General Purpose Standing Committee No. 2

Quality of Care for Public Patients and Value for Money in Major Non-metropolitan Hospitals in NSW

Discussion Paper

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Terms of Reference

1. That General Purpose Standing Committee No. 2 inquire into and report upon the following matters concerning the quality of care for public patients and value for money in major non-metropolitan hospitals throughout New South Wales.
   a) The implementation of quality of care and value for money indicators in public and contracted major non-metropolitan hospitals during the period 1995 to 2001.
   b) Mechanisms for comparing quality of care and value for money between these hospitals.
   c) Progress in improving quality of care and value for money and reducing variability in quality of care in these hospitals during the period 1995 to 2001.
   d) The strategies and measures in place or proposed for improving the quality of care and value for money and for reducing the variability in quality of care in these hospitals for the period 2001 to 2003.

The Committee self referred these terms of reference on 11 April 2001 (*Minutes of the Proceedings of General Purpose Standing Committee No 2*, no 25, 11 April 2001, item no 2).

Committee Membership

The Hon Dr Brian Pezzutti RFD MLC Liberal Party *(Chair)*
The Hon Dr Arthur Chesterfield-Evans MLC Australian Democrats *(Deputy Chair)*
The Hon Alan Corbett MLC Independent
The Hon Ron Dyer MLC Australian Labor Party
The Hon Doug Moppett MLC National Party
The Hon Janelle Saffin MLC Australia Labor Party[1]
The Hon Henry Tsang MLC Australian Labor Party

Participating members

The Hon Jenny Gardiner MLC National Party
The Hon Greg Pearce MLC Liberal Party
The Hon Ian West MLC Australian Labor Party

[1] Substitute member: Minutes 26, 30 May 2001, item No 2, Ms Saffin replaced Ms Fazio for the purposes of the inquiry.

Table of Contents

Figures, Tables and Charts

Chair's Foreword

This is the first of two reports from the Committee's inquiry into the Quality of Care for Public Patients and Value for Money in Major Non-metropolitan Hospitals in NSW. The report focuses primarily on the implementation and monitoring of quality of care and value for money indicators by the NSW Health Department. This includes the strategies in place, namely the NSW Government's Government Action Plan for Health, for improving the quality of care and value for money and reducing the variability in quality of care between the hospitals identified in this inquiry.

In this report the Committee formulates no views regarding the information received during the inquiry to date. It is envisaged that the Committee will address the terms of reference in detail and make its recommendations in the final report at the end of 2002.

Based on the information received, mainly from the NSW Health Department, the Committee acknowledges that work is being done by the NSW Health Department to develop mechanisms to monitor quality of care and value for money. In addition, the Committee notes the strategic direction the NSW Health Department have outlined in the Government Action Plan for Health for determining and utilising best practice measures to ensure progress in improving the quality of care and value for money it provides. The Committee notes the establishment of three year funding and continued use of a population based resource distribution formula for allocation of funding. Components and assumptions of the Resource Distribution Formula are complex. The Committee seeks stakeholder comment on the success or otherwise of this instrument in providing equity in funding and whether budget information is publicly available for three forward years.

The primary purpose of the Committee's inquiry is to allow the community to determine whether the mechanisms for comparing quality of care and value for money between rural hospitals are accurate and relevant, and to allow the community to determine whether there is equity and equality in the quality of care and value for money provided.

This report also seeks to facilitate "grass roots" discussion from clinicians, health administrators, community groups and individuals based on the NSW Health Department initiatives and the issues raised in the report in general.

The Committee recognises the assistance of officers of the NSW Department of Health. On behalf of the Committee, I would like to thank all those who made submissions and gave evidence to date.

Finally, I take this opportunity to thank my fellow Committee Members for their invaluable input in a technically complex and challenging inquiry.

Acknowledgment should also go to the Committee Secretariat for their support throughout the inquiry. In particular, the Committee Director, Mr Steven Carr and Project Officer Mr Bayne McKissock for their assistance in drafting the discussion paper and Committee Officers Ms Ashley Nguyen and Ms Natasha O'Connor for their ongoing administrative support.

Hon Dr Brian Pezzutti RFD MLC
Committee Chair

Chapter 1 Introduction

About General Purpose Standing Committee No 2

General Purpose Standing Committee No 2 is a committee of the Legislative Council of the Parliament of New South Wales. The Committee consists of seven Members of Parliament representing political parties of the Australian Labor Party, Liberal Party, Australian Democrats and one Independent Member. Committee membership details are listed on page v of this document.

This Committee was established on 13 May 1999 and investigates matters of public importance in the areas of Health, Community Services, Aging, Disability Services, Women, Small Business, Tourism, Mineral Resources and Fisheries.

The Committee is one of five General Purpose Standing Committees operating in the Legislative Council, each focussing on specific areas of public policy. The Committee is a "Standing" Committee as it stands for the life of the Parliament (scheduled for completion in 2003).

Referral of the inquiry

1.1 On 11 April 2001 the General Purpose Standing Committee No 2 agreed to self refer the following terms of reference for a public inquiry.[2]

That the General Purpose Standing Committee No. 2 inquire into and report upon the following matters concerning the quality of care for public patients and value for money in major non-metropolitan hospitals throughout New South Wales.

a) The implementation of quality of care and value for money indicators in public and contracted major non-metropolitan hospitals during the period 1995 to 2001.

b) Mechanisms for comparing quality of care and value for money between these hospitals.

c) Progress in improving quality of care and value for money and reducing variability in quality of care in these hospitals during the period 1995 to 2001.

d) The strategies and measures in place or proposed for improving the quality of care and value for money and for reducing the variability in quality of care in these hospitals for the period 2001 to 2003.

Note: For the purposes of this inquiry, the Committee adopted NSW Health's classification of the following nine hospitals in New South Wales as being "major non-metropolitan":[3]

- Albury Base Hospital
- Coffs Harbour District Hospital
- Dubbo Base Hospital

[2] Minutes of the Proceedings of General Purpose Standing Committee No 2, No 25, 11 April 2001, item no 2.

[3] NSW Health, NSW Health Services Comparison Data Book, 1998/99, Chapter 1, p 55.

- Lismore Base Hospital
- Manning Base Hospital
- Orange Base Hospital
- Port Macquarie Base Hospital
- Tamworth Base Hospital
- Wagga Wagga Base Hospital

Conduct of the inquiry

1.2 The importance of quality heath care to all citizens of New South Wales has guided the Committee's methodology in conducting community consultation. The Committee has utilised the following three approaches to ascertain broad community input to this policy debate; advertising terms of reference in print media, dissemination of committee hearing activities through print, television and radio media and conducting of public hearings.

Advertising of terms of reference

1.3 The Committee advertised its terms of reference in a diverse range of print media inviting submissions to its inquiry. A full list of print media utilised is included as Appendix 1.

Submissions

1.4 The Committee received 20 submissions to its inquiry from various individuals, stakeholders and community groups including; NSW Health Department, NSW Nurses' Association, Council of Social Service of New South Wales (NCOSS), The Audit Office, Combined Pensioners and Superannuants Association of NSW and Dubbo Health Council. Details of submissions received are listed as Appendix 2.

1.5 Six individuals or organisations requested that their submission be treated as private and confidential. The Committee has accepted these requests and anonomalised authors of these submissions.

Public hearings

1.6 During the course of the first part of this inquiry the Committee conducted six public hearings receiving evidence from a number of stakeholders and interested parties. A list of witnesses who appeared before the Committee is listed as Appendix 3. These were mainly information gathering hearings from the NSW Health Department to provide background for this Discussion Paper.

1.7 The Committee received extensive evidence from officers of the NSW Health Department throughout the inquiry to convey information on its reforms in establishing quality of care indicators and funding arrangements under the resource distribution formulae (RDF). The

Discussion Paper presents a summary of that evidence and presents it for further community consultation.

Yellow Book

1.8 The *NSW Health Department Services Comparison Data Book* (Yellow Book) has been the source for published comparative data on New South Wales hospitals over the last 10 years. The most recent list of Yellow Book statistics are presented as Appendix 5 (published separately as Part 2 of Discussion Paper)* along with some explanatory comments by the NSW Health Department on the performance of Area Health Services with respect to the 64 indicators. The Yellow Book has been through much iteration with additions and subtractions over the years.

Resource Distribution Formula technical paper 1998/99 revision

1.9 In 1999 the NSW Health Department released the Resource Distribution Formula technical paper 1998/99 revision. This paper presents the most current and comprehensive discussion on the assumptions and application of the Resource Distribution Formula (RDF). A copy of the technical paper is presented as Appendix 6 (published separately as Part 2 of Discussion Paper)*. The RDF has its origins in the Resource Allocation Formula first introduced in 1989-90 and has been continuously refined.

Minutes of the Proceedings of the Committee

1.10 The Committee considered the Chair's draft Discussion Paper on 27 February 2002. Considerations made by the Committee in finalising this Discussion Paper along with relevant resolutions and activities of the Committee over the course of the inquiry are identified in the Minutes of the Proceedings of the Committee at Appendix 4.

Dissemination of the Interim Report and community consultation

1.11 An important role for the Committee during this inquiry has been to gather and assess the reform process being conducted by the NSW Health Department in establishing quality of care and value for money indicators. Of equal relevance have been the Committee's efforts in this Discussion Paper to disseminate complex numerical and technical information in a fashion that can be interpreted by members of the community with clinical and non-clinical knowledge.

1.12 Through this Discussion Paper the Committee seeks to facilitate "grass roots" discussion from clinicians, health administrators, community groups and individuals on care and value for money in major non-metropolitan hospitals in New South Wales. This paper presents a summary of evidence provided by the NSW Health Department.

* Copies of Part 2 of Discussion Paper can be obtained from the Committee Secretariat (for details see pg iii).

1.13 With the NSW Health Department's permission, copies of the Discussion Paper will be displayed in public locations in the nine major non-metropolitan hospitals in New South Wales. Reports will also be circulated to local councils and other locations of public prominence.

1.14 The Committee invites public comment on any issues raised in its Discussion Paper along with any other comments concerning this inquiry.

Final report

1.15 The Committee anticipates that it will deliver its final report towards the end of 2002. The final report is expected to draw upon stakeholder comments on the Committee's Discussion Paper, hearings or inspections that may arise from these comments and further review of the Department's ongoing reform process.

Structure of this report

1.16 The report is presented in two parts. The first part comprises the written report conveyed across six chapters. Chapter 2 presents a discussion on what is quality of care and value for money in hospital service provision while Chapter 3 provides a comparative overview of the services, functions and available activity measures applicable to six Area Health Services and nine major non metropolitan hospitals as proposed by the NSW Health Department.

1.17 Chapter 4 outlines the NSW Health Department's reform strategy in establishing quality of care and value for money indicators including an overview of the Government Action Plan for Health. Consideration is given to the NSW Health Department's objectives of establishing benchmarks for hospitals with respect to "day only surgery" and "day of surgery admissions". Community comment is sought on the implications of this and other action plan objectives.

1.18 Chapter 5 also considers recent changes in determining appropriate levels of Area Health Service funding through the RDF. Clinicians and hospital administrators are encouraged to comment on the implications of the formula and its ease of comprehension for the community.

1.19 Chapter 6 poses a number of questions for readers, inviting comment and providing a pathway for greater community participation on quality of care and value for money matters.

1.20 Committee procedural information involving Committee minutes, details of submissions received and witnesses is presented as Appendices.

1.21 Part 2* of the report consists of Yellow Book statistical summaries involving activity measures for non-major metropolitan hospitals, and the RDF Technical Paper.

1.22 Part 3* of the report consists of qualitative and quantitative data presented by six Area Health Chief Executive Officers before the Committee.

* Copies of Part 2 of Discussion Paper can be obtained from the Committee Secretariat (for details see pg iii).

Chapter 2 What is quality of care and value for money?

Quality of care

What is quality of care?

2.1 NSW Health Department defines 'quality' as:

> Doing the right thing, the first time, in the right way at the right time[4].

2.2 A report by the Victorian Auditor-General's Office defined quality of care:

> Quality of care relates to the quality of services provided by the service provider which is usually the public hospital in the case of acute health care. As such, quality of care is separated from the issue of health outcomes. Health outcomes relate to the health status of the individual rather than the quality of the care delivered. It is therefore possible to provide a patient with a high standard of care that results in poor health outcomes and vice versa.
>
> Quality of care has been defined by the Department [Human Service] to embrace not only excellence of care but access to care...[5]

2.3 The Institute of Medicine (USA) defines quality of care as:

> The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.[6]

2.4 The Institute states that the major objective for quality management is to:

> ...find opportunities to improve health and prevent harm.[7]

2.5 Considering these definitions, it is easy to understand why there are conflicting views in health care about the word 'quality'. Difficulties also arise in how to measure quality.

2.6 Experts in quality management define high quality as a 'reduction of variation about the mean'. In health care, there can be a lot of variation. Different ailments require different needs and often different patients require individual or customised care. The challenge lies in the formulation of key indicators which while universal in the identification and evaluation of quality of care, remain relevant for geographic comparison.

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[4] Evidence of Mr Mick Reid, Director General, NSW Health, 27 August & 17 September 2001.

[5] Victorian Auditor-General's Office, *Acute Health Services Under Casemix – A case of mixed priorities*, Special Report 56, 12 May 1998, Chapter 4, p 2.

[6] Institute of Medicine, *Medicare: A strategy for quality assurance* [K. N. Lohr, Ed.]. Washington, D.C: National Academy Press, 1990, p 21.

[7] *ibid*, Institute of Medicine, p 6.

Improving the quality of health care

2.7 Since 1995 The NSW Health Department has published 64 measures of hospital performance in the *New South Wales Services Comparison Data Book* (the 'Yellow Book'). The Yellow Book contains limited data based on:

- Hospital service activity
- Appropriateness
- Efficiency
- Access
- Staffing
- Finances

Chapter 3 presents Yellow Book data for non-major metropolitan hospitals for 1995-96 to 1998-99 and is the most recent publication available.

2.8 NSW Health Department is currently implementing a series of changes aimed at introducing quality of care indicators for the NSW health system. Mr Mick Reid, the then Director General of the NSW Health Department advised the Committee that a quality orientated Area Health Service will"

> ...see the health consumer as the primary focus of any model of health care quality management.[8]

2.9 In accordance with the Committee's terms of reference the Committee investigated mechanisms for comparing the quality of care between non-metropolitan hospitals in New South Wales. The primary focus for the Committee has been to canvas policy initiatives from the NSW Health Department as the State's administrator of public hospitals. The New South Wales Government's *Government Action Plan* (GAP) and its key component, *A Framework for Managing the Quality of Health Services in New South Wales* (*Quality Framework*)[9] issued in February 1999 have also been considered. Findings of the Committee are considered in detail in Chapter 4.

Value for money

2.10 Prof Bob Gibberd, Health Service Research Group, University of Newcastle, in a submission to the Committee outlined historical perspectives of "value for money" in funding public hospitals:

> Considerable material has been written about "value for money" or to use the technical terms: technical efficiency and allocative efficiency. Some ten to twenty years ago, it was believed that technical efficiency was achieved by funding hospitals on a 'fee for service basis' or on throughput. More recently this

[8] Evidence, Mr Mick Reid (NSW Health), 27 Aug & 17 Sept 2001,

[9] NSW Health, *A Framework for Managing the Quality of Health Services in New South Wales*, Department of Health, 1999.

> approach to funding has been criticised on the basis that it ignores quality and equity issues. As a result, population based funding is now recommended.[10]

2.11 Mr Reid referred to the NSW Health Department announcement in 2001 that for the first time in Australia, a three-year recurrent health budget has been provided:

> That has been certainly the most significant financial thing that has occurred in New South Wales Health for many years. It provides absolute certainty to area health services as to how much money they will have for each three years.[11]

2.12 The Government is injecting $2 billion cash into the system over the three-year period from July 2000. This means that the budget will grow from $6.9 billion in 1999-2000 to 7.8 billion in 2002-03. By 2002-2003 the health budget will be almost $8.1 billion.[12]

2.13 There have been long standing inequities within Health Funding. The NSW Health Department contends that the RDF is being used to alleviate these inequities by guiding a faster flow of funding to population growth areas. The NSW Health Department also contends that the 2002-03 budget will see all Areas reviewing their RDF indicated share achieved +/-2%, and apart from Mental Health all Areas achieving their indicated share. Chapter 5 discusses the RDF in greater detail.

[10] Submission 17, Prof Bob Gibberd, Health Services Research Group, University of Newcastle, p 1.

[11] Evidence, Mr Mick Reid (NSW Health), 13 Jun 2001, p 6.

[12] Submission 13, NSW Health Department, p 20.

Chapter 3 How does my rural hospital compare

NSW Health Department

3.1 The NSW Health Department consists of a number operating entities existing under three broad categories of Rural Area Health Services, Metropolitan Area Health Services and Other Entities. These entities are:

Table 3.1: NSW Health Department entities

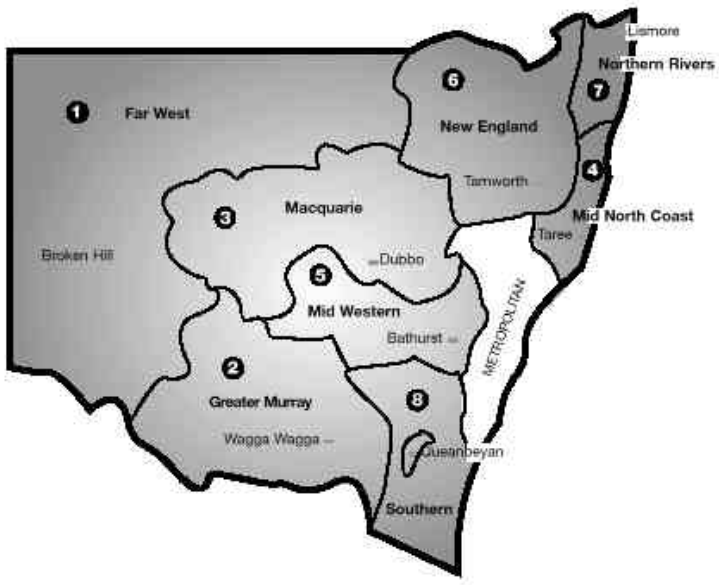
Rural Area Health Service	Metropolitan Area Health Service	Other Entities
Far West	Central Coast	Ambulance Service of NSW
Greater Murray	Central Sydney	Corrections Health Service
Macquarie	Hunter	Royal Alexandra Hospital for Children
New England	Illawarra	Central administration
Northern Rivers	Northern Sydney	
Mid North Coast	South Eastern Sydney	
Mid Western	South Western Sydney	
Southern	Wentworth	
	Western Sydney	

Source: NSW Audit Office, The Auditor-General's Report to Parliament, Volume Five, p 111.

Rural Area Health Services

3.2 Rural Area Health Service operations encompass a vast majority of the area of New South Wales. A geographical representation of each Rural Area Health Service's area of responsibility is presented as Figure 3.2.

Figure 3.2: New South Wales Rural Area Health Service boundaries



Source: NSW Department of Health Annual Report 2000-2001, p 86, reproduced with permission.

Key performance statistics

3.3 In its 2000-01 Annual Report, the NSW Health Department published a number of key performance indicators for public hospital services by Area Health Service. These indicators are summarised and compared against the average Metropolitan Area Health Service results in Tables 3.3 to 3.6. Note that this is only for 2000-01. Some Areas present more information in their annual reports.

Table 3.3: Admission statistics by rural Area Health Service

Area Health Service	Admissions[1]	Admissions reclassified to non-inpatient	Admissions adjusted for reclassification
Northern Rivers	62,723	1,282	64,005
Mid North Coast	49,003	5,843	54,846
New England	45,064	1,318	46,382
Macquarie	28,224	1	28,225
Mid Western	43,858	2,100	45,958
Far West	12,328	491	12,819
Greater Murray	53,343	4,797	58,140
Southern	32,412	0	32,412
Total rural areas	**326,955**	**15,832**	**342,787**
Total metropolitan	**966,228**	**87,167**	**1,053,395**
Total NSW	**1,320,415**	**106,728**	**1,427,143**

Source: NSW Health Department, Annual Report 2000/01 – Working as a Team, p 92.
Notes:
[1] Includes services contracted to private sector.

Table 3.4: Average hospital stay - by Area Health Service

Area Health Service	Average length of stay (days)[1]			
	Daily average of Inpatients[2]	Same day as % of total admissions	Overall including same day admissions	Overnight Acute
Northern Rivers	703	36.0	4.5	6.5
Mid North Coast	500	30.1	4.9	5.8
New England	565	34.2	4.7	5.3
Macquarie	426	30.3	5.7	5.2
Mid Western	698	33.0	6.0	4.9
Far West	150	33.9	4.5	5.6
Greater Murray	864	30.0	6.0	5.5
Southern	604	26.3	7.0	5.6
Total Rural Areas	**4,508**	**32.0**	**5.4**	**4.6**
Total Metropolitan	**12,275**	**42.3**	**4.8**	**5.6**
Total NSW	**17,141**	**39.7**	**5.0**	**5.0**

Source: NSW Health Department, Annual Report 2000-01 – Working as a Team, p 92.
Notes:
[1] Average length of stay = (Total occupied bed days)/(Number of separations).
[2] Daily average of inpatients = (Total occupied bed days excluding Unqualified baby bed days)/365.

3.4 Patients in rural hospitals were, on average, less likely to be a same day patient (32%) and stayed in hospital for longer periods (5.4 days) compared to Metropolitan Area Health Services (42%) and (4.8 days) respectively. Acute overnight patients stayed, on average, longer in the Northern Rivers Area Health Service hospital (6.5 days), well above the rural average of 4.6 days and above the metropolitan average of 5.6.

Table 3.5: Area Health Service Utilisation Performance Indicators

Area Health Service	Caseflow rate[1]	Non-admitted patient services[2]	Emergency department attendances[3]
Northern Rivers	67.5	819,878	166,350
Mid North Coast	60.7	645,627	105,449
New England	55.6	488,190	100,290
Macquarie	45.5	323,393	68,316
Mid Western	47.6	614,643	103,092
Far West	50.1	267,977	45,995
Greater Murray	45.9	663,225	145,569
Southern	38.0	584,240	87,437
Total Rural Areas	**51.1**	**4,407,173**	**822,498**
Total Metropolitan	**68.0**	**13,585,449**	**925,657**
Total NSW	**63.0**	**20,475,350**	**1,778,822**

Source: NSW Health Department, Annual Report 2000/01 – Working as a Team, p 92.

Notes:

[1] Caseflow rate = (Total admissions excluding Private contracted admissions and Unqualified babies)/(Available beds).

[2] Includes dental patient flows. Data in 1998-99, 1999-00 and 2000-01 are not comparable to those in previous years and to each other due to Areas progressive compliance to changes in the definition in NAPS in the Emergency Care Services Program (Program 4). It is estimated that there was a reduction of 1.6 million NAPS in 2000-01 due to the change in definition.

[3] Data reported in DOHRS. Data in 1998-99, 1999-00 and 2000-01 are not comparable to those in previous years and to each other due to (a) Areas progressive compliance to changes in definition, namely occasions of service for patients admitted to ward through emergency departments are no longer counted as NAPS and (b) attendances in level 2 or below emergency departments were counted in Emergency Care Services Program (Program 4) from 1999/00. It is estimated that emergency department attendances increaed by 2.1% in 1998/99 over 1997/98 decreased by 0.8% in 1999/00 over 1998/99 and increased by 5.1% in 2000/01 over 1999/00.

3.5 Probably reflecting their higher population densities, both the Northern Rivers Area and the Mid North Coast Area have high caseflow rates of 67.5 and 60.7 respectively. This is significantly higher than the rural area average of 51.1. Macquarie and the Southern Area have relatively low caseflow rates of 45.5 and 38.0 respectively.

Table 3.6: Area Health Service utilisation and staffing

Area Health Service	Average available beds	Bed occupancy rate (%)[1]	Average staff employed (EFT)[2]	Available beds per staff member[3]
Northern Rivers	835	84.2	2,843	3.4
Mid North Coast	594	82.2	2,111	3.5
New England	779	72.5	2,228	2.9
Macquarie	590	72.3	1,500	2.5
Mid Western	871	78.6	2,555	2.9
Far West	237	62.7	799	3.4
Greater Murray	1,121	77.0	2,768	2.5
Southern	812	74.3	2,123	2.6
Total Rural Areas	**5,839**	**76.8**	**16,927**	**2.9**
Total Metropolitan	**13,497**	**90.9**	**58,702**	**4.3**
Total NSW	**19,720**	**86.7**	**77,946**	**4.0**

Source: NSW Health Department, Annual Report 2000/01 – Working as a Team, p 92
Notes:
[1] Bed occupancy = (Total occupied bed days excluding Unqualified baby bed days)/(Number of available days).
[2] Equivalent full time, excludes overtime hours; inclues SP&T staff from 1996-97 onward.
[3] Available beds per staff members = (Average Staff Employed (EFT))/(Average Available Beds).

3.6 The bed occupancy rate is highest in the Northern Rivers Area Health Service and Mid North Coast Area Health Service at 84.2% and 82.2% respectively. The occupancy rates in these Areas are much higher than the rural Area average of 76.9% although below the metropolitan average of 90.9%.

3.7 Greater Murray Area Health Service and Macquarie Area Health Service have relatively low numbers of beds per staff employed at only 2.5 beds per staff member. In comparison both the Northern Rivers Area Health Service and the Mid North Coast Area Health Service have much higher numbers of beds per staff member at 3.4 and 3.5 respectively. However, this is still considerably lower than both the metropolitan and State averages.

3.8 In summary, the information contained in Tables 3.3 to 3.6 indicates that there is more pressure on the identified resources in the Northern Rivers and Mid Coast Area Health Services, evidenced by a large number of beds per staff member, higher bed occupancy rates and higher caseflow rates, than other rural Area Health Services. In comparison, existing resources in Macquarie, Greater Murray Area Health Services appear to be under relatively less pressure.

3.9 The following sections explore the nature of each Area's demographics, geography and the extent of health services.

Major non-metropolitan hospitals [13]

3.10 Table 3.7 outlines population service and bed numbers for the nine (9) major non-metropolitan hospitals operated by NSW Area Health Services within the scope of the Committee's inquiry:

Table 3.7: Service population and bed numbers for major non-metropolitan hospitals by Area Health Service - 1995-2001

Area Health Service	AHS Pop.	Hospital	Pop. Hospital service[14]	Beds
Greater Murray	260,000	Albury Base Hospital	130,000	129
		Wagga Wagga Base Hospital	170,000	200
Mid North Coast	260,000	Coffs Harbour District Hospital	64,000	156
		Manning Base Hospital	45,000	167
Macquarie	120,000	Dubbo Base Hospital	120,000	170
Northern Rivers	260,000	Lismore Base Hospital	260,000	190
Mid Western	160,000	Orange Base Hospital	80,000	164
New England	260,000	Tamworth Base Hospital	175,000	264

3.11 In addition, one hospital is operated by the private sector providing services through a contractual Service Agreement with Mayne Health (a division of Mayne Nickless Ltd).

Mid North Coast	260,000	Port Macquarie Base Hospital	90,000	264

Source: Derived from submission No 13, NSW Health Department.

Waiting Times

3.12 Table 3.8 depicts waiting times for elective surgery at the nine base hospitals in rural New South Wales as at 18 January 2002. At this time Dubbo Base Hospital had the shortest average waiting times at 1.45 months, while Coffs Harbour District Hospital had the longest average waiting times of 4.41 months.

Table 3.8: Waiting times for elective surgery in major non-metropolitan hospitals in New South Wales (as at 18 January 2002)

Major non-metropolitan hospitals	Average waiting time – elective surgery (months)
Dubbo Base Hospital	1.45
Albury Base Hospital	1.75
Lismore Base Hospital	1.90
Orange Base Hospital	2.29
Tamworth Base Hospital	2.77
Port Macquarie Base Hospital	2.99
Wagga Wagga Base Hospital	3.86
Manning Base Hospital	4.09
Coffs Harbour District Hospital	4.41

Source: www.health.nsw.gov.au, NSW Health Department, Statistics and research, waiting lists, accessed 18 January 2002.

[13] Submission 13, NSW Health Department. Population statistics are referenced from the 1996 census.

[14] *ibid*, estimated catchment population for the hospital services.

3.13 Table 3.9 depicts the number of people on waiting lists for elective surgery, medical and the number of people who have been on a waiting list for over 12 months.

Table 3.9: Waiting Lists numbers for elective surgery, medical and more than 12 months for major non-metropolitan hospitals in New South Wales

Hospital	Elective Surgery			Medical			+ 12 Months		
	Mar 95	Mar 99	Jan 02	Mar 95	Mar 99	Jan 02	Mar 95	Mar 99	Jan 02
Albury	371	640	1,129	81	214	236	4	43	357
Coffs Harbour	828	1,066	1,256	83	282	291	4	7	386
Dubbo	813	1,062	925	195	135	92	41	24	277
Lismore	463	885	1,364	169	0	156	1	5	171
Manning	1,071	1,122	1,250	143	267	86	52	0	284
Orange	567	1,193	1,073	120	124	164	8	6	60
Port Macquarie	802	1,470	1,889	0	258	166	0	150	662
Tamworth	1,175	1,206	1,062	70	164	62	16	20	37
Wagga Wagga	1,276	1,021	1,127	31	112	160	77	11	161

Source: NSW Department of Health www.health.nsw.gov.au. Includes list transfers. 1995 and 1999 figures obtained under FOI, Shadow Health Minister.

Area Health Services

3.14 In April 1996, the 23 District Health Services across rural New South Wales were grouped into eight Area Health Services. NSW Health Department state that the change was:

> ...to address a number of problem, in particular the small populations of the former Districts which created difficulties in planning and providing a comprehensive range of services, including community programs as well as prevention and health promotion and treatment services.[15]

Greater Murray Area Health Service [16]

3.15 The Greater Murray Health Service provides health care to residents of 29 Local Government Areas (LGAs), covering an area of 113,854 square kilometres. Its estimated population in 1996 was 256,658 with settlement mainly in Wagga Wagga, Griffith, Albury and Deniliquin.

3.16 The population is expected to grow to 263,510 by 2006, representing a 3% increase, compared with 9% for New South Wales for the same period.

3.17 Approximately 2.3% of the population identify as either being Aboriginal or Torres Strait Islander, compared with the State average of 1.7%.

[15] Submission 13, NSW Health Department, p 38.

[16] *ibid.*

Table 3.10: Greater Murray Area Health Service – selected demographic statistics

NESB(%)	ATSI(%)	0-14(%)	65+(%)
4	2.3	23.7	12.8

Source: Derived from submission 13, NSW Health Department.

Albury Base Hospital

3.18 Albury Base Hospital is the major rural referral hospital for the southern part of the Greater Murray and adjacent areas in north-east Victoria. The hospital does not provide obstetric or gynaecology services which are provided by Wodonga Hospital in the adjoining urban centre across the Victorian border.

3.19 As a daily average the hospital admits 24 patients, performs 13 operations, treats 67 patients through the emergency department and provides an average of 164 outpatient occasions of service.

3.20 During his appearance before the Committee, the then Director General, Mr Mick Reid, was queried on the relationship between the Albury Base Hospital in New South Wales and the Wodonga Hospital in Victoria, in particular the maternity section:

> The maternity is a contract service. We have an agreement between Albury and Wodonga where we exchange some services for the purpose of getting quality, so you do not get the same things in both hospitals which are in very close proximity.[17]

And then on financial transfers between the States for patient flows:

> We have a contractual arrangement where funds are being exchanged from one area to the other depending on patient flows. We already have an agreement between all States for patients who flow between all States, and I will show you some of the enormity of that later. For the patients who flow between States there is a financial reimbursement to each State. One of the interesting things about Albury-Wodonga at the moment is that the Ministers for Health for Victoria and New South Wales have jointly announced the development of a common management structure to sit across Albury and Wodonga to manage those two parts of the area. That will certainly, again, start to break down what are not Commonwealth-State issues but State-State issues of both States doing their own thing.[18]

3.21 Cross border flows between New South Wales and Victoria have increased as both inflows and outflows. Inflows from Victoria increased 11% from 1995-96 to 1998-99, with total value reaching $9 million in 1998-99. Outflows to Victoria increased 31% for the same period, representing a total cost of $27.4 million in 1998/99, leaving a net increase in outflows to Victoria.[19]

[17] Evidence, Mr Mick Reid (NSW Health Department), 13 Jun 2001, p 4.

[18] *ibid.*

[19] Presentation by Greater Murray Area Health Service to the Committee, 18 October 2001, slide 9.

Wagga Wagga Base Hospital

3.22 As a daily average the hospital admits 42 patients, performs 18 operations, treats 88 patients through the emergency department and provides an average of 231 outpatient occasions of service.

Macquarie Area Health Service [20]

3.23 The Macquarie Area Health Service provides health care to residents of the LGAs of Bogan, Cobar, Coolah, Coonamble, Coonabarabran, Dubbo, Gilgandra, Narromine, Mudgee, Wellington and Warren. These regions cover an 116,720 square kilometres or about 15% of New South Wales. Its estimated population in 1996 was 102,771 with Dubbo representing the largest urban centre.

3.24 Dubbo City is one of the fastest growing rural centres in New South Wales, with the population expected to increase to 4% above current levels by 2006.

3.25 Twenty-five percent of the population is under 15 years of age and 10% is 65 years and over. Approximately 8.5% of the population identify as Aboriginal or Torres Strait Islander, although anecdotal reports indicate that proportion is likely to be much higher.

3.26 The major outflows from the Macquarie Area Health Service to metropolitan areas largely relate to interventional cardiology, cardiothoracic surgery and major renal disease.

3.27 Patient outflows from Macquarie Area Health Service to Mid Western Area Health Service are predominantly for Acute Psychiatry, ENT Surgery and Urology. The Macquarie Area Health Service has identified strategies to manage theses flows through the operation of Dubbo Base Psychiatric Inpatient Unit; recruitment of an ENT Surgeon and Urologist; and the establishment of a Clinical School.

Table 3.11: Macquarie Area Health Service – selected demographic statistics

NESB(%)	ATSI(%)	0-14(%)	65+(%)
5	8.5	25	10

Source: Derived from submission 13, NSW Health Department.

Dubbo Base Hospital

3.28 In addition to general surgical, obstetric, emergency and intensive care services, Dubbo has specialities in ENT, ophthalmology, orthopaedics, urology, vascular, renal, paediatrics, psychiatry and a regional pathology laboratory.

3.29 As a daily average, the hospital admits 40 patients, performs 17 operations, treats 78 patients through the emergency department and provides an average of 115 outpatient occasions of service.

[20] Submission 13, NSW Health Department, p 39.

3.30 In September 1999, after a redevelopment, Dubbo Base Hospital became the major referral hospital for western New South Wales.

Mid North Coast Area Health Service [21]

3.31 The Mid North Coast Health Service provides health care to more than 261,930 residents stretching along the New South Wales coastline from Karuah to Woolgoolga and west to the Great Dividing Range, and covering approximately 25,000 square kilometres.

3.32 The population is growing at a rate of 1.9% pa which is the second fastest of New South Wales rural areas. The Area has the highest proportion of people aged over 65 in New South Wales, and by 2001, it is estimated that 18.2% of the population in the Area will be aged 65 years or older, compared with 12.6% for New South Wales.

3.33 Approximately 3.3% of the population identify as either being Aboriginal or Torres Strait Islander. ATSI people represent 6.8% of the population of Kempsey.

Table 3.12: Macquarie Area Health Service – selected demographic statistics

NESB(%)	ATSI(%)	0-14(%)	65+(%)
3.1	3.3	20.3	18.2

Source: Derived from submission 13, NSW Health Department.

Coffs Harbour District Hospital

3.34 As a daily average, Coffs Harbour District Hospital admits 35 patients, performs 13 operations, treats 73 patients through its emergency department and provides services to 587 outpatients. The NSW Government has provided an extra $27.3 million in capital funds to enhance bed numbers. Works are scheduled for completion in 2002.

Manning Base Hospital

3.35 As a daily average, Manning Base Hospital admits 33 patients, 13 of whom are initially treated in the emergency department. Around 125 patients are accommodated and treated each day, 15 operations are performed, 45 people are treated in the Emergency Department, providing outpatient services to a further 250 people.

Port Macquarie Base Hospital (Mayne Health)

3.36 Port Macquarie Base Hospital has 150 beds, servicing a population of 90,000 and is operated by Mayne Health (a division of Mayne Nickless Ltd). In 1994 the Minister for Health entered into a 20 year contract with Health Care of Australia to provide public health care services in a privately owned facility. In 2000 HCOA was bought by Mayne Health. A Services Agreement is administered by the NSW Health Department for Port

[21] Submission 13, NSW Health Department, p 40.

Macquarie Base Hospital to provide a full range of medical, surgical and paediatric, mental health and emergency services.

3.37 Port Macquarie Base Hospital was accredited by the ACHS in November 1998 for 3 years until April 2002. Ratings achieved were:

- Continuum of care — Extensive Achievement
- Leadership and Management — Moderate Achievement
- Human Resources — Moderate Achievement
- Information Management — Moderate Achievement
- Safe Practice and Environment — Moderate Achievement
- Improving Performance — Extensive Achievement

3.38 There were 19 recommendations made by the ACHS surveyors and following a Periodic Review conducted in August 2000, 13 of the recommendations had been completed to the satisfaction of the surveyors.

3.39 In a submission to the Committee the New South Wales Nurses' Association highlighted feedback from its members regarding concern over the administration of Port Macquarie Base Hospital:

> Concerns have been raised in relation to the enhancement budgets allocated for Clinical Services being used to fund administrative positions at the PMBH. The downgrading of services such as mental health to subsidise budget overruns in other high demand areas is a management strategy used at the PMBH. The Association views this management strategy as non-conducive to either quality patient care or value for money, it is simply robbing "Peter to pay Paul". Human resources issues are also an area of concern, progressive reduction in the numbers of registered nurses and a move by management, to employ the lesser qualified or untrained staff has been highlighted in the feed back from our branch representatives.[22]

3.40 The Committee notes the relatively recent development of private delivery of public funded care contracted to the Health Department (ie Port Macquarie Base Hospital – by Mayne Health) and seeks to monitor performance in the key areas of quality of care.

Committee's comment

3.41 The Committee received a number of submissions concerned with Port Macquarie Base Hospital and the private sector management of a public hospital. NSW Health Department have acknowledged that greater community involvement in Port Macquarie Base Hospital is required, and have informed the Committee that the Mid North Coast Area Health Service will be given increased authority to manage the contract at a local level with Mayne Health. Mr Terry Clout, Chief Executive Officer, Mid North Coast Area Health Service informed the Committee that:

[22] Submission 11, New South Wales Nurses' Association, p.1. 'Lesser qualified' refers to Assistants in Nursing (AIN) [the qualification of an AIN is a two week TAFE course].

> The role of the community in monitoring and advising the Area Health Service Board on all health services (including PMBH) will be clarified and strengthened with the establishment of a new Consumer/Community Health Forum.[23]

3.42 In September 2001 the Committee approached Port Macquarie Base Hosptial to provide indicators of cost measures relevant to the inquiry. Despite receiving advice from the organisation's Chief Executive Officer that information was being prepared, none has been forthcoming by the time this Discussion Paper was prepared.

