsland (S)	100	East Gippsland
3885	2110	East Gippsland (S)	100	East Gippsland
3887	2110	East Gippsland (S)	100	East Gippsland
3888	2110	East Gippsland (S)	100	East Gippsland
3889	2110	East Gippsland (S)	100	East Gippsland
3890	2110	East Gippsland (S)	100	East Gippsland
3891	2110	East Gippsland (S)	100	East Gippsland
3892	2110	East Gippsland (S)	100	East Gippsland

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3895	2110	East Gippsland (S)	100	East Gippsland
3896	2110	East Gippsland (S)	100	East Gippsland
3898	2110	East Gippsland (S)	100	East Gippsland
3900	2110	East Gippsland (S)	100	East Gippsland
3903	2110	East Gippsland (S)	100	East Gippsland
3904	2110	East Gippsland (S)	100	East Gippsland
3909	2110	East Gippsland (S)	100	East Gippsland
3910	2170	Frankston (C)	100	Peninsula
3911	5340	Mornington Peninsula (S)	100	Peninsula
3912	1610	Casey (C)	25.5	Southern
3912	5340	Mornington Peninsula (S)	74.5	Peninsula
3913	5340	Mornington Peninsula (S)	100	Peninsula
3915	5340	Mornington Peninsula (S)	100	Peninsula
3916	5340	Mornington Peninsula (S)	100	Peninsula
3918	5340	Mornington Peninsula (S)	100	Peninsula
3919	5340	Mornington Peninsula (S)	100	Peninsula
3920	5340	Mornington Peninsula (S)	100	Peninsula
3921	9399	Unincorporated Vic	100	Peninsula
3922	740	Bass Coast (S)	100	South/West Gippsland
3923	740	Bass Coast (S)	100	South/West Gippsland
3925	740	Bass Coast (S)	100	South/West Gippsland
3926	5340	Mornington Peninsula (S)	100	Peninsula
3927	5340	Mornington Peninsula (S)	100	Peninsula
3928	5340	Mornington Peninsula (S)	100	Peninsula
3929	5340	Mornington Peninsula (S)	100	Peninsula
3930	5340	Mornington Peninsula (S)	100	Peninsula
3931	5340	Mornington Peninsula (S)	100	Peninsula
3933	5340	Mornington Peninsula (S)	100	Peninsula
3934	5340	Mornington Peninsula (S)	100	Peninsula
3936	5340	Mornington Peninsula (S)	100	Peninsula
3937	5340	Mornington Peninsula (S)	100	Peninsula
3938	5340	Mornington Peninsula (S)	100	Peninsula
3939	5340	Mornington Peninsula (S)	100	Peninsula
3940	5340	Mornington Peninsula (S)	100	Peninsula
3941	5340	Mornington Peninsula (S)	100	Peninsula
3942	5340	Mornington Peninsula (S)	100	Peninsula
3943	5340	Mornington Peninsula (S)	100	Peninsula
3944	5340	Mornington Peninsula (S)	100	Peninsula
3945	6170	South Gippsland (S)	100	South/West Gippsland
3946	6170	South Gippsland (S)	100	South/West Gippsland
3950	6170	South Gippsland (S)	100	South/West Gippsland
3951	740	Bass Coast (S)	12.5	South/West Gippsland
3951	6170	South Gippsland (S)	87.5	South/West Gippsland
3953	6170	South Gippsland (S)	100	South/West Gippsland
3956	6170	South Gippsland (S)	100	South/West Gippsland
3957	6170	South Gippsland (S)	100	South/West Gippsland
3958	6170	South Gippsland (S)	100	South/West Gippsland
3959	6170	South Gippsland (S)	100	South/West Gippsland
3960	6170	South Gippsland (S)	100	South/West Gippsland
3960	9399	Unincorporated Vic	0	South/West Gippsland
3962	6170	South Gippsland (S)	87	South/West Gippsland
3962	6810	Wellington (S)	13	Latrobe & Wellington
3964	6170	South Gippsland (S)	100	South/West Gippsland
3965	6170	South Gippsland (S)	100	South/West Gippsland
3966	6170	South Gippsland (S)	100	South/West Gippsland
3971	6810	Wellington (S)	100	Latrobe & Wellington
3975	1610	Casey (C)	100	Southern

Postal Area	LGA Code	LGA Name	Percentage	PAC Project
3976	1610	Casey (C)	100	Southern
3977	1610	Casey (C)	95.1	Southern
3977	2170	Frankston (C)	4.9	Peninsula
3978	1610	Casey (C)	100	Southern
3979	740	Bass Coast (S)	100	South/West Gippsland
3980	1610	Casey (C)	100	Southern
3981	1450	Cardinia (S)	97.9	Southern
3981	1610	Casey (C)	2.1	Southern
3984	740	Bass Coast (S)	49.5	South/West Gippsland
3984	1450	Cardinia (S)	50.5	Southern
3987	6170	South Gippsland (S)	100	South/West Gippsland
3988	6170	South Gippsland (S)	100	South/West Gippsland
3991	740	Bass Coast (S)	100	South/West Gippsland
3992	740	Bass Coast (S)	100	South/West Gippsland
3995	740	Bass Coast (S)	100	South/West Gippsland
3996	740	Bass Coast (S)	100	South/West Gippsland