3.43 Whilst the complete quality indicators for Port Macquarie Base Hospital have not been published, the Committee considers that as a public funded hospital Port Macquarie Base Hospital should, within contractual constraints, provide data collection for evaluating and monitoring of quality of care conducted by the NSW Health Department in line with other AHS hospitals.

3.44 The Committee will continue to pursue this matter during the remainder of its inquiry in the interests of public accountability.

Mid Western Area Health Service [24]

3.45 The Mid Western Health Service provides health care to approximately 161,481 residents across 13 LGAs. It covers an area of 59,000 square kilometres from Lithgow in the east, to Lake Cargelligo in the west.

3.46 The population is increasing at a rate lower than the overall rate in New South Wales. By 2021, it is estimated that the population will reach 192,000. Settlement is greater in the eastern LGAs of Orange, Lithgow and Bathurst and appears to be decreasing in the west.

3.47 The Mid Western Area has a high proportion of Aboriginal or Torres Strait Islanders (3.4%) compared with the New South Wales average.

Table 3.13: Macquarie Area Health Service – selected demographic statistics

NESB(%)	ATSI(%)	0-14(%)	65+(%)
3.1	3.4	23.9	12.5

Source: Derived from submission 13, NSW Health Department.

Orange Base Hospital

3.48 As a daily average, Orange Base Hospital admits 38 patients, treats 64 patients through its emergency department and provides services to 346 outpatients.

[23] Presentation to Committee by Mid North Coast Area Health Service, 19 October 2001.

[24] Submission 13, NSW Health Department, p 44.

New England Area Health Service [25]

3.49 New England Area Health Service is geographically the size of Tasmania, covering 19 LGAs. There are approximately 178,000 residents in an area covering 98,637 square kilometres.

3.50 The population was expected to decline to 174,827 by the end of 2001. This decline is not consistent across all LGAs and reflects the changing industrial bases and agricultural industries in the Area. The number of people over 65 years (12.7%) is lower than the State average and the number of children less than 14 years of age is higher than the State average.

3.51 New England Area Health has the largest number of Aboriginal people of any health service in rural New South Wales and a higher than State average number of children under ten.[26]. The Area Health Service has established an Aboriginal Maternity Service to improve child and maternity health in the first six months after birth. The service operates at Tamworth and Moree.

Table 3.14: Macquarie Area Health Service – selected demographic statistics Source: NSW Health Department

NESB(%)	ATSI(%)	0-14(%)	65+(%)
2.6	5.8	23.7	12.6

Source: Derived from submission 13, NSW Health Department.

Tamworth Base Hospital

3.52 As a daily average, Tamworth Base Hospital admits 52 patients, performs 21 operations, treats 93 patients through its emergency department and provides services to 265 outpatients. The hospital's Emergency Department is being redeveloped at a cost of $3.7 million.

Northern Rivers Area Health Service [27]

3.53 Northern Rivers Area Health Service is located on the far north coast of New South Wales and stretches over 24,555 square kilometres, from the Clarence Valley, north of Coffs Harbour, to the Queensland border east of the Great Dividing Range. The Area covers three major valleys and 13 LGAs, with a population catchment of more than 250,000.

3.54 Around 51% of the population lives in the coastal LGA's of Tweed, Ballina and Byron, which also have the highest growth rates in the area. Lismore is the most populated inland urban centre and the second highest population, by LGA, in the Area Health Service.

[25] *ibid,* p 45.

[26] *ibid,* p 46.

[27] *ibid,* p 47.

3.55 Northern Rivers is one the fastest growing areas in the State. Total Area Health Service population growth per year between 1996 and 2006 is estimated to be 1.9% with some areas such as Byron Bay and Tweed Heads projected to have annual increases of 3.3%.

3.56 An estimated 15.2% of the population in the Area has a disability or a handicap, higher than the State average of 12.5%. Around 16% of the population is over 65 years of age, and is expected to rise to 21% by 2016.

Table 3.15: Macquarie Area Health Service – selected demographic statistics

NESB(%)	ATSI(%)	0-14(%)	65+(%)
3.1	2.7	22.6	20.7

Source: Derived from submission 13, NSW Health Department.

Lismore Base Hospital

3.57 As a daily average, Lismore Base Hospital admits 55 patients, performs 18 operations and treats 78 patients through the emergency department.

Summary of services offered at major non-metropolitan hospitals

Table 3.16: Services offered at major non-metropolitan hospitals

	Albury	Wagga	Dubbo	Coffs	Man	Port	Orange	Tam	Lismore
General medical	✓	✓	✓	✓	✓	✓	✓	✓	✓
Surgical	✓	✓	✓	✓	✓	✓	✓	✓	✓
Emergency	✓	✓	✓	✓	✓	✓	✓	✓	✓
Intensive care	✓	✓	✓	✓	✓	✓	✓	✓	✓
ENT	✓	✓	V	✓		✓	✓	✓	✓
Ophthalmology	✓	✓	V	✓	✓	✓	✓	✓	✓*
Orthopaedics	✓	✓	✓	✓	✓	✓	✓	✓	✓
Plastics	✓						V		
Urology	✓	✓	V	✓		✓	✓	✓	✓
Vascular	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dental	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rehabilitation	✓	✓	✓***	✓	✓	✓	✓	✓	✓*
Obstetrics	✓**	✓	✓	✓	✓	✓	✓	✓	✓
Gynaecology	✓**	✓	✓	✓	✓	✓	✓	✓	✓
Renal		✓	✓	✓	✓	✓	V	✓	✓
Paediatrics	✓	✓	✓	✓	✓	✓	V	✓	✓
Psychiatry	✓	V	✓	V	✓	✓	✓	✓	V
Pathology	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cardiology		✓	✓	✓	✓	✓	V	✓	✓
Neurology	✓	✓		✓	✓	✓	✓	✓	
Dermatology	✓			✓	✓	✓	V	✓	
Respiratory medicine	✓	✓	✓	✓	✓	✓	✓	✓	✓

	Albury	Wagga	Dubbo	Coffs	Man	Port	Orange	Tam	Lismore
Oncology	✓	✓	V	V	V	✓	V	✓	V
Palliative care	✓	✓	✓***	✓	✓	✓	V	✓	✓*
Venerelogy	V	V	✓>				V	✓	✓
Rheumatology				✓	✓	✓	✓	✓	✓
Nephrology			✓				V	✓	✓
Burns	✓	✓	✓	✓	✓	✓		✓	
Haematology				✓	V	V	V	✓	V
Radiology	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coronary care	✓	✓	✓	✓	✓	✓	✓	✓	✓
Neonatal	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gastroenterology	✓	✓	✓	✓	✓	✓	✓	✓	✓

* Services are provided, under contract, for public patients by St Vincent's Private Hospital, Lismore.
** Services are provided by Wodonga Hospital.
*** Services are provided by Lourdes Hospital, Dubbo (3rd schedule).
▼ Services are provided by Sexual Health, Dubbo.
V Services are provided by "fly in" or "drive in" specialists.

Source: NSW Health Department, correspondence from NSW Health Department, received 17 December 2001.

The Yellow Book

3.58 The *NSW Health Department Services Comparison Data Book* (Yellow Book) has been the source for published comparative data on New South Wales hospitals over the last 10 years. In 1998-99 the Yellow Book included new comparative data on Area Health Services.

3.59 The Yellow Book tables for the nine major non-metropolitan hospitals in New South Wales refer to hospital service activity, appropriateness, efficiency, access, staffing, and finances. At present the Yellow Book remains the only detailed historical record of hospital performance statistics. Very few indicators collected in the New South Wales health system in the past have been used to achieve improvement, rather the data refers to the efficiency of services and some to access to services.[28]

3.60 With the implementation of the Quality Framework (outlined in Chapter 4) the NSW Health Department has recognised that the majority of indicators contained in the Yellow Book are not quality of care indicators.[29] The most recent list of Yellow Book statistics are presented as Appendix 5 along with some explanatory comments by the NSW Health Department on the performance of Area Health Services with respect to the 64 indicators. (see also Chapter 4, para 4.22)

[28] Correspondence from NSW Health Department, Indicator Development, received 10 November 2001, p 1.

[29] *ibid*, pp 1-2.

Committee's comment

3.61 The Committee notes the work done by the NSW Health Department in forming development and implementation groups for the purposes of comparing the quality of care provided between Areas. In addition, as many indicators have only recently been introduced, creditable comparisons may not be available until the indicators have been refined over time.

3.62 The Committee is concerned over the unreliability and at times the lack of data provided in the Yellow Book, particularly for Port Macquarie Base Hosptial. The data presented in the Yellow Book is heavily qualified by the NSW Health Department drawing into question its ability to be relied upon for public policy decision making. NSW Health Department stated:

> In some instances, no data is recorded for individual hospitals...an analysis of reported data indicated data quality problems and the data was not published...[and] ...the data quality may explain wide fluctuation in the information provided.[30]

3.63 Ms Maria Spriggins, Direct of Audit, The Audit Office of New South Wales, informed the Committee that the inconsistency of data extracted from performance indicators by the NSW Health Department has been previously identified by the Audit Office:

> If you look at the annual reports from the Area Health Services, the level of information disclosed on performance indicators varies from one health service to another. We have commented on that in the past. In last year's report to Parliament we commented on the performance agreements between the Department and the Area Health Services. Some Area Health Services gave figures, others did not. Some only gave what they achieved, not the target or what was contained in the agreement. If you are looking for greater comparability or for a stakeholder to gain information from an annual report, the information will need to be greater than that current provided, and consistent.[31]

[30] Correspondence from NSW Health Department, *Yellow Book Measures*, received 10 November 2001.

[31] Evidence of Ms Maria Spriggins, Direct of Audit, Audit Office of New South Wales, 13 June 2001, p 58.

Chapter 4 Recent changes

The NSW Health Department has reported that the New South Wales health system continues to experience increased levels of activity as a result of population growth, ageing and new treatments, although the reports over time show a decrease in admissions. The NSW Health Department refers to a 19.7% reduction in the average length of stay in public hospitals, from 6.1 days in 1993-94 to a projected 4.9 days in 2001-2002, as an example of the efficiency gains made in order to meet demand.[32]

The NSW Health Department states that it is in the process of developing, implementing and monitoring key quality of care and value for money indicators in order to identify areas of demand and implement policy initiatives.

Overseas trends [33]

4.1 The establishment of Professional Standards Review Organisations in America in the 1970s focused international priority on the process of measurement of quality of care indicators. In the 1980s, the first attempts were made to develop core sets of indicators. Original indicator sets tended to focus on narrow aspects of health care structures.

4.2 In North America organisations such as the Joint Commission on Accreditation of Health Care Organisations (JCAHO) and the National Committee for Quality Assurance (NCQA) are involved in quality of care indicator measurement.

4.3 In the United Kingdom, the National Health Service (NHS) released *A First Class Service*[34] in 1998, which aimed to set clear national standards, high quality care through clinical governance and monitoring of quality standards. Performance assessment was essential to all these activities.

4.4 In 1999, the NHS published a broader-based approach to assessing performance. The NHS Performance Assessment Framework encouraged action across six areas:

- Health improvement,
- Fair access,
- Effective delivery of appropriate healthcare,
- Efficiency,
- Patient/carer experience,
- Health outcomes of NHS care.

[32] Submission 13, NSW Health Department, p 4.

[33] Correspondence from the NSW Health Department, "Quality of Care Indicator Development in NSW Health", received 19 December 2001, p 1.

[34] National Health Service (UK), (1998): A first class service. Cited in correspondence from the NSW Health Department, "Quality of Care Indicator Development in NSW Health", received 19 December 2001, p 2.

4.5 The NSW Health Department informed the Committee that while New Zealand had used Australian Council Healthcare Standards indicators since 1994, they have also developed their own standards that emphasise areas such as community needs and client rights.

4.6 The NSW Health Department, advised that the quality dimensions outlined in the NSW Health Department policy document, *A Framework for Managing the Quality of Health Services in New South Wales*[35], are in part, based on the classification system used internationally. Though in turn it recognised that:

> Internationally, there are some common themes around "core" priorities, but despite international efforts, there is still no universally accepted set of "gold standard" indicators or consistent lexicon.[36]

4.7 In a submission to the Committee, the NSW Health Department stated:

> As is the case overseas, individual "goodwill", continuing medical education (CME) participation and facility-level peer review are no longer considered sufficient quality assurance and measurement systems. This has occurred in conjunction with a change in medical culture from one in which individual clinicians take full responsibility for the quality of their care to one of "clinical governance", in which clinicians and managers share the responsibility for ensuring and improving quality- part of which involves measuring the quality of clinical processes and outcomes. Moreover, consumers and providers are no longer willing to accept facility-level peer review; there is now a demand for external measurement systems, which enable a facility's processes and outcomes to be compared to that of similar institutions.[37]

4.8 The principal policy document for the NSW Health Department which sets out their agenda is the Government Action Plan for Health.

Government Action Plan for health

4.9 In regard to the Sinclair Report and the Health Council Report, both released in March 2000 Mr Mick Reid, the then Director General, NSW Health Department stated that:

> Both reports found that the system is performing well, but that it is under pressure. There are good examples of innovation in the delivery of health services. However, the reports found that this innovation and excellence are often isolated in parts of the health system and are not to be found throughout it. So much of the implementation is now about how this can be more broadly adapted throughout the system. We call it the GAP—Government Action Plan—...[38]

[35] NSW Health Department, *A framework for managing the quality of health services in New South Wales*, NSW Health Department, 1999.

[36] Correspondence from the NSW Health Department, "Quality of Care Indicator Development in NSW Health", received 19 December 2001, p 5.

[37] *ibid.*

[38] Evidence, Mr Mick Reid (NSW Health), 13 Jun 2001, p 14.

Mr Reid also informed the Committee of the Government's approach to change with the implementation of the GAP:

> We are incremental in our changes. We have solicited support for these changes from clinicians and the community. We have actually invited the community to participate and I will show you some examples of that. One of the key things about the Government Action Plan is that we have attempted to focus on quite specific goals and targets rather than on broad aspirational statements. So we are trying to say that this is an aspect upon which we can improve systemically throughout the whole health system. You will see in some of the recommendations that we have adopted that approach.[39]

4.10 The Director General of the NSW Health Department chairs the Clinical Council, established to lead the implementation, monitoring and evaluating of GAP. Under the Clinical Council fifteen Implementation Working Groups have been established including the Acute Care Implementation Group, the Chronic Care Implementation Group, the Emergency Departments Implementation Group and the Rural Health Implementation Coordination Group. These Implementation groups are chaired by leading clinicians or CEO's and include a Deputy Director General or Senior Department Officer and clinicians, consumers and managers. The groups were established in May 2000 and have varying reporting and implementation deadlines.

NSW Health Department's strategy for quality indicators [40]

4.11 The NSW Health Department consider that an "indicator" is a measure of performance:

> Indicators are hierarchical, with different indicators being relevant at different levels of the system (e.g population indicators, clinical indicators). Different organisational levels (clinical level, department, hospital, Area, State) have different information needs and the aggregation of data that are useful at the clinical level may not provide useful information at the organisational or Area levels. There is a need for an improved understanding of information needs to inform indicator development[41]

4.12 In February 1999 the NSW Health Department issued *A Framework for Managing the Quality of Health Services in New South Wales* (Quality Framework) designed to be an overarching policy for managing quality of health care in New South Wales. The Quality Framework outlined the need for indicators of health care quality.[42]

4.13 Area Health Services have been given the discretion to implement the Quality Framework in the manner most suited to their environment, people and needs while retaining some common elements to allow a coordinated, consistent approach across New South Wales.

4.14 The Quality Framework relies on the adoption of the following three main principles for monitoring and managing the quality of care:

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[39] Evidence of Mr Mick Reid, Director General, NSW Health Department, 13 June 2001, p 14.

[40] Correspondence from the NSW Health Department (Indicator Development), received 28 November, 2001, p 1.

[41] *ibid.*

[42] *ibid,* p 2.

- performance frame
- committee frame
- reporting frame

Performance frame

4.15 The performance frame outlines a process that is claimed will lead to a review of those aspects of performance that have a meaningful impact on the quality of health care. The performance frame aims to provide Area Health Service Boards with information about quality of health care provided and comparative data to stimulate improvement efforts.

4.16 The Quality Framework identifies six dimensions of quality of health care:

- safety of health care,
- effectiveness of health care,
- appropriateness of care,
- consumer participation in health care,
- access to services,
- efficiency of service provision.

4.17 Evidence of improvement in performance in each of the six dimensions will be built into performance agreements at all levels of the health service. Quality of health care indicators are to be developed to address the six dimensions of quality. The development of the quality of health care indicators is further discussed below.

Committee frame

4.18 An essential component of the Quality Framework is the implementation of an appropriate committee structure to monitor and manage quality of care being delivered by Area Health Services.

4.19 The committee structure includes an Area Quality Council, a committee of the Area Health Service Board, and various quality committees and clinical subcommittees established to inform and support the function of the Area Quality Council. The primary purpose of the Area Quality Council is to provide a means by which the quality of clinical care provided to consumers within that Area can be defined, measured, monitored, improved and reported. The main activities of the Area Quality Council are therefore to collect, collate and analyse Area wide indicator data and to report this data to the Area Board, the NSW Health Care Quality Unit and the Chief Health Officer. (see Chapter 6, para 6.3-6.4)

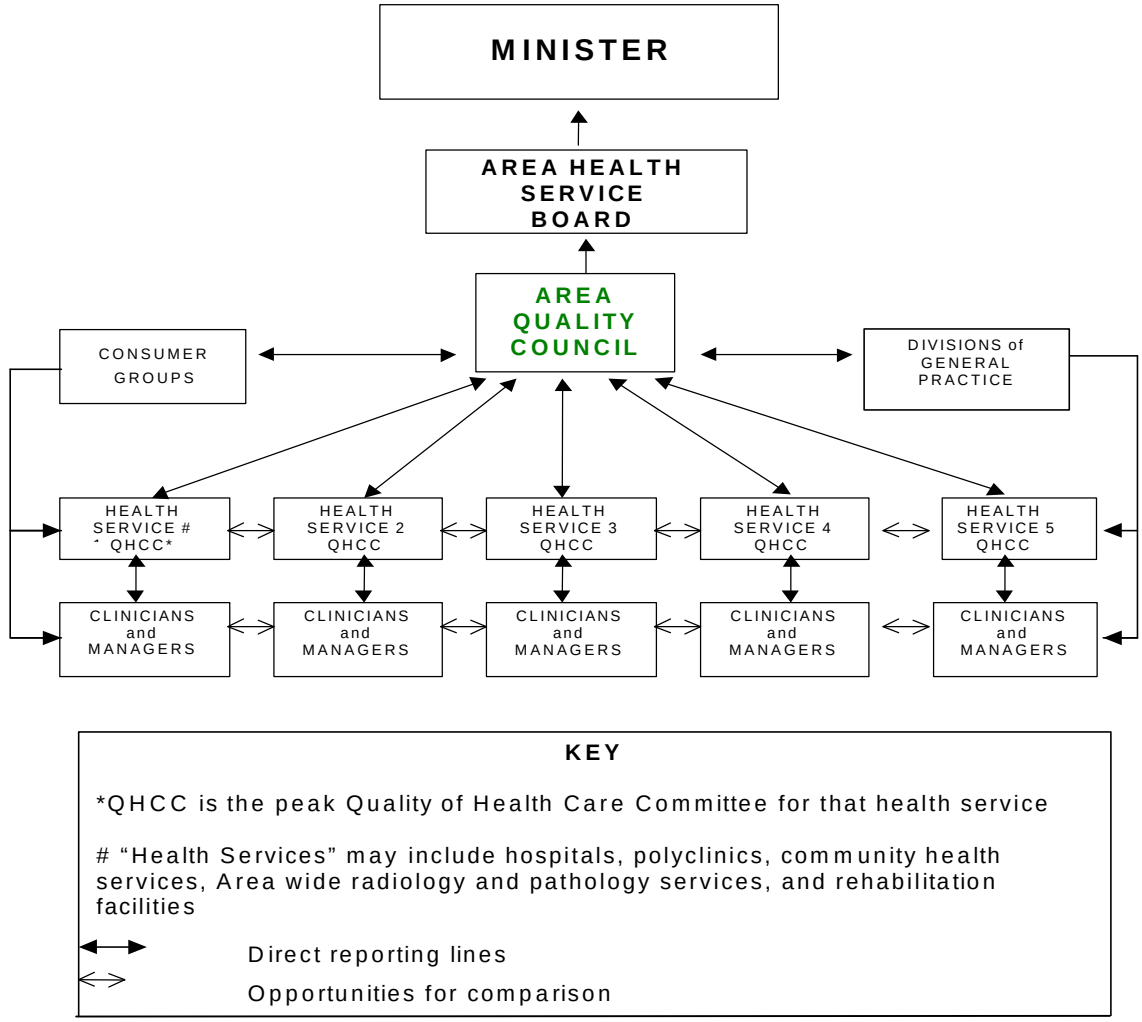
Reporting frame

4.20 The Quality Framework outlines principles of reporting quality which are that:

- all measures be transparent,
- information should be readily available,
- information should have an intrinsic value to the collectors, and
- measuring processes should be regularly reviewed.

4.21 The Quality Framework advocates a reporting structure between clinicians and managers, quality health care councils, the Area Quality Council and to the Area Health Service Board and the Minister. This structure is presented as Figure 4.1. (see also Chapter 6, para 6.3-6.4)

Figure 4.1: Quality framework advocated reporting structure



Source: NSW Department of Health, Correspondence from the NSW Health Department (Indicator Development), received 28 November, 2001.

Development and management of indicators for quality of care

4.22 In regard to the lack of quality of care indicators in the Yellow Book, NSW Health Department asserted that:

> In light of this, the Director General established in 1999, the NSW Indicators Implementation Group (IIG), to undertake a systematic process which would coordinate quality of care indicator activities, align them with international initiatives, and provide a framework for ongoing development and evaluation of these activities.
>
> Membership comprises staff from the NSW Department of Health, the Area Health Services, consumers and other experts in the field of indicator development. The aim of the group is to create, for the first time, an agreed set of indicators, classified according to the dimensions of quality, specifically to inform Quality Councils, Area boards, clinicians and consumers about quality of care in their Areas.[43]

4.23 The NSW Health Department asserted that prior to March 2000, there was no core set of indicators and any assessment of quality of health care that occurred tended to take place at the service delivery level.[44]

4.24 In December 1999, the NSW Health Department Quality Branch was established to assist Area Health Services and consumers implement the Quality Framework and to improve performance in all areas. The Quality Branch is responsible for developing the quality indicators.

4.25 The Quality Branch is following the three-phase process advocated in the Quality Framework:

- *Phase 1* deals with indicators developed from data that currently exist in New South Wales databases,
- *Phase 2* involves refining information that is available in the New South Wales databases but is not yet in a form suitable as a quality of health care indicator, and
- *Phase 3* involves developing new indicators and data sets.

4.26 Refinement of the indicators for *Phase 2* and *Phase 3* will be made after Areas have put the indicators to practical use.

4.27 The NSW Health Department indicated to the Committee that *Phase 2* indicators were expected to be finalised in draft form by the end of the 2001 and will be incorporated into ongoing reporting mechanisms. Area Health Services will review the indicators to ensure they are accurate and appropriate.

[43] Correspondence from the NSW Health Department (Indicator Development), received 28 November, 2001, p 3.

[44] Submission 13, NSW Health Department, p 35.

Table 4.2: Stages in the development of Phase 2 indicators for the Quality Framework

Activity	Approximate Dates	
Write to the Clinical Implementation Groups	December 2000	✓
Identify gaps in the breadth and depth of coverage by Phase 1 indicators	December 2000	✓
Identify other potential quality of health care indicators from local, national and international sources in collaboration with the GAP groups.	October 2001	Current
Evaluate the effort required by the Department and Areas to produce the data for the indicators.	Ongoing process as the indicators are proposed	Ongoing
Refine list	October 2001	
Develop a set of Phase 2 indicators and invite comment from Areas.	November 2001	
Revise Phase 2 indicators.	December-January 2002	
Reassess if necessary the effort required by the Department and Areas to produce the data for the indicators. Final list decided.	March 2002	
Collect the data for each indicator.	May 2002	
Release Phase 2 indicators.	June 2002	

Source: NSW Department of Health, Correspondence from the NSW Health Department (Indicator Development), received 28 November, 2001.

Audit Office – quality of care indicators

4.28 The Audit Office of New South Wales evaluated the matters relating to mechanisms for comparing quality of care and value for money between major non-metropolitan hospitals. Although the NSW Health Department have identified the difference between a 'measure' and an 'indicator' the analysis by the Audit Office remains relevant to the Committee's interest in the quality outcomes of health care provided, particularly in 'reducing the variability in quality' referred to in the Committee's terms of reference.

4.29 In its submission to the Committee the Audit Office warned that measuring "access" and "appropriateness" as dimensions of quality of health care as identified in the *Quality Framework* may prove problematic:

> ...certain difficulties inherent in measuring quality ought to be confronted by the Department in the development of performance measures. The difficulties relate to the possibility of too little care: when persons lack access to care or when persons seek care in an untimely manner; the possibility of too much care: where persons receive unnecessary care; and, finally, shortcomings or errors in technical and interpersonal aspects of care.[45]

[45] Submission 7, The Audit Office of New South Wales, p 1.

4.30 The Audit Office also identified that processes or outcomes may be valid measures of quality of care:

> Approaches to quality of care measurement also require consideration in a discussion on mechanisms for comparing quality of care and value for money. In particular, it is essential to give consideration to a service's/hospital's capacity to deliver high quality care (structural measures), to process or performance and to outcomes.
>
> In general, either processes or outcomes may be valid measures of quality of care. For an outcome to be a valid measure of quality of care, it must be closely related to processes of care that can be manipulated to affect the outcome. Equally, for a process to be a valid measure of quality, it must be closely related to an outcome that people care about.[46]
>
> And
>
> To concentrate on one aspect of quality of care measurement in isolation from the other will result in measures which might affect the value of any conclusion drawn from them.[47]

4.31 The Audit Office identified the rate of improvement as a significant measure in evaluating performance:

> ...an understanding about the rate at which an organisation improves their case is better than a static measure to identify, at a single point in time, superior performance. This can be of particular importance to the health industry where the time period for outcomes emerge over a lengthy period and where health outcomes might have as much to do with variables other than medical interventions.[48]

4.32 While acknowledging the benefit of performance indicators, the Audit Office warn that reliance on them by an organisation can also distort activity:

> The possibility of gaming exists; that is, an organisation's internal structures are designed specifically to meet a pre-determined outcome. These structures might limit the introduction of actions that improve quality of care where those actions or processes are not valued by predetermined measures.[49]

4.33 The possibility of "gaming" performance indicators relates to concerns raised by a number of submissions, namely that the distribution of funding by hospital administrators could be manipulated. While the NSW Health Department contends that vulnerable budget areas such as mental health have been quarantined[50], it has been brought to the Committee's attention that quarantining a specific budget allocation may not ensure its appropriate expenditure.

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[46] *ibid.*

[47] *ibid,* p 2.

[48] *ibid.*

[49] *ibid.*

[50] Evidence of Mr Ken Barker, General Manager, Financial Commercial Services, NSW Health Department, 3 Jun 2001, p 7.

4.34 Mr Ken Barker, General Manager, Financial Commercial Services, NSW Health Department, while commenting on episode funding and funding for mental health highlighted the potential vulnerability of some funding allocations:

> The Centre for Mental Health is looking at a way to better match the dollars, what value for money that is being delivered in the mental health area, and we are working through those various pockets to be on top of Areas who, for want of better word, are moving money around, to give them a certain result, which may give them inappropriate access to funds.[51]

4.35 Later, commenting on a process to monitor program movements and allocations within Areas, Mr Barker added that:

> The monitoring arrangement will allow us to understand better what Areas are doing so that if they are moving money from one program to another there is a sound reason to it and it is not for something that you might say is not 100 per cent correct...[52]

Committee's comment

4.36 The Committee notes the strategies the NSW Health Department have developed and are implementing to enable the Government and stakeholders to evaluate the performance of hospitals in terms of quality of care and value for money.

4.37 The Committee recognises the quality outcome issues raised by the Audit Office and the potential for inappropriate access to funding. The latter reduces transparency in the relationship between program funding, outcomes and efficiency. The Committee expects the NSW Health Department to monitor movements of program funding and where necessary develop process to avoid inappropriate access to funds. Furthermore, the Committee seeks stakeholder comment as to whether this should be reported publicly? (see also Chapter 6, para 6.5)

4.38 The Committee would welcome further comments, issues or questions regarding the process and results of the quality indicators being developed and analysed, for consideration in the final report.

Acute Care – Admissions

4.39 Dr Paul Tridgell, Deputy Chief Information Officer, NSW Health Department, outlined the work of the Acute Care Implementation Working Group, as one example of the work undertaken by the Clinical Councils.[53]

4.40 Under the GAP the Acute Care Implementation Working Group was provided the following terms of reference:

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[51] *ibid,* p 8.

[52] *ibid,* p 21.

[53] Evidence of Dr Paul Tridgell, Deputy Chief Information Officer, NSW Health Department, 27 August 2001, p 4

- To identify targets for day of surgery admissions and take a leadership role in ensuring implementation,
- To identify targets for day-only admissions and take leadership role in ensuring implementation,
- To oversee statewide implementation of best practice as outlined in the NDHP in relation to admission on day of surgery, day-only admissions, care management and discharge planning,
- To improve the management of booked and emergency hospital admissions,
- To identify priority diagnoses/procedures for expanded use of clinical pathways, care planning and management, and
- To work with Divisions of General Practice to improve communication between services to facilitate continuity of care.

4.41 Dr Tridgell outlined to the Committee the processes by the Area Health Council for setting targets for 'day only' and 'day of surgery admissions' and their benefits:

> Same day and day of surgery targets were introduced in July 2000. As part of this, we have looked at the clinician level data of the type which I will show you shortly for the high-volume procedures. We were identifying where there is good practice and sharing of the clinical pathways that exist where there is good practice between the Area Health Services. There is also a project under the acute care group to substantially improve the quality and timeliness of discharge summaries.[54]

4.42 Dr Tridgell went on to add:

> The acute care group comprises about 20 staff members and includes the leading surgical staff and some physicians. It has been a real bonus or at least of great assistance in implementing this program to have such senior clinical leadership support which has been saying to the profession that these are changes that should happen. Part of the setting of the 80 per cent was that hospitals and some clinicians were already working at, or above, those levels, so they were quite achievable. This point picks up the Health Council's recommendation that the clinician leadership should be seen to be working alongside senior management to oversee the setting of clinical practice standards as well as to provide assistance and advice to hospitals in reaching those targets. A sharing of clinical pathways and a sharing of comparative information at a clinician and procedure level are some of the ways in which we are assisting that to happen.
>
> The day of and day only surgery targets are principally about quality. There are certainly a few good randomly controlled trials which show reduced infection rates, improved patient satisfaction, decreased thrombosis and pulmonary embolisms associated with patients coming in on the day of surgery instead of coming in the day before. A fair bit of that is improved preparation in the pre-admission clinical process rather than having patients who are not adequately prepared and worked up and who are coming into hospital the night before. They

[54] *ibid*, p 4. *Chair's note: The Committee understands that while day of surgery targets were introduced, same day targets had been introduced prior to 1995.*

> would be going into theatre a little bit under prepared. There is obviously a benefit also with access because of the reduced length of stay which flows, as well as increased efficiency in patients coming in on the day of surgery.
>
> One of the key phrases or statements which we would make in relation to the acute care group is that we are only asking for what has already been done by some. Another key recommendation of the Health Council was that excellence currently exists but it is often in pockets and we need to share those pockets across the whole system. They are just the targets which were 60 per cent and 80 per cent.[55]

4.43 Dr Tridgell further explained that as part of this program the Health Department is monitoring the day-of-surgery admission rates and also the unplanned re-admission rates following elective surgery. Information can be sent out to areas so that local clinicians, each with a unique encrypted number, can compare themselves with other information from across the State. Various data about the median or average length of stay, how many patients that doctor treated and his or her daily rate can be evaluated.

4.44 Dr Tridgell presented evidence in support of higher day of surgery admissions pointing to lower re-admission rates for laparoscopic and open surgery:

> Within this data, you can then examine whether doctors with high day-of-surgery rates have higher or lower return-to-theatre rates or re-admission rates. For all the procedures that we looked at, those with higher day-of-surgery rates had lower re-admission rates and lower return-to-theatre rates. At an individual level, when you get down to 10, 15 or 20 cases, you often cannot show a statistically significant relationship. All that you can do is see that someone may have a slightly higher rate and then put it in a local context for local hospitals and clinicians to see whether that is an issue. This data is certainly reassuring: it shows that the way we are heading in pushing higher day-of-surgery rates is the right way.[56]

4.45 Referring to graphs outlining a surgical procedure, the individual clinicians and the number of cases and the daily rate, Dr Tridgell noted that:

> According to the information provided, virtually all Area Health Services...have clinicians with high rates and low rates. They work at the same hospital with exactly the same infrastructure and equipment yet there are differences in clinical practice.[57]

4.46 Mr Reid, in reference to the variation in the clinical practice graphs, identified the positive contribution this data can make towards hospital administration and management:

> We are trying to map that clinical practice, feed that information back to the clinicians at individual hospitals and start to seek their advice on how to manage it.[58]

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[55] *ibid,* Evidence of Dr Paul Tridgell, p 4.

[56] *ibid.*

[57] *ibid.*

[58] Evidence, Mr Mick Reid (NSW Health), 27 Aug 2001, p 13.

4.47 Mr Reid went on to add:

> At the end of the day a clinician is trained to identify variations in clinical practice. But you can certainly provide guidance for clinical pathways. This data would suggest that those clinical pathways are probably needed. But it is not a mandating.[59]

Day-only surgery and day of surgery admission targets

4.48 The following targets were set for day-only and day of surgery admissions from July 2000:

- 60% of elective surgery patients will be admitted on a day-only basis, and
- 80% of all remaining elective surgery patients will be admitted on the same calendar day as their surgery.

4.49 Evidence received by the Committee indicates that generally, the rate for day of surgery admissions and day-only surgery in rural Area Health Services is higher than the target figures:

Table 4.3: Day-only surgery and day of surgery admission targets

Area Health Service	Day of surgery admissions March 2001 (Target 80%)	Day-only surgery March 2001 (Target 60%)
Northern Rivers	93.3%	57.8%
Mid North Coast	87.5%	65.8%
New England	79.4%	61.3%
Macquarie	69.6%	66.9%
Mid Western	80.2%	63.6%
Greater Murray	85.0%	61.8%

Source: NSW Health Department

Cost transfer implications of admission targets

4.50 While the day of surgery admissions and day-only surgery rates have increased in recent years and currently exceed the targets established by the NSW Health Department, the New South Wales Council of Social Services (NCOSS) has raised concerns over the likely cost shift from the NSW Health Department to community organisations, patients and their families. NCOSS state that they are not refuting the benefits of reduced hospital stays, rather:

> What is of concern is the shortfall in services to the community, such as transport, to meet the needs of consumers and carers which are generated by shorter hospital stays.
>
> Shorter hospital stays tend to mean that people require transport when they are still very sick. These consumers have higher support needs while they are

[59] Evidence, Mr Mick Reid (NSW Health), 27 Aug 2001, p 15.

> travelling. They are rarely capable of driving themselves, and are generally too ill for public transport where it is available.[60]

4.51 A discussion paper commissioned by the Rural Health Implementation Coordination Group examined the issue of facilitating access to health in rural New South Wales. The paper argued that improving the coordination of community transport across the entire sector falls outside the jurisdiction of the NSW Health Department[61].

4.52 However, an NCOSS survey reported that new policy measures adopted by the NSW Health Department had a direct impact on transport issues:

> Survey respondents commented on the impact of 'earlier discharge' from hospital on transport. These changes mean consumers are often still very sick when they require transport home from hospital. Earlier discharge was generating new journeys to health services for follow-up care, as these services would have been previously provided in hospital. Same day procedures required consumers to attend hospital early in the morning which creates enormous difficulties for those travelling long distance, and similar problems were caused by discharge late in the day and discharge at short notice.[62]

4.53 The paper prepared for the Rural Health Implementation Coordination Group noted the key issues for the NSW Health Department in this area:

> The need for additional transport support is being partly driven by the centralisation of health services, increasing use of day surgery, the decreasing availability of carers and the growth in the number of people with disabilities and older people living in the community.[63]

4.54 The Rural Health Implementation Coordination Group paper argued that restrictive regulations under the *Passenger Transport Act* limit the options available to address health related transport in a more cost efficient manner. However, the discussion paper also notes that the NSW Health Department could do more to address the issue given current resources:

> Greater utilisation of existing transport resources could be made if there was more flexibility with patients' appointment times. Early appointments and late finishes for day surgery, for example, can make the arrangement of transport difficult for both patients and transport providers.
>
> Hospital discharge practices do not always take transport issues into consideration despite transport having been identified as one of the key impediments to effective discharge planning.[64]

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[60] Ross Bragg and Liz Reedy (NCOSS), *Transport to access health services in rural and remote NSW*, July 2001, pp 5-6.

[61] Correspondence from the NSW Health Department, *Non-Emergency Health-Related Transport – Facilitating access to health services in NSW*, received 10 January 2001, p 9.

[62] Ross Bragg and Liz Reedy (NCOSS), *Transport to access health services in rural and remote NSW*, July 2001, p.1.

[63] Correspondence from the NSW Health Department, *Non-Emergency Health-Related Transport – Facilitating access to health services in NSW*, received 10 January 2001, p 4.

[64] *ibid.*

4.55 In response to questions from the Committee regarding the difference between a financial cost to the NSW Health Department and an economic cost to the community from implementing day of surgery and day only surgery admission targets, Mr Reid referred to a committee formed to report on the extent of community investment required to lessen cost transfers implications:

> That group has been examining what investment we need to make in the community once we start to hit our day-only and day-of-surgery targets and when we try to reduce our re-admissions of chronic care people into the acute hospital system. That group has come up with some quite specific recommendation about the level of investment that must be put into community-based services to support those targets. If we can argue that we get good clinical practice from the things that the Chair mentioned and still provide the appropriate and additional support mechanisms within the community, we will have a win-win situation. That is the real challenge.[65]

Clinical governance

4.56 The Quality Framework is also the means by which clinical governance is to be achieved in New South Wales. The NSW Health Department identify the key governance as:

- A recognition and acceptance by Boards and Health Service management that they have a responsibility for the quality of care delivered by the service and that this accountability is shared with clinicians providing the care.
- Action by Boards to ensure that an effective system is in place that:
  - provides an environment that fosters quality,
  - monitors the quality of care,
  - provides a regular report to the Board on the quality of care,
  - minimises the risk of and identifies deficiencies in the quality of care,
  - effectively address these deficiencies.

4.57 Mr Reid was asked to comment on the considerable change in the Area Health Service Boards' responsibilities for clinical governance:

> Yes. This has been a worldwide trend. The Boston and United Kingdom experience was that boards were held accountable, at the end of the day, for the practice of the clinicians within their hospitals. That has had a ripple effect throughout the world. We have been trying to spell out, in a lot more detail, just what our expectations are of boards of Area Health Services, in terms of the support mechanisms they need to provide in order to support clinicians to practise safely within those institutions. So it is trying to draw a clear distinction between the responsibility of an individual clinician to practise according to his or her best skill base and to keep himself or herself up-to-date in those various areas, as distinct from the responsibility of the health system to provide operating theatres, quality nurses, support services, allied health workers, physical structures, education of staff, all of those things, in order to support the clinician to practise that skill that he or she has.[66]

[65] Evidence, Mr Mick Reid (NSW Health), 27 Aug 2001, p 12.

[66] *ibid,* p 7.

4.58 Mr Reid later added:

> We have out now reports that we are at present discussing with Areas. Those put requirements on every board that there be clinical quality committees set up within a board's structure in order to be the recipient of data round the quality of the clinicians within that Area, and how they respond. That information is fed back to clinicians. So, in a sense, the information that Paul [Dr Tridgell] has been presenting includes our requirement to incorporate into the performance agreements that we have with the Area Health Services how they will report to the New South Wales Health Department about their quality, but there is also a requirement on the boards themselves to have a responsibility to have in place clinical quality agendas so that they may monitor the quality of the clinicians in their area.[67]

4.59 In response to a Committee question Mr Reid stated that the reforms in clinical governance will not mean doctors are directed on how to practice:

> The clinical committees comprise the senior clinicians within the Area, consumer representatives and other management. But, essentially, it is a structure to enable clinicians to have a more formalised Area-wide review of the totality of the quality of services provided within the area.[68]

4.60 An issue with performance indicators in health has always been the delay in collecting and analysing the data, and working with clinicians in the process. Mr Reid informed the Committee that analysis is improving, but that more needs to be done:

> Our tools for analysis are improving... but we clearly have to do a lot more work, particularly through the institutes, about how to bring clinicians into the game of using the tools and the information.[69]

Preventing avoidable harm - real time data

4.61 Mr Reid stated that the focus of the quality should be on preventing avoidable harm in the hospital system:

> ... we are trying to get to the root of those things that go wrong in our hospital system. We are trying to understand why. We are trying to get better data to monitor and predict when that occurs. We are trying to get better clinical education about that. We are trying to get peers interested in their colleagues and to be willing to take on their colleagues when they are not performing adequately. We are trying to put a process in place whereby people can feel comfortable talking to each other about these things.[70]

[67] *ibid,* p 7.

[68] *ibid.*

[69] *ibid,* p 9.

[70] *ibid,* p 13.

4.62 Real time data, providing regular up-to date data would dramatically improve the ability of clinicians and hospitals to provide quality care, according to Mr Reid:

> The feedback of data to individual clinicians more than any other factor will improve the quality of data because at the end of the day it is their data: it is the hospital's data and individual groups of clinicians' data. So, the feedback to them to say what does this variation mean historically has always drawn the response that the data is wrong. But as it becomes increasingly accurate and timely, as it is now, we are getting close to real live data and good quality data overall.[71]

[71] Evidence, Mr Mick Reid (NSW Health), 17 Sept 2001, p 1.

Chapter 5 Financial allocation

NSW Health Department's strategy for value for money

Three year budgeting

5.1 For the first time a three year recurrent health budget has been provided for the NSW Department of Health encompassing the 2000-01 to 2002-03 years.[72] The NSW Health Department indicate that this is a first for health budgeting in Australia. Under this budgetary reform Area Health Services will become "budget holders". Progressively from 1 July 2001, Area Health Services will be allocated all funds required to provide services for their resident population.

5.2 The Committee is not aware of the years 2002-03, 2003-04 and 2004-05 being published and who has had access to them, or whether they have been made publicly available.

5.3 The then Director General, Mr Mick Reid, outlined to the Committee the funding model administered by the NSW Health Department for Area Health Services:

> As you know, out of the last budget the Treasurer, in exchange for the reform agenda which I will describe to you, gave Health a three-year budget. That has been certainly the most significant financial thing that has occurred in New South Wales Health for many years. It provides absolute certainly to Area Health Services as to how much money they will have for each of three years. When we went into budget negotiations with the Treasurer this year we negotiated, not around the budget for this year coming, but around the 2003-04 budget three-year funding. That money comes to New South Wales Health. We have allocated that out to our 17 geographic and three area health services, guided by the resource distribution formula which I will come to describe as an equity-based formula. Then we have the new funding arrangements as to how that funding goes out from the area health services to the individual hospitals which are much more based upon episodic funding applications of what we call diagnostic-related groups [DRG] which I will explain in some detail.[73]

Episode Funding – Case study of Mid North Coast Area Health Service

5.4 New South Wales has a two tiered funding system for financing health care services. One is the Resource Distribution Formula (RDF) discussed later in this section and the other is an output based funding model known as Episode funding. For the 2001-02 financial year there were three types of episode funding models. One for acute services, one for emergency services and one for intensive care services. Depending upon the nature of services provided by the Area Health Services all or only some of the models may be utilised.[74]

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[72] Submission No 13, NSW Health, p 20.

[73] Evidence, Mr Mick Reid (NSW Health), 13 Jun 2001.

[74] Health Service Development, *Episode Funding for Acute and Emergency Services*, September 2001, p.11.

5.5 It is important to note that the Area Health Services manage how episode funding is implemented and applied, as a consequence there will be differences between areas. For the purposes of this report the method utilised in the Mid North Coast will be considered.

5.6 The episode funding model came into operation on the 1 July 2000 on the Mid North Coast when all facilities were allocated episode budgets and were set target activities to achieve benchmark prices set by the Area Health Service. The budget allocated to each Mid North Coast hospital (including PMBH) in 2001-02 was made up of:

- An activity component directly linked to planned cost weighted inpatient admissions; and
- An infrastructure component linked to the size and role of the hospital.[75]

5.7 For the Mid North Coast the activity component comprised around 65% of the total cost of an episode and the infrastructure component 35%.[76]

5.8 The hospitals were assessed to see how well episode funding was working. The Mid North Coast Area Health Service reported that all the five facilities met their activity targets or at least were within 2% of reaching their activity targets and the Diagnostic Related Group (DRG) price for each facility did not exceed the benchmark value by more than 10%.[77]

5.9 With regards to the quality of the service provision, the Mid North Area Health Service reported that:

> " in general, implementation of episode funding has not adversely affected the hospitals with regard to their performance on quality".[78]

5.10 Mid North Coast Area Health Service highlighted that quality indicators such as access and efficiency had not been largely affected by the move to episode funding. [79]

5.11 Mid North Coast Area Health Service reported that the episode funding model may also provide mechanisms for reducing waiting list numbers and the length of time that people are on the waiting list by assigning patients on the waiting list to a particular clinical speciality.[80]

5.12 In response to a question by the Committee to clarify the roles of episode funding and the Resource Distribution Formula (RDF), Mr Chris Crawford, Chief Executive Officer, Northern Rivers Area Health Service stated:

> No, the two operate in tandem. The RDF is population based funding, with the aim of making sure that residents of all geographic areas eventually get an equal level of access to health service dollars. So that is about what you might call geographic equity. Episode funding is about efficiency, that each facility of a comparable nature delivers its services for the same cost, so that the value for

[75] Health Service Development, *Episode Funding for Acute and Emergency Services*, September 2001, p.14.

[76] *ibid.*

[77] *ibid,* p.4.

[78] *ibid,* p.37.

[79] *ibid,* p.4.

[80] *ibid,* p 5.

money is implemented, with facilities of equal size and equal resources having the same outputs.[81]

Resource distribution formula (RDF)

5.13 In October 1995, the Government released its *Economic Statement for Health*[82], which continued the previous government's Resource Allocation Formula and included a revised population and needs based funding model to New South Wales health services. The statement outlined details of the Resource Distribution Formula (RDF) as a major instrument for this model. The Economic Statement was followed in August 1996 by the NSW Health Department's released of a document entitled *Implementation of the Economic Statement for Health* that expanded upon issues raised in the Economic Statement and identified key components of the RDF.

5.14 General Purpose Standing Committee No 2 examined the introduction of the resource distribution formula in its *Interim report on the Inquiry into Rural and Regional New South Wales Health Services* in July 1998. The Committee reported comments made by the Director General, NSW Health Department on 16 July 1998, that:

> The RDF is a planning tool, it is not a funding tool. It identifies shares of resources for Areas to provide comparable level of services after adjusting for differential health needs to the population. It does not determine the absolute level of funds.[83]

5.15 Since this time the NSW Health Department appears to have progressed its thinking and increased reliance on the RDF as an instrument in determining allocative efficiency of funds for Area Health Services. Mr Mick Reid, former Director General, NSW Health Department, noted the RDF "guided" funding to Area Health Services during his appearance before the Committee in June 2001.

> I want to explain how we allocate the money out to the areas, guided by the Resource Distribution Formula. We do not allocate on an historical basis. We try to allocate according to the size and the needs of the population. We have an RDF which is used to allocate to our 17 geographic areas. That RDF takes into account: the population of the area; the age structure of the area because we know that a very high proportion of health services are in the last three or four years of life and/or by the elderly population; the gender mix of the area health services; the dispersal factor of the area, for example, Far West has a very dispersed population and gets a higher share of the cake because it is more difficult to provide the same level of service provision, given the dispersal of the population; a weighting for the indigenous population so those rural areas that have a higher proportion of Aborigines and Torres Strait Islanders get a higher proportion of the dollar which reflects the higher health needs of the population group; the flows which I will come to soon which is accommodating where patients from Macquarie Area

[81] Evidence of Mr Chris Crawford, Chief Executive Officer, Northern Rivers Area Health Service, 19 October 2001, p 49.

[82] "Caring for Equity, Efficiency and Quality", The NSW Government's *Economic Statement for Health*, October 1995.

[83] General Purpose Standing Committee No 2, Interim Report, Inquiry into Rural and Regional New South Wales Health Services, July 1998, p 27.

Health Service flow into the metropolitan area or patients from Far West flow into Adelaide, for example; and a needs index. [84]

Resource Distribution Formula Technical paper

5.16 In 1999 the NSW Health Department released a document entitled *Resource Distribution Formula Technical Paper 1998/99 Revision*[85]. This document is the most comprehensive public document available on technical aspects, principles and components of the RDF and has been used as a reference in parts of this chapter. This document has been reproduced in its entirety as Appendix 6 and in parts within this section for the purposes of historical comparison.

Exceptions to the RDF

5.17 There are a number of health services to which the RDF does not apply, including:

- Corrections Health Services
- Ambulance Service of New South Wales
- State Government Nursing Homes
- Special Purpose and Trust Funds
- Grants to Non Government Organisations
- New Children's Hospital, Westmead
- Youth Health
- Breast Cancer screening

5.18 A more extensive list is outlined in Appendix 6.

Components of the Health Fund Allocations

5.19 There are nine components of health funding, each with their own RDF:

- Population Health
- Oral Health
- Primary & Community Based Services
- Outpatients
- Emergency Department Services
- Acute Inpatient Services

[84] Evidence, Mr Mick Reid (NSW Health), 13 Jun 2001.

[85] NSW Health Department, *Resource Distribution Formula, Technical Paper 1998/99 Revision*, Structural and Funding Policy Branch, Policy Division, January 1999.

- Mental Health Services*(not currently an RDF)*
- Rehabilitation & Extended Care
- Teaching and Research

5.20 The NSW Health Department advised the Committee that mental health is not allocated on an RDF basis and is separated from the main body of the RDF but to maintain an RDF style approach to funding those services.[86] Currently mental health funding is based on historical expenditures of Areas.[87]

5.21 Existing within each of the nine RDF components are a number of "factors". Population is the most important of these factors[88] underlying the objective of the NSW Health Department to institute a population based funding allocation model. Other population based RDF factors include "age/sex" and "need". Non population based factors include "statewide services" such as HIV/AIDS and spinal and brain injury, the extent of substitutable "private sector services" and "unavoidable costs" relating to Ambulance and nursing home costs. Consideration is also given to "cross boundary flows" across Area health Service and interstate. The Government continually revises the percentage of funds allocated to each component.

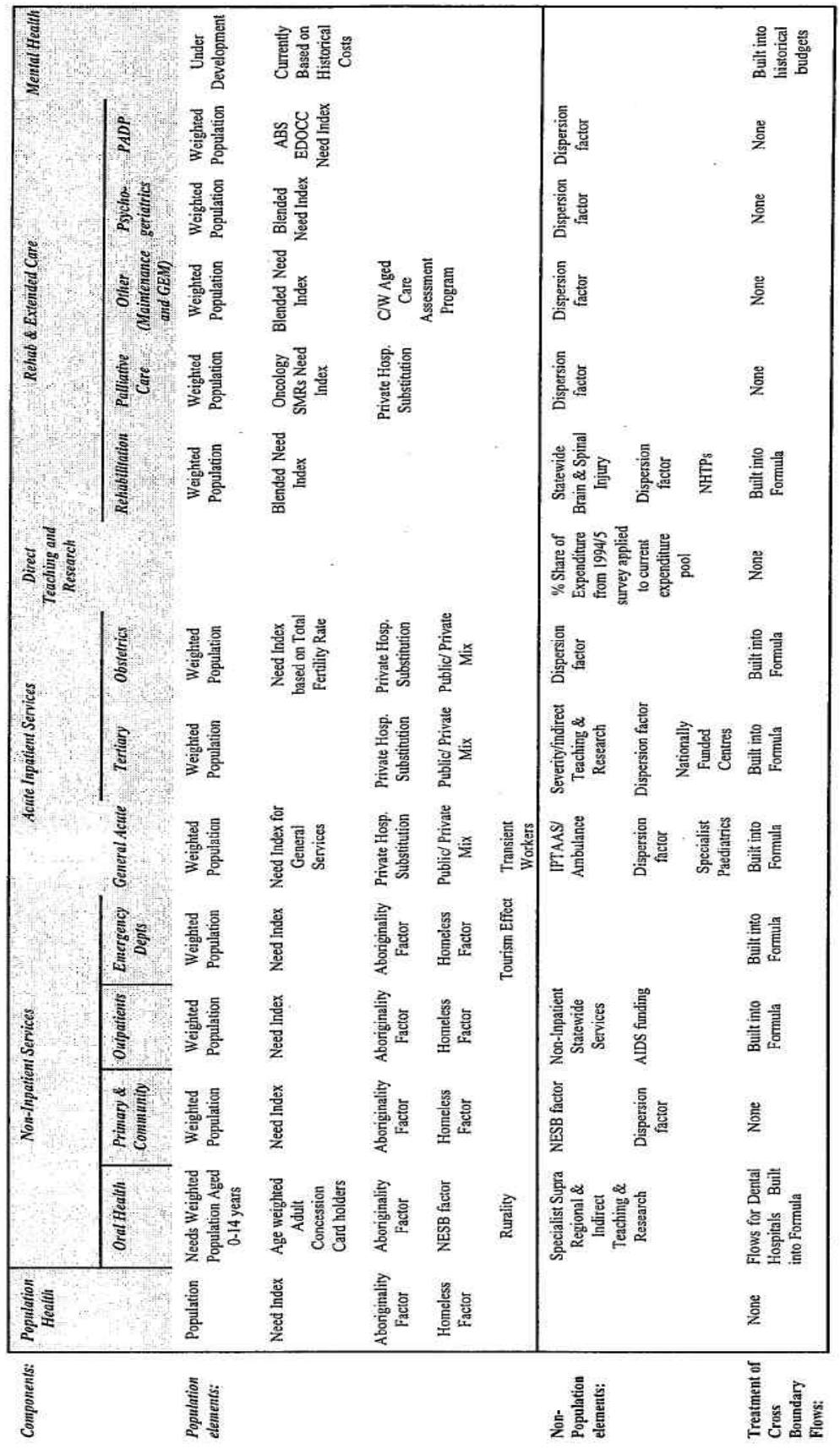
5.22 The nine RDF components and associated RDF factors (as at January 1999) as presented in Table 5.1 below:

[86] Evidence of Dr Pearse, Director, Funding Systems Policy, NSW Health, 3 Dec 2001, p 1.

[87] NSW Health, *Resource Distribution Formula Technical Paper 1998/99 Revision*, p.53

[88] Evidence, Dr Pearse (NSW Health), 3 Dec 2001, p 2.

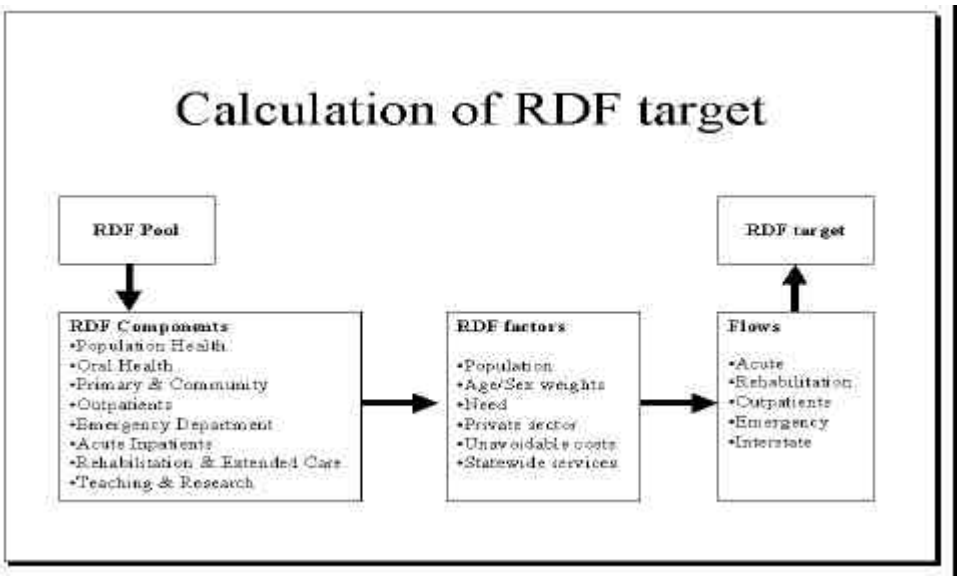
Table 5.1: Resource Distribution Formula Components



Components:		Population Health	Non-Inpatient Services			Acute Inpatient Services				Direct Teaching and Research	Rehab & Extended Care				Mental Health
			Oral Health	Primary & Community	Outpatients	Emergency Depts	General Acute	Tertiary	Obstetrics		Rehabilitation	Palliative Care	Other (Maintenance and GEM)	Psycho-geriatrics	PADP	
Population elements:		Population	Needs Weighted Population Aged 0-14 years	Weighted Population	Weighted Population	Weighted Population	Weighted Population	Weighted Population	Weighted Population		Weighted Population	Weighted Population	Weighted Population	Weighted Population	Weighted Population	Under Development
		Need Index	Age weighted Adult Concession Card holders	Need Index	Need Index	Need Index	Need Index for General Services		Need Index based on Total Fertility Rate		Blended Need Index	Oncology SMRs Need Index	Blended Need Index	Blended Need Index	ABS EDOCC Need Index	Currently Based on Historical Costs
		Aboriginality Factor	Aboriginality Factor	Aboriginality Factor	Aboriginality Factor	Aboriginality Factor	Private Hosp. Substitution	Private Hosp. Substitution	Private Hosp. Substitution			Private Hosp. Substitution	C/W Aged Care Assessment Program			
		Homeless Factor	NESB factor	Homeless Factor	Homeless Factor	Homeless Factor	Public/ Private Mix	Public/ Private Mix	Public/ Private Mix							
			Rurality			Tourism Effect	Transient Workers									
Non-Population elements:			Specialist Supra Regional & Indirect Teaching & Research	NESB factor	Non-Inpatient Statewide Services		IPTAAS/ Ambulance	Severity/indirect Teaching & Research	Dispersion factor	% Share of Expenditure from 1994/5 survey applied to current expenditure pool	Statewide Brain & Spinal Injury	Dispersion factor	Dispersion factor	Dispersion factor	Dispersion factor	
				Dispersion factor	AIDS funding		Dispersion factor	Dispersion factor			Dispersion factor					
							Specialist Paediatrics	Nationally Funded Centres			NHTPs					
Treatment of Cross Boundary Flows:		None	Flows for Dental Hospitals Built into Formula	None	Built into Formula	Built into Formula	Built into Formula	Built into Formula	Built into Formula	None	Built into Formula	None	None	None	None	Built into historical budgets

5.23 A diagrammatic representation of processes involved in calculating the RDF target is presented as Figure 5.2:

Figure 5.2: Calculation of the RDF target



Source: Evidence of Dr Pearse, Director, Funding Systems Policy, NSW Health Department, 3 December 2001, Powerpoint presentation, slide 4.

5.24 Table 5.3 provides an historical perspective of total RDF applicable programs for the NSW Health Department by RDF component for the 1996-97 and 1998-99 budgets.

Table 5.3: RDF components 1996-97 and 1998-99 total budget expenditure

RDF component	1996-97 (% of budget based on program expenditure)	1998-99 (% of budget based on program expenditure)[89]	% change from 1996-97 to 1998-99
Population health	0.65	1.6	146.2
Non-impatient Services			
Oral Health Services	1.40	1.5	7.1
Primary and Community Based Services	6.94	6.5	(6.3)
Outpatients	10.07	10.8	7.2
Emergency Department Services	5.18	6.2	19.7
Acute Inpatient Services	57.40	51.4	(10.4)
Mental Health	7.26	8.3	14.3
Rehabilitation and Extended Care	9.77	9.8	0.3
Teaching and Research	1.33	4.0	200.8
TOTAL	**100%**	**100%**[90]	

Source: NSW Health Department, Resource Distribution Formula Technical Paper 1998/99 Revision, p 11.
Note: See also figures published by Areas in NSW Health, Resource Distribution Formula Technical Paper 1998/99 Revision, p 10.

[89] Based on unaudited annual returns from health services, adjusted to reflect excluded funding.

[90] Sums to 100.1% due to numerical rounding.

5.25 Comparison of RDF component weighting for the 1996-97 and 1998-99 budget years demonstrates a "shift" in funding emphasis from Acute Inpatient Services and Primary and Community Based Services to Population Health, Outpatients, Emergency Department Services, Mental Health and Teaching and Research. In percentage terms, the highest rate of increase from 1996-97 to 1998-99 has been the RDF components of Teaching and Research (200.8%) and Population Health (146.2%).

Table 5.4: Area Health Shares by RDF Components by 1998/99 – Projected 1996[91]

Area	Population Health[1]	Non-Inpatient	Acute Inpatient	Rehab & Extended Care	Mental Health	Teaching & Research	Population adjusted for RDF factors
Hunter	8.8%	8.3%	8.7%	9.0%	12.7%	8.0%	9.0%
Illawarra	5.5%	5.1%	5.5%	5.9%	3.8%	5.5%	5.4%
Far West	1.5%	1.2%	1.4%	1.6%	0.4%	0.4%	1.3%
Greater Murray	4.5%	3.8%	4.6%	6.4%	2.9%	2.3%	4.5%
Macquarie	2.1%	1.7%	2.0%	2.4%	0.6%	0.6%	1.8%
Mid-North Coast	4.5%	4.0%	4.8%	6.1%	1.9%	2.1%	4.5%
Mid Western	3.0%	2.5%	3.1%	3.6%	4.6%	0.4%	3.1%
New England	3.6%	3.0%	3.6%	3.5%	2.2%	3.0%	3.3%
Northern Rivers	4.4%	4.3%	4.2%	4.6%	3.4%	1.2%	.1%
Southern	3.2%	2.7%	3.5%	3.3%	4.2%	0.7%	3.4%
Total	41%	36.6%	41.4%	46.4%	36.7%	24.2%	40.4%

Note:
[1] "Population health" is determined by adjusting actual population in an Area for "need", an Aboriginal factor and a homeless factor.
[2] See also figures published in Resource Distribution Formula Technical Paper 1998/99 Revision, NSW Health, 1999. See Appendix 6, Part 2 of the Discussion Paper, available from the Committee Secretariat).

Population and needs based funding of rural Area Health Services

5.26 Outlined in Table 5.5 is a comparison of population and funding of rural Area Health Services prepared by the NSW Health Department at the request of the Committee. The table presents six of the eight rural Area Health Services in New South Wales. Southern Area Health Service and Far West Area Health Service are not depicted, as they do not operate a major non-metropolitan hospital. Analysis of Table 5.5 is presented below.

[91] NSW Health Department, Implementation of the Economic Statement for Health, August 1996, p. 5.

Table 5.5: Comparison of Population and Funding 1998-99 to 2001-02

Area Health Service	1998-99					1999-00					2000-01				
	% of NSW Population 1998-99	% of Health Service Funding	% of RDF Pool	% of RDF Pool adjusted for patient flows	% Share Implied by RDF for 2000-1	% of NSW Population 1999-00	% of Health Service Funding	% of RDF Pool	% of RDF Pool adjusted for patient flows	% Share Implied by RDF for 2000-1	% of NSW Population 1999-00	% of Health Service Funding	% of RDF Pool	% of RDF Pool adjusted for patient flows	% Share Implied by RDF for 2000-1
Greater Murray	4.0%	3.8%	3.9%	4.4%	4.1%	4.0%	3.8%	3.9%	4.4%	4.1%	3.9%	3.7%	3.8%	4.3%	4.1%
Macquarie	1.6%	1.8%	1.8%	2.0%	1.8%	1.6%	1.8%	1.8%	2.1%	1.8%	1.6%	1.8%	1.8%	2.0%	1.8%
Mid North Coast	4.0%	3.4%	3.3%	3.9%	4.4%	4.0%	3.4%	3.3%	3.9%	4.4%	4.1%	3.5%	3.4%	4.0%	4.4%
Mid Western	2.6%	3.1%	3.1%	3.4%	3.1%	2.6%	3.1%	3.1%	3.5%	3.1%	2.6%	3.1%	3.1%	3.4%	3.1%
New England	2.8%	2.8%	2.9%	3.1%	3.1%	2.7%	2.8%	2.9%	3.3%	3.1%	2.7%	2.8%	2.8%	3.2%	3.1%
Northern Rivers	4.0%	3.9%	3.9%	3.9%	4.3%	4.0%	3.9%	3.8%	3.9%	4.3%	4.0%	4.0%	3.8%	3.9%	4.3%

Source: NSW Health Department correspondence of NSW Health Department, received 22 January 2002.

NSW Department of Health notes on the above table.

Population
Population data for 1998-99 and 1999-00 are based on ABS Estimated Resident Populations for June 1998, 1999 and 2000 adjusted to December of each year.
Population data for 2000-01 are derived using a straight line trend between ABS Estimated Resident Populations for 2000 and the Department of Urban Affairs and Planning Population Projections for 2006.
The ABS indicates the next set of data which will providing a basis on which to estimate the resident populations of Area Health Services will be the 2001 Census, to be released in mid 2002.

Percentage of Health Service Funding
The "% of Health Service Funding" is based on recurrent allocations to Area Health Services.

Percentage of RDF Pool
The "% of RDF Pool" includes adjustments to the funding to recognise revenue raised by Area Health Services. It excludes certain programs. See *The Resource Distribution Formula Technical Paper, 1998-99 Revision*, pages 8-10 for a discussion of these adjustments.

Percentage of RDF Pool adjusted for Patient Flows
From 1998-99 to 2000-01 the adjustments for flows included adjustments for interstate patient flows.
Adjusting for patient flows recognises the value of services provided to residents of Area Health Services by out-of-Area public hospitals.

Percentage Share implied by the RDF
"% Share Implied by the RDF" is based on the target shares for 2001-2 published in *The Resource Distribution Formula Technical Paper, 1998-99 Revision*, p 57.
The target shares represent the Area Health Service's share of resources for its residents, recognising the value of services provided by out-of-Area public hospitals.

Population

5.27 Population in six of the eight rural Area Health Services remained relatively stable over the three years 1998-99 to 2000-2001. As at 2000-01 the combined population in the Area Health Services comprised 18.9% of the New South Wales population.

Percentage of Area service funding

5.28 Combined funding for six of the eight rural Area Health Services in 2001-02 equated to 18.9% of the New South Wales total, which corresponds to the matching of the combined population level.

Percentage of RDF Pool

5.29 The RDF pool consists of:

- Departmental cash subsidies to Area Health Services
- Patient fee budgets
- Revenue budgets
- The value of interstate flows and flows to the New Children's Hospital, Westmead.

5.30 The NSW Health Department made the following comments about the need to include budgeted revenue from Area Health Services in the RDF Pool.

> The revenue available to Areas must be taken into account in the Resource Distribution Formula and included in the Pool because the equity objectives of population-based funding would be compromised if a significant share of resources that funded health services were not included.

and

> Ideally, when identifying the Department's contribution to an Area to meet the Resource Distribution Formula expenditure share, the revenue assumed for individual Areas should reflect their revenue raising capacity and should not penalise revenue raising efforts.[92]

5.31 There are a number of items listed previously in this section that are excluded from the RDF Pool (e.g Commonwealth Grants).

5.32 Observations of Table 5.5 indicate that the combined percentage of funding from the RDF Pool for the six Area health Services was 18.7% for 2000-01 slightly below the combined population total. Mid Western Area Health Service consistently received 3.1% of the RDF pool compared to a population of 2.6% (exceeding target by 19% p.a in relative terms) each year for the period 1998-99 to 2000-01. Mid North Coast was an area that was allocated significantly less in its RDF Pool compared to its population over the same

[92] *NSW Health*, Resource Distribution Formula Technical Paper 1998/99 Revision, p 10.

period. The RDF Pool for the other Area Health Services were relatively comparable with their share of population over the period.

Percentage of RDF Pool adjusted for patient flows

5.33 Adjustments made to the percentage share of the RDF Pool to allow for patient flows resulted in an increased allocation to all rural Area Health Services over the period 1998-99 to 2000-01.

5.34 Mr Mick Reid, the then Director General, NSW Health Department, quantified the dollar value of patient flows interstate.

> You can see on the first table there is a net value outflow into other States of approximately $50 million per annum. This is the inflows into the States and the outflow from. For example, the Southern Area Health Service which has a very unusual configuration near Young, Cooma and those areas of the Snowy Mountains and then all the way down to Bega, Batemans Bay, Moruya or down the Brown and the Clyde mountains. You can see in Southern, there is a $40 million outflow into other States, and this is into the Australian Capital Territory. You can see the whole in the centre of the doughnut where there is $40 million worth of patients flowing into the Australian Capital Territory each year. There is about $1.8 million worth of Canberra residents who deign to come into Queanbeyan hospital each year.
>
> With the Northern Rivers there is a very high outflow into Queensland. Increasingly that outflow is being matched as the developments of Tweed Heads by flows of Queensland patients back into New South Wales already at that $11 million-mark. The Greater Murray is the other one of note which shows a $28 million outflow across the border into Victoria along the river and an $8 million flow back the other way. Again that $8.9 million is increasing as Albury Base has been developed up higher. Going back to your earlier question, the value of the flows is a negotiated arrangement between each State. We negotiate from New South Wales to the Australian Capital Territory Government, the Victorian Government and the Queensland Government and there will be different arrangements in place for each of those values but normally we obviously start at some price around the DRG price. But whether we take it and marginalise it rather than have it as an average is a point of negotiation.[93]

5.35 Greater Murray Area Health Service and Mid North Coast Area Health Service were significant beneficiaries from adjustments for patient flows increasing RDF share from 3.8% to 4.3% and 3.4% to 4.0% respectively in 2000-01. These figures represent actual levels of funding received by the rural Area Health Services from the RDF Pool. In 2000-01 Mid North Coast Area Health Service and Northern Rivers Area Health Service were the only areas to receive funding from the RDF Pool below their comparative share of population.

[93] Evidence, Mr Mick Reid (NSW Health), 13 Jun 2001, p 9.

Percentage share implied by RDF

5.36 The percentage share implied by the RDF is referred to in the NSW Health Department's technical paper[94] as the "Target share". The Technical paper notes the Department's progress of moving Area Health Service budgets toward their target share:

> Considerable progress has been made in moving Areas toward their RDF target. In 1994/5 the distribution of resources meant Areas were on average 9.6% away from their 2001/02 RDF target. In 1998/9, through the distribution of increased funds in the Health Budget to Areas of greatest need, Areas are now on average 4.4% away from their 2002/02 RDF target.[95]

5.37 A movement in the RDF Pool adjusted for patient inflows (actual RDF funds) to compatibility with the "target share" can be observed in Table 5.5 for Greater Murray Area Health Service, Mid North Coast Area Health Service and Macquarie Area Health Service. [The target share is referred to as "% Share Implied by RDF" in Table 5.5].

5.38 The Committee invited Chief Executive Officers from six Area Health Services operating major non-metropolitan hospitals to appear before the Committee to discuss issues of quality of care and value for money. The Committee received evidence that a key objective of the RDF is to achieve comparability between actual funds received by Area Health Services and target share within a margin of ±2% by the end of the three year budget cycle (June 2003). Ms Karyn McPeake, Chief Executive Officer, Greater Murray Area Health Service explained:

> The area's budget, or the overview of the area's position, the initial cash budget allocation for 2001-02 is $197.2 million. That is consistent with the previous information that you have been given. There is a minor variation in terms of an adjustment. It is an increase of 5.1 per cent from 2000-01. In 1999-00, the resource distribution formula we were five per cent from. The three year budget period enables us to be within two per cent of the resource distribution formula across the area.

and

> My understanding from the Director-General is that a variance of within two per cent is considered to be an acceptable position with the resource distribution formula.[96]

5.39 Table 5.6 below outlines the transition required by rural Area Health Services to reach RDF target share by June 2003 (based on 2001 target share).

[94] NSW Health, *Resource Distribution Formula Technical Paper 1998/99 Revision.*

[95] *ibid*, p 57.

[96] Evidence of Ms Karyn McPeake, Chief Executive Officer, Greater Murray Area Health Service, 18 October 2001, p 4.

Table 5.6: Compatibility of RDF Pool (adjusted for patient flows) and share implied by RDF

Area Health Service	2000-2001 % of RDF Pool adjusted for patient flows (actual flows)	% Share Implied by RDF for 2000-1 (RDF Target share)	Minimum adjustment required over two years (%)
Greater Murray Area Health Service	4.3%	4.1%	(2.7%)
Macquarie Area Health Service	2.0%	1.8%	(8.2%)
Mid North Coast Area Health Service	4.0%	4.4%	7.8%
Mid Western Area Health Service	3.4%	3.1%	(7%)
New England Area Health Service	3.2%	3.1%	(1.2%)
Northern Rivers Area Health Service	3.9%	4.3%	8.1%

Source: Derived from NSW Health Department, correspondence of NSW Health Department, received 22 January 2002.
Notes: ( ) indicates negative

5.40 Table 5.6 presents the minimum adjustment required in the RDF Pool (adjusted for patient flows) to satisfy the target share by ±2%. Further adjustment would be required for each Area Health Service to exactly correspond with its target share. For example the RDF Pool for Greater Murray would be required to adjust downwards by 4.7% to meet target.

Financial performance of rural Area Health Services

5.41 Outlined in Table 5.7 below is the financial performance of the six rural Area Health Services operating major non-metropolitan hospitals in New South Wales.

Table 5.7: Financial performance of selected rural Area Health Services (2000-01)

Area Health Service Financial Performance	Greater Murray	Macquarie	Mid North Coast	Mid Western	New England	Northern Rivers
Total Expenses ($'000)	290,546	137,779	251,810	227,792	209,236	281,954
Total Revenue ($'000)	50,748	18,779	24,639	33,693	45,185	40,307
Disposal of non-current assets	13	151	41	(632)	(20)	95
Total Government Contributions ($'000)	228,708	117,018	275,010	193,642	174,521	244,239
Result for the Year	**(11,077)**	**(1,831)**	**47,880**	**(1,089)**	**10,450**	**2,687**

Source: The Audit Office, Auditor-General's Report to Parliament 2001 Volume Five..

5.42 The financial performance of rural Area Health Services in Table 5.7 should be considered in conjunction with the share implied by RDF in Table 5.6 to understand possible financial implications of the RDF on Area Health Services over the next two years. The Mid North Coast Area Health Service, New England Area Health Service and Northern Rivers Area Health Service appear to display the most sound financial control over the 2001-02 and 2002-03 period of the six Area Health Services.

5.43 Mid North Coast Area Health Service reported $47.9 million and $18.8 million in surpluses in 2000-01 and 1999-00 respectively and under the implied RDF is expected to receive, as a

minimum, an additional 7.8% in government contributions (above the 2000-01 figure presented in Table 5.7) by 2002-03.[97]

5.44 New England Area Health Service reported $10.5 million and $12.7 million in surpluses in 2000-01 and 1999-00 respectively.[98] Under the implied RDF, New England is expected to receive, as a minimum, 1.2% less in government contributions (from the 2000-01 figure presented in Table 5.7) by 2002-03. This reduction in government contributions would not appear to create a significant financial impact.

5.45 Northern Rivers Area Health Service reported a $2.7 million surplus and a $6 million deficit in 2000-01 and 1999-00 respectively.[99] Under the implied RDF, Northern Rivers Area Health Service will receive the greatest increase in government contributions (in percentage terms) of selected rural health services. A minimum additional 8.1% in government contributions (above the 2000-01 level) will be provided by 2002-03.

5.46 Mid Western Area Health Service, Macquarie Area Health Service and Greater Murray Area Health Service all experienced negative financial returns in 2000-01 and are expected to incur reductions in the levels of government contributions under the implied RDF by 2002-03.

5.47 Greater Murray Area Health Service reported a $11.1 million deficit and a $11.6 million surplus in 2000-01 and 1999-00 respectively.[100] Greater Murray experienced a significant increase in expenses attributable to an initial recognition of costs associated with interstate patient outflows. This represents a change in accounting practice that will be reflected in future Area Health Service budgets. Under the implied RDF, Greater Murray Area Health Services is expected to experience a 1.2% decline in government contributions (from the 2000-01 level) by 2002-03.

5.48 Macquarie Area Health Service reported a $1.8 million deficit and a $5.8 million surplus in 2000-01 and 1999-00 respectively. An increase in expenses of $3.8 million for 2000-2001 was largely a attributable to inter-area patient flows and initial recognition costs associated with interstate patient outflows.[101] This represents a change in accounting practice that will be reflected in future Area Health Service budgets. Under the implied RDF, Macquarie Area Health Services will experience the greatest decrease in government contributions (in percentage terms) of selected rural health services. A minimum reduction of 8.2% in government contributions (from the 2000-2001 level) will occur by 2002-03.

5.49 Mid Western Area Health Service reported a $1.1 million deficit and a $6.5 million surplus in 2000-01 and 1999-00 respectively.[102] A one-off provision of $5.2 million in debt forgiveness contributed significantly to the health service's 1999-00 surplus.[103] Under the implied RDF, Mid Western Area Health Services will experience a 7% decline in government contributions by 2002-03 compared to 2000-01 levels.

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[97] The Audit Office, *Auditor-General's Report to Parliament 2001 Volume Five*, p 161.

[98] *ibid*, p 165.

[99] *ibid*, p 167.

[100] *ibid*, p 156.

[101] *ibid*, p 159.

[102] *ibid.*

[103] *ibid*, p 163.

Committee's comment

5.50 Introduction of an accounting framework that reflects inter-area and interstate patient flows more accurately presents patient movements and the costs of these movements by Area Health Services.

5.51 A tightening in the financial circumstances faced by Mid Western Area Health Service, Macquarie Area Health Service and Greater Murray Area Health Service require close monitoring to ascertain whether operational efficiencies can be introduced that institute savings without lessening public patient quality of care.

HEALTHshare

5.52 HEALTHshare is a funding model proposed for trial by the NSW Health Department to determine appropriate funding levels for all health care needs of communities within a specific geographic area. The approach would be based on similar criteria as the RDF for hospitals such as age distribution, population and rural occupation.

5.53 The NSW Health Department outlined its vision for some aspects of the HEALTHshare program:

> HEALTHshare may be used to determine and deliver the most appropriate mix of services to meet the health needs of people in a particular geographic region, regardless of who provides or funds the service. It would be guided by a management committee of people who plan, provide and use health services in the region. The committee would be responsible for planning and resourcing the full gamut of health services included in the model. Committee members would be required to balance the needs of service providers and consumers and could adjust funding arrangements if they stand in the way of an integrated approach to care.
>
> In the first instance, the following services could be included: hospital-based services; community health services; services provided under the Medical Benefits Scheme (such as general practitioners); services provided under the Pharmaceutical Benefits Scheme (such as drugs from the chemist that the Commonwealth provides at a cheaper rate).
>
> If this is successful, the model could be extended to include mental health services, residential aged care funding, local government health services, services funded by private health insurance and health-related transport and regional services. [104]

5.54 The NSW Health Department highlighted possible areas that may require close consideration whilst under HEALTHshare:

> One of the potential risks is that some health services will operate within a fixed budget for the first time. Although there will be more flexibility about where funds are allocated, some providers may initially experience difficulties in monitoring expenditure to remain within a fixed budget. Similarly, providers and administrators will need to ensure that additional funding in some areas is

[104] Submission 13, Mr Robert McGregor, NSW Health Department, 28 May 2001, p 23.

> balanced by commensurate savings in others. This notion of global fund balancing is new and will require careful monitoring.[105]

5.55 The HEALTHshare trial was expected to commence in July 2001 in the Far West, Hunter and Central Coast Area Health Services. The trial requires collaboration between the NSW Health Department and the Commonwealth in establishing HEALTHshare management arrangements including agreement by the Commonwealth for its funds to be pooled. At the time of preparing this Discussion Paper, agreement on a preferred management approach for HEALTHshare could not be reached resulting in the continued delay in commencement of the pilot.[106]

Capital assets charging policy

5.56 In October 2001 the NSW Health Department released a policy framework document entitled *Capital Assets Charging – Policy*. This document establishes guidelines for levying a capital assets charge on all health service capital assets.[107]

5.57 The NSW Health Department have indicated their objectives in instituting a capital assets charge to be as follows:

- to make explicit the recurrent cost of using capital,
- to inform better decision making about acquisition maintenance and disposal of capital assets,
- to recognise the opportunity cost of using capital to deliver health services,
- to reflect the full cost of providing health services,
- to encourage the maintenance of capital assets in appropriate working order to meet service delivery needs, and
- to encourage the disposal of unutilised assets and more productive use of assets.[108]

5.58 The capital assets charge will be phased in over a seven year period commencing 1 July 2001. For the first two financial years (2001-02 to 2002-03) the capital assets charge will represent a "shadow charge", identified on health service accounts as a cost that is fully reimbursed by a capital offset adjustment.

5.59 From 2003-04 health services may incur a capital assets charge as the capital offset adjustment will consist of a 75% full reimbursement component and 25% Capital RDF component. Whilst indicating that refinement of the Capital RDF will continue during the shadow charge period, the NSW Health Department make the following comments about the format of the charge:

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[105] Submission 13, Mr Robert McGregor, NSW Health Department, 28 May 2001, p 24.

[106] Correspondence from NSW Health, received 23 January 2001.

[107] Encompasses all entities of the NSW Health Department including Area Health Services and Ambulance Service of NSW.

[108] NSW Health, *Capital Assets Charging – Policy*, October 2001, p 15.

> It will reflect differing land and building costs in rural areas as indicated by the NSW Building Cost Index published by the Department of Public Works and Services. It will also allow for assets not controlled by Health Services (eg; third schedule hospitals but for which recurrent funds are provided to Health Services). Further analysis is also required to identify the capital intensity of different health programs given the proportion of expenditure by program will vary from Area to Area depending on the flows of patients between Areas and location of statewide services. An adjustment will also be required for services such a[s] Linen that cross charge Areas for services…
>
> A separate technical paper outlining the principles, composition and formulation of the Capital RDF will be released later this year.[109]

5.60 The NSW Health Department has since provided the Committee with a copy of the technical paper [see Appendix 6].

Table 5.8: NSW Health Department, Capital asset charge implementation (2001-07)

Budget year	Assets	Capital Offset Adjustment	Potential impact on Health Service budget
1 Jul 01 - 30 Jun 02	Establish capital assets charge for pre 2001 assets	100% reimbursement	None (Shadow charge)
1 Jul 02 – 30 Jun 03	Pre 1 July 2001 capital assets and new capital works commenced since 1 July 2001 and commissioned prior to 1 July 2002	100% reimbursement	None (Shadow charge)
1 Jul 03 – 30 Jun 04	Pre 1 July 2001 capital assets and new capital works commenced since 1 July 2001 and commissioned by 1 July 2003	75% reimbursement + 25% Capital RDF	Yes – where the capital charge is greater than the offset
1 Jul 04 – 30 Jun 05	Pre 1 July capital assets and new capital works commenced since 1 July 2001 and commissioned by 1 July 2004	50% reimbursement + 50% Capital RDF	Yes – where the capital charge is greater than the offset
1 Jul 05 – 30 Jun 06	Pre 1 July 2001 capital assets and new capital works commenced since 1 July 2001 and commissioned by 1 July 2005	25% reimbursement + 75% Capital RDF	Yes – where the capital charge is greater than the offset
1 Jul 06 – 30 Jun 07	Pre 1 July 2001 capital assets	25% reimbursement + 75% Capital RDF	Yes – where the capital charge is greater than the offset
	New capital works commenced since 1 July 2001 and commissioned by 1 July 2006	100% Capital RDF	Yes – where the capital charge is greater than the offset

Source: NSW Department of Health, Capital Asset Charging – Policy, *October 2001, p.8.*

5.61 As privately owned facilities operating as public hospitals the assets of Hawkesbury Hospital and Port Macquarie Base Hospital will not draw a capital assets charge for their

[109] NSW Health, *Capital Assets Charging – Policy*, October 2001, p 15.

respective Area Health Services. The funding fee is already identified each year in the NSW Health Capital Works budget.

Committee's comment

5.62 To date the cost of public health services has not accounted for the cost associated in acquiring capital assets, except for Port Macquarie Base Hospital and Hawkesbury Hospital. The capital assets charge aims to ensure health services pay explicitly for capital, based on the value of the asset, and that the payment is documented in Area Health Service accounts. There appears to be no net impact on health funding at global level although the Capital RDF will shift finances between health services. The extent to which these shifts occur will depend upon the principles and criteria of the Capital RDF.

Chapter 6 What do clinicians and the public want from quality indicators?

In this Chapter of the interim report the Committee is seeking feedback, comments or questions regarding quality indicators; what do clinicians and the public want from quality indicators?

Submissions should be sent to the Committee Secretariat by Monday 30 April 2001.

The Director

General Purpose Standing Committee No. 2

Legislative Council

Parliament House, Macquarie Street

Sydney New South Wales 2000

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Access to indicators

6.1 NSW Health currently makes the NSW Public Hospitals Data Comparison Book (Yellow Book) available on the NSW Health website: http://www.health.nsw.gov.au/iasd/iad.

6.2 How could the quality of care indicators being developed and implemented by the NSW Health Department be best made available to the public?

6.3 The Framework for Managing the Quality of Health Services in New South Wales states:

- the primary purpose of the Area Quality Council is to provide a means by which the quality of clinical care provided to consumers within that Area can be defined, measured, monitored, improved and reported. (see Chapter 4, para 4.19), and
- advocates a reporting structure between clinicians and managers, quality health care councils, the Area Quality Council and to the Area health Service Board and the Minister. (see Chapter 4, para 4.21).

6.4 The Committee seeks comment on whether the Area Council should also report this data publicly, and if so how and where should it be reported? (see Chapter 4, para 4.37)

6.5 In Chapter 4 para 4.37 the Committee stated that it expected the NSW Health Department to monitor movements of program funding and where necessary develop process to avoid inappropriate access to funds. The Committee seeks stakeholder comment as to whether this should be reported publicly?

Indicators that are more user friendly

6.6 What are the most important indicators of quality of care and value for money for clinicians, hospital administrators and the public?

6.7 How best should the indicators be published, including type of format and level of detail?

Benchmarking indicators

6.8 The quality dimensions defined in the Quality Framework, around which NSW Health's indicator development is based, are safety, effectiveness, appropriateness, consumer participation, efficiency, and access. Five cross-dimensional issues are also identified: competence of providers of health care, continuity of care, information management to support effective decision making, education and training for quality and accreditation of health services.

6.9 From the dimensions identified by the NSW Health Department and health care in general, the Committee welcomes comments from both clinicians and the public regarding the benchmarking of indicators.

Government Action Plan for Health – Consumer and community participation

6.10 The NSW Health Department has established most initiatives under the umbrella of the GAP. The Committee seeks comment from all stakeholders in the NSW health care system regarding participation by consumers and the community in the GAP; including the ability to provide feedback, identify areas of concern or areas in need.

Institute of Clinical Excellence – Role

6.11 The Committee has not discussed the role of teaching and research conducted in the NSW hospital system, however it seeks comment from clinicians on these issues and the role of the Institute of Clinical Excellence for consideration for the Committee's final report.

6.12 The Discussion Paper refers briefly to clinical governance. The Committee would also welcome feedback from clinicians regarding the success or otherwise of initiatives adopted by the NSW Health Department for improving clinical information and the further use of real time indicators.

Appendix 1

Advertising

Committee terms of reference and inviting submissions

Publications, positions and date of advertising of committee's terms of reference

Publication	Position	Insertion date[110]	Estimated circulation[111]
Non-metropolitan			
Tweed Daily News	Early General News	Friday 20 April 2001	7,418
Wagga Daily Advertiser	Early General News	Friday 20 April 2001	15,541
Tamworth Northern Daily Leader	Early General News	Friday 20 April 2001	9,428
Port Macquarie News	Early General News	Friday 20 April 2001	5,719
Orange Central Western Daily	Early General News	Friday 20 April 2001	7,817
Taree Manning River Times	Early General News	Friday 20 April 2001	5,734
Lismore Northern Star	Early General News	Friday 20 April 2001	20,883
Dubbo Daily Liberal	Early General News	Friday 20 April 2001	9,761
Coffs Harbour Advocate	Early General News	Friday 20 April 2001	23,120
Albury Wodonga Border Mail	Early General News	Friday 20 April 2001	27,000

Source: DPWS, Government Advertising Agency, Media Rate List, July 2000 to June 2001.

[110] Government Advertising Agency estimate.

[111] DPWS, Government Advertising Agency, *Media Rate List, July 2000 to June 2001*.

Appendix 2

Submissions

Submissions

No	Author
1	Confidential
2	Mrs S Hughes
3	Dr Warwick Wickham (East Port Medical Centre)
4	Mrs G J Gown
5	Mrs G Daley
6	Confidential
7	Mr A T Whitfield (The Audit Office)
8	Dr David Malikoff (Port Family Hospital)
9	Mrs Margaret Mauro (Combined Pensioners & Superannuants Association of NSW)
10	Dr Stuart Peacock (health Economics Unit Monash University)
11	Ms Sandra Moait (NSW Nurses' Association)
12	Dr Murray Hyde Page (Manning Base Hospital)
13	Mr Robert McGregor (NSW Health Department)
14	Confidential
15	Confidential
16	Confidential
17	Professor R W Gibberd (The University of Newcastle)
18	Mr Stuart Homer
19	Confidential
20	Mr Alan Kirkland (Council of Social Service of NSW)

Appendix 3

Witnesses

Witnesses

Wednesday, 13 June 2001	
Mr Mick Reid	Director General NSW Health
Dr Stuart Peacock	Senior Lecture Centre for Health Program Evaluation, Monash University
Ms Maria Sriggins	Director of Audit Audit Office of New South Wales
Mr Lee White	Assistant Auditor-General Audit Office of New South Wales
Monday, 27 August 2001	
Mr Mick Reid	Director-General NSW Health
Dr Paul Tridgell	Deputy Information Officer NSW Health
Dr Robert Gibberd	Associate Professor Health Medicine and Health Sciences, University of Newcastle
Monday, 17 September 2001	
Dr Paul Tridgell	Deputy Information Officer NSW Health
Mr Mick Reid	Director General NSW Health
Thursday, 18 October 2001	
Ms Karyn McPeake	Chief Executive Officer Greater Murray Area Health Service
Dr Joseph Mcgirr	Director of Health Service Development Greater Murray Area Health Service

Friday, 19 October 2001	
Mr Terrance Clout	Chief Executive Officer Mid North Coast Area Health
Dr George Bearham	Acting Chief Executive Officer Mid Western Area Health Service
Mr Stuart Schneider	Chief Executive Officer New England Area Health Service
Mr Christopher Crawford	Chief Executive Officer Northern Rivers Area Health Service
Ms Debra Thoms	Chief Executive Officer Macquarie Area Health Service
Monday, 3 December 2001	
Mr Kenneth Barker	General Manager Financial Commercial Services, NSW Health
Dr Edwin Pearse	Director Funding and Systems Policy, NSW Health
Tuesday, 12 February 2002	
Dr William Hunter	Visiting Medical Officer at Moree Hospital, General Surgeon Medical Centre
Mr Robert Bosshard	Bio-medical Engineer Adviser to the Project of Mobile Surgery
Dr Stuart Gowland	Urological Surgeon Developer of the Share Mobile Concept

Appendix 4

Minutes of Proceedings

Minutes of the Proceedings

Meeting No 43
5:30 am Tuesday 26 February 2002
Room 1108, Parliament House, Sydney

1. MEMBERS PRESENT

Dr Pezzutti (in the Chair)
Mr Dyer
Dr Chesterfield-Evans
Mr Moppett
Mr Tsang

Also in attendance: Director, Ms Tanya Bosch; Project Officer, Mr Bayne McKissock

2. APOLOGIES

Ms Saffin
Mr Corbett

3. MINUTES

The minutes of meeting number 42 were adopted on the motion of Mr Dyer.

4. CONSIDERATION OF CHAIRMAN'S DRAFT DISCUSSION PAPER ON QUALITY OF CARE FOR PUBLIC PATIENTS AND VALUE FOR MONEY IN MAJOR NON-METROPOLITAN HOSPITALS IN NSW

The Chair submitted his draft Discussion Paper on the quality of care for public patients and value for money in major non-metropolitan hospitals in NSW, which having been circulated to Members of the Committee, was accepted as being read.

The Committee considered the draft report.

Chapter One read and agreed to.

Chapter Two read.

Resolved, on the motion of Mr Moppett, that:

> Paragraph 2.9 be amended to omit the word "Perspective".

Resolved, on the motion of Mr Moppett, that:

> The first sentence in Paragraph 2.12 be amended to omit the words "Over the three year period from July 2000, the State Government has allocated $2 billion cash for the health system" and to replace them with "The Government is injecting $2 billion cash into the system over the three year period from July 2000".

Chapter Two, as amended, agreed to.

Chapter Three read.

Resolved, on the motion of Mr Moppett, that:

> Paragraph 3.40 be amended to omit the words "The Committee notes the relatively recent private delivery of such public funded care (ie Port Macquarie Base Hospital – by Mayne Health), contracted to the Health Department in monitoring its performance in the key areas of quality of care", and replace them with "The Committee notes the relatively recent development of private delivery of public funded care contracted to the Health Department (ie Port Macquarie Base Hospital – by Mayne Health) and seeks to monitor performance in the key areas of quality of care".

Resolved on the motion of Mr Moppett, that:

> Paragraph 3.43 be amended to omit the words "Whilst Port Macquarie Base Hospital has not been required to provide quality indicators in the past to the NSW Health Department..." and be replaced with "Whilst the complete quality indicators for Port Macquarie Base Hospital have not been published..."

Chapter Three, as amended, agreed to.

Chapter Four read.

Resolved, on the motion of Mr Moppett, that:

> The sub-heading above paragraph 4.58 be omitted and replaced with "Preventing avoidable harm – real time data".

Chapter Four, as amended, agreed to.

Chapter Five read.

Resolved, on the motion of Mr Dyer, that:

> Paragraphs 5.43 through to 5.49 be amended to replace the word "returned" with the word "reported".

Chapter Five, as amended, agreed to.

Chapter Six read.

Resolved, on the motion of Mr Moppett, that:

> The date for submissions be amended to replace the date "Monday 15 April" with the date "Tuesday 30 April".

Chapter Six, as amended, agreed to.

Committee agreed that Appendices 4 and 5 would be published as a separate volume and the slides presented to the Committee during the hearings by the relevant Area Health Services would be published as a third volume to the report.

Resolved, on the motion of Mr Tsang, that:

> The Draft Report, as amended, be the Report of the Committee and that the Chairman and Director be permitted to correct stylistic, typographical and grammatical errors.

Resolved, on the motion of Mr Tsang, that:

> The Report, together with the transcripts of evidence, submissions, documents and correspondence in relation to the inquiry, be tabled and made public.

5. GENERAL BUSINESS

The Chair briefed the Committee on potential visits, meeting program and hearings for the next stage of the inquiry. The Committee agreed that a deliberative meeting date is to be set after the closing date for submissions, and two additional dates are to be set for mid-to-late May for either two hearings or one hearing and a visit.

The Secretariat undertook to distribute calendars to ascertain Member's availability.

6. ADJOURNMENT

The committee adjourned at 6:30pm.

Tanya Bosch
Director

General Purpose Standing Committee No. 2

Quality of Care for Public Patients and Value for Money in Major Non-metropolitan Hospitals in NSW

Discussion Paper (Part 2)

Appendix 5 and 6

Ordered to be printed 6 March 2002

How to contact the committee

Members of the General Purpose Standing Committee No. 2 can be contacted through the Committee Secretariat. Written correspondence and enquiries should be directed to:

The Director

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Terms of Reference

1. That General Purpose Standing Committee No. 2 inquire into and report upon the following matters concerning the quality of care for public patients and value for money in major non-metropolitan hospitals throughout New South Wales.
   e) The implementation of quality of care and value for money indicators in public and contracted major non-metropolitan hospitals during the period 1995 to 2001.
   f) Mechanisms for comparing quality of care and value for money between these hospitals.
   g) Progress in improving quality of care and value for money and reducing variability in quality of care in these hospitals during the period 1995 to 2001.
   h) The strategies and measures in place or proposed for improving the quality of care and value for money and for reducing the variability in quality of care in these hospitals for the period 2001 to 2003.

The Committee self referred these terms of reference on 11 April 2001 (*Minutes of the Proceedings of General Purpose Standing Committee No 2*, no 25, 11 April 2001, item no 2).

Committee Membership

The Hon Dr Brian Pezzutti RFD MLC Liberal Party *(Chair)*
The Hon Dr Arthur Chesterfield-Evans MLC Australian Democrats *(Deputy Chair)*
The Hon Alan Corbett MLC Independent
The Hon Ron Dyer MLC Australian Labor Party
The Hon Doug Moppett MLC National Party
The Hon Janelle Saffin MLC Australia Labor Party *
The Hon Henry Tsang MLC Australian Labor Party

Participating members

The Hon Jenny Gardiner MLC National Party
The Hon Greg Pearce MLC Liberal Party
The Hon Ian West MLC Australian Labor Party

* Substitute member: Minutes 26, 30 May 2001, item No 2, Ms Saffin replaced Ms Fazio for the purposes of the inquiry.

Appendix 5

Yellow Book data

(NSW Department of Health)

Major non-metropolitan hospitals

Yellow Book data (NSW Department of Health)

YELLOW BOOK MEASURES

Introduction:

The NSW Public Hospitals Comparison Data Book or "Yellow Book" has been published annually since 1991/92. The most recent published data is for 1998/99. During the time, the range of measures has been improved and expanded. A number of measures were published for the first time in 1998/99, while other measures were excluded. Measures used in the 1998/99 "Yellow Book" have been used as the standard.

Arising from The Framework for Managing the Quality of Health Services in NSW, the 1998/99 publication included data on a number of new quality of care indicators. The measures were developed by or with the guidance of the Quality Indicators Implementation Group.

Area Health Services were to identify and comment on measures where their hospital(s) was *significantly* above or below the average in any particular year, or illustrated a trend over subsequent years. As a result, comment is not provided on the performance of all hospitals on all measures.

MEASURE 1	**SEPARATIONS (including unqualified babies)**			
	95/96	**96/97**	**97/98**	**98/99**
Albury		9,821	10,977	11,960
Wagga		14,786	17,401	18,163
Coffs Harbour		11,504	12,054	12,697
Dubbo		13,789	14,021	14,469
Lismore		21,032	20,750	20,492
Manning		11,447	11,998	11,829
Orange		12,281	13,244	14,277
Port Macquarie		9,357	10,796	11,362
Tamworth		16,746	17,743	18,487
Average		**13,418**	**14,332**	**14,860**

A separation is the process by which a same day patient or inpatient completes an episode of care either by discharge, transfer or death.

A baby is said to be "qualified" (ie eligible for health insurance benefits) in the following cases:

- If the baby is accommodated in an intensive care nursery specifically approved by the Commonwealth, or
- In the case of multiple births, each child in excess of one, or
- In the case of single births or the first of a multiple birth, either the mother has been discharged and the baby remains in hospital to receive clinical care or the baby is receiving medical care nine days after the date of birth.

Figures show both Albury and Wagga Wagga had considerably higher than average rate of increase in separations over the three year period. From 1997/98, there was a significant increase in oncology services at Albury Base Hospital. This lasted through to January 2000 when oncology services were moved to an outpatient service.

Wagga Wagga Base Hospital undertook considerably more work in 1997/98 and more particularly in 1998/99 under the PAS program. Some increase may also be attributable to an increase in oncologyservices through to January 2000 when these where moved to an outpatient service.

Orange Base Hospital continues to show an increase in demand for its services as a result of increasing emergency referrals, reduced activity by general practitioners in district hospitals, increased demand for elective surgery, and increased referrals from district hospitals.
At Tamworth Base Hospital, the increase reflects the larger number of referrals for secondary care from throughout the Area, with the numbers consistent with modern clinical practices.

MEASURE 2 ADMISSIONS FROM THE EMERGENCY DEPARTMENT AS A PERCENTAGE OF TOTAL SEPARATIONS

	95/96	96/97	97/98	98/99
Albury	43.1	47.5	39.6	39.5
Wagga	43.9	55.4	43.8	38.6
Coffs Harbour	53.2	54.9	52.2	50.0
Dubbo	40.0	34.4	31.7	31
Lismore	41.5	36.4	22.0	23.5
Manning	45.6	48.0	38.9	36.7
Orange	38.2	39.4	27.9	26.4
Port Macquarie		28.4	28.7	32.2
Tamworth	35.3	34.9	30.3	28.1
Average	**42.6**	**42.1**	**35.0**	**34.0**

Both Albury and Wagga Wagga are higher than the average for each year, with 1996/97 at Wagga Wagga showing a considerably higher emergency percentage. All hospitals are showing a decreasing trend with improvements in the management of patients with chronic care conditions and better access to community health services. However, the level of decrease has been smaller at Albury and Wagga Wagga than most of the other sites.

The significant decrease in the percentage of patients being admitted to Lismore Base Hospital from its emergency department is considered to reflect improvements in the emergency department's triage practice as reflected in measures 48 to 51.

MEASURE 3 SURGICAL SEPARATIONS AS A PERCENTAGE OF TOTAL SEPARATIONS

	95/96	96/97	97/98	98/99
Albury	31.5	29.7	29.6	24.9
Wagga	34.6	29.2	29.3	28.9
Coffs Harbour	26.8	22.4	23.3	23.9
Dubbo	34.9	34.4	31.7	31.0
Lismore	27.9	24.2	23.8	24.7
Manning	29.1	27.0	27.0	26.1
Orange	32.1	32.9	34.7	30.3
Port Macquarie		37.6	40.0	38.0
Tamworth	29.4	26.2	26.8	25.0
Average	**30.8**	**29.3**	**29.6**	**28.1**

There is a decreasing trend across the whole group, with Wagga Wagga and Albury showing greatest decrease. At these two sites, this has to be looked at in the context of the increasing overall separations, high growth in oncology admissions over this period and the relatively higher percentage of emergency admissions at Albury and Wagga Wagga compared with the others.

MEASURE 4 SAME DAY DISCHARGES AS A PERCENTAGE OF TOTAL SEPARATIONS

	95/96	96/97	97/98	98/99
Albury			42.8	46.3
Wagga			36.2	37.9
Coffs Harbour			27.8	31.9
Dubbo			30.3	34.2
Lismore			42.2	39.8
Manning			34.2	35.8
Orange			33.1	36.3
Port Macquarie				25.5
Tamworth			40.1	40.7
Average			**35.8**	**36.5**

The Health Council recommended that 60 per cent of elective surgery be admitted and discharged on a day-only basis. That target has been adopted and implemented with effect from July 2001.

The decline in 1998/99 at Lismore Base Hospital may reflect the opening of a new private day surgery practice in that year.

MEASURE 5 SAME DAY SEPARATIONS AS A PERCENTAGE OF TOTAL SEPARATIONS

	95/96	96/97	97/98	98/99
Albury	38.2	42.4	44.8	48.6
Wagga	30.3	32.5	37.2	39.2
Coffs Harbour	24.5	26.5	29.9	34.1
Dubbo	27.5	29.4	32.0	36.0
Lismore	36.5	43.6	44.2	41.8
Manning	35.7	34.9	35.2	36.5
Orange	29.1	31.2	35.2	37.9
Port Macquarie		20.0	22.2	23.2
Tamworth	38.9	38.6	40.9	41.5
Average	**32.6**	**33.2**	**35.7**	**37.6**

The Health Council recommended that 60 per cent of elective surgery be admitted and discharged on a day-only basis. That target has been adopted and implemented with effect from July 2001.

MEASURE 6 SEPARATIONS WITH AN ICU COMPONENT

	95/96	96/97	97/98	98/99
Albury				361
Wagga				1,126
Coffs Harbour				943
Dubbo				1,193
Lismore				1,329
Manning				931
Orange				1,25/
Port Macquarie				
Tamworth				1,124
Average				**1,033**

As can be seen, the measure was introduced in 1998/99.

This measures the total number of acute separations where patients spent any time in a designated intensive care unit (ICU). For this measure, neonatal intensive care units are not counted as ICUs.

MEASURE 7 **ICU HOURS**

	95/96	96/97	97/98	98/99
Albury				31,687
Wagga				96,161
Coffs Harbour				34,332
Dubbo				89,674
Lismore				102,615
Manning				57,002
Orange				75,198
Port Macquarie				
Tamworth				72,572
Average				**74,905**

This measure, which was introduced in 1998/99, shows the total number of hours patients spent in a designated intensive care unit. As with the previous measure, neonatal intensive care units are not included.

While both Albury and Wagga Wagga Base Hospitals were below the average in people going through the intensive care unit (measure 6), on average patients spent more hours in the ICU than patients at the other hospitals.

MEASURE 8 **CHARGEABLE SEPARATIONS AS A PERCENTAGE OF TOTAL SEPARATIONS**

	95/96	96/97	97/98	98/99
Albury	16.5	14.7	11.6	9.5
Wagga	22.6	19.0	14.6	11.6
Coffs Harbour	10.8	11.8	9.2	10.3
Dubbo	15.9	13.6	10.8	9.0
Lismore	16.0	11.0	9.3	10.9
Manning	14.5	13.6	13.0	13.8
Orange	18.6	16.1	13.2	14.8
Port Macquarie		No data available		
Tamworth	14.7	14.0	12.8	11.5
Average	**16.2**	**14.2**	**11.8**	**11.4**

This measure refers to charges which can be raised for the provision of health care to any admitted patient. Chargeable patients include those who are private patients, patients for whom compensation may be paid, patients whose health care is paid by the Department of Veteran's Affairs, nursing home type patients, and patients (such as visitors to Australia) who are not eligible for funding under the Australian Health Care Agreement [Medicare].

The decrease in the number of patients for whom hospitals or Area Health Services could charge for their health care reflects the general trend to fewer people with or using private health insurance.

MEASURE 9 **SURGICAL SEPARATIONS AS A PERCENTAGE OF TOTAL SEPARATIONS**

	95/96	96/97	97/98	98/99
Albury	1.7	1.5	1.1	0.9
Wagga	1.7	1.5	1.5	1.2
Coffs Harbour	0.8	0.9	0.8	0.8
Dubbo	1.4	1.5	1.6	1.2
Lismore	1.1	0.9	0.8	0.9
Manning	1.0	0.9	1.0	0.7
Orange	1.2	1.1	1.3	1.1
Port Macquarie		No data available		
Tamworth	1.3	1.3	1.3	1.1
Average	**1.3**	**1.2**	**1.2**	**1.0**

MEASURE 10 **DVA SEPARATIONS AS A PERCENTAGE OF TOTAL SEPARATIONS**

	95/96	96/97	97/98	98/99
Albury	4.0	3.1	2.8	3.2
Wagga	4.7	3.9	2.8	2.6
Coffs Harbour	2.6	3.0	2.7	3.2
Dubbo	2.2	2.3	2.1	2.1
Lismore	3.1	2.3	2.1	3.5
Manning	3.9	4.1	4.2	3.8
Orange	3.1	2.8	2.8	2.8
Port Macquarie		No data available		
Tamworth	3.3	3.1	2.6	2.9
Average	**3.4**	**3.1**	**2.8**	**3.0**

This measure refers to the number of separations which are chargeable to the Department of Veterans Affairs.

The increase in the number of these separations at Lismore Base Hospital in 1998/99 is attributed to the changes to veteran's access to services in Queensland (the Gold Coast). These numbers are expected to peak in the next few years.

MEASURE 11 **ANNUAL THROUGHPUT PER BED**

	95/96	96/97	97/98	98/99
Albury	56	67	77	85
Wagga	60	62	77	85
Coffs Harbour	76	78	84	84
Dubbo	71	75	95	106
Lismore	84	96	98	93
Manning	68	65	70	73
Orange	61	60	63	71
Port Macquarie		No data available		
Tamworth	64	66	68	72
Average	**68**	**71**	**79**	**84**

This is a measure of the number of patients treated per bed in the year and denotes improved efficiency, increased use of same day and day-of-surgery admissions (see also Measures 4, 5, 12 and 13) and reduction in the average length of stay.

MEASURE 12	AVERAGE AVAILABLE BEDS			
	95/96	**96/97**	**97/98**	**98/99**
Albury	167	146	140	138
Wagga	240	227	213	204
Coffs Harbour	139	137	134	139
Dubbo	183	180	144	134
Lismore	217	208	199	206
Manning	171	166	160	153
Orange	195	191	197	188
Port Macquarie		No data available		
Tamworth	260	246	251	250
Average	**198**	**188**	**180**	**177**

This measure refers to the number of beds or treatment chairs (eg dialysis chair, endoscopy chair) which is immediately available to be used. It should be considered in conjunction with the following measure, Bed Occupancy Rate.

NSW has 3.0 beds per 1000 population which is above the Australian average of 2.9. NSW rural hospitals have 3.9 beds compared with the national average of 3.4, while hospitals in remote areas of NSW have 5.8 beds per 1000, well above the national average of 4.9. Only South Australia has more beds in rural and remote areas than NSW.

The high number of beds at Albury in 1995/96 is thought to include Group Homes and the Brain Injury Unit, both of which were later transferred to other reporting units

The 1995/96 figure at Wagga Wagga may include activity to Lockhart and Coolamon hospitals which were subsidiary hospitals/wards of Wagga Wagga Base Hospital under the former district structure

Data for Dubbo Base Hospital is affected by the $19.65 million redevelopment of the hospital as well as the change in day surgery levels.

Similarly, at Tamworth Base Hospital there was a short term reduction in available beds during major capital works at the hospital.

There has been a progressive reduction in the number of beds available at Manning Base Hospital from 171 to 153. At the same time, bed occupancy rate increased from 74.8 tin 1995/96 to 81.8 in 1998/99. The reduction in bed capacity was a result of consolidating a number of small, inefficient wards as well as gearing bed availability to throughput rather than historical numbers.

MEASURE 13	BED OCCUPANCY RATE			
	95/96	**96/97**	**97/98**	**98/99**
Albury	79.9	86.9	86.6	91.3
Wagga	81.9	82.5	85.9	93.6
Coffs Harbour	79.1	88.4	92.4	87.5
Dubbo	78.6	78.1	85.0	88.4
Lismore	90.7	93.2	91.6	89.9
Manning	74.8	73.9	74.5	81.8
Orange	74.7	71.9	65.9	73.3
Port Macquarie		No data available		
Tamworth	78.7	79.5	78.4	77.5
Average	**79.8**	**81.8**	**82.5**	**85.4**

This measures the percentage of available beds which were occupied over the year. In general, a high occupancy rate is a sign of high efficiency. It means that more beds are being filled and more patients are being treated.

The occupancy rates for both Albury and Wagga Wagga are at or above the peer group average for all years.

At Orange Base Hospital, the bed occupancy rate is considered to be too low. However, the major services planning exercise to be carried out at Orange and Bathurst Base Hospitals over the 12 months from January 2002, will review physical facilities. It is anticipated final recommendations will provide Orange with more flexible bed options than currently exist, allowing bed reduction, better use of available beds and an improved bed occupancy rate.

Data for Dubbo Base Hospital is affected by the $19.65 million redevelopment of the hospital as well as the change in day surgery levels.

Similarly, at Tamworth Base Hospital there was a short term reduction in available beds during major capital works at the hospital.

For the past three years, the Auditor General has commented on the low occupancy rates at hospitals in New England Area Health Service and the drain on budgets in maintaining and operating low occupancy rate hospitals. In his 2000 Report to Parliament, the Auditor-General acknowledged that occupancy rates had increased significantly in 1999/00. This was because of action by the Area Health Service to improve bed management at the hospitals, including the temporary closure of beds when demand is low.

MEASURE 14 **INPATIENT BED DAYS**

	95/96	**96/97**	**97/98**	**98/99**
Albury	45,871	44,902	44,069	45,610,
Wagga	74,274	61,368	71,251	68,782
Coffs Harbour	42,749	44,754	45,050	45,451
Dubbo	47,494	47,339	44,575	42,929
Lismore	69,322	68,499	67,121	69,017
Manning	45,162	43,784	43,421	44,589
Orange	52,948	50,217	47,937	50,441
Port Macquarie		44,242	48,363	47,391
Tamworth	70,019	74,555	70,427	70,072
Average	**55,980**	**53,296**	**53,579**	**53,809**

This measures the total number of bed days of all patients admitted to the hospital, excluding leave days (eg when patients are allowed home at weekends). It includes "same day" patients.

As indicated in measure 12, the 1995/96 measure for Albury may contain additional services transferred to other reporting units in later years. Overall, the hospital showed an increase in the total number of in-patient bed days, in line with increased separations.

Again, the 1995/96 figure for Wagga Wagga is thought to include Lockhart and Coolamon Hospitals (see measure 12). From 1996/97 to 1998/99, there was an overall increase of 12 per cent in in-patient bed days which reflects both the increase in same day services and the reduced average length of stay for acute patients.

Dubbo Base Hospital advises that data for 1995/96 and 1996/97 included the mental health unit which is now a separate reporting unit.

MEASURE 15 CHARGEABLE BED DAYS AS A PERCENTAGE OF TOTAL DAYS

	95/96	96/97	97/98	98/99
Albury	25.3	25.2	20.1	15.5
Wagga	26.6	19.8	21.4	18.6
Coffs Harbour	17.5	18.0	14.2	15.1
Dubbo	18.3	16.0	12.7	11.3
Lismore	17.6	13.7	10.9	12.0
Manning	21.0	19.1	20.8	22.1
Orange	23.4	21.7	19.3	21.0
Port Macquarie		No data available		
Tamworth	21.2	20.6	20.6	19.2
Average	**21.4**	**19.3**	**17.5**	**16.9**

As with chargeable separations (measure 8), all hospitals show a decrease in the proportion of all separations which are chargeable. This reflects the general trend to less private health insurance or use of insurance across the general population over the period under review.

The decreases at Albury and Wagga Wagga were considerably above the average.

MEASURE 16 PRIVATE BED DAYS AS A PERCENTAGE OF TOTAL DAYS

	95/96	96/97	97/98	98/99
Albury				8.2
Wagga				8.3
Coffs Harbour				4.6
Dubbo				6.2
Lismore				6.0
Manning				10.4
Orange				13.1
Port Macquarie		No data available		
Tamworth				9.6
Average				**8.3**

This measure was included for the first time in 1998/99.

MEASURE 17 COMPENSABLE BED DAYS AS A PERCENTAGE OF TOTAL DAYS

	95/96	96/97	97/98	98/99
Albury	2.3	2.2	1.3	0.7
Wagga	1.4	1.5	2.7	1.2
Coffs Harbour	0.9	1.0	1.5	1.0
Dubbo	1.7	1.6	1.5	1.3
Lismore	1.5	1.3	1.1	1.2
Manning	1.2	1.3	1.0	0.6
Orange	1.2	1.4	1.9	1.3
Port Macquarie		No data available		
Tamworth	2.2	1.7	1.4	1.6
Average	**1.6**	**1.5**	**1.6**	**1.1**

MEASURE 18	NURSING HOME TYPE BED DAYS AS A PERCENTAGE OF TOTAL DAYS			
	95/96	**96/97**	**97/98**	**98/99**
Albury	16.6	16.3	0.8	0.7
Wagga	8.0	8.7	4.2	3.8
Coffs Harbour	3.7	3.3	5.1	3.5
Dubbo				
Lismore	0.2	0.2		
Manning	6.0	8.0	6.3	5.8
Orange	0.3	1.2	0.5	0.5
Port Macquarie				
Tamworth	4.9	6.9	2.2	1.9
Average	**5.7**	**6.4**	**3.2**	**2.7**

There are marked variations in this measure across the peer group which makes comparison difficult. The variations reflect access to aged care services and other facilities.

This measure relates to public patients who were entitled to receive care and treatment in accordance with the Australian Health Care Agreement [Medicare], were accommodated in a public hospital for more than 35 days without a break of more than seven days, but who did not need acute care.

In June 2000, there were 811 people occupying public hospital beds while they waited for accommodation in a residential aged care facility.

In June 2001, a census of 6,588 older people in public hospitals, conducted by NSW Health, found there were 792 older people staying in public hospitals who should instead have been in a nursing home or hostel. Of these, 596 or 75% were in public hospitals in rural areas.

At Albury, the figures for 1995/96 and 1996/97 appear high, possibly because of the inclusion of the Brain Injury Service which now reports separately. Figures after 1996/97 reflect the strengthening role of the Mercy Health Service (an affiliated health organisation) in aged care and better access to beds for the nursing home type patients of Albury Base Hospital.

Wagga Wagga Base Hospital is above the peer group average across all years. The 1995/96 and 1996/97 figures are believed to include Lockhart and Coolamon hospitals, both of which are long stay facilities while figures for the CADE Unit and possible Forrest Centre are included for all years.

MEASURE 19	NON AND SUB-ACUTE BED DAYS AS A PERCENTAGE OF TOTAL DAYS			
	95/96	**96/97**	**97/98**	**98/99**
Albury	23.6	19.4	16.5	14.6
Wagga	22.0	12.3	18.2	13.2
Coffs Harbour	5.4	5.8	5.8	3.8
Dubbo	0.6	0.5	0.9	0.3
Lismore	3.1	0.1		
Manning	7.1	8.9	7.2	7.9
Orange	10.3	10.6	9.7	11.3
Port Macquarie		1.6	2.6	10.1
Tamworth	17.9	22.7	15.0	14.7
Average	**11.3**	**9.1**	**9.5**	**9.5**

This measure is the total number of bed days where the patient episode of care is other than acute (ie rehabilitation, palliative care, nursing home type, geriatric evaluation and management, and psychogeriatric).

MEASURE 20 TOTAL ACUTE AR-DRG WEIGHTED SEPARATIONS (excluding ICU/ED)

	95/96	96/97	97/98	98/99
Albury				9,610
Wagga				15,334
Coffs Harbour				11,097
Dubbo				12,454
Lismore				17,329
Manning				10,693
Orange				12,710
Port Macquarie				
Tamworth				14,762
Average				**12,999**

This measure was introduced in 1998/99. AR-DRG means Australian Refined Diagnosis Related Groups. Diagnoses Related Groups describe the services provided by a hospital by grouping together patient episodes which are clinically similar and use similar levels of resources. The AR-DRG classification is one of a few casemix classifications available to describe the activity of health care facilities.

One of the most useful aspects of casemix classifications systems is that it enables comparisons of the resource requirements of patients in the different classes. This is done through the development of cost weights which describe the cost (and complexity) of patients within particular AR-DRGs, as compared with the average for all episodes within the scope of the classification.

However, Tamworth Base Hospital its data is affected by the inclusion of renal type patients who have a low AR-DRG weight. The NSW Department of Health is working on separating renal patients from data collected for this measure.

MEASURE 21 AVERAGE ACUTE AR-DRG WEIGHTED SEPARATIONS (excluding ICU/ED)

	95/96	96/97	97/98	98/99
Albury				0.9644
Wagga				0.9916
Coffs Harbour				0.9512
Dubbo				0.8931
Lismore				0.9116
Manning				0.9301
Orange				0.9710
Port Macquarie				
Tamworth				0.8473
Average				**0.9325**

This measure was introduced in 1998/99. It measures the average resource consumption of acute patients, excluding same day emergency separations and intensive care unit and emergency department costs.

MEASURE 22 **HCC DRGs AS A PERCENTAGE OF TOTAL ACUTE AR-DRG WEIGHTED SEPARATIONS**

	95/96	96/97	97/98	98/99
Albury				**7.7**
Wagga				4.2
Coffs Harbour				4.9
Dubbo				3.8
Lismore				6.4
Manning				2.7
Orange				4.9
Port Macquarie				
Tamworth				3.8
Average				**4.8**

This measure is the proportion of the total acute Australian Refined Diagnostic Related Groups (AR-DRG) weighted separations which are for high cost complex Diagnostic Related Groups (HCC DRGs). The measure was introduced in 1998/99.

MEASURE 23 **OCCASIONS OF SERVICE**

	95/96	96/97	97/98	98/99
Albury	146,616	131,764	61,283	42,417
Wagga	230,435	199,076	95,186	85,354
Coffs Harbour	162,319	171,591	173,776	199,330
Dubbo	100,232	82,924	40,717	43,052
Lismore	200,799	201,329	201,803	219,037
Manning	98,243	92,229	103,709	91,951
Orange	101,220	107,379	117,793	120,455
Port Macquarie		61,496	62,735	65,797
Tamworth	163,632	158,277	147,531	153,695
Average	**150,437**	**134,007**	**111,615**	**113,454**

This is a measure of the output of that part of the public health system which provides health services to people who are not formally admitted to hospital (non-admitted patients). It measures the number of occasions on which one or more health care professionals provides a service to a non-admitted patient. For example, the service provided in a home by a physiotherapist employed by a Community Health Service is one occasion of service. Three occasions of service are recorded in the example of a blood sample taken from a non-admitted patient, which is then divided into two tubes, and tests done by two pathology units such as haematology and biochemistry.

This measure is not directly comparable across the years. The 1995/96 and 1996/97 figures include privately referred pathology as well as community health occasions of service.

The 1997/98 reporting requirements were that the time of admission was the time the decision was made to admit and services provided to a person in the emergency department prior to that point were recorded as occasions of service. This changed in 1998/99, with the effect that no occasions of service were reported for any admitted emergency department patients.

MEASURE 24 LIVEBORN BABIES GESTATIONAL AGE <34 WEEKS AS A PERCENTAGE OF TOTAL

	95/96	96/97	97/98	98/99
Albury				
Wagga			2.0	0.6
Coffs Harbour			1.4	0.8
Dubbo			1.1	0.6
Lismore			2.6	0.7
Manning			0.1	0.5
Orange			1.5	1.5
Port Macquarie				0.5
Tamworth			0.9	1.1
Average			**1.4**	**0.7**

This measure is important from a service provision point of view as only certain hospitals are able to deal with premature babies.

Albury Base Hospital does not provide obstetric services; they are provided from Wodonga Hospital.

There were eight babies born less than 34 weeks gestation at Wagga Wagga Base Hospital in 1997/98, including two sets of twins.

The New England Area Health Service is reviewing data in relation to maternity services throughout the Area, including Tamworth Base Hospital, following which clinical pathways and best practice initiatives will be implemented.

MEASURE 25 LIVEBORN BABIES TRANSFERRED TO A HOSPITAL WITH A NEONATAL INTENSIVE CARE AS A PERCENTAGE OF TOTAL

	95/96	96/97	97/98	98/99
Albury				
Wagga			1.7	0.7
Coffs Harbour			2.3	2.3
Dubbo			1.5	0.8
Lismore				0.0
Manning			1.8	1.2
Orange			1.6	1.8
Port Macquarie				0.3
Tamworth			0.9	0.7
Average			**1.6**	**1.0**

A neonatal intensive care unit provides high-dependency specialist nursing and medical care for all newborn infants including sustained "life support" such as mechanical ventilation and has staff neonatalogists and neonatal registrars. These units are only available at specialist obstetric hospitals (supra regional).

The slightly higher rate for Wagga Wagga Base Hospital in 1997/98 may be related to measure 24. However, it is not inconsistent with the rates for the rest of the group. The 1998/98 rate was comparatively low.

MEASURE 26 ELECTIVE CAESAREANS AS A PERCENTAGE OF TOTAL CONFINEMENTS

	95/96	96/97	97/98	98/99
Albury				
Wagga				11.6
Coffs Harbour				17.7
Dubbo				8.8
Lismore				7.7
Manning				9.2
Orange				10.2
Port Macquarie				10.5
Tamworth				13.7
Average				**11.2**

This is a measure of elective caesarean sections (planned or unplanned) which are performed before the onset of labour. As indicated above, Albury Base Hospital does not provide obstetric services.

The availability of private facilities in each community as well as the isolation of some rural communities may be factors in the wide range shown within the group.

MEASURE 27 EMERGENCY CAESAREANS AS A PERCENTAGE OF TOTAL CONFINEMENTS

	95/96	96/97	97/98	98/99
Albury				
Wagga				7.9
Coffs Harbour				9.5
Dubbo				9.0
Lismore				12.3
Manning				8.0
Orange				10.6
Port Macquarie				10.0
Tamworth				7.9
Average				**9.4**

This is a measure of caesarean sections performed after the onset of labour, whether or not the onset of labour was spontaneous.

MEASURE 28 SAME DAY ELECTIVE SURGICAL SEPARATIONS AS A PERCENTAGE OF TOTAL ELECTIVE SURGICAL SEPARATIONS

	95/96	96/97	97/98	98/99
Albury			61.1	60.2
Wagga			48.1	52.3
Coffs Harbour			57.5	64.0
Dubbo			57.3	65.4
Lismore			37.5	35.1
Manning			62.5	65.9
Orange			55.4	57.9
Port Macquarie		56.0	55.5	56.0
Tamworth			49.9	50.9
Average		**56.0**	**53.9**	**56.4**

"Same day patients" are those patients who are admitted and discharged, for an elective surgical procedure, on the same calendar day. In 2000/01 there was a statewide target of 60 per cent of all booked surgery being undertaken on a day-only basis. This target was recommended by the Health Council.

MEASURE 29 **CANCELLED SURGERY BED DAYS**

	95/96	96/97	97/98	98/99
Albury				88
Wagga				109
Coffs Harbour				50
Dubbo				61
Lismore				17
Manning				69
Orange				66
Port Macquarie		98	16	113
Tamworth				43
Average		**98**	**16**	**68**

This is a measure of the number of bed days where surgery which was intended for patients but was not carried out. There can be a number of reasons for cancelling planned surgery.

The higher than average number of cancelled bed days at Albury and Wagga Wagga were primarily due to emergencies taking priority. In 1998/99, both hospitals had a higher than average proportion of patients being admitted from the emergency department (measure 2); improved average throughput (measure 11); and a higher than average bed occupancy rate (measure 13). Taken together, these measures reflect the demand on the available beds.

While "yellow book" data are not available for 2000/01, 71 per cent of cancellations at Wagga Wagga for the year were due to emergency/urgent cases being admitted to the hospital. A further 21 per cent of cancellations were due to Visiting Medical Officers taking un-notified leave. In total 92 per cent of cancellations for the year were accounted for by these two issues.

In 2000/01, 80 per cent of cancellations at Albury in were due to the admission of emergency/urgent patients and 8.2 per cent due to surgeons taking un-notified leave..

MEASURE 30 **AVERAGE LENGTH OF STAY OF ACUTE EPISODES**

	95/96	96/97	97/98	98/99
Albury	5.8	5.9	5.5	5.7
Wagga	5.2	5.3	5.1	5.1
Coffs Harbour	4.7	5.0	4.9	5.0
Dubbo	5.0	4.8	4.5	4.4
Lismore	5.2	5.3	5.3	5.4
Manning	5.1	5.2	5.0	5.3
Orange	5.3	5.3	4.9	4.8
Port Macquarie		4.4	4.4	4.9
Tamworth	5.3	5.4	5.3	5.1
Average	**5.2**	**5.2**	**5.0**	**5.1**

This is the average time admitted patients spend in hospital, less leave days and excluding patients who are admitted and discharged on the same day.

This measure needs to be considered in tandem with measure 21 which looks at the resources needed to treat acute patients.

Albury Base Hospital is consistently above the average. Both obstetric and renal services, which generally have a lower complexity and shorter lengths of stay, are probably included in this measure. Albury has neither of these services.

The performance of Orange Base Hospital has improved following the introduction of such strategies as discharge planning protocols, pre admission clinics, a day of surgery unit, and the promotion of day surgery.

Increased use of day surgery also accounted for the improved performance at Dubbo Base Hospital.

MEASURE 31 **RELATIVE STAY INDEX**

	95/96	96/97	97/98	98/99
Albury	0.93	0.96	0.92	0.96
Wagga	0.97	0.95	0.94	0.94
Coffs Harbour	0.93	0.94	0.97	0.98
Dubbo	1.01	0.98	0.97	1.01
Lismore	0.96	0.95	0.99	1.01
Manning	0.95	0.98	0.96	1.01
Orange	0.99	0.99	0.96	0.96
Port Macquarie				
Tamworth	0.97	1.00	1.02	1.01
Average	**0.96**	**0.97**	**0.97**	**0.99**

This is an indicator of whether a hospital's length of stay is different from other hospitals after adjusting for casemix. If the index equals 1, this indicates that the hospital performed in an average fashion with respect to length of stay. An index of more than 1 indicates, considering the hospital's casemix, a greater number of bed days were used than expected.

The improvement at Orange Base Hospital in the 1997/98 period followed the introduction of a Day of Surgery Admission Unit and increased use of day surgery.

MEASURE 32 **OUTLIER BED DAYS AS A PERCENTAGE OF TOTAL ACUTE DATES**

	95/96	96/97	97/98	98/99
Albury	19.1	22.8	8.5	6.1
Wagga	15.5	15.3	8.6	5.0
Coffs Harbour	16.5	18.8	10.0	8.2
Dubbo	10.7	9.7	4.4	3.4
Lismore	9.4	11.9	6.7	5.5
Manning	14.2	16.5	5.2	5.8
Orange	18.3	18.4	5.9	4.9
Port Macquarie				
Tamworth	11.9	15.0	7.8	5.0
Average	**14.5**	**16.1**	**7.1**	**5.5**

An "outlier" is a patient whose stay in hospital is substantially longer than is expected. This measure is the total number of bed days for those acute separations which are defined as "outliers" because of their particularly long length of stay.

Data for Dubbo Base Hospital in 1995/96 and 1996/97 included mental health which has since become a separate unit.

MEASURE 33 AVERAGE LENGTH OF STAY FOR SELECTED BASKET OF DRGS

	95/96	96/97	97/98	98/99
Albury				5.4
Wagga				5.0
Coffs Harbour				7.0
Dubbo				4.9
Lismore				5.4
Manning				6.4
Orange				5.2
Port Macquarie				5.8
Tamworth				5.7
Average				**5.6**

This measure represents the average length of stay for a selected group of Diagnostic Related Groups which are known to be good predictors of length of stay (eg chronic obstructive airways disease, stroke, hip replacement), assuming the hospital had the same mix of DRGs observed at the State level.

MEASURE 34 HCC ADJUSTED COST PER CASEMIX WEIGHTED INPATIENT

	95/96	96/97	97/98	98/99
Albury		$2,437	$2,401	$2,266
Wagga		$2,833	$2,198	$2,132
Coffs Harbour		$2,619	$2,584	$2,516
Dubbo		$2,417	$2,456	$2,407
Lismore		$2,203	$2,259	$2,359
Manning		$2,472	$2,599	$2,656
Orange		$3,022	$2,579	$1,949
Port Macquarie				
Tamworth		$2,483	$2,448	$2,240
Average		**$2,561**	**$2,441**	**$2,316**

This measure is the average cost per acute separation adjusted for casemix and for a hospital's share of high cost and complex (HCC) patients. In 1998/99, the percentage of high cost and complex patients was used to distribute a pool of $110 million in costs estimated to be the additional costs of indirect teaching and research and the impact of patient severity.

In 1996/97 and 1997/98, there were errors in the published data for Orange Base Hospital.

MEASURE 35 INPATIENT FRACTION (IFRAC) (%)

	95/96	96/97	97/98	98/99
Albury	77.0	70.1	72.4	75.5
Wagga	70.6	74.6	74.0	78.6
Coffs Harbour	62.6	75.0	68.2	67.3
Dubbo	95.6	85.0	85.0	85.5
Lismore	75.5	72.5	72.8	74.4
Manning	83.0	80.8	74.1	75.9
Orange	92.3	97.1	75.6	70.8
Port Macquarie				
Tamworth	74.9	65.9	68.1	69.5
Average	**74.9**	**77.6**	**73.8**	**74.7**

This is the proportion of a hospital's total expenses which are for used for providing services for admitted patients.

The 1995/96 figures for Albury and Wagga Wagga may be affected by the inclusion of community based services.

MEASURE 36	**ACUTE INPATIENT FRACTION (%)**			
	95/96	**96/97**	**97/98**	**98/99**
Albury	93.9	91.4	60.2	
Wagga	90.8	94.3	62.0	67.5
Coffs Harbour	62.6	75.0	68.2	67.3
Dubbo	100.0	92.1	85.0	84.6
Lismore	94.2	93.7	68.8	67.5
Manning	94.2	88.5	71.4	71.6
Orange	96.3	97.1	75.6	70.8
Port Macquarie				
Tamworth	100.0	65.9	68.1	69.5
Average	**91.5**	**87.3**	**69.9**	**71.3**

This is the proportion of a hospital's total expenses which are for used for providing acute care services for admitted patients. All hospitals show marked fluctuations between 1996/97 and 1997/98. No data was included in the "yellow book" for Albury in 1998/99.

MEASURE 37	**COST PER NON AND SUB-ACUTE BED DAY**			
	95/96	**96/97**	**97/98**	**98/99**
Albury			$310	$530
Wagga			$480	$498
Coffs Harbour			$615	$137
Dubbo				
Lismore				
Manning				$230
Orange			$663	$570
Port Macquarie				
Tamworth			$186	$315
Average			**$451**	**$380**

This is the average cost of a non and sub-acute bed day (ie where the episode of care was rehabilitation, palliative care, maintenance care, nursing home type patient, geriatric evaluation and management, and psychogeriatric).

In some instances, no data is recorded for individual hospitals. The reason may be that if no bed days were reported in the Department of Health Reporting System (DOHRS), the measure was not applicable. A second reason may have been that an analysis of the reported data indicated data quality problems and the measure was not published.

The data quality may explain the wide fluctuations in the information provided in this measure.

MEASURE 38	COST PER MENTAL HEALTH BED DAY			
	95/96	96/97	97/98	98/99
Albury				$388
Wagga				$414
Coffs Harbour				$599
Dubbo				$695
Lismore				$575
Manning				
Orange				
Port Macquarie				
Tamworth				$597
Average				**$545**

This cost is derived for all hospitals with designated psychiatric units from data provided in the 1998/99 National Survey of Mental Health Services. The costs were adjusted for indirect and overhead expenditure reported at the organisational and Area Health Service level according to the Commonwealth Mental Health Branch's distribution of overheads to direct care services.

The lower cost for Albury and Wagga Wagga may be due to the lack of local psychiatrists and the use of "fly-in" services rather than on-site staff specialists or Visiting Medical Officers. The use of telemedicine would also be a factor in containing costs.

MEASURE 39	COST PER PRIMARY & COMMUNITY BASED OCCASION OF SERVICE			
	95/96	96/97	97/98	98/99
Albury				
Wagga				
Coffs Harbour				$53
Dubbo				
Lismore				$71
Manning				$133
Orange				$66
Port Macquarie				
Tamworth				$111
Average				**$87**

This is the average cost of providing health services to people attending community health centres or in the home, including health promotion activities, community based women's health, dental, drug and alcohol, and HIV/AIDS services as well as grants to non-government organisations for community health purposes.

In some instances the measure is not published because an analysis of the reported data indicated data quality problems.

MEASURE 40 COST PER OUTPATIENT OCCASION OF SERVICE

	95/96	96/97	97/98	98/99
Albury				$74
Wagga				
Coffs Harbour				$54
Dubbo				$58
Lismore				$70
Manning				$34
Orange				$66
Port Macquarie				
Tamworth				$162
Average				**$74**

This is the average cost of providing services in outpatient clinics, including low level emergency care, diagnostic and pharmacy services, and radiotherapy treatment.

In some instances the measure is not published because an analysis of the reported data indicated data quality problems.

MEASURE 41 COST PER EMERGENCY OCCASIONS OF SERVICE

	95/96	96/97	97/98	98/99
Albury				$198
Wagga				$191
Coffs Harbour				$229
Dubbo				$158
Lismore				$151
Manning				$202
Orange				$187
Port Macquarie				
Tamworth				$129
Average				**$181**

This is the average cost of providing emergency road and air ambulance services and treatment of patients in designated emergency departments of public hospitals.

The interpretation and comparison of this data is difficult without also having data on the complexity of, and demand for services in an emergency department.

MEASURE 42 COST PER REHABILITATION & EXTENDED CARE OCCASION OF SERVICE

	95/96	96/97	97/98	98/99
Albury				
Wagga				
Coffs Harbour				$89
Dubbo				
Lismore				$42
Manning				$234
Orange				$53
Port Macquarie				
Tamworth				$42
Average				**$92**

This is the average cost of providing appropriate health care services for people with long term physical or psycho-physical disabilities and for the frail-aged.

In some instances the measure is not published because an analysis of the reported data indicated data quality problems.

MEASURE 43 NON-HOSPITAL TYPE BED DAYS

	95/96	96/97	97/98	98/99
Albury				990
Wagga				4,222
Coffs Harbour				2,831
Dubbo				124
Lismore				343
Manning				6,736
Orange				1,858
Port Macquarie				1,171
Tamworth				121
Average				**2,044**

This is the number of bed days to provide care which would normally be provided in a facility other than an acute hospital, eg waiting admission to a nursing home.

The high figure for Wagga Wagga is thought to be because of the CADE (Confused and Disturbed Elderly) Unit which is attached to the hospital.

MEASURE 44 WAITING TIMES - CLEARANCE TIMES (Months)

	95/96	96/97	97/98	98/99
Albury	1.1	1.9	2.5	2.6
Wagga	2.3	4.7	3.8	2.9
Coffs Harbour	2.6	5.0	5.3	4.3
Dubbo	2.1	2.1	2.8	2.9
Lismore	1.4	1.6	2.0	2.7
Manning	2.4	3.0	3.1	4.1
Orange	1.5	2.0	2.1	2.6
Port Macquarie			5.8	5.1
Tamworth	1.6	2.7	2.5	2.6
Average	**1.9**	**2.9**	**3.3**	**3.3**

Albury Base Hospital shows an increasing trend, with the increase in ophthalmology, orthopaedics and plastics. All other specialties remained fairly constant.

Wagga Wagga Base Hospital was above the group average in all years except 1998/99. The specialties with increases were ENT, general surgery, ophthalmology, orthopaedics and urology.

MEASURE 45	AVERAGE WAITING TIMES (Months)			
	95/96	**96/97**	**97/98**	**98/99**
Albury	0.9	1.3	1.8	1.9
Wagga	2.0	3.0	3.6	2.8
Coffs Harbour	1.8	2.3	2.8	3.0
Dubbo	1.7	1.8	1.9	2.4
Lismore	1.1	1.5	1.5	1.8
Manning	2.6	2.3	2.8	3.1
Orange	1.1	1.6	1.9	1.9
Port Macquarie			**3.7**	**4.1**
Tamworth	1.5	2.0	2.3	2.2
Average	**1.6**	**2.0**	**2.5**	**2.6**

This is the average of the actual waiting time for patients admitted to hospital during the year.

MEASURE 46	OVERDUE URGENT ADMISSIONS AS A PERCENTAGE OF TOTAL URGENT ADMISSIONS			
	95/96	**96/97**	**97/98**	**98/99**
Albury	5.2	8.8	5.9	6.1
Wagga	5.1	14.7	9.8	7.1
Coffs Harbour	8.5	11.5	11.1	22.4
Dubbo	15.3	18.9	16.1	16.9
Lismore	14.7	17.2	17.5	21.7
Manning	15.9	15.7	8.7	7.7
Orange	9.3	15.3	14.3	3.0
Port Macquarie				**31.9**
Tamworth	11.2	15.7	16.6	14.9
Average	**10.7**	**14.7**	**12.5**	**14.6**

This is the number of patients admitted during the year after waiting more than 30 days, expressed as a percentage of all urgent admissions.

The improved performance at Orange Base Hospital in 1998/99 followed the appointment of a Waiting List Coordinator. In addition, particular specialties were identified as requiring further resources, with additional specialists appointed in orthopaedics and ophthalmology.

This measure may also reflect the difficulties rural hospitals have in attracting health professionals. For example, theatre sessions at Tamworth Base Hospital had to be adjusted following a decrease in the number of anaesthetists at the hospital.

MEASURE 47	EXTENDED WAIT PATIENTS AS A PERCENTAGE OF TOTAL NON-URGENT PATIENTS			
	95/96	**96/97**	**97/98**	**98/99**
Albury	82.1	97.1	97.1	100.0
Wagga	96.8	100.0	100.0	98.5
Coffs Harbour	94.6	98.6	96.8	100.0
Dubbo				5.1
Lismore				1.0
Manning				0.0
Orange				0.8
Port Macquarie				21.1
Tamworth				1.4
Average	**91.2**	**98.6**	**98.0**	**36.4**

This is the number of "other ready for care" patients who have been waiting more than 12 months, expressed as a percentage of all such patients.

The figures vary markedly and may tend to indicate there were relatively few extended wait patients being admitted at most hospitals, possibly because they had no extended wait patients on the list.

The figures may also reflect the increased demand for some services, such as ENT and ophthalmology, and the difficulty in attracting specialists to rural hospitals.

MEASURE 48 EMERGENCY DEPARTMENT PATIENTS SEEN BY MEDICAL OFFICER WITHIN 2 MINUTES AS PERCENTAGE OF TOTAL RESUSCITATION PRESENTATIONS

	95/96	96/97	97/98	98/99
Albury	82.1	97.1	97.1	100.0
Wagga	96.8	100.0	100.0	98.5
Coffs Harbour	94.6	98.6	96.8	100.0
Dubbo	92.1	91.7	95.4	98.3
Lismore	88.4	90.2	95.7	100.0
Manning	93.2	97.9	96.9	89.9
Orange	98.2	97.9	98.5	99.1
Port Macquarie		95.7	100.0	94.4
Tamworth	98.3	98.3	98.1	99.3
Average	**98.3**	**96.3**	**97.6**	**97.7**

Most States, including Victoria, measure the time taken for a patient's medical condition to be assessed and treated from when the patient is seen by a "triage" nurse, who determines how urgently the patient needs medical treatment, to when the patient is seen by a doctor or nurse.

In NSW, however, although a patient's condition may have been assessed by a nurse and treatment commenced, the waiting time continues to be measured until the patient is seen by a doctor.

In 2000/01, the statewide target for treating patients in this "triage" category was 99 per cent.

Comments on individual hospital's performance against these indicators is included after measure 52.

MEASURE 49 EMERGENCY DEPARTMENT PATIENTS SEEN BY A MEDICAL OFFICER WITHIN 10 MINUTES AS A PERCENTAGE OF TOTAL EMERGENCY PRESENTATIONS

	95/96	96/97	97/98	98/99
Albury	69.5	89.2	92.3	85.4
Wagga	84.3	80.5	78.8	77.5
Coffs Harbour	94.6	98.6	96.8	100.0
Dubbo	76.9	86.8	95.4	87.9
Lismore	65.9	63.1	79.1	94.6
Manning	87.8	97.8	95.3	88.2
Orange	82.0	90.8	87.5	87.5
Port Macquarie		87.8	96.1	72.4
Tamworth	85.3	85.8	72.3	67.7
Average	**80.8**	**86.7**	**88.2**	**84.6**

In 2000/01, the statewide target for treating patients in this "triage" category was 81 per cent.

MEASURE 50 EMERGENCY DEPARTMENT PATIENTS SEEN BY A MEDICAL OFFICER WITHIN 30 MINUTES AS A PERCENTAGE OF TOTAL URGENT PRESENTATIONS

	95/96	96/97	97/98	98/99
Albury	82.0	82.6	80.4	75.7
Wagga	78.5	81.5	74.0	77.1
Coffs Harbour	92.3	85.3	76.0	79.7
Dubbo	77.6	87.1	89.2	85.5
Lismore	64.1	56.4	60.0	64.2
Manning	82.6	62.2	90.9	76.1
Orange	83.4	90.0	87.2	83.8
Port Macquarie		75.9	56.0	60.1
Tamworth	81.0	72.0	60.8	60.9
Average	**80.2**	**80.8**	**74.9**	**73.7**

In 2000/01, the statewide target for treating patients in this "triage" category was 68 per cent.

MEASURE 51 EMERGENCY DEPARTMENT PATIENTS BY A MEDICAL OFFICER WITHIN 1 HOURS AS A PERCENTAGE OF TOTAL NON-URGENT PRESENTATIONS

	95/96	96/97	97/98	98/99
Albury	88.3	87.4	84.1	79.3
Wagga	78.7	80.8	70.0	68.6
Coffs Harbour	93.5	86.3	78.4	82.0
Dubbo	83.9	89.6	90.8	86.0
Lismore	68.4	64.8	65.3	72.0
Manning	83.6	95.7	90.2	77.7
Orange	82.5	90.4	89.4	86.7
Port Macquarie		75.5	65.5	64.4
Tamworth	80.2	75.6	64.4	64.1
Average	**82.4**	**82.9**	**77.6**	**75.6**

In 2000/01, the statewide target for treating patients in this "triage" category was 71 per cent.

MEASURE 52 EMERGENCY DEPARTMENT PATIENTS BY A MEDICAL OFFICER WITHIN 1 HOURS AS A PERCENTAGE OF TOTAL NON-URGENT PRESENTATIONS

	95/96	96/97	97/98	98/99
Albury				93.5
Wagga				87.3
Coffs Harbour				89.8
Dubbo				95.7
Lismore				89.1
Manning				90.6
Orange				97.3
Port Macquarie		90.9	87.4	88.7
Tamworth				85.3
Average		**90.9**	**87.4**	**90.8**

In 2000/01, the statewide target for treating patients in this "triage" category was 75 per cent.

Albury Base Hospital functions as the major trauma centre for the south eastern section of the Greater Murray Area Health Service and a substantial proportion of north east Victoria. Statistics indicate that 17

per cent fo the hospital's emergency department admissions are from Victoria and this has increased over recent years as a result of changes in emergency service provision at Wodonga Hospital.

n 1997/98, Wagga Wagga Base Hospital was treating an average of 55 presentations per month who were assessed as requiring treatment within 10 minutes; in 1998/99 it was treating 107 per month.

At Tamworth Base Hospital, the number of people attending the emergency department has been increasing at a rate of 5 per cent per annum. Treatment of emergency patients is expected to improve following completion of the $3.7million redevelopment of the emergency department.

MEASURE 53 **ACCESS BLOCK**
(Percentage of Patients Moved within 8 Hours)

	95/96	96/97	97/98	98/99
Albury			92.2	85.9
Wagga			95.0	94.6
Coffs Harbour			99.4	98.9
Dubbo			99.1	98.7
Lismore			95.4	95.5
Manning			99.1	97.4
Orange			98.5	97.9
Port Macquarie			**92.0**	**88.7**
Tamworth			99.1	99.4
Average			**96.6**	**95.2**

This measures the proportion of emergency department patients who require admission to hospital and are moved from the emergency department to an inpatient bed within eight hours of being seen by a doctor at the emergency department.

This measure needs to be considered in the context of demands on the hospital's emergency department.

As noted earlier, Albury Base Hospital functions as the major trauma centre for the south eastern section of Greater Murray Area Health Service and a substantial proportion of north east Victoria. Seventeen per cent of the hospital's emergency department admissions are from Victoria.

MEASURE 54 **EQUIVALENT FULL TIME STAFF (EFT)**

	95/96	96/97	97/98	98/99
Albury	578	492	472	486
Wagga	739	680	682	733
Coffs Harbour	521	526	573	596
Dubbo	496	445	464	452
Lismore	783	824	715	794
Manning	537	527	541	546
Orange	540	610	465	537
Port Macquarie				
Tamworth	859	912	836	773
Average	**632**	**627**	**594**	**615**

While each of the above is a base hospital, they are not all the same size. In addition, Area Health Services were formed in March 1996. It is therefore difficult to make direct comparisons on staff numbers. Wagga Wagga, Tamworth and Lismore, being the bigger hospitals, have larger staffing numbers.

The 1995/96 figures for Wagga Wagga are affected by the inclusion of figures for the former Riverina District.

Similarly, Albury figures for 1995/96 include staffing from the former Hume District.

Data for Dubbo Base Hospital in 1995/96 included community and mental health services as well as Area maintenance services.

MEASURE 55 STAFF TO INPATIENT EQUIVALENT RATIO

	95/96	96/97	97/98	98/99
Albury	3.3	3.0	3.4	3.5
Wagga	2.8	2.8	3.2	3.4
Coffs Harbour	3.3	3.1	3.3	3.3
Dubbo	2.8	2.7	3.2	3.4
Lismore	3.0	3.2	2.9	3.2
Manning	3.4	3.5	3.4	3.5
Orange	3.1	3.6	2.8	3.1
Port Macquarie				
Tamworth	3.4	3.8	3.4	3.2
Average	**3.1**	**3.2**	**3.2**	**3.3**

MEASURE 56 INPATIENT CLINICAL EFT STAFF PER AVAILABLE BED

	95/96	96/97	97/98	98/99
Albury			1.7	1.7
Wagga			1.9	1.9
Coffs Harbour			2.1	2.1
Dubbo			1.7	1.9
Lismore			1.7	1.9
Manning			1.7	1.8
Orange			1.3	1.4
Port Macquarie				
Tamworth			1.3	1.3
Average			**1.7**	**1.8**

This measure needs to be considered in conjunction with measure 11 (throughput per bed) and measure 12 (available beds)

MEASURE 57 ACUTE AR-DRG WEIGHTED SEPARATIONS PER CLINICAL EFT STAFF

	95/96	96/97	97/98	98/99
Albury				55.0
Wagga				**48.7**
Coffs Harbour				41.7
Dubbo				50.4
Lismore				49.8
Manning				42.5
Orange				55.0
Port Macquarie				
Tamworth				55.2
Average				**49.8**

This is a measure of the acute workload of the clinical staff of the hospital.

MEASURE 58	ADMINISTRATIVE & CLERICAL STAFF AS A PERCENTAGE OF TOTAL EFT STAFF			
	95/96	**96/97**	**97/98**	**98/99**
Albury	7.1	8.0	8.9	11.4
Wagga	8.2	6.5	5.2	8.2
Coffs Harbour	9.7	9.8	7.4	11.5
Dubbo	13.2	13.2	12.9	12.2
Lismore	15.0	11.2	11.3	12.6
Manning	15.9	17.1	9.9	12.7
Orange	12.2	13.3	6.9	14.2
Port Macquarie				
Tamworth	16.4	19.6	15.5	11.5
Average	**12.2**	**12.3**	**9.8**	**11.8**

This is the proportion of all staff who are employed as administrative and clerical staff.

The number of admin/clerical staff was a focus under the former District health service structure with Districts set performance indicators on percentage of these staff. By the time of the formation of the Area Health Services in March 1996 these staff at the hospital level were largely at core levels as evidenced by the figures in the following years. The ratio increase in the latter three years has to be looked at in conjunction with measure 55 (overall staffing numbers) and measure 1 (increase in activity).

The 1995/96 figure for Wagga Wagga is affected by the inclusion of figures for the former Riverina District.

Similarly, the Albury figure for 1995/96 includes staffing from the former Hume District.

At Orange Base Hospital, workforce data was corrupted during a change of the Area's payroll system. The figures produced for those years could only be considered as notional and not providing an accurate record of the actual results.

MEASURE 59	TOTAL EXPENSES (000s)			
	95/96	**96/97**	**97/98**	**98/99**
Albury	$41,166	$42,191	$44,054	$46,327
Wagga	$55,475	$53,912	$60,792	$65,196
Coffs Harbour	$38,203	$40,042	$44,832	$51,485
Dubbo	$38,068	$37,233	$39,324	$41,167
Lismore	$59,492	$62,550	$64,010	$71,060
Manning	$35,325	$36,162	$41,928	$45,022
Orange	$35,740	$47,948	$42,333	$43,820
Port Macquarie				
Tamworth	$49,213	$61,649	$66,246	$65,352
Average	**$45,335**	**$47, 711**	**$50,440**	**$53,679**

This the total cost of all salary and non-salary expenses from the General Fund; it excludes Special Purposes and Trust Funds.

Costs between hospitals cannot be directly compared because of different sizes and complexities.

MEASURE 63 **VMO PAYMENTS AS A PERCENTAGE OF TOTAL MEDICAL SALARY AND VMO PAYMENTS**

	95/96	96/97	97/98	98/99
Albury			58.1	61.3
Wagga			56.9	62.1
Coffs Harbour			51.2	49.3
Dubbo			67.5	65.4
Lismore			61.5	58.2
Manning			66.4	73.6
Orange			65.5	56.0
Port Macquarie				
Tamworth			60.0	57.5
Average			**60.9**	**60.4**

This is the proportion of medical expenses and VMO payments which are for Visiting Medical Officers.

It is difficult to make comparisons between hospitals. At some hospitals, services may be provided through a Visiting Medical Officer whereas at another hospital the same service might be predominantly provided through a Staff Specialist.

MEASURE 64 **NON-SALARY EXPENSES (excluding VMOs) AS A PERCENTAGE OF TOTAL EXPENSES**

	95/96	96/97	97/98	98/99
Albury	34.2	36.2	37.9	38.7
Wagga	34.7	36.2	37.0	38.5
Coffs Harbour	30.5	31.0	31.0	38.0
Dubbo	35.1	33.3	35.9	35.9
Lismore	35.9	35.4	36.7	37.5
Manning	27.9	26.5	31.2	34.6
Orange	29.4	34.6	35.1	33.6
Port Macquarie				
Tamworth	34.4	32.8	35.8	32.6
Average	**32.8**	**33.3**	**35.1**	**36.2**

Appendix 6

Resource distribution formula

Technical paper 1998/99 revision

NSW Department of Health

Resource distribution formula

Technical paper 1998/99 revision, NSW Department of Health

RESOURCE DISTRIBUTION FORMULA

TECHNICAL PAPER

1998/99 REVISION

Structural & Funding Policy Branch
Policy Division
NSW Health Department
January 1999

CONTENTS Page

1. INTRODUCTION

The Health Economic Reform Committee (HERC), which is overseeing the development and implementation of funding policies outlined in the *Economic Statement for Health (1995)*, is being advised by a Resource Distribution Formula Advisory Committee on issues relating to resource distribution in NSW.

Funding to NSW Area Health Services is based on the principle of providing Areas with the resources to provide comparable and comprehensive access to services that meet the health needs of their population, while recognising that high cost and specialised service can only be provided efficiently and effectively in a limited number of locations and people will need to travel for these services.

The Resource Distribution Formula is used as a planning tool to guide the allocation of funding to Area Health Services and to monitor progress towards the achievement of fairness in health funding. Annual funding allocations to Areas will take into account a range of factors including the population based funding needs indicated by the Resource Distribution Formula, recurrent requirements of new facilities as they come into operation and developments in Commonwealth funding arrangements.

The Resource Distribution Formula Advisory Committee is chaired by Jim Pearse, Director of Structural and Funding Policy Branch (telephone 02 9391 9533) and has members with clinical, health administration and academic background. The list of Advisory Committee members who contributed to this version of the Formula are:

Jim Pearse, Structural & Funding Policy (Chair)
Dr Christine Bennett, Westmead Hospital
Ms Sharyn Campbell, Department of Ageing and Disability
Dr Stephen Christley, Northern Sydney Area Health Service
Professor Rufus Clarke, Wentworth Area Health Service
Mr Paul Corben, Mid North Coast Area Health Service
Mr Glenn Desailly, Central Coast Area Health Service
Assoc. Professor Kathy Eagar, University of Wollongong
Dr Gary Eckstein, Essential Equity
Assoc. Professor Bob Gibberd, University of Newcastle
Mr Andrew Gibbs, Structural & Funding Policy (Executive Officer)
Mr Richard Gilbert, Central Sydney Area Health Service
Dr Jim Hyde, Health Services Policy
Mr Grantly Hunt, Hunter Area Health Service
Mr Damien Israel, South Western Sydney Area Health Service
Dr E Khoo, Mid Western Area Health Service
Dr Lynette Lee, South Eastern Sydney Area Health Service
Dr Colin MacArthur, Liverpool Hospital
Mr Rick Sondalini, Structural & Funding Policy
Mr Alain St Fleur, Finance and Commercial Services

The terms of reference of the Resource Distribution Formula Advisory Committee encompass:

(1) Ongoing refinement of the Resource Distribution Formula;
(2) Overview of research on a range of matters affecting the Resource Distribution Formula including:
- a revised health need index
- treatment of patient severity
- health needs of special groups.

This Technical Paper outlines refinements to the Resource Distribution Formula which is used by the NSW Health Department in guiding the allocation of Area Health Service budgets.

The Resource Distribution Formula Advisory Committee has also considered a forward research program which will assist in fine-tuning elements of the Resource Distribution Formula. Details of the research program are contained within this document.

Comments on this Report are welcome and can be addressed to:

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2. BACKGROUND AND CONTEXT

2.1 Guiding Principles

The Resource Distribution Formula is a refinement of the Resource Allocation Formula which has been used since the 1980s as a planning tool to guide the distribution of recurrent funds to Areas and plan capital works in order to achieve a distribution of services which more equitably matches the distribution and the health needs of the NSW population.

The Formula identifies an equitable share of available resources that Areas should receive to meet the health needs of their populations. However it does not identify the total level of resources available as this is a matter for Government to decide in the context of the State Budget.

Work on the Resource Distribution Formula has been guided by the following principles:

(1) To provide a guide for determining Areas' shares of available health resources which, assuming the achievement of reasonable levels of efficiency, enables Areas to provide their local communities with comparable levels of access to health services taking into account:

- the assessed health needs of the local population;
- additional cost components in providing services to specific populations (such as additional transport costs in rural areas and the cost of translator services);
- the local population's utilisation of private health services.

(2) To safeguard the funding of selected specialty services which benefit the entire health system and are provided in limited locations and which cannot be funded through population funding or cross Area purchasing of patients flows.

(3) To take account of:

- additional costs not currently recognised in casemix measures faced by major tertiary referral hospitals and specialist paediatric hospitals;
- cross boundary flows which cannot be captured in existing data collections. In future years these flows will be dealt with in the context of funding arrangements for cross boundary flows of patients where casemix measures are available.

(4) To reflect the need for Areas to provide targeted health services to improve the health status of priority population groups which experience significantly lower health status, in particular Aboriginal people and homeless people.

(5) To reflect the strategic directions set for Health Services in NSW and the funding polices outlined in the NSW *Economic Statement for Health*.

2.2 Role of the Resource Distribution Formula in the context of Area Funding Reforms

The funding reforms introduced in the *Economic Statement for Health* foreshadowed the move to the funding of Areas based on their population's health needs. The Resource Distribution Formula plays an important role in identifying how existing resources should be distributed on a population health basis.

Funding of Areas to meet the health needs of the population is consistent with the role of Areas of coordinating and providing an effective and efficient mix of services to improve the health of the local population. As noted in the principles above, introduction of population-based funding recognises that patients will still need to travel between Areas for certain high cost and specialty services that are more effectively and efficiently provided in a few locations. This requires that the population funded components of the Resource Distribution Formula are supplemented by allowances for the cost of specific high cost and statewide specialty services.

A related funding policy foreshadowed in the *Economic Statement for Health* is the introduction of funding arrangements for the flow of patients between Areas. In 1998/9 an accounting adjustment will be made to Area budgets to reflect the value of acute inpatient flows based on established patterns of flows. Fully devolved Area responsibility for patient flows will be introduced after this transitional phase. Financial responsibility for inter-State patient flows was devolved to Areas from 1997/8.

The Resource Distribution Formula will be used to guide and inform decisions about recurrent and capital allocations to Areas. When population funding and cross Area purchasing is fully introduced, the Resource Distribution Formula will be used to identify the population based funding for Areas. The funds available to Areas will also depend on the net revenue for inter-Area flows and impact of changes in inter-State patients flows.

The *Economic Statement for Health* stated the use of casemix for budgeting purposes will be undertaken at Area level so that Areas fund their hospitals based on their share of casemix output. Hospitals are also required to move to achieve benchmark cost for peer hospitals. The efficiencies achieve from meeting benchmarks will free up resources to use for a range of health priorities. In allocating resources to Areas the Resource Distribution Formula assumes that those services will be provided at reasonable levels of efficiency.

The key steps in using the RDF to guide the allocation to Areas are:

1. Identify the Pool of resources which will be subject to the Resource Distribution Formula. As far as possible the exclusions should be limited so that population health principles guide resource allocation. The net value of flows from Areas are included in the pool since the formula is driven by the population's need for health services, where ever those services are provided.

2. The resources in the Pool are divided into program expenditure categories based on the expenditure reported by Areas across the NSW Health programs. It is important to note that the Resource Distribution Formula is not a tool used to achieve allocative efficiency across programs and it does not dictate how Areas should spend their funding allocations.

3. In each category, expenditure which is not appropriate to allocate on the basis of population health need is identified, such as the direct costs of teaching and research, Statewide services and Nationally Funded Centres (these are non-population-based allocations). The intention is to minimise the number of non-population based allocations as the RDF is designed primarily to be driven by population-based factors.

4. The relevant population health need indicators (such as age/sex related need, socio-economic status, rurality, aboriginality etc) are applied to the remaining expenditure in each category (ie, this is the population-based allocation of each component).

5. The non-population and population allocations in each category are summed for each Area to determine its overall share of the Resource Distribution Formula pool.

6. In order for the Resource Distribution Formula to provide a guide to the level of the Department's allocation to Areas, the level of population funding derived by the RDF has to be adjusted for the value of flows to be comparable with the historical allocation to each Area which includes funding to provide services to patients from other Areas.

Table 2: Resource Distribution Formula Components

Components:	Population Health	Non-Inpatient Services				Acute Inpatient Services			Direct Teaching and Research	Rehab & Extended Care					Mental Health
		Oral Health	Primary & Community	Outpatients	Emergency Dept	General Acute	Tertiary	Obstetrics		Rehabilitation	Palliative Care	Other (Maintenance and GEM)	Psycho-geriatrics	PADP	
Population elements:	Population	Needs Weighted Population Aged 5-14 years	Weighted Population	Weighted Population	Weighted Population	Weighted Population	Weighted Population	Weighted Population		Weighted Population	Weighted Population	Weighted Population	Weighted Population	Weighted Population	Under Development
	Need Index	Age-weighted Adult Concession Card holders	Need Index	Need Index	Need Index	Need Index for General Services		Need Index based on Total Fertility Rate		Blended Need Index	Oncology ABS Need Index	Blended Need Index	Blended Need Index	ABS EDOCC Need Index	Currently Based on Historical Costs
	Aboriginality Factor	Aboriginality Factor	Aboriginality Factor	Aboriginality Factor	Aboriginality Factor	Private Hosp. Substitution	Private Hosp. Substitution	Private Hosp. Substitution			Private Hosp. Substitution	CTC Aged Care Assessment Program			
	Homeless Factor	NESB factor	Homeless Factor	Homeless Factor	Homeless Factor	Public/ Private Mix	Public/ Private Mix	Public/ Private Mix							
		Rurality			Tourism Effect	Transient Workers									
Non-Population elements:		Specialist Supra Regional & Indirect Teaching & Research	NESB factor	Non-Inpatient Statewide Services		IPTAAS/ Attribution	Severity/evidence Teaching & Research	Dispersion factor	% Share of Expenditure from 1994/5 survey applied to current expenditure pool	Statewide Burn & Spinal Injury	Dispersion Factor	Dispersion factor	Dispersion factor	Dispersion factor	Dispersion factor	
			Dispersion Factor	AIDS funding		Dispersion Factor	Dispersion factor			Dispersion Factor						
						Specialist Paediatrics	Nationally Funded Centres			MHTPs						
Treatment of Cross Boundary Flows:	None	Flows for District Hospitals Built into Formula	None	Built into Formula	Built into Formula	Built into Formula	Built into Formula	Built into Formula	None	Built into Formula	None	None	None	None	Built into historical budgets

2.3 Components of the Resource Distribution Formula

There are nine components of the Resource Distribution Formula aligned to the program structure as in Table 1.

Table 1: Program Alignment

RDF Component	Health Program
Population Health	1.1 Population Health Services
Oral Health Services	2.1 Primary & Community Based Services
Primary & Community Based Services	2.1 Primary & Community Based Services
	2.2 Aboriginal Health
Outpatients	2.3 Outpatient Services
Emergency Department Services	3.1 Emergency Services
Acute Inpatient Services	3.2 Overnight Acute Inpatient Services
	3.3 Same Day Acute Inpatient Services
Mental Health Services	4.1 Mental Health Services
Rehabilitation and Extended Care	5.1 Rehabilitation and Extended Care Services
Teaching and Research	6.1 Teaching and Research

The presentation of the Resource Distribution Formula has been improved in a number of ways. For each component, there is a population related set of factors and a cost related or non-population-based set of factors. For all programs other than acute inpatients, the population-based factors have been presented as weighted populations. For acute inpatients the population factors have been expressed in terms of expected casemix weighted activity. The cost related factors are presented in dollar terms.

A further column has been added to each table which normalises or scales back the weighted populations (or in the case of acute care the casemix weighted activity) so they sum to the projected population for NSW for December 2001. Note that the relative shares of Areas are unaffected by this process as it is designed only to aid the reader in interpreting the effect of applying the needs factors to the raw Area populations. The normalisation factor is equal to the NSW Population Projection for Dec 2001 divided by the Sum of weighted populations of Areas.

The presentation has been expanded so that the impact of all relevant factors can be identified.

Table 2 illustrates schematically, the treatment of each component of the Resource Distribution Formula.

3. FINANCIAL ISSUES IN THE APPLICATION OF THE RESOURCE DISTRIBUTION FORMULA

The pool of funds used for calculating the Resource Distribution Formula is based on:

(1) Annualised Department Cash Subsidy to Areas for 1998/9 (including the subsidy for Repairs, Maintenance and Replacement over $5,000)
(2) Plus 1998/9 Patient Fees Budgets (excluding Special Purpose & Trust Funds)
(3) Plus 1998/9 Other Revenue Budgets (excluding Special Purpose & Trust Funds)
(4) Plus an adjustment to include revenues for Third Schedule Hospitals
(5) Plus the value of interstate flows and flows to the New Children's Hospital based on the most recent data
(6) Less excluded funding.

The approach reflects the recurrent resources (including RMR over $5,000) available to Areas to support health services. All revenue to Special Purpose & Trust Funds is excluded as this relates to funding for a wide variety of purposes such as research grants, patient facilities and donations which should be at the discretion of the Area.

3.1 Exclusion and Inclusion of Funding Elements

Excluded funding means those funds which are totally excluded in the build-up of the Resource Distribution Formula pool. Often, these funds are short-term in nature or are subject to a specific policy development process in which the funds are quarantined from redistribution to other types of program expenditure such as expenditure on State Government Nursing Homes (SGNHs).

Other excluded funds include those distributed throughout the year to meet Commonwealth Government expenditure requirements or special project funds distributed by the Department (examples include Special Health Promotion and Commonwealth casemix grants). Including these funds in the Resource Distribution Formula would effectively mean their intended distribution would be obscured by the Resource Distribution Formula. In most cases these funds are distributed based on some assessment of need or using factors derived by the Resource Distribution Formula so their exclusion does not compromise the principles underlying the Resource Distribution Formula.

Excluded funding also applies to expenditures from Special Purpose and Trust Funds, Managed Fund Insurance benchmark premiums, funding to Non-Government Organisations, NSW Health Corporate Office functions, the New Children's Hospital, Corrections Health and Ambulance Service. Historically, most of these expenditures were not counted in the Resource Distribution Formula pool as they were not available for distribution across Areas. Expenditure data on these exclusions are readily available from Annual Reports of the NSW Health Department.

The following funds have been excluded from the application of the Resource Distribution Formula:

1. State or Commonwealth Grants to specific projects that are material in size and where projects are either unique to a particular Area, short term in nature, have a level of funding which is not at the Area's discretion due to externally imposed conditions or the viability of an essential service would be threatened if allocated on a population basis.

2. Special Purpose and Trust Funds which includes donations and bequests and relate to specific purposes such as research grants. There would be financial disincentives to raise SP&T funds if they were included in the Resource Distribution Formula pool. Managed Fund Insurance benchmark premiums are also excluded as the risk profiles of Areas are largely unrelated to the populations they serve and the benchmark premium is based largely on private sector experience which is outside of the control of Areas. Funding to Non-Government Organisations is excluded as the management and location of these organisations is largely outside the control of Areas and therefore Areas should not be penalised for having NGOs (particularly those NGOs providing supra-Area services) located within their boundaries.

3. Expenditures related to Head Office functions, the New Children's Hospital, Health Care Complaints Commission, Corrective Health Services and Ambulance Service are excluded as these funds are not distributed through Area Health Services.

4. Expenditures related to Commonwealth approved State Government Nursing Homes in view of agreed transfer to Commonwealth adjusted fee funding. Funding and location of SGNH beds is be dealt through this separate strategic process.

A list of all excluded funds is at Appendix A.

3.2 Revenue

The revenue available to Areas must be taken into account in the Resource Distribution Formula and included in the Pool because the equity objectives of population-based funding would be compromised if a significant share of resources that funded health services were not included. Revenue also has to be taken into account when using the outcome of the Resource Distribution Formula to advise on the allocation of the cash subsidy to Areas.

Whilst there is a strong equity argument to add revenue together with the Department's contribution to Areas to create a pool which represents the resources for health services available to Areas, there is also an argument that treatment of revenue in the Resource Distribution Formula should not distort Departmental policy that creates incentives to collect revenue. Areas have been able to keep non-patient fee revenue above their budget since 1992/3. On 1 July 1997 the underwriting of patient fees was discontinued and Areas now have to meet any shortfalls in patient fees revenue but can keep revenue in excess of budget to fund additional health expenditure.

One concern with the use of a revenue budget to buildup the Resource Distribution Formula pool is that it does not recognise that Areas may have to incur expenses to generate revenue, and accordingly the revenue budget will not reflect the actual resources available for health

services. Further research is required to quantify the level of such expenditure to generate revenue. In terms of the overall impact on the Resource Distribution Formula share the impact would be negligible if it could be assumed that this issue affected all Areas to a similar degree.

For this refinement of the Resource Distribution Formula the sum of 1998/9 revenue budgets has been included in the Resource Distribution Formula pool. This is an interim basis for identifying the contribution of revenue. Ideally, when identifying the Department's contribution to an Area to meet the Resource Distribution Formula expenditure share, the revenue assumed for individual Areas should reflect their revenue raising capacity and should not penalise revenue raising efforts. Therefore, the Department in conjunction with Areas will undertake research into revenue raising capacity during 1998/9 with the aim of developing a model which will enable the Department to develop a fair and transparent approach to treatment of revenue in future refinements of the Resource Distribution Formula.

3.3 Other Financial Adjustments

Other financial adjustments will be required in relation to the following factors:

Interstate patient flows: Overall more patients flow out of NSW for treatment than flow into NSW. As a consequence NSW pays out in net terms around $50 million per annum under intergovernmental agreements on interstate flows.

Since 1997/8 Areas are financially responsible for funding interstate flows and a notional adjustment has been made to their budget to reflect the net cost of patient flows to other States in 1996/9 valued at the national benchmark price of $2454 for public patients and $1123 for private patients. Areas will receive positive (or negative) cash adjustments where the net outflow decreases (increases), creating an incentive to manage flows where it is more efficient to provide the services within NSW. The pool of funds distributed by the Resource Distribution Formula has been increased by the value of interstate patient flows.

Flows to the New Children's Hospital: The New Children's Hospital (NCH) is not part of an Area Health Service and will continue to be excluded from the Resource Distribution Formula, with an adjustment for flows from Areas to the Hospital. The total pool of funds available to all Areas has been increased by the value of flows.

3.4 Program Expenditures

The program expenditure breakdown for 1996/7 as reported by Areas was used as the basis for determining the component weightings of the Resource Distribution Formula funding pool. Before the components are calculated any excluded funding is removed from the relevant program eg, SGNH expenditures are removed from Program 5.1 Rehabilitation & Extended Care, NGO funding is removed from the relevant program etc. Another adjustment is to include the value of net interstate outflows and flows to the New Children's Hospital which increases the total pool as these flows are removed later in the Formula.

The breakdown is based on General Expenses only (ie, non Special Purpose & Trust Fund) and excludes depreciation/superannuation and excluded RDF funding eg, SGNHs. The components which have an increased share since 1995/6 are population health, primary & community, outpatient and teaching and research. These programs have increased at the expense of the overnight and same day acute inpatients programs. However a significant portion of these movements in the relative expenditure shares of programs can be explained by the improved method of dealing with excluded funding in the RDF and on the removal of depreciation and superannuation which in the previous RDF expenditure breakdowns had not been undertaken (this latter adjustment impacts more significantly on acute inpatients).

Given the large variation in Area compliance in reporting of costs for 1996/7 under the Teaching and Research program, for RDF purposes the share of expenditure has been based instead on the 1995/6 average percentage share of total Area expenditure rather than the 1996/7 share of 2%. The dollar difference has been allocated to the Acute Inpatient component of the RDF to ensure the total expenditure of Areas remains consistent with that reported in 1996/7. Section 6.6 discusses the reason for this adjustment in more detail and the method of distributing these funds to Areas in the Formula.

The share of the total budget by program component is represented in Table 3. These include the value of net flows to the New Children's Hospital and Interstate.

Table 3: RDF Components (based on 1996/7 program expenditures)

RDF Component	%
Population Health	0.65
Non-inpatient Services:	
- Oral Health Services	3.40
- Primary & Community Based	6.94
- Outpatients*	10.09
- Emergency Department Services	5.18
Acute Inpatient Services**	57.40
Mental Health	7.26
Rehabilitation and Extended Care***	9.77
Teaching and Research****	1.33
Total	**100.0**

* Includes funding for HIV/AIDS services and statewide non-inpatient services such as radiotherapy, MRI
** Includes indirect Teaching and Research and Patient Severity factors
*** Excludes State Government Nursing Homes
**** Includes only direct expenditures on Teaching and Research

4. POPULATION ESTIMATES AND PROJECTIONS

4.1 Population Estimates

Population estimates and projections are key elements of the Resource Distribution Formula since population is the main factor influencing the distribution of resources.

The outcome of the 1996 ABS Census was that overall the State population grew by just over 1% per annum since 1991 to reach 6.2 million persons. Two rural Areas (Far West and New England) declined while above average growth was experienced along the coast and in the three Western metropolitan Areas. The Central Coast became the fastest growing Area of the State while South Western Sydney recorded the greatest absolute increase. Northern Sydney remains the most populous Area just ahead of South Eastern Sydney and South Western Sydney.

The proportion of children declined and the proportion of the elderly increased in every Area. The Area with the highest proportion of children is Wentworth while the highest proportion of the elderly is found in Mid North Coast.

The 1991 set of projections used in the 1996 Resource Distribution Formula substantially underestimated Sydney and overestimated the non-metropolitan Areas including Hunter and Illawarra. Every Area in Sydney grew faster than the projection except Western Sydney where land releases at Rouse Hill were slower than expected. Every non-metropolitan Area failed to reach its projected 1996 estimate. The Sydney proportion of the State population increased from 62.2% to 62.5%.

Within Sydney, the effect of urban consolidation was especially noticeable in South Eastern Sydney where the previous decline was transformed into growth not far below the State average. Central and Northern Sydney also grew by about one half of a percent per annum. While rural Areas grew less quickly than expected, there is still rapid population growth on the North and South Coast. Inland area growth was confined to a small number of larger commercial centres.

4.2 Interim Population Projections

In refining the Resource Distribution Formula interim population projections have been utilised that build on the 1996 Census results.

Population projections for NSW are issued twice every five years by the Population Projections Group (PPG), an interdepartmental committee convened by the Department of Urban Affairs and Planning. The projections are based on State Regions which are generally different from Area Health boundaries. As the PPG will not be producing its next set of projections until late 1998, the Department commissioned consultants *Essential Equity* to develop a set of interim population projections for use in the Resource Distribution Formula. Once the PPG projections are available sometime in 1999, the Department will recalibrate the interim projections, although a significant change is not expected.

The process for developing the population projections involved Area input and required the following steps:

- Selecting a set of population projections to be used for calibrating the overall NSW population. ABS publication 3222.0 *Projections of the Populations of Australia: States and Territories* has been selected as the appropriate set of projections;
- Producing a projection for Sydney and for the remainder of the State;
- Undertaking a cohort component projection by Area taking into account age/sex specific mortality, interstate and overseas migration and the fertility rate in conjunction with a factor reflecting the level of net dwelling approvals;
- Projecting the age and sex profiles for each Area for 2001 and 2006.

The 1996 population estimates from the 1996 ABS Census and interim population projections for each Area Health Service for June 2001 and June 2006 are presented in Table 4. The original interim projections have been re-based using the June 1997 estimated resident populations released by the ABS in June 1998.

Table 4: Population Estimates and Interim Projections for Areas

Area	June 1996 Population Estimate	June 2001 Population Projection	June 2006 Population Projection
Central Sydney	473,962	494,105	512,299
Northern Sydney	752,339	774,938	790,975
Western Sydney	645,132	684,472	720,326
Wentworth	301,934	317,491	331,553
South West Sydney	731,615	785,570	834,489
Central Coast	270,556	295,919	319,700
Hunter	521,785	543,304	560,406
Illawarra	334,904	354,309	372,770
South Eastern Sydney	743,133	777,913	807,210
Northern Rivers	248,155	272,662	299,458
Mid North Coast	248,496	270,183	293,831
New England	178,589	174,373	169,661
Macquarie	102,771	104,946	106,313
Mid Western	165,780	168,421	170,795
Far West	49,983	47,039	43,857
Greater Murray	256,658	259,736	262,355
Southern	179,002	188,015	196,650
Total	**6,203,894**	**6,513,388**	**6,792,647**

NOTE: The final interim population projections used to calculate the Area shares in this document are the 30 June 2001 population projections for Areas adjusted forward six months to 31 December 2001 (ie, midpoint of 2001/02 financial year).

5. GENERIC HEALTH NEED INDEX

The Resource Distribution Formula attempts to quantify characteristics of the population that reflect their health needs and impact on the utilisation of health services. It incorporates age/sex adjustments and a Generic Need Index, to reflect the impact of age, sex, mortality, socio-economic and geographic factors on the use of health services. In the early versions of the Formula, age, sex and mortality were used as the indicators of health need. More recent versions have included a composite indicator of health need which combines premature mortality, socio-economic status and geographic location.

The use of the health need index remains a core element of the Resource Distribution Formula. The index is a measure of a population's need for health services that cannot be explained by its ages and sex composition. The Generic Need Index is applied to Population Health, Primary & Community Based Services, Outpatients, Emergency and Acute Inpatients components. Alternative needs indices are recommended for the Oral Health Services and Rehabilitation and Extended Care Services component that reflect the population characteristics that correlate with need for these services. Details of these specific Need Indices are in sections 6.2.1 Oral Health and 6.4 on Rehabilitation and Extended Care Services.

The Generic Need Index is a composite index of relative need for health services derived in the following manner:

Need Index = 97.51 + 0.4 (SMR < 70) - 0.4 (EDOCC) - 0.9 RUR

where SMR<70 is the indirect Standardised Mortality Ratio for age less than 70, EDOCC is the ABS index "EDOCC" (level of education achieved and occupational status) and RUR is the rurality index calculated by Eckstein and Gibberd (1994)[1]. Indirect SMRs are calculated by applying the age/sex-specific death rates in the standard (NSW) population to the study (Area) population, to obtain the expected number of deaths. Indirect SMRs are used because they are generally regarded as more robust for small Areas in particular and are also used by the ABS for comparisons across LGAs and ethnic populations.

The Index was based on an analysis of NSW inpatient statistics where the dependent variable was hospital utilisation measured by the Standardised DRG Weighted Separation Ratio and the independent variables were mortality, rural-urban differences and socio-economic status. The data were analysed over 154 LGAs. The measurement of rurality, termed the Health Related Rural Status (HRRS), was constructed from the following components:

1. Zone Category:
   - Remote
   - Rural
   - Major Urban
   - Metropolitan

[1] Eckstein, G and Gibberd, R. *"A Relative Health Needs Index for NSW Areas and Districts", Health Services Research Group, University of Newcastle.* 1994

The zone categories were based on a Department of Community Services and Health and Department of Primary Industry study (1990) which grouped each LGA into these zones.

2. For Remote and Rural Categories, further categorisations were included based on (a) distance from a referral/base hospital and (b) land use. For (a) a 'distant' key was set at one hour's journey by motor vehicle to a referral/base hospital (this varied between 70 and 120 km depending on terrain). A 'very distant' key was set at three hour's drive or 300 km.

   For (b), a farming community was considered as one where over 40% of the population were employed in agriculture. If less than 25% these were considered as non-farming (note: very few communities were between 25 and 40% and these were classified as 'mixed').

3. Major Urban was segregated based on the presence of a referral hospital within the local area.

4. Metropolitan was split into 'outer' or 'built-up' area. The 'built up' area was further segregated based on population density (ie, the predominance of single or multi dwelling housing sites). The 'outer' category was further split depending on whether a referral hospital was within the local area.

As indicated above, the presence of a referral/base hospital impacts on the degree of rurality of an Area.

The rurality index was the strongest single predictor of utilisation, followed by SMR and socio-economic status. The three variables together produced a coefficient of determination of 57%. Details of the Generic Need Index for Area Health Services are in Table 5.

Table 5: Generic Health Need Index for Areas

Area	Index
Central Sydney	102.88
Northern Sydney	82.46
Western Sydney	99.40
Wentworth	97.72
South Western Sydney	101.11
Central Coast	102.87
Hunter	103.20
Illawarra	100.19
South Eastern Sydney	93.85
Northern Rivers	103.70
Mid North Coast	105.54
New England	113.69
Macquarie	115.34
Mid Western	110.82
Far West	168.06
Greater Murray	108.56
Southern NSW	107.50

The Department is currently undertaking a review of the Generic Need Index in to reflect more recent data and consider alternative socio-economic measures of health need. The results of the review should be available in the first half of the 1999 calendar year.

6. RESOURCE DISTRIBUTION FORMULA COMPONENTS

6.1 POPULATION HEALTH SERVICES

Population health services are distributed according to a formula reflecting:

- Population
- Generic Need Index
- Aboriginality (ATSI) factor
- Homeless factor.

No adjustment is made for flows in this program given that the population health services are directed to the population at large and not to treatment of individuals.

The Generic Need Index has been applied to this category of expenditure, although it is recognised that further work is required to understand the relationship between the utilisation of these services and population characteristics.

An estimate of the ATSI population was obtained from the ABS 1996 Census which is based on place of enumeration and not usual place of residence. This figure was then weighted by 2.5. As the ATSI population is already counted in the population for the Area, the factor is based on adding 1.5 times the ATSI population to the total Area population.

The Homeless factor is applied in a slightly different way, as the homeless are not counted in the resident population. A weighting of 2.5 is therefore applied to the estimated homeless population and then adding this figure to the total Area population. The estimate of the homeless population is obtained from a Department of Community Services survey.

In future revisions of the Resource Distribution Formula there is an opportunity to base the Homeless factor on more recent estimates of the population. In 1996 the ABS launched the Homeless Enumeration Strategy to target the homeless population of Australia. The first part of the strategy deals with ensuring the coverage of the homeless population is maximised including counting in the 1996 Census. The second part of the strategy involves the provision of information from the Census to policy makers.

With the implementation of the Homeless Enumeration Strategy, the ABS regards the 1996 Census as the most effective yet in enumerating the homeless population. Although the ABS is not proposing to publish, as census output, estimates of the number of homeless people, this may occur as a by product of the Strategy although there would still be a degree of interpretation required. The ABS has advised that it may convene a working party to determine whether such an estimate would be possible, however it has not set any time frame or given any assurances that this will occur.

Table 6 provides details of the weighted Aboriginal and Homeless populations applied to Areas.

Table 7: Population Health

		Population estimate Dec 2001	Generic Need Index	Need Adjusted Population	Aboriginal Factor	Homeless Factor	Total Need Adjusted Population	Normalised Population	Percentage Share
100	Central Sydney	495,925	102.9	510,207	7,297	3,558	521,062	506,497	7.74%
105	Northern Sydney	776,542	82.5	640,337	2,835	503	643,674	625,682	9.6%
120	Western Sydney	688,058	99.4	683,929	13,017	590	697,536	678,038	10.4%
125	Wentworth	318,897	97.7	311,626	7,239	643	319,508	310,577	4.7%
130	South West Sydney	790,462	101.1	799,236	14,725	1,088	815,049	792,266	12.1%
135	Central Coast	298,297	102.9	306,858	5,781	388	313,026	304,276	4.7%
140	Hunter	545,014	103.2	562,455	14,465	1,258	578,177	562,015	8.6%
145	Illawarra	356,155	100.2	356,832	9,709	115	366,656	356,407	5.4%
155	South Eastern Sydney	780,842	93.5	730,345	7,827	3,098	741,269	720,549	11.0%
400	Northern Rivers	275,341	103.8	285,804	10,960	275	297,038	288,735	4.4%
410	Mid North Coast	272,547	105.5	287,659	12,222	273	300,154	291,763	4.5%
420	New England	173,902	113.5	197,427	17,543	174	215,143	209,130	3.2%
430	Macquarie	105,083	115.3	121,140	13,246	105	134,492	130,732	2.0%
440	Mid Western	168,658	110.8	186,935	8,667	169	195,771	190,299	2.9%
450	Far West	46,712	167.7	78,345	11,051	47	89,442	86,942	1.3%
460	Greater Murray	259,998	108.6	282,466	10,015	260	292,742	284,559	4.4%
470	Southern NSW	188,879	107.3	202,742	5,749	189	208,681	202,847	3.1%
	Total	*6,541,314*		*6,544,344*	*172,348*	*12,729*	*6,729,421*	*6,541,314*	*100.0%*

19

18

Table 6: Weighted Aboriginal and Homeless Populations

Area	Aboriginal population*	Homeless population**
Central Sydney	7,297	3,558
Northern Sydney	2,835	503
Western Sydney	13,017	590
Wentworth	7,239	643
South Western Sydney	14,725	1,088
Central Coast	5,781	388
Hunter	14,465	1,258
Illawarra	9,709	115
South Eastern Sydney	7,827	3,098
Northern Rivers	10,960	275
Mid North Coast	12,222	274
New England	17,543	175
Macquarie	13,246	105
Mid Western	8,667	169
Far West	11,051	47
Greater Murray	10,015	261
Southern NSW	5,749	190

* Based on information from the 1996 ABS Census provided by Epidemiology and Health Surveillance Branch, NSW Health Department

** Based on a 1994 Department of Community Services Survey (due to lack of data from the survey we have assumed that 60% of rural Area populations are homeless)

Special Health Promotion and Special Public Health funds are excluded from the Resource Distribution Formula pool and are distributed each year by the Department to Areas.

Table 7 provides details of the formula under this component.

6.2 NON-INPATIENT SERVICES

6.2.1 Oral Health Services

Other than specialist dental surgery undertaken on an inpatient basis in hospitals, and some Teaching and Research Funding, Oral Health Services expenditure is currently accounted for under the program "Primary and Community Based Services". However, as expenditure on Oral Health Services is not reported separately to the Department, the pool of funds for this component is based on the annual allocation given to Areas specifically for oral health services (approximately $68.5 million). Expenditure of the two dental hospitals is included within this program.

Given the nature of the target groups for oral health services, a specific distribution formula is applied to this element of funding. There are three main components of funding for oral health services:

- Oral Health Services for Children targeting children aged 0-14 years;
- Oral Health Services for Adults targeted at Adult Health Care Card Holders;
- Teaching and Research and specialist activities of the two dental hospitals.

The formula for children applies a relative need index based on the caries experience by Area for 1997, using the Decayed/Missing/Filled Teeth (dmft + DMFT) rate as the indicator of dental health status, to the population in each Area aged 0-14. A factor for the higher need in rural Areas is also applied based on evidence from the National Oral Health Survey 1987/88 that people from non-metropolitan areas have a dmft + DIMFT rate (the 'I' is for Indicated Extraction) which is 10% higher than people from capital cities. The ATSI population aged 0-14 in each Area has been further weighted by 0.63 based on data from NSW Health Dental Branch which shows caries experience of ATSI children being 63% higher than the average for all children (average dmft + DMFT ATSI children is 2.05 teeth to 1.26 teeth for all children). The NESB child population (defined by NESB country of birth) aged 0-14 has been given a further weighting of 0.38 based on similar dmft + DMFT data relating to the child NESB population.

For adults, the target population is the total number of adult concession card holders by Area. As data from Centrelink showing the age breakdowns at Area level were not available when this was being written, the total card holder population in each Area was converted to age categories based on a blend of each Area's total population age profile and the age profile of card holders across the State. Centrelink data by postcode are currently being obtained and will be incorporated into the next version of the formula.

The eligible adult population is then split into two sub-populations. Both sub-populations sum to the total number of people in each Area who are eligible card holders. The split between the two groups is based on estimates of the percentage of people with caries (ie, people with teeth) with the remainder being those people requiring dentures (ie, those with no teeth or the edentulous population). The data were obtained from the 1993 NSW Dental Health Strategy which shows that overall, 13.5% of the population aged over 15 wear dentures. Within the edentulous sub-population, the percentage of the population wearing

dentures decreases from 44% for 65+ year olds to 3.1% for 35-44 year olds.

For the caries sub group, Statewide age weights for Decayed/Indicated Extraction (DI) teeth have been derived from data from the National Oral Health Survey and have been applied to the eligible population in each Area by age group. For the edentulous population, a standard cost weight of 0.51 has been applied to the eligible population in each Area based on an analysis by NSW Health Dental Branch using Commonwealth Dental Health Program Reporting data which indicates that on an *annual* basis, the standard cost of care for patients with dentures is 51% of the cost of treating people with caries[2].

The rurality weighting of 10% has been applied to the Adult caries age weighted population. A separate rurality weighting of 16% has been applied to the edentulous population based on data from the 1993 NSW Dental Health Strategy which shows that the average rate of edentulousness in non-metropolitan areas to be 14.2% versus a rate of 12.2% in metropolitan areas (14.2/12.2 = 116%). In the absence of oral health data about the adult ATSI population, the ATSI population in each Area has been further weighted by .63% based on the differential caries experience of ATSI/non-ATSI children. A factor for the adult NESB population has not yet been applied as data relating to Centrelink card holders by ethnicity is still being obtained and analysed.

Apart from the dental hospitals and services provided by Central Sydney to eligible adult card holders of South Eastern Sydney, no adjustment is made for flows in this program as it is assumed that there are minimal patient flows and dental services are provided primarily to Area residents. Under the adult component South Eastern Sydney receives an amount of funding under Adults specifically for dentures.

It should be noted that whilst population-based components have been updated (although further refinement is expected), the data used to determine the non-population-based components (ie, the Dental Hospitals factor and Specialist & Indirect Teaching and Research factor) need updating. Although the Department has some data which can be used to inform the calculation of these components (such as the 1996/7 NSW Public Hospitals Comparison Data Book and 1996/7 inpatient flows), more detailed information similar to that provided previously by the Dental Hospitals is needed. A separate issue which has impacted on the need to refine the non-population-based component of the Oral Health RDF (ie, the Dental Hospital and Specialist Teaching and Research factors for CSAHS and WSAHS), is the new partnership agreement yet to be negotiated between the Department, Dental Hospitals (CSAHS/WSAHS) and the Faculty of Dentistry (University of Sydney). Part of this process of agreement is to obtain relevant information on a wide range of factors including utilisation and costs (such as for teaching and research).

To obtain data for both the RDF and new partnership agreement, SFPR and Oral Health Branch have requested the relevant data on flows, utilisation and costs from the two Areas in question. These data, when obtained, will be used to inform any refinements to the next

[2] The weighting for dentures is based on an average cost over seven years of $450 versus an average annual cost of $125 for caries treatment (450/7/125 = .51).

Table 8: Oral Health

	Children								
	2001 Population 0-14	*dmft + DMFT Rate*	*Need Index*	*Need Adj pop*	*Rurality factor*	*Aboriginal Factor*	*NESB Factor*	*Total Adjusted Population: Children*	*Share: Children*
100 Central Sydney	80,836	1.34	1.06	85,969	85,969	1,061	3,711	90,740	6.4%
105 Northern Sydney	135,020	1.03	0.82	110,373	110,373	412	3,809	114,595	8.0%
120 Western Sydney	151,795	1.36	1.08	163,842	163,842	1,864	5,300	171,006	12.0%
125 Wentworth	73,549	1.12	0.89	65,377	65,377	1,025	680	67,082	4.7%
130 South West Sydney	186,405	1.34	1.06	198,240	198,240	2,105	5,390	205,736	14.4%
135 Central Coast	64,242	1.03	0.82	52,515	52,515	825	225	53,565	3.8%
140 Hunter	113,040	1.11	0.88	99,583	109,378	2,064	426	111,868	7.8%
145 Illawarra	74,432	1.14	0.90	67,343	73,967	1,384	497	75,849	5.3%
155 South Eastern Sydney	128,255	1.09	0.87	110,951	110,951	1,126	3,161	115,238	8.1%
400 Northern Rivers	58,013	1.66	1.32	76,430	83,948	1,562	150	85,660	6.0%
410 Mid North Coast	57,014	1.54	1.22	69,684	76,538	1,735	122	78,395	5.5%
420 New England	37,939	1.27	1.01	38,240	42,001	2,473	154	44,627	3.1%
430 Macquarie	25,497	1.38	1.10	27,925	30,672	1,877	32	32,581	2.3%
440 Mid Western	37,371	1.36	1.08	40,337	44,304	1,239	93	45,636	3.2%
450 Far West	9,999	1.55	1.23	12,301	13,510	1,556	18	15,084	1.1%
460 Greater Murray	57,672	1.38	1.10	63,165	69,378	1,419	176	70,972	5.0%
470 Southern NSW	39,608	1.33	1.06	41,809	45,921	826	198	46,945	3.3%
Total	*1,330,688*	*1.26*	*1.00*	*1,324,084*	*1,376,885*	*24,552*	*24,142*	*1,425,579*	*100.0%*

23

version of the oral health formula.

Table 8 provides details of the formula under this component. Recognising the funding constraints imposed by the loss of Commonwealth Dental Health Program funding and increased demand on oral health services, the Department is investigating strategies to maintain funding to services at least 1997/8 levels whilst addressing needs of underfunded Areas in this program.

		Eligible Adults						*Special*		
		Caries	*Edentulism*	*Rurality factor (combined Caries and Edentulism)*	*Aboriginal Factor*	*Total Adjusted Population: Adults*	*Share (inc. adj. for SESAHS)*	*Dental Hosp*	*Indirect T&R*	*Total*
100	Central Sydney	116,326	11,233	127,559	1,699	129,259	14.4%	7,000	4,700	24.4%
105	Northern Sydney	82,031	8,507	90,538	661	91,199	6.2%			4.3%
120	Western Sydney	122,797	11,595	134,392	2,987	137,379	9.3%	6,000	7,500	26.2%
125	Wentworth	51,011	4,725	55,736	1,643	57,379	3.9%			2.6%
130	South West Sydney	157,223	14,791	172,014	3,373	175,388	11.8%			8.1%
135	Central Coast	65,104	7,386	72,491	1,322	73,813	5.0%			2.9%
140	Hunter	128,221	13,499	156,545	3,307	159,853	10.8%			6.2%
145	Illawarra	83,069	8,874	101,569	2,218	103,787	7.0%			4.1%
155	South Eastern Sydney	101,253	10,010	111,263	1,805	113,068	2.0%			2.6%
400	Northern Rivers	68,249	7,763	83,997	2,503	86,500	5.8%			3.7%
410	Mid North Coast	70,775	8,501	87,631	2,780	90,411	6.1%			3.7%
420	New England	40,771	4,379	49,878	3,962	53,840	3.6%			2.2%
430	Macquarie	23,337	2,488	28,528	3,008	31,536	2.1%			1.4%
440	Mid Western	35,328	3,706	43,116	1,985	45,101	3.0%			2.0%
450	Far West	14,028	1,516	17,172	2,493	19,664	1.3%			0.8%
460	Greater Murray	50,837	5,398	62,120	2,274	64,393	4.3%			2.9%
470	Southern NSW	38,303	4,254	47,023	1,323	48,346	3.3%			2.1%
	Total	*1,248,665*	*128,623*	*1,441,572*	*39,344*	*1,480,915*	*100.0%*	*13,000*	*12,200*	*100.0%*

24

6.2.2 Primary and Community Based Services

The formula for the Primary and Community Based Services component includes:

- Age weighted population with the following weights applied:
  - 0-14: 3
  - 15-64: 1
  - 65 and over 4
- Generic Need index
- Aboriginality factor
- Homeless factor
- NESB factor
- Dispersion cost factor

No adjustments have been made for cross boundary flows for this component as it is assumed that there are minimal patient flows. Any specific cross boundary effects within this program should be addressed though specific arrangements between affected Areas rather than the Resource Distribution Formula. In the future, when appropriate casemix classifications are available for primary and community based care and data are able to be routinely collected, flows may be introduced for this component.

It is noted that there are differences across Areas in the mix of services provided under this program which would impact on the age-mix of clients. For example, some Areas provide services under this program which are targeted more towards children, mothers and young families whilst other Areas provide services more in line with the needs of the elderly such as community home nursing.

Whilst there is significant information from some Areas on the age/sex weights that could be applied for these services, this information is not currently aggregated in a format that allows sufficient conclusions on the weighting that should be applied for these services. In the absence of data, advice was sought from a group of Public Health Officers to derive a set of age weights. The lack of data on age/sex weights for these services is not satisfactory and needs to be remedied through further research in 1998/9. It should be noted that these remain problems in identifying activity which related to this program and activity that is related to the Rehabilitation and Extended Care program.

The Generic Need Index has been applied to this category of expenditure, although it is recognised that further work is required to understand the relationship between the utilisation of these services and population characteristics. A weighting of 2.5 has been be applied for Aboriginal people and homeless people.

Additionally, the Northern Rivers Area Health Service population has been increased by 10,000 under this component to reflect the portion of the SE Queensland population served by this Area. The figure was based on a 1997 study undertaken into this issue for the Area by the Centre for Health Services Development (University of Wollongong).

A factor to reflect the additional costs to Areas of providing Ethnic Health Workers and Interpreter Services is included under this component. Interpreter Services are not based in

25

Table 9: Non-Inpatient Activity
Primary and Community Based Services

	Age Weighted Population	*Generic Need Index*	*Need Adjusted Population*	*Aboriginal Factor*	*Homeless Factor*	*Total Need Adjusted Population*	*Normalised Population*	*Percentage Share*	*NSB Factor $000*
100 Central Sydney	838,936	102.9	863,097	7,297	3,558	873,952	478,233	7.31%	3,679
105 Northern Sydney	1,367,738	82.5	1,127,837	2,835	503	1,131,175	618,987	9.5%	1,231
120 Western Sydney	1,187,755	99.4	1,180,629	13,017	590	1,194,236	653,495	10.0%	2,215
125 Wentworth	548,600	97.7	536,092	7,239	643	543,974	297,666	4.6%	130
130 South West Sydney	1,390,984	101.1	1,406,424	14,725	1,088	1,422,236	778,258	11.9%	3,403
135 Central Coast	580,967	102.9	596,715	5,781	388	602,883	329,902	5.0%	70
140 Hunter	1,000,236	103.2	1,032,243	14,465	1,298	1,047,966	573,455	8.8%	308
145 Illawarra	660,710	100.2	661,965	9,709	115	671,789	367,608	5.6%	568
155 South Eastern Sydney	1,344,200	93.5	1,257,273	7,827	3,098	1,268,197	693,967	10.6%	856
400 Northern Rivers	537,021	103.8	558,257	10,960	275	569,492	311,630	4.8%	70
410 Mid North Coast	535,886	105.5	565,599	12,222	273	578,093	316,357	4.8%	70
420 New England	321,697	113.5	366,215	17,543	174	382,931	209,543	3.2%	70
430 Macquarie	197,611	115.3	227,807	13,246	105	241,159	131,964	2.0%	70
440 Mid Western	309,324	110.8	342,844	8,667	169	351,680	192,442	2.9%	70
450 Far West	85,976	167.7	144,198	11,051	47	155,296	84,979	1.3%	70
460 Greater Murray	483,087	108.6	524,834	10,015	280	535,109	292,816	4.5%	70
470 Southern NSW	352,049	107.3	377,890	5,749	189	383,828	210,063	3.2%	70
Total	*11,742,680*		*11,768,918*	*172,348*	*12,729*	*11,953,995*	*6,541,514*	*100.0%*	*13,000*

each Area. Currently Interpreter services in the Illawarra and Hunter Areas service rural communities and those in Central Sydney and Western Sydney service other Area populations. The distribution of these services and catchment populations is reflected in the Resource Distribution Formula, although consideration could be given to including these into cross boundary funding arrangements in future years. The current expenditure on Ethnic Health Workers is $5.5 million and on Interpreter Services is $7.5 million. The allocation of funds for Ethnic Health Workers is based on the distribution of the population who speak a language other than English with a minimum cost of $70,000 in rural Areas and for Interpreter Services based on precise English speakers. These data have been obtained from the ABS 1996 Census.

A dispersion costs factor has been included in this component. This factor captures the higher costs of providing services in rural and remote areas of NSW. For convenience, discussion of this factor has been included under section 6.3 *Acute Inpatient Services*.

Table 9 provides details of the formula under this component.

Table 10: Age/Sex Weights for Outpatient Services

Total Direct Staff Time for clients attending outpatient clinics by age and gender from 1994 Outpatient Survey*										
	Total Cost			Population 1996			Utilisation Rates		Calibrated Utilisation Rates	
Age	M	F	Total	M	F	Total	M	F	M	F
0-4	20,198	16,455	36,653	225,508	214,170	439,678	0.0896	0.0768	0.9438	0.8096
5-9	17,870	11,172	29,042	224,303	213,903	438,206	0.0797	0.0522	0.8395	0.5504
10-14	10,688	6,243	16,931	222,339	211,968	434,307	0.0481	0.0295	0.5066	0.3104
15-19	8,725	11,005	19,730	216,342	206,321	422,663	0.0403	0.0533	0.4250	0.5621
20-24	11,755	21,255	33,010	234,363	228,501	462,864	0.0502	0.0930	0.5285	0.9802
25-29	10,618	23,815	34,433	235,748	236,514	472,262	0.0450	0.1007	0.4746	1.0611
30-34	18,118	26,607	44,725	246,561	245,023	491,584	0.0735	0.1086	0.7743	1.1443
35-39	15,610	24,031	39,641	246,441	246,550	492,991	0.0633	0.0975	0.6675	1.0271
40-44	15,275	19,901	35,176	226,728	227,123	453,851	0.0674	0.0876	0.7099	0.9233
45-49	16,514	21,913	38,427	219,613	213,579	433,192	0.0752	0.1026	0.7924	1.0812
50-54	16,649	19,905	36,554	176,248	169,606	345,854	0.0945	0.1174	0.9954	1.2367
55-59	17,312	22,915	40,227	144,448	140,814	285,262	0.1198	0.1627	1.2629	1.7148
60-64	20,441	21,928	42,369	123,508	125,412	248,920	0.1655	0.1748	1.7440	1.8425
65-69	23,449	23,418	46,867	119,026	126,464	245,490	0.1970	0.1852	2.0760	1.9513
70-74	17,783	21,553	39,336	98,097	117,233	215,330	0.1813	0.1838	1.9103	1.9373
75-79	11,278	17,501	28,779	64,080	87,562	151,642	0.1760	0.1999	1.8546	2.1062
80-84	5,449	11,812	17,261	37,072	62,685	99,757	0.1470	0.1884	1.5489	1.9857
85 & over	3,756	5,813	9,569	20,233	49,808	70,041	0.1856	0.1167	1.9562	1.2298
Total	261,488	327,242	588,730	3,080,658	3,123,236	6,203,894				
					All	0.0949				
**Note: Excludes missing age, gender and patient care time values, and group and telephone consultancies*										

29

6.2.3 Outpatient Services

The formula for the Outpatients Services component includes:

- Age/Sex adjustment based on the 1994 Outpatient Survey
- Generic Need index
- Aboriginality factor
- Homeless weighting
- HIV/AIDS factor
- Radiotherapy and other Statewide Services factor.

An adjustment for cross boundary flows for these services has been included based on 10% of the cost of last inpatient cross boundary flows (see Appendix C). Research in 1999 should identify a more appropriate empirical basis for this adjustment.

Information from the 1994 Outpatient Survey was analysed to refine the age/sex weights to be applied to these services. The age/sex weights are in Table 10.

The Generic Need Index has been applied to this category of expenditure, although it is recognised that further work is required to understand the relationship between the utilisation of these services and population characteristics.

A weighting of 2.5 has been be applied for Aboriginal people and homeless people.

For administrative convenience specific funding for HIV/AIDS services has been included under this program, although expenditures occur across a range of programs including population health, acute inpatients and palliative care. A factor reflecting the current distribution principles for these services is included in this component. The most significant component of the current funding which is reflected in the Resource Distribution Formula is distribution according to a weighted formula based on HIV/AIDS prevalence and population.

Funding for radiotherapy, MRI and other specialist statewide non-inpatient services is also captured under this component reflecting the current distribution of these services and catchment populations. Table 11 details the list of Statewide Services under the Outpatients program. The costs associated with these services have been updated to reflect more recent estimates of expenditure. The Department is currently undertaking a review of funding arrangements for Statewide Specialty Services in tandem with the review of plans for Selected Specialty Services. The full list of all Statewide Services (including the outpatient services in Table 11) currently in the Resource Distribution Formula is at Appendix B. Although the review has not yet been completed, the results will be incorporated into future versions of the Formula.

Table 12 provides details of the formula under this component.

Table 11: Statewide Services built into Outpatient Services

	Radio-therapy	*MRI*	*Home Dialysis Fluids*	*STARTT*	*CEIDA/Health-quest*	*ICP&MR**	*Neonatal & Paediatric/ Adult Retreival*	*Statewide Genetics*	*Total*
	$m	$m	$m	$m	$m	$m	$m	$m	$m
100 Central Sydney	3.60	1.20	2.51		4.50			0.77	12.58
105 Northern Sydney	3.60	1.20	1.27					0.50	6.57
120 Western Sydney	4.80	1.20	1.99			1.40	2.70		12.09
125 Wentworth	1.20								1.20
130 South West Sydney	3.60		1.06	1.10					5.76
135 Central Coast			0.39						0.39
140 Hunter	3.60	1.20	1.72					0.38	6.90
145 Illawarra	2.40		0.67						3.07
155 South Eastern Sydney	12.00	1.20	1.68				0.66	0.42	15.95
400 Northern Rivers									
410 Mid North Coast									
420 New England									
430 Macquarie									
440 Mid Western									
450 Far West									
460 Greater Murray									
470 Southern NSW									
Total	*34.80*	*6.00*	*11.29*	*1.10*	*4.50*	*1.40*	*3.36*	*2.07*	*64.51*

*Institute of Clinical Pathology & Medical Research

30

Table 12: Non-Inpatient Activity
Outpatient Services

	Age/Sex Weighted Population	*Generic Need Index*	*Need Adjusted Population*	*Aboriginal Factor*	*Homeless Factor*	*Total Need Adjusted Population*	*Normalised Population*	*Percentage Share*
100 Central Sydney	502,646	102.9	517,122	7,297	3,558	527,977	506,738	7.7%
105 Northern Sydney	801,855	82.5	661,210	2,835	503	664,548	637,815	9.8%
120 Western Sydney	667,811	99.4	663,805	13,017	590	677,411	650,161	9.9%
125 Wentworth	302,967	97.7	296,059	7,239	643	303,941	291,714	4.5%
130 South West Sydney	758,932	101.1	767,356	14,725	1,088	783,168	751,664	11.5%
135 Central Coast	315,953	102.9	325,021	5,781	388	331,189	317,867	4.9%
140 Hunter	557,051	103.2	574,876	14,465	1,258	590,599	566,841	8.7%
145 Illawarra	368,325	100.2	369,025	9,709	115	378,849	363,609	5.6%
155 South Eastern Sydney	796,471	93.5	744,963	7,827	3,098	755,888	725,481	11.1%
400 Northern Rivers	290,817	103.8	301,867	10,960	275	313,102	300,507	4.6%
410 Mid North Coast	296,729	105.5	313,181	12,222	273	325,676	312,575	4.8%
420 New England	178,186	113.5	202,290	17,543	174	220,007	211,157	3.2%
430 Macquarie	107,103	115.3	123,469	13,246	105	136,821	131,317	2.0%
440 Mid Western	170,617	110.8	189,106	8,667	169	197,942	189,979	2.9%
450 Far West	48,050	167.7	80,589	11,051	47	91,687	87,999	1.3%
460 Greater Murray	265,084	108.6	287,992	10,015	260	298,268	286,269	4.4%
470 Southern NSW	197,940	107.3	212,469	5,749	189	218,407	209,622	3.2%
Total	*6,626,538*		*6,630,401*	*172,348*	*12,729*	*6,815,478*	*6,541,314*	*100.0%*

31

6.2.4 Emergency Departments

The formula for Emergency Departments includes:

- Age/sex adjustment based on application of ED cost weights to Triage Category data from EDIS
- Generic Need Index
- Aboriginality factor
- Homelessness factor
- Population adjustments relating to tourist and working population effects.

An adjustment for cross boundary flows for these services has been included based on 5% of the cost of net inpatient flows (see Appendix C). In future years the cross boundary flow element will be dealt with through separate funding arrangements when appropriate casemix measures are available.

To calculate age/sex weights, EDIS data for the period November 1995 to October 1996 have been analysed. In the calculation of age/sex weights, presentations were weighted according to disposition and triage category using data derived from a study undertaken at Flinders Medical Centre (FMC)[3] which reported on the variables that are important in explaining costs in Emergency Departments. The study indicated that Priority (triage category), Outcome (Admitted/Died/DOA, Discharged, Did not wait) both explained around 40% of cost variation. The analysis also found that the addition of a simple age grouping (<15, 15-34,35-64,>64) explained around 50% of the variance. The mean costs from the study can be translated into relative cost weights as set out in Table 13.

Table 13: Cost Weights from FMC Study

Age	*Triage Cat 1*	*Triage Cat 2*	*Triage Cat 3*	*Triage Cat 4*	*Triage Cat 5*
			Not Admitted		
0-14	1.2347	0.7940	0.2192	0.6878	0.6216
15-34	1.2347	1.0412	0.9425	0.7673	0.6216
35-64	1.2347	1.0028	0.9834	0.7692	0.6216
65 +	1.2347	1.0995	1.0481	0.8583	0.6216
			Admitted		
0-14	2.9360	1.0318	0.8747	0.8237	1.1873
15-34	2.8648	1.7459	1.3280	1.1130	1.1873
35-64	2.6089	1.4472	1.4400	1.1862	1.1873
65+	1.9548	1.5503	1.5657	1.0039	1.1873

Application of these cost weights to the EDIS data on presentations yields population age/sex weights. The age sex weights are set out in Table 14 and were used for calculating weighted population shares in the formula.

[3] Erwich-Nohout MA, Bond MJ, Baggsley C (1996) Costings in the Emergency Department, Study conducted in the Emergency Department at Flinders Medical Centre September 1995 - August 1996.

Table 14: Age/Sex Weights for Admitted/Non-Admitted Emergency Department Services

	Males	Females
0-4	1.77	1.38
5-9	0.71	0.55
10-14	0.68	0.49
15-19	1.01	0.83
20-24	1.18	0.99
25-29	1.10	0.89
30-34	0.89	0.71
35-39	0.83	0.67
40-44	0.77	0.61
45-49	0.79	0.64
50-54	0.88	0.71
55-59	0.96	0.73
60-64	1.07	0.89
65-69	1.42	1.04
70-74	1.86	1.37
75-79	2.42	1.87
80-84	3.18	2.48
85 & over	4.14	3.30
Total	1.09	0.91

The Generic Need Index has been applied to this category of expenditure, although it is recognised that further work is required to understand the relationship between the utilisation of these services and population characteristics.

A weighting of 2.5 has been be applied for Aboriginal people and homeless people.

An adjustment is included for a tourism population effect based on data from the NSW Tourism Commission on tourist nights by Statistical Local Area. Additionally, the Northern Rivers Area Health Service Tourism Factor has been increased by 36,900 to reflect the portion of the SE Queensland population served by this Area. The figure was based on a 1997 study undertaken for the Area by the Centre for Health Services Development (University of Wollongong). In the previous RDF the estimate of the SE QLD population served by NRHS was 50,000. A factor reflecting itinerant workers in three affected rural Areas has also been included in this adjustment based on estimates from the Department of Agriculture and the Commonwealth Employment Service.

Table 15 provides details of the formula under this component.

Table 15: Non-Inpatient Activity
Emergency Department Services

	Age/Sex Weighted Population	Generic Need Index	Need Adjusted Population	Aboriginal Factor	Remoteness Factor	Tourist Factor	Total Need Adjusted Population	Normalised Population
100 Central Sydney	497,259	102.9	511,581	7,297	3,558	(1,709)	520,726	500,466
105 Northern Sydney	791,489	82.5	652,620	2,835	503	(6,650)	649,309	624,045
120 Western Sydney	669,003	99.4	664,989	13,017	590	(6,286)	672,310	646,152
125 Wentworth	305,948	97.7	298,972	7,239	643	(2,400)	304,454	292,618
130 South West Sydney	768,379	101.1	776,908	14,725	1,088	(6,522)	786,198	755,619
135 Central Coast	314,045	102.9	323,058	5,781	388	(108)	329,118	316,313
140 Hunter	553,975	103.2	571,702	14,463	1,258	(753)	586,672	563,846
145 Illawarra	362,133	100.2	362,821	9,709	115	2,588	375,233	360,634
155 South Eastern Sydney	732,991	93.5	741,708	7,827	3,058	(2,356)	750,276	721,085
400 Northern Rivers	284,715	103.8	295,534	10,960	275	41,624	348,393	334,888
410 Mid North Coast	285,813	105.5	301,660	12,222	273	7,121	321,276	308,776
420 New England	176,112	113.5	199,936	17,543	174	2,650	220,302	211,731
430 Macquarie	105,631	115.3	121,773	13,246	105	1,107	136,231	130,931
440 Mid Western	169,063	110.8	187,384	8,667	169	62	196,282	188,645
450 Far West	47,164	167.7	79,103	11,051	47	695	90,896	87,359
460 Greater Murray	263,939	108.6	286,748	10,015	260	4,516	301,539	289,817
470 Southern NSW	190,747	107.3	204,748	5,749	189	6,219	216,905	208,466
Total	*6,578,357*		*6,581,243*	*172,348*	*12,729*	*39,800*	*6,806,120*	*6,541,314*

6.3 **ACUTE INPATIENT SERVICES**

The formula for acute inpatient services includes factors for:

- General Acute Services
  - Age/Sex weightings for General Services (excluding obstetrics and tertiary AN-DRGs)
  - Generic Need Index
- Tertiary Acute Services
  - Age/Sex weightings using HCCC AN-DRGs
- Obstetric Services
  - Age weightings using obstetrics AN-DRGs and actual births
  - Fertility rates for each Area
- Private hospital substitutable activity
- Public/private patient mix in public hospitals
- Health service ambulance costs (not NSW Ambulance Service costs)
- IPTAAS
- Patient Severity and Indirect Teaching & Research
- Specialist Paediatric Services
- Nationally Funded Centres
- Dispersion costs factor

Flows for acute inpatient services have to be taken into account when comparing the population share of funding with historical levels of funding which reflect where services are provided rather than where the population is located. Appendix C contains an assessment of acute inpatient flows and indicates flows to the New Children's Hospital and Interstate based on the most recent data.

Age/Sex Weights

The current Resource Distribution Formula applies an age/sex weighting derived from the 1995/7 hospital inpatient data collection. These are expressed in terms of a casemix weighted separation rates for age/sex groups and are calculated for General and Tertiary services. For Obstetric Services the need index is replaced by the age specific fertility rate, a measure of births per woman. This reflects that obstetric demand is more closely related to life cycle factors than chronological age. Fertility is higher in the outer metropolitan zones as people tend to change residence when they enter the family formation stage of the life cycle.

The age/sex weights for General and Tertiary services are based on:

- Casemix weighted separations of NSW residents treated in NSW public and private hospitals (excluding obstetric separations);
- Casemix weighted separations for NSW residents treated in interstate hospitals;
- Casemix weights applied utilising AN-DRG Version 3 and updated NSW cost weights. The age/sex weights for Tertiary services are based on casemix weighted separation rates for a defined list of High Cost Complex Casemix AN-DRGs. Age/sex weights for General services are derived from casemix weighted separation rates for all

other AN-DRGs (ie, excluding Tertiary and Obstetrics AN-DRGs). Separations occurring in freestanding day only private hospitals with a cost weight greater than 0.5 have been weighted at 0.5.

The age/sex weights are in Appendix D.

Generic Need Index

The Generic Need Index has been applied to general services (ie, non-Obstetric and non-Tertiary services). See section 5 for details of the Index.

Private Hospital Substitutable Activity

Acute inpatient services provided to patients treated in private hospitals provide a substitute for services provided in public hospitals. Therefore, since private hospitals are not funded from Area allocations, substitutable casemix weighted activity occurring in private hospitals is deducted from the total expected activity for the Area (the latter is derived from applying the age/sex utilisation rates and the Generic Need Index to the Area population). This deduction is needed because residents obtaining services from private hospitals save the Areas from having to meet the corresponding need in public hospitals. The definition of substitutable refers to the notion that a service performed in the private sector has substituted for activity which would otherwise be provided in the public sector.

In the previous RDF the deduction was not a full deduction as it has previously been estimated that around 20-30% of private hospital services are not substitutable for public hospitals services ie, they would not be undertaken in public hospitals and are therefore not regarded as a saving to Areas. The non-substitutable portion of private hospital activity relates to services like cosmetic surgery, some diagnostic testing which would normally be performed on an outpatient basis and purely elective procedures which are not performed in the public system which operates under fixed budgets and admits these patients on the basis of clinical need.

The previous approach assumed a rate of substitution of 70% for general activity whilst tertiary and obstetrics activity were assumed to be 100% substitutable. The overall level of substition in the previous RDF was 75.6%. More recent refinements to this factor have involved the calculation of separate levels of substitution at the NSW individual AN-DRG level and removal of the 100% substitution assumption for tertiary and obstetrics services. The application of this results in a separate level of substitution across Areas depending on each Area's casemix and utilisation of private hospitals. A number of adjustments were made to the calculation to reduce the impact of the significant variation in admission policies and coding practices for specific AN-DRGs (such as renal dialysis, chemotherapy, certain endoscopies, aftercare and postpartum care) which are outside of the control of the Areas and affect some Areas more than others.

For a number of other DRGs the level of substitution calculated by the formula approach was considered too high given the estimated impact of supply effects and the fact that some cosmetic surgery is very rarely performed in public hospitals. The levels of substitution for these DRGs were also adjusted downwards.

Overall across NSW, the level of substitution has changed little in this version of the Formula (it is now 73.4%), however each Area has a different level of substitution of private hospital activity rather than the same level as shown in Appendix E.

Public/Private Patient Mix in Public Hospitals

For private patients in public hospitals, to date the Department has adopted an approach in the Resource Distribution Formula which assigns a cost weight to private patient separations equal to 88% of the cost weight applied to public patient separations. This difference is mainly due to medical costs associated with chargeable patients being met by the patient (or health insurance fund/other third party payer). A factor along these lines is included in the Resource Distribution Formula, although a more sophisticated approach will be investigated in 1999.

Health Service Ambulance Costs and IPTAAS

Relative funding for ambulance services by the Health Services varies with distance to services. Remote areas require fixed wing aircraft for rapid retrieval and long range land ambulance transport for less urgent cases. The consequence is that the proportion of budget required for transport rises with increasing distance from metropolitan centres. A similar argument exists for the Isolated Patient Transport and Accommodation Assistance Scheme (IPTAAS).

A factor has been incorporated relating to Health Service Ambulance Costs of $28 million across Areas. The factor is distributed using the figures in the 1997/8 Agreements between the Areas and NSW Ambulance Service relating to inter-hospital transfers.

The factor relating to IPTAAS costs has been retained in this revision of the Resource Distribution Formula. The factor has been distributed to rural Areas on the basis of their share of the $6.1 million spent within the health service on IPTAAS. A Review of IPTAAS is currently being finalised and it is considering reallocating historical funding levels for IPTAAS on a population basis to Rural Health Services and the Hunter Area Health Service.

Severity and Indirect Teaching and Research

The Resource Distribution Formula includes a Severity and Indirect Teaching and Research product component, which is related to:

- severity components which are not captured in casemix adjustments using DRGs. Severity recognises that if one hospital treats patients who are more severely ill but fall within the same DRG as a less severely ill patient in another hospital, average cost weighting will underestimate the true costs incurred. As casemix methodology improves the severity differentials will gradually diminish.

- indirect teaching and research costs associated with patient care. These indirect costs will remain even if severity is fully recognised. This refers to the higher cost due to the nature of the Teaching and Research function and the Principal Referral Function. For example: principal referral hospitals need to ensure clinical staff and ICUs are

available for major trauma; patient care and teaching (and some research) occurs at the same time making these costs hard to separate; the additional time required for patient care and additional diagnostic test that occur when staff are undergoing training involves higher cost for the equivalent level of patient care in non-teaching hospitals.

The approach adopted in the RDF in calculating the indirect Severity/Mixed Product pool has been based on an assumption that the gross efficiency of Principal Referral hospitals as a group is equivalent to that of the non-referral hospitals as a group. Any difference in overall costs between referral and non-referral hospitals relates to the indirect Severity/Mixed Product component. The RDF approach to determining the Severity/Mixed Product component can be divided into two steps:

- The total amount in the indirect Severity/Mixed Product pool;
- The proportions in which this amount is distributed among the various Areas.

This approach has been continued but with one significant difference being the inclusion of Gosford, Penrith/Nepean, Newcastle Mater Misericordiae Hospital, Sydney/Sydney Eye and Royal Hospital for Women to the calculation of the pool. Using data from the 1996/7 Hospital Cost Survey and 1996/7 NSW Public Hospitals Comparison Book an initial pool of $191 million (cash) has been calculated as the difference in overall costs (equal to $346 per casemix weighted separation) of these hospitals attributable to severity and indirect teaching and research. Added to this pool is a 14.4% percent loading (which is the same percentage loading derived from the acute inpatient component calculation) on reported non-admitted emergency and outpatient costs which brings the pool up to $240 million. The higher cost for non-inpatient activity is already reflected in the Resource Distribution Formula through non-population adjustments of $50m for radiotherapy, NFCs and MRI. After this $50 million has been removed the residual pool for Severity and Indirect Teaching and Research is estimated to be $190 million.

For this refinement of the RDF the distribution has continued to be based on shares of HCCC activity, but only allocated to Areas with hospitals included in the calculation of the pool. While complex treatments and teaching and research occurs in other hospitals, the cost structures due to the scale of referral work and teaching and research activity in these hospitals requires a non-population allowance on top of the Direct Teaching and Research component of the Resource Distribution Formula which is provided to all areas.

Adjustments to the HCCC activity for Gosford, Liverpool, Illawarra and Penrith/Nepean Hospitals have also been included to reflect their increased activity since 1996/7 due to their expanding teaching/research and referral role.

Appendix F illustrates the close relationship between HCCC activity, estimated teaching load and direct expenditure on teaching and research. Given this relationship the continued use of HCCC activity as an indicator of teaching and research activity is considered appropriate for the distribution of funds for this component.

The following further work will be undertaken on this component:

- identification of teaching and research outputs and performance measures will be examined with a view to incorporating them into a more sophisticated funding model for teaching and research.
- identification of aspects of within DRG severity that could be funded directly on an output basis.

Nationally Funded Centres (including former NFCs)

Funding for these Centres has been provided to the host Areas and the patient flows to these centres have been removed from the calculation of overall flows to avoid double counting.

The Nationally Funded Centres and Recent NFCs are shown in Table 16.

Table 16: Current and Former Nationally Funded Centres

Hospital	Procedure
St Vincent's Hospital	Heart/Lung Transplants
Westmead Hospital	Pancreas Transplants
Royal Prince Alfred Hospital/Royal Alexandra Hospital for Children	Liver Transplants
Royal Prince Alfred Hospital/ Royal North Shore Hospital	Cerebrovascular Embolisation (CVE)

Specialist Paediatric Services

In the Resource Distribution Formula there is a need to ensure that a consistent set of principles is applied to the New Children's Hospital (which is excluded from the Formula) and funding of Specialist Paediatric Services at Sydney Children's Hospital (SCH) and John Hunter which are included in the Formula. The method for achieving this is to include an adjustment for the higher cost of these hospitals that cannot be explained by the average cost per casemix weighted separation for acute activity in other hospitals. This is the same approach used to identify the severity and indirect Teaching and Research cost of principal referral and major metropolitan referral hospitals.

For the SCH, the calculation uses the same State average costs used for the severity/indirect teaching and research pool and results in a loading of $346 per casemix weighted separation (equal to 14.4% over the State average cost). This same percentage loading is added to non-inpatient costs to derive a total loading of approximately $6.6 million for SCH.

John Hunter Hospital already receives a loading under the severity/indirect teaching and research factor of $12.5 million relating to all activity (including paediatrics). As the loading is the same as that applied to the adult caseload, no additional paediatric loading is required for John Hunter as the paediatric caseload has been included in the calculation of John Hunter's Severity/Indirect Teaching and Research factor (ie, the paediatric caseload is not reported separately to the Department whereas the SCH is a stand alone hospital with separately identifiable activity). The overall relative affect for each hospital is the same as the

only difference in their treatment is the presentation of the results under two separate RDF factors.

Note that the New Children's Hospital is excluded from the RDF and a factor for this hospital is not required.

In the future, cost data from interstate specialist paediatric services (eg possibly from the AAPTC) and costings of paediatric units in NSW public hospitals should inform the choice of benchmark cost for this factor.

Dispersion Costs Factor

It has been agreed by the HERC and RDF Committees that a population-based measure be used to calculate a factor for the additional costs of rural and remote regions rather than a small hospitals factor which basically reflects existing levels of provision. In particular, it was agreed that further work on the Commonwealth Grants Commission (CGC) approach to calculating dispersion factors would be undertaken. The key challenge is to disentangle the effects of dispersion on the need for additional facilities in Areas with rural populations (which should be legitimately acknowledged in the RDF) from historical patterns of service configuration which do not always align with the effects of dispersion.

The CGC approach estimates the relative extent to which each State's population is geographically dispersed and how that spatial distribution of population imposes costs on States in the delivery of services. In its most simple form the CGC approach attempts to standardise cost items affected by dispersion against population-weighted distances to regional centres and capital cities. These cost items relate to telephone calls over long distances, travel in connection with the provision of services (by motor vehicle and air), freighting goods or transferring staff and compensating staff for working in remote locations.

A NSW Area Health model has been developed based on the CGC approach and, for each CGC cost item, a set of distance-weighted population units have been calculated which have been converted to an index of relative dispersion for each Area. The raw populations of each SLA were weighted by the Generic Need Index to ensure that the distance-weighted population units reflected the estimated higher level of population need in rural Areas. This weighting was made to be consistent with research by the AIHW reported in *Australia's Health 1998* which found that age standardised hospitalisation rates in the remote areas are 23%/40% higher for males/females respectively than the rate in capital cities.

Two separate calculations were used to derive the relative dispersion index for each Area: one for the distance from major referral hospital (note: this is an adaptation of the distance from regional centres calculation of the pure CGC model) and another for the distance from nearest capital city.

Analysis of actual 1997/8 costs reported by Areas for each of the CGC cost items showed a relationship between relative dispersion and per capita service costs. The analysis showed that as the degree of relative dispersion increased, the per capita cost for the CGC cost items also increased. To calculate the per capita cost for each CGC cost item and Area, the estimated number of residents relating to patient flows was added/subtracted from inflow/outflow Areas populations to ensure that the per capita costs were related to the provision of services to the local population (ie, where the residents normally reside) rather than the costs of treating residents from other Areas.

Applying the relative dispersion index to the Statewide per capita cost for each of the CGC cost items (based on actual reported data for 1997/8) results in an estimate of total expected expenditure on these items for each Area. However, as we are only interested in the marginal additional costs of these components and not the total costs, only those costs of Areas with rural populations over and above the average per capita cost in metropolitan Areas for each cost item were included in this factor.

The Dispersion Costs Factor has been proportioned across the Acute Inpatient, Primary & Community Based Services and Rehabilitation & Extended Care components of the Formula according to the share of the total health expenditure of these programs. These programs are consistent with the programs assumed by the CGC in its model and reflects where the majority of the costs have been incurred. Also, given the very small numbers involved, the dispersion-related costs associated with outpatient and emergency departments have been included under Acute Inpatient Services whilst Aboriginal Health and Population Health have been included under the Primary & Community Based Services component.

Table 17 provides details of the formula under this component.

Table 17a: Acute Inpatient Activity
Population Components

	GENERAL					TERTIARY	OBSTETRIC	
	Age/Sex Weighted DRG Weighted Activity*	Transient Workers	Adjusted Weighted Activity	Generic Need Index	Total Weighted Activity	Age/Sex Weighted DRG Weighted Activity*	Age/Sex Weighted DRG Weighted Activity**	Total Weighted Activity
100 Central Sydney	90,569	-	90,569	102.9	93,177	21,195	7,701	122,073
105 Northern Sydney	152,925	-	152,925	82.5	126,102	34,568	10,101	170,770
120 Western Sydney	112,345	-	112,345	99.4	111,671	27,842	12,245	151,758
125 Wentworth	50,117	-	50,117	97.7	48,975	12,416	5,498	66,888
130 South West Sydney	127,437	-	127,437	101.1	128,851	31,780	14,195	174,826
135 Central Coast	63,131	-	63,131	102.9	64,942	14,693	4,313	83,949
140 Hunter	104,589	-	104,589	103.2	107,936	24,860	7,694	140,491
145 Illawarra	68,771	-	68,771	100.2	68,902	16,703	5,142	90,747
155 South Eastern Sydney	147,722	-	147,722	93.5	138,169	33,802	10,519	182,490
400 Northern Rivers	57,106	-	57,106	103.8	59,276	13,593	3,571	76,440
410 Mid North Coast	59,738	-	59,738	105.5	63,050	14,293	3,538	80,880
420 New England	33,349	800	34,149	113.5	38,769	8,023	2,548	49,339
430 Macquarie	19,520	-	19,520	115.3	22,503	4,854	1,820	29,177
440 Mid Western	31,181	-	31,181	110.8	34,560	7,614	2,690	44,864
450 Far West	8,962	300	9,262	167.7	15,534	2,206	673	18,412
460 Greater Murray	49,396	1,800	51,196	108.6	55,620	11,963	4,102	71,684
470 Southern NSW	37,400	-	37,400	107.3	40,145	9,141	2,313	51,599
Total	*1,214,258*	*2,900*	*1,217,158*		*1,218,182*	*289,545*	*98,661*	*1,606,387*

** Based on State casemix weighted utilisation rates for age/sex groups*
*** Based on AN-DRG cost weights for birth*

42

Table 17b: Acute Inpatient Activity
Cost Components

	Public/ Private Mix $'000	Health Service Ambulance $'000	IPTAAS $'000	Severity/ Mixed Product $'000	Nationally Funded Centres $'000	Specialist Paediatric $'000	Dispersion -related Costs $'000	New Children's Hospital Flows - Public $'000
100 Central Sydney	(1,848)	822	-	42,945	4,560		-	(3,963)
105 Northern Sydney	(3,119)	1,200	-	22,951	1,220		-	(3,478)
120 Western Sydney	913	900	-	25,435	1,000		-	(15,178)
125 Wentworth	580	515	-	7,293	-		252	(4,331)
130 South West Sydney	1,711	1,050	-	12,850	-		220	(8,726)
135 Central Coast	(53)	825	-	4,809	-		369	(2,190)
140 Hunter	550	2,000	-	17,519	-		543	(1,056)
145 Illawarra	644	1,250	-	6,344	-		578	(1,309)
155 South Eastern Sydney	(2,191)	1,000	-	49,855	4,500	6,600	-	(1,058)
400 Northern Rivers	954	2,870	1,685	-	-		1,402	(352)
410 Mid North Coast	705	2,250	-	-	-		2,105	(1,999)
420 New England	108	2,500	1,334	-	-		2,899	(690)
430 Macquarie	334	2,547	835	-	-		1,113	(888)
440 Mid Western	282	2,500	445	-	-		1,176	(1,539)
450 Far West	175	1,239	372	-	-		2,249	(115)
460 Greater Murray	105	4,153	1,187	-	-		2,602	(766)
470 Southern NSW	152	2,051	401	-	-		1,253	(957)
Total	*(0)*	*29,672*	*6,259*	*190,000*	*11,280*	*6,600*	*16,760*	*(48,592)*

43

6.4. REHABILITATION AND EXTENDED CARE SERVICES

The formula for rehabilitation and extended care for the previous Resource Distribution Formula was essentially that proposed in the 1995 discussion paper 'A Resource Allocation Formula for Program 2.9'. It included factors for:

- Palliative Care
  - age weights based on the age distribution of hospital bed days for oncology
  - a need index reflecting the 1989/91 Oncology Standardised Mortality Ratio for the Area
  - a private services flow factor based on utilisation of private hospices
- Community Nursing
  - age weights based on a cost survey of HACC services conducted in the Hunter Area
  - the blended need index for Aged and Rehabilitative Care (see below)
- Rehabilitation
  - age weights based on data held by the Central Coast and Illawarra Areas
  - the blended need index for Aged and Rehabilitative Care (see below)
- Program of Appliances for Disabled People (PADP)
  - age/sex weights for the RAF for program 2.3
  - A need index based on the ABS Education and Occupation Index
- Aged Care Assessment Program
  - age/sex utilisation rates based on ACAP data
  - the blended need index for Aged and Rehabilitative Care (see below)
- Statewide Services for Rehabilitation
- Nursing Home Type Patients in Public Hospitals
- Rehabilitation hospital flows based on bed days.

Recent Developments and Issues

The boundary between the Rehabilitation and Extended Care Program continues to be a significant problem for most Area health services. The key issue is that whereas the previous program 2.9 was largely a service based approach to defining boundaries, the new program 5.1 is more aligned to patient types. Key areas of problems include:

- absence of authoritative definitions of sub/non acute patient episodes
- costing of sub/non acute patients in general care settings
- appropriate assignment of various costs (eg pathology) to sub and non acute patients
- appropriate assignment of community health costs (eg community nursing) to the program

NSW Health is attempting to address some of these issues systematically over the next few years. A key initiative is that NSW Health sponsored a National Sub and Non Acute Care Study (SNAP) which was undertaken by the Centre for Health Service Development at the University of Wollongong. This study proposed that the Sub and Non Acute Episodes be classified in the following types:

- Rehabilitation
- Geriatric Evaluation and Management
- Palliative Care
- Psychogeriatric Care
- Maintenance Care.

The SNAP study has yielded a range of results which will be used in revising the Resource Distribution Formula, including age/sex specific costs for these services. The age/sex weights are in Table 18. The weights are based on the national cost data and combine overnight care with ambulatory care. As gender was not captured in the SNAP study, breakdowns into gender categories were based on other sources such as anecdotal reports from SNAP sites and NSW Cancer Council reports.

Table 18: Age/Sex Weights for Rehabilitation & Extended Care

Combined Overnight/Ambulatory Weights

Male	Palliative Care	Rehabilitation	Other**	Psychogeriatrics	PADP
0-4	-	0.020	-	-	0.564
5-9	-	0.020	-	-	0.564
10-14	-	0.020	-	-	0.564
15-19	-	0.140	-	-	0.258
20-24	0.035	0.355	0.178	-	0.258
25-29	0.047	0.221	0.206	-	0.272
30-34	0.123	0.294	0.228	-	0.272
35-39	0.209	0.345	0.241	-	0.272
40-44	0.267	0.519	0.278	-	0.272
45-49	0.622	0.372	0.355	-	0.825
50-54	0.819	0.583	0.171	0.299	0.825
55-59	1.748	0.783	0.427	0.615	0.825
60-64	2.614	1.109	1.072	1.849	0.825
65-69	4.822	2.379	1.925	3.282	3.267
70-74	6.640	4.192	3.254	4.983	3.267
75-79	8.047	6.333	6.178	6.927	8.834
80-84	9.955	9.987	10.855	8.929	8.834
85+	10.257	12.764	14.196	11.704	8.834

Female	Palliative Care	Rehabilitation	Other**	Psychogeriatrics	PADP
0-4	-	0.020	-	-	0.564
5-9	-	0.020	-	-	0.564
10-14	-	0.020	-	-	0.564
15-19	-	0.037	0.116	-	0.258
20-24	0.037	0.014	0.213	-	0.258
25-29	0.047	0.055	0.252	-	0.272
30-34	0.167	0.074	0.230	-	0.272
35-39	0.287	0.046	0.295	-	0.272
40-44	0.367	0.130	0.340	-	0.272
45-49	0.856	0.372	0.435	-	0.825
50-54	1.126	0.582	0.658	0.355	0.825
55-59	1.748	0.783	0.702	1.142	0.825
60-64	1.960	1.669	1.380	3.434	0.825
65-69	3.391	2.379	2.553	6.096	3.267
70-74	4.980	5.132	4.069	9.259	3.267
75-79	5.211	7.760	7.792	12.865	8.834
80-84	7.466	12.189	13.267	16.143	8.834
85+	7.692	16.822	22.737	21.756	8.834

***Includes GEM and Maintenance Care*

These weights have been adopted in the population-based components of this element of the Resource Distribution Formula detailed below. The weights to be applied in the Resource Distribution Formula also combine GEM and Maintenance Care into *Other*. The Other sub-category was further split into *Commonwealth Aged Care Assessment Program* to reflect the specific funding formula developed for this component.

A key difference in this new approach to that adopted in the previous Resource Distribution Formula is that community based services are part of the various episode types. In NSW and SA the SNAP study has collected data on community services along with inpatient care.

With the need to align the program expenditure data with the way in which the weights have been applied to the Rehabilitation & Extended Care component of the Resource Distribution Formula, a survey of Area 1996/7 expenditure on program 5.1 was undertaken which has resulted in the following revised weightings under this component.

Table 19: Sub-component Relative Shares

Sub-component	% Share
Rehabilitation	50
Palliative Care	10
Other (includes GEM, Maintenance Care, C/W ACAP)	26
PADP	5
Psychogeriatrics	6
Non-population-based factors	9
Total	**100.0%**

Rehabilitation

Previously, the population component of rehabilitation in the Resource Distribution Formula used age weightings based on data from the Central Coast and Illawarra Area Health Services. However with the availability of better data from SNAP, the age/sex weights for this component have been based on the SNAP data referred to above. The Blended Need Index has also been applied.

There is also an allowance for Statewide services for the all Brain Injury Units (particularly the three specialist brain injury units in Northern Sydney AHS, Western Sydney AHS and South Western Sydney AHS) and Specialist Spinal Injury Units in South Eastern Sydney AHS and Northern Sydney AHS.

Palliative Care

The age/sex weights for this component have been based on the SNAP data referred to above.

Data from 1990 to 1994 have also been used to update the Cancer Standardised Mortality Ratios used in the Palliative Care Need Index. The private hospital utilisation factor has also been recalculated using the most recent data on palliative care bed days by Area.

It should be noted that palliative care for AIDS is included in the total AIDS model which, for convenience, is a single entity in the outpatients funding component of the Resource Distribution Formula.

Other

This component includes Geriatric Evaluation & Management and Maintenance Care and Commonwealth Aged Care Assessment Program (ACAP) funding. The age/sex weights for the GEM and Maintenance Care component have been based on the SNAP data referred to above and have been further weighted by the Blended Need Index. The age/sex weights for the Commonwealth ACAP funding have been based on actual utilisation data from the *NSW Evaluation Unit* based at Westmead. The weighted ACAP populations have been further weighted by the Generic Need Index, the ATSI population aged > 45 years, and an index based on private/non-private dwelling living arrangements.

Psychogeriatrics

The current NSW Health program structure includes those services which are most closely aligned with aged care, such as CADE units, residential care for dementia patients and any community-based services in the Rehabilitation & Extended Care program. Acute psychogeriatric units are included in the Mental Health program. Given that the age/sex weights from the SNAP study are conveniently based on non-acute psychogeriatric patients, funding for these services has been allocated under the Rehabilitation & Extended Care component.

PADP

Utilisation data by age group have been obtained from a Survey of PADP in NSW and converted into age specific population weights. The need index is based on the ABS socio-economic index of Education and Occupation.

Community Services

With the adoption of age/sex weights derived from data from SNAP, the Community Services (largely community nursing) sub-component used previously in the Resource Distribution Formula has been absorbed into the other sub and non acute case types.

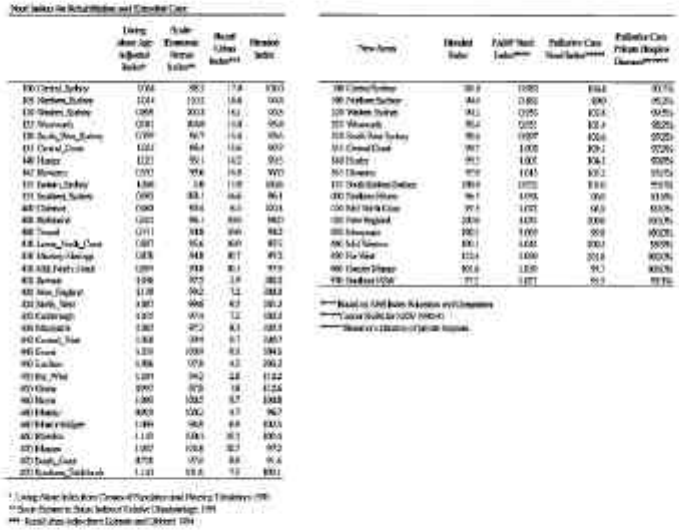
The Blended Need Index

The Blended Need index used for Rehabilitation and Community Services is a blend of factors including:

- age adjusted rates of people living alone (weighted by 3)
- the ABS socio-economic status index of Relative Disadvantage (weighted by 2); and
- a rurality variable (weighted by 1).

Table 20 details the Blended Need Index for Area Health Services. This index has also been applied in this revision of the Resource Distribution Formula. Note that other specific Need Indices are used for PADP and Palliative care.

Table 20: Need Index for Rehabilitation and Extended Care



State Government Nursing Homes & Nursing Home Type Patients in Acute Care Facilities

The majority of SGNH expenditure has been excluded from the Resource Distribution Formula based on the estimate of the average cost per bed day (assumed to be $145) currently used in the Department's SGNH strategy applied to the number of beds at August 1998. Additionally, there are five SGNHs which are NGO-managed and which are receiving a top up of $8.93 per occupied bed day from the Area to cover costs. For these SGNHs, this lower figure has been used to exclude the Areas' costs related to these beds from the Formula. The occupancy rate used to calculate the total expenditure is 98%.

An allowance recognising the additional burden on Areas of NHTPs in public hospitals as a result of insufficient aged care residential places has been continued in this revision of the Resource Distribution Formula for equity reasons. However, a refined approach has been adopted. The allowance has been provided under two components: (1) a base population component which would is already captured under the *Geriatric Evaluation & Monitoring* and *Maintenance Care* age/sex weights and (2) an additional component reflecting the estimated additional burden of NHTP bed days in rural Areas (over and above a given base level of NHTP bed days per 1000 population aged over 65) where there are typically an under-supply of aged care residential places such as nursing homes, hostels and community aged care packages for home-based care. The estimated number of additional NHTP bed days in an Area is then multiplied by $142 which is the average cost per maintenance care bed day from the SNAP study.

Patient Flows Across Areas

An adjustment has been made for flows of patients to non-acute facilities for rehabilitation. The flows are based on all Rehabilitation episodes and uses the average core cost per bed day of $265 from the SNAP study. Ultimately these flows should be dealt with under funding arrangements for patient flows.

It is considered that Palliative Care services should be provided in the local community and therefore no specific adjustments have been made for flows of these services. Similarly no adjustments should be made for Psychogeriatrics, PADP or Other Services (relating to Geriatric Evaluation & Management and Maintenance Care).

Dispersion Costs Factor

A dispersion costs factor has been included in this component of the Formula. This factor captures the higher costs of providing services in rural and remote areas of NSW. For convenience, discussion of this factor has been included under section 6.3 *Acute Inpatient Services*.

Table 21 provides details of the formula under this component.

Table 21a: Rehabilitation and Extended Care
Population Components

	Palliative Care						*Rehabilitation*	
	Age/Sex Weighted Population	*Palliative Care Need Index*	*Private Discount*	*Total Need Adjusted Population*	*Normalised Population*	*Percentage Share*	*Age/Sex Weighted Population*	*Rehab & Ext. Care Need Index*
100 Central Sydney	540,476	106.8	99.7%	575,510	518,672	7.9%	543,184	101.0
105 Northern Sydney	958,614	89.0	95.2%	811,814	731,638	11.2%	1,009,766	94.4
120 Western Sydney	626,629	103.8	99.5%	646,991	583,093	8.9%	604,308	94.3
125 Wentworth	272,025	101.4	98.2%	270,732	243,994	3.7%	260,848	95.4
130 South West Sydney	707,158	102.6	99.2%	719,903	648,805	9.9%	680,234	93.6
135 Central Coast	417,642	104.1	97.9%	425,816	383,762	5.9%	432,497	99.7
140 Hunter	655,215	104.1	99.8%	681,028	613,769	9.4%	658,810	99.5
145 Illawarra	434,955	103.2	93.0%	417,515	376,281	5.8%	423,220	97.0
155 South Eastern Sydney	902,530	103.0	99.0%	920,134	829,260	12.7%	930,952	100.0
400 Northern Rivers	376,882	90.0	81.8%	277,468	250,065	3.8%	376,018	96.5
410 Mid North Coast	406,807	96.9	99.9%	393,636	354,760	5.4%	400,901	97.5
420 New England	209,420	100.0	100.0%	209,420	188,738	2.9%	209,011	102.0
430 Macquarie	120,520	99.8	100.0%	120,279	108,400	1.7%	117,220	102.3
440 Mid Western	192,364	100.5	99.9%	193,063	173,996	2.7%	189,158	102.1
450 Far West	56,481	101.8	100.0%	57,498	51,819	0.8%	55,114	112.4
460 Greater Murray	308,789	99.7	100.0%	307,813	277,413	4.2%	307,285	101.8
470 Southern NSW	241,089	95.9	99.3%	229,517	206,850	3.2%	231,789	97.2
Total	*7,427,594*			*7,258,138*	*6,541,314*	*100.0%*	*7,430,314*	

50

	Other (GEM & Maintenance Care)						*PADP*	
	Age/Sex Weighted Population	*Rehab & Ext. Care Need Index*	*Total Need Adjusted Population*	*Normalized Population*	*Percentage Share*	*Commonwealth ACAT $'000*	*Age/Sex Weighted Population*	*PADP Need Index*
100 Central Sydney	567,790	101.0	573,467	497,895	7.6%	900	492,643	0.982
105 Northern Sydney	1,077,454	94.4	1,017,117	883,080	13.5%	1,458	862,458	0.863
120 Western Sydney	618,984	94.3	583,702	506,781	7.7%	1,168	606,657	0.953
125 Wentworth	268,244	95.4	255,905	222,182	3.4%	351	270,278	0.951
130 South West Sydney	693,355	93.6	648,980	563,457	8.6%	903	695,596	0.997
135 Central Coast	451,846	99.7	450,490	391,124	6.0%	690	373,969	1.002
140 Hunter	681,024	99.5	677,619	588,321	9.0%	1,055	598,294	1.001
145 Illawarra	429,699	97.0	416,808	361,881	5.5%	619	392,279	1.013
155 South Eastern Sydney	979,346	100.0	979,452	850,379	13.0%	1,349	820,925	0.932
400 Northern Rivers	387,958	96.5	374,194	324,883	5.0%	586	334,582	1.058
410 Mid North Coast	411,075	97.5	400,605	347,813	5.3%	628	352,259	1.072
420 New England	216,492	102.0	220,747	191,657	2.9%	360	189,758	1.054
430 Macquarie	119,841	102.3	122,615	106,457	1.6%	210	110,472	1.069
440 Mid Western	193,676	102.1	197,809	171,741	2.6%	315	176,534	1.042
450 Far West	56,541	112.4	63,576	55,198	0.8%	139	50,417	1.090
460 Greater Murray	316,771	101.8	322,467	279,972	4.3%	513	281,865	1.050
470 Southern NSW	235,321	97.2	228,621	198,493	3.0%	360	213,454	1.027
Total	*7,705,418*		*7,534,176*	*6,541,314*	*100.0%*	*11,603*	*6,822,439*	

51

	Psychogeriatrics					Other Cost Components			
	Age/Sex Weighted Population	Rehab & Ext. Care Need Index	Total Need-Adjusted Population	Normalised Population	Percentage Share	NMHP $000	Dispersed/isolated Costs $000	Statewide $000	Redistribution Flows $000
100 Central Sydney	682,358	1,010	688,881	484,409	7.4%	–	–	-	(698)
105 Northern Sydney	1,237,263	944	1,167,577	858,025	13.1%	–	–	4,500	1,650
120 Western Sydney	717,526	943	676,627	497,455	7.6%	–	–	3,000	186
125 Wentworth	302,108	954	288,211	211,862	3.2%	–	35	-	(207)
130 South West Sydney	806,676	936	755,049	555,111	8.5%	–	31	3,000	(90)
135 Central Coast	545,981	997	544,343	400,200	6.1%	–	52	–	(99)
140 Hunter	816,137	985	802,056	590,123	9.1%	–	76	1,000	(55)
145 Illawarra	530,032	970	514,131	377,988	5.8%	–	81	442	(85)
155 South Eastern Sydney	1,131,114	1,000	1,131,256	831,683	12.7%	–	–	2,500	238
400 Northern Rivers	471,820	965	455,081	334,575	5.1%	862	195	294	85
410 Mid North Coast	509,738	975	496,755	365,214	5.6%	–	294	314	(332)
420 New England	259,069	1,020	264,365	194,361	3.0%	3,762	405	372	(78)
430 Macquarie	145,665	1,023	149,037	109,572	1.7%	3,657	156	198	208
440 Mid Western	234,207	1,021	239,216	175,863	2.7%	9,997	164	429	(231)
450 Far West	67,617	1,124	76,030	55,897	0.9%	365	314	–	(272)
460 Greater Murray	380,724	1,018	387,559	284,940	4.4%	5,457	364	489	(225)
470 Southern NSW	288,018	972	280,789	206,436	3.2%	706	175	553	(79)
Total	*9,097,251*		*8,897,342*	*6,541,314*	*100.0%*	*24,817*	*2,344*	*17,800*	*(0)*

52

6.5 MENTAL HEALTH SERVICES

A draft Mental Health RDF has been prepared and requires further refinement over 1998/9. In the interim the mental health component of the RDF has been based on historical expenditures of Areas. Table 22 provides details of the historical costs-based formula under this component.

Table 22: Mental Health

	Percentage Share
100 Central Sydney	15.9%
105 Northern Sydney	15.6%
120 Western Sydney	14.0%
125 Wentworth	2.3%
130 South West Sydney	5.5%
135 Central Coast	2.5%
140 Hunter	10.6%
145 Illawarra	3.7%
155 South Eastern Sydney	11.0%
400 Northern Rivers	2.2%
410 Mid North Coast	2.1%
420 New England	2.1%
430 Macquarie	0.7%
440 Mid Western	5.2%
450 Far West	0.5%
460 Greater Murray	1.7%
470 Southern NSW	4.5%
Total	*100%*

53

Table 22: Teaching and Research (direct costs)

		Share
100	Central Sydney	13.1%
105	Northern Sydney	12.2%
120	Western Sydney	17.3%
125	Wentworth	4.7%
130	South West Sydney	6.8%
135	Central Coast	3.4%
140	Hunter	7.8%
145	Illawarra	5.4%
155	South Eastern Sydney	19.1%
400	Northern Rivers	1.2%
410	Mid North Coast	2.0%
420	New England	2.9%
430	Macquarie	0.6%
440	Mid Western	0.4%
450	Far West	0.4%
460	Greater Murray	2.0%
470	Southern NSW	0.7%
	Total	***100.0%***

6.6 DIRECT COSTS OF TEACHING AND RESEARCH

Certain costs can be directly identified by Areas as expenditures on teaching and research activities. In 1995/6 the Department sponsored research on guidelines for identifying these elements of direct costs. Three elements of direct costs have been identified:

- *Special Purpose and Trust Funds:* These trust funds have been excluded from the Resource Distribution Formula pool of funds.
- *Expenditures funded through Local Revenue:* These expenditures are relatively small but have been excluded from the effect of the distribution approach recommended in this report.
- *Department funded Expenditures including overheads:* Of the remaining direct teaching and research costs, these have been distributed according to the direct costs reported by Areas in the unaudited 1996/7 program expenditure reports.

The 1996 Resource Distribution Formula included a direct teaching and research component that was based on a survey of Teaching and Research Program expenditure of Areas for 1994/95. For this refinement of the Resource Distribution Formula the relative shares of direct teaching and research expenditure reported in the detailed 1994/95 survey have been updated since the survey was considered to be the most accurate assessment of expenditure available.

An adjustment was made to the total pool of funds for the Teaching and Research component as the 1996/7 program expenditure reports have highlighted varying levels of compliance in reporting across Areas under the Teaching and Research Program (eg, some Areas have reported zero costs whilst others have reported increases in expenditure of over 300% since 1995/6). Given these changes impact directly on the RDF pool for Teaching and Research (which is a non-population based component), the pool of funds for Teaching and Research has been based instead on the 1995/6 average percentage share of total Area expenditure (1.4%) rather than the 1996/7 share of 2%. The dollar difference has been allocated to the Acute inpatient component of the RDF to ensure the total expenditure of Areas remains consistent with that reported in 1996/7.

The Teaching and Research Sub-Committee of HERC recommended that in the future funding be linked to measures of teaching outputs and research performance and to strategic considerations in developing an appropriate teaching and research infrastructure across NSW. This will be progressed by the Department in 1998/9 through the Teaching Advisory Committee and Research & Development Advisory Committee.

For indirect teaching, research and patient severity costs, funding has been allocated as explained in the Acute Care component.

Table 23 provides details of the formula under this component.

54

7. FUTURE REFINEMENTS AND RESEARCH PRIORITIES

A number of priorities for research over the next twelve months have been identified. The key issues to be dealt with are as follows:

- Reviewing the Health Need Index
- Refining the Mental Health component
- Refining the Oral Health component
- Updating the population projections based on the PPG LGA-level projections when released
- Refining the age/sex weights for Primary & Community
- Refining the non-population based factors for Acute Services, particularly treatment of statewide services
- Refining the Program Budgets
- Refining the adjustment to non-inpatient flows
- Reviewing public/private mix
- Investigating output and performance measures for funding Teaching and Research
- Reviewing the treatment of revenue

8. SUMMARY

Table 24 summarises the RDF-implied shares of resources of Areas in December 2001 after adjusting for patient flows and based on Areas' historical expenditure on mental health.

Table 24: Area Shares of RDF Components 2001/02

	Population Health	Non-Inpatient	Acute Inpatient	Mental Health	Aboriginal & Extended Care	Direct Teaching & Research	Total RDF Target Share 2001/02
100 Central Sydney	7.7%	11.0%	12.0%	15.9%	6.0%	33.1%	11.5%
105 Northern Sydney	9.6%	9.4%	9.9%	15.6%	12.9%	12.2%	10.3%
120 Western Sydney	10.4%	11.3%	8.7%	10.5%	8.6%	17.3%	10.4%
125 Wentworth	4.7%	3.8%	3.9%	2.3%	3.1%	4.2%	3.5%
130 South West Sydney	12.1%	10.4%	9.1%	5.5%	8.8%	4.8%	9.2%
135 Central Coast	4.7%	4.1%	4.0%	2.3%	5.4%	3.0%	4.1%
140 Hunter	8.6%	8.9%	9.1%	10.6%	8.5%	7.8%	9.0%
145 Illawarra	5.4%	4.9%	4.6%	3.7%	5.2%	5.4%	4.7%
155 South Eastern Sydney	11.6%	14.3%	16.8%	11.0%	12.2%	10.6%	14.0%
400 Northern Rivers	4.4%	4.3%	4.3%	3.2%	4.6%	1.2%	4.3%
410 Mid North Coast	4.5%	4.0%	3.8%	2.1%	3.6%	2.0%	3.8%
420 New England	3.2%	2.7%	2.8%	2.1%	3.6%	2.3%	2.8%
430 Macquarie	2.0%	1.7%	1.7%	0.8%	3.0%	0.6%	1.7%
440 Mid Western	3.0%	2.4%	2.4%	3.2%	4.6%	0.4%	2.8%
450 Far West	1.3%	1.0%	0.9%	0.5%	0.5%	0.4%	0.8%
460 Greater Murray	4.0%	3.6%	3.7%	1.7%	3.2%	2.0%	3.7%
470 Southern NSW	2.1%	2.4%	2.5%	4.3%	3.4%	0.2%	2.5%
Total	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*

Note: The percentage shares presented here reflect population, statewide services and other cost factors

Considerable progress has been made in moving Areas towards their RDF target. In 1994/5 the distribution of resources meant Areas were on average 9.6% away from their 2001/02 RDF target. In 1998/9, through the distribution of increased funds in the Health Budget to Areas of greatest need, Areas are now on average 4.4% away from their 2001/02 RDF target. This progress is shown in Table 25.

Table 25: Progress towards RDF Targets (%)

	1994/95 Share of Resources	1998/99 Share of Resources	2001/2 RDF Target Share
100 Central Sydney	13.8%	13.9%	11.5%
105 Northern Sydney	10.9%	10.1%	10.3%
120 Western Sydney	10.2%	10.4%	10.4%
125 Wentworth	3.1%	3.7%	3.5%
130 South Western Sydney	7.8%	8.9%	9.2%
135 Central Coast	3.5%	3.7%	4.1%
140 Hunter	8.7%	8.8%	9.0%
145 Illawarra	4.1%	4.5%	4.7%
155 South Eastern Sydney	15.9%	13.4%	14.0%
400 Northern Rivers	3.8%	3.8%	4.3%
410 Mid North Coast	3.0%	3.3%	3.8%
420 New England	3.0%	2.5%	2.8%
430 Macquarie	1.9%	1.8%	1.7%
440 Mid Western	3.2%	3.1%	2.8%
450 Far West	1.0%	1.1%	0.8%
460 Greater Murray	4.1%	3.9%	3.7%
470 Southern	2.7%	2.5%	2.5%
Total	*100.0%*	*100.0%*	*100.0%*

The RDF Target and current share are based on:
- *1994/5 flows*
- *1994/5 share of Mental Health expenditure*
- *1998/99 Area budget allocations excluding one-off funding*

APPENDIX A

List of Excluded Funding

- Head Office functions, Health Care Complaints Commission, Corrective Health Services, Ambulance Service, New Children's Hospital
- Special Purpose and Trust Funds
- Patient Access Scheme and one-off Area Funding Relief/Rural Funding Assistance
- Managed Fund Insurance benchmark premiums
- Non-Government Organisations
- Aboriginal Health Promotion
- Alternative Birthing
- Bone Marrow Registry
- BTS AIDS Screening
- Cervical Cancer Screening
- Breast Cancer Screening
- Commonwealth Casemix Development Grants
- State Casemix Development Grants
- Youth Health
- External Research Grants
- Health Outcomes
- HIB
- Female Genital Mutilation
- Artificial Limbs
- National Mental Health
- National Womens' Health
- Ambulatory Care Reform
- Special Health Promotion
- Special Public Health
- State Government Nursing Homes
- National Drug Strategy

APPENDIX B

Services currently funded on a Statewide Basis in Resource Distribution Formula

Acute Care

NFCs and former NFCs (eg. Heart/lung/pancreas/liver transplantations and CVE)

Primary & Community Based Care

Dental Hospitals

Outpatients

Neonatal & Paediatric Retrieval Service
Adult Retrieval Service
Home Dialysis Fluids/Equipment managed by Sydney Dialysis Centre
Service for Treatment and Rehabilitation of Torture & Trauma Survivors
Centre for Education & Information on Drugs & Alcohol/Healthquest
Statewide Genetics
MRI
Radiotherapy
APS/ICP&MR State Reference Laboratory
Centre for Education & Information on Drugs & Alcohol/Healthquest

Rehabilitation & Extended Care

Specialist spinal injury units
Brain Injury Units

APPENDIX C

ACUTE INPATIENT CROSS BOUNDARY FLOWS

A related funding policy foreshadowed in the Economic Statement for Health is the introduction of funding arrangements for the flows of patients between Areas. In 1998/9, an accounting adjustment will be made to each Area's budget to reflect the true value of flows based on established patterns of flows and funded service enhancements. Fully devolved Area responsibility for patient flows will be introduced after this transitional phase. Financial responsibility for inter-State flows has already been devolved to Areas from 1 July 1997.

Intrastate Patient Flows

Separations are casemix weighted with private separations further weighted by 88%. For this refinement of the Resource Distribution Formula flows are priced at $2300 per casemix weighted separation. This is based on 1996/7 data in the Hospital Comparison Data Book and is a cash cost that excludes the cost of superannuation and depreciation and adjustments for the fixed allocation to Nationally Funded Centres, Specialist Paediatric Hospitals and Principal Referral Hospitals in the Resource Distribution Formula. The cost of private patients treated in public hospitals is lower hence the 88% of the public patient cost in the Resource Distribution Formula. To avoid double counting, flows to Nationally Funded Centres (NFCs) have been excluded from the calculation of acute flows as the funding for these patients is allocated separately in the RDF to those Areas which host the NFCs.

Interstate Acute Patient Flows

For interstate patient flows, from July 1997 Areas now have financial responsibility for these patients. This arrangement encourages Areas to actively manage and influence the direction of patient flows to other States and Territories. However, in the interim the Resource Distribution Formula will continue to include an adjustment for Areas which will provide funding based on the national casemix weighted price (public separations $2454 and private separations $1123. National rather than NSW AN-DRG cost weights have used to weight the separations.

Data on the number of casemix weighted separations for residents of NSW treated in other States have been obtained from those States through specific arrangements. These outflow data are netted off against the inflow data held by the Department on interstate residents treated in NSW for the relevant period. This approach will be reviewed in future refinements of the Resource Distribution Formula.

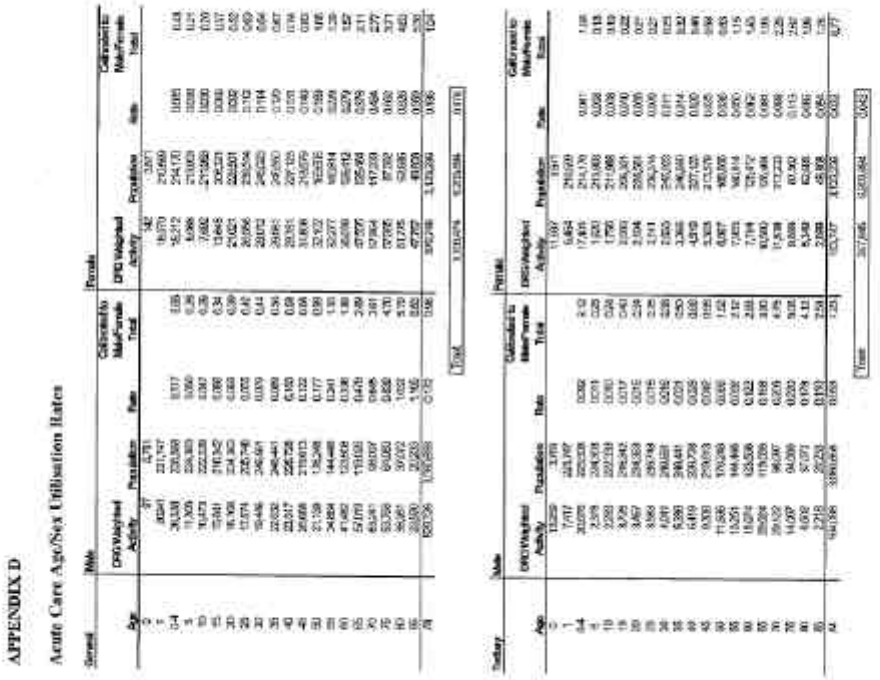
Flows to the New Children's Hospital (NCH)

Flows to the NCH have been deducted from each Area as this hospital is outside of the Resource Distribution Formula.

Table 26 details the value of cross boundary flows of acute patients in public hospitals.

Table 26: 1996/7 Casemix Weighted Separations: Net Cross Boundary Flows

		Interstate Flows - Public	Interstate Flows - Private	Intrastate Flows - Public	Intrastate Flows - Private	New Children's Hospital - Public	New Children's Hospital - Private
100	Central Sydney	422	168	19,795	13,051	(1,723)	(485)
105	Northern Sydney	166	25	6,737	(757)	(1,512)	(1,309)
120	Western Sydney	167	31	1,767	(224)	(6,599)	(1,450)
125	Wentworth	(52)	(5)	(5,984)	(2,089)	(1,883)	(440)
130	South West Sydney	(125)	(6)	(15,393)	(5,747)	(3,794)	(966)
135	Central Coast	(96)	(7)	(7,412)	(2,224)	(952)	(210)
140	Hunter	(125)	(12)	2,574	21	(459)	(119)
145	Illawarra	(208)	1	(9,070)	(2,903)	(569)	(226)
155	South Eastern Sydney	1,366	256	34,742	9,121	(460)	(873)
400	Northern Rivers	(1,622)	(300)	(970)	(329)	(153)	(16)
410	Mid North Coast	(372)	(23)	(7,785)	(2,553)	(869)	(57)
420	New England	(1,289)	(141)	(3,823)	(835)	(300)	(25)
430	Macquarie	(40)	(8)	(2,371)	(927)	(386)	(57)
440	Mid Western	(224)	(17)	(4,761)	(1,436)	(669)	(141)
450	Far West	(3,021)	(191)	(2,141)	(387)	(50)	(12)
460	Greater Murray	(6,640)	(367)	(1,930)	(671)	(333)	(63)
470	Southern NSW	(10,019)	(625)	(3,975)	(1,111)	(416)	(32)
	Total	***(21,712)***	***(1,221)***	-	-	***(21,127)***	***(6,481)***



Obstets/perinatal	Male				Female			
Age	DRG Weighted Activity	Births	Cost W/Birth	Calibrated to Male/Female Total	DRG Weighted Activity	Births	Cost W/Birth	Calibrated to Male/Female Total
0	0	0						
1	0	0						
0-4	0	0	0	0				
5	0	0	0	0				
10	0	0	0	0	21	27	0.778	0.789
20	0	0	0	0	14,138	15,842	0.892	0.905
25	0	0	0	0	26,436	26,815	0.986	1.000
30	0	0	0	0	24,788	25,058	0.989	1.003
35	0	0	0	0	11,625	10,198	1.140	1.156
40	0	0	0	0	1,975	1,757	1.124	1.140
45	0	0	0	0	59	48	1.229	1.247
50	0	0	0	0	4	2	2.000	2.029
55	0	0	0	0				
60	0	0	0	0				
65	0	0	0	0				
70	0	0	0	0				
75	0	0	0	0				
80	0	0	0	0				
85	0	0	0	0				
All	0	0	0	0	82,877	84,067	0.986	1.000

APPENDIX E

Percent of total private hospital activity that is regarded as substitutable by Area Health Service of Residence

		General	Tertiary/ Obstetrics	Total
100	Central Sydney	67.8%	89.4%	71.8%
105	Northern Sydney	70.8%	89.6%	74.7%
120	Western Sydney	68.6%	89.8%	73.2%
125	Wentworth	69.7%	89.2%	73.8%
130	South Western Sydney	67.1%	86.6%	70.4%
135	Central Coast	72.4%	88.5%	76.0%
140	Hunter	70.2%	88.5%	74.1%
145	Illawarra	70.6%	86.6%	73.2%
155	South Eastern Sydney	69.0%	89.3%	73.1%
400	Northern Rivers	65.1%	88.1%	67.2%
410	Mid North Coast	73.9%	89.0%	76.0%
420	New England	70.8%	86.5%	74.3%
430	Macquarie	67.3%	84.2%	69.7%
440	Mid Western	69.8%	83.8%	72.2%
450	Far West	70.2%	78.5%	71.6%
460	Greater Murray	71.8%	90.6%	75.1%
470	Southern	63.6%	84.5%	68.4%
	Total	***69.8%***	***88.7%***	***73.4%***

APPENDIX F

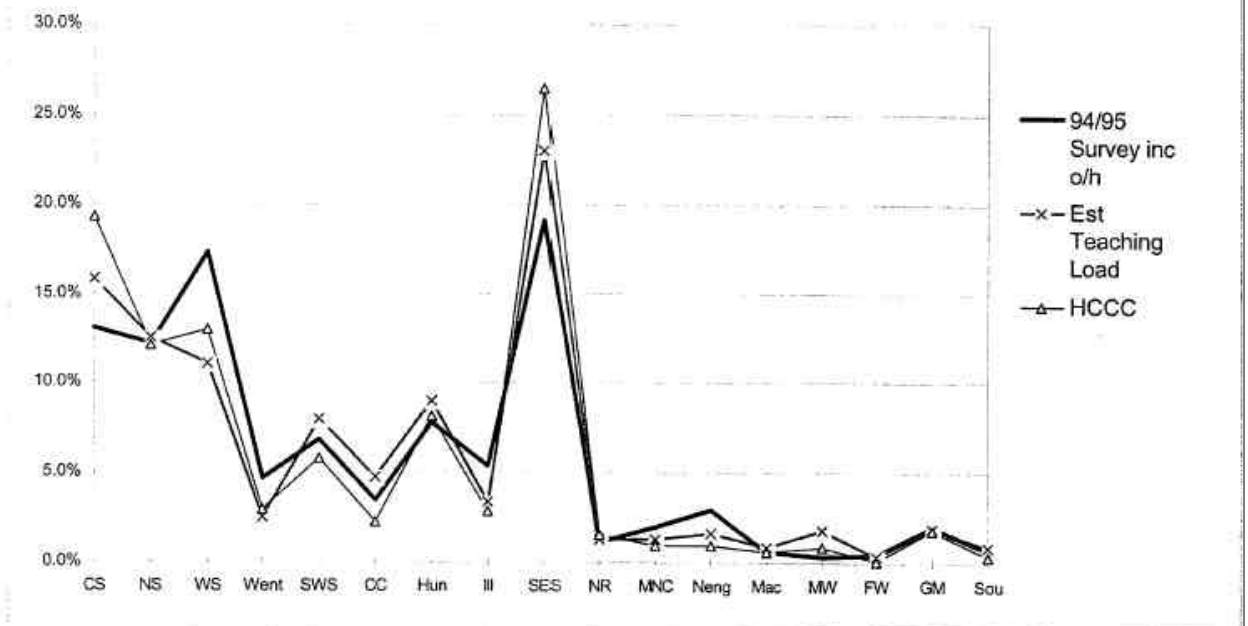
Comparison of Area Shares of HCCC Activity, Estimated Teaching Load and Direct Costs of Teaching & Research

Area	HCCC 1996/7 Casemix Wtd Seps	%	Direct T&R $'000	%	Trainee EN	Nurse Educators	Allied Health Yr 1	Interns	RMO 1	RMO 2	Registrar and RMO 3/4	Total	%
Central Sydney	38,374	19.3%	9,132	13.1%	90	27	45	58	60	34	287	601	15.8%
Northern Sydney	24,155	12.1%	8,519	12.2%	71	38	40	46	52	34	196	477	12.6%
Western Sydney	25,749	12.9%	12,061	17.3%	47	31	32	51	63	41	155	420	11.1%
Wentworth	5,897	3.0%	3,257	4.7%	24	8	9	29	16	8	2	96	2.5%
South Western Sydney	11,462	5.8%	4,777	6.8%	16	32	36	52	46	11	108	301	7.9%
Central Coast	4,457	2.2%	2,400	3.4%	21	19	3	32	42	15	50	182	4.8%
Hunter	16,135	8.1%	5,427	7.8%	39	15	45	56	39	13	134	340	9.0%
Illawarra	5,748	2.9%	3,756	5.4%	33	5	17	25	16	3	28	127	3.3%
South Eastern Sydney	52,700	26.5%	13,337	19.1%	110	49	58	96	112	67	382	874	23.0%
Northern Rivers	3,102	1.6%	807	1.2%	3	3	18	4	2	9	11	50	1.3%
Mid North Coast	1,890	0.9%	1,412	2.0%	1	1	12	6	10	10	8	48	1.3%
New England	1,915	1.0%	2,053	2.9%	13	3	20	9	11	3	2	61	1.6%
Macquarie	1,262	0.6%	431	0.6%	6	2	11	-	6	-	9	34	0.9%
Mid Western	1,771	0.9%	259	0.4%	19	5	16	5	12	2	8	67	1.8%
Far West	186	0.1%	297	0.4%	4	1	3	-	-	3	2	13	0.3%
Greater Murray	3,555	1.8%	1,419	2.0%	18	6	7	11	7	2	23	73	1.9%
Southern NSW	688	0.3%	501	0.7%	8	5	14	2	-	2	1	32	0.8%
Total	**199,046**	**100.0%**	**69,843**	**100%**	**523**	**250**	**383**	**482**	**494**	**257**	**1,406**	**3,795**	**100.0%**

Sources: 1996/97 Inpatient data
Shares of T&R from a 1994/95 Survey of Area expenditure on Teaching and Research applied to 1996/7 expenditure reported under this Program
Medical Staff Monitor and Registrar Staffing Surveys
HOSPAY reports and a survey of non-HOSPAY sites
An inaugural data collection for Allied Health Professionals was undertaken in April 1997

66

Severity/Indirect Costs of Teaching & Research Factor
Alternative Distribution Methods



67