

CHAPTER 3

MEASURING NEED – PRIMARY HEALTH CARE

1. In the Report, the Commission noted the following difficulties in using needs indicators to distribute health resources.

- (i) Reliable data to measure health status are not generally available for small areas, and reasonable information at State level is available only in some States.
- (ii) Measures that are available may not assist with resource allocation decisions. Some collections (for example hospital separations data) reflect met need and do not necessarily assist in the identification of unmet need and gaps in services.
- (iii) It is not easy to collect detailed data about funds that are used to meet Indigenous need (especially for mainstream programs such as Medicare and the PBS). This makes it hard to see gaps in funding.
- (iv) Needs may not be met because of systemic or other structural problems (for example Indigenous Australians to do not access Medicare to the same extent as non-Indigenous Australians). Structural issues are difficult to factor into broad measures of need.
- (v) Local variation in needs and the different ways needs are met mean that it is difficult to develop indicators of need that can be applied to the local level. Broad measures mask variations at the local level.

In spite of the difficulties, the Commission concluded that there is a place for indicators. The Report focused on using broad indicators to measure need at the level of State and broad geographic areas such as urban, rural and remote regions. Below the regional level, there is a more limited use for broad indicators as it is necessary to match resources with the use to which they will be put. The Commission concluded that these decisions are best made at the local level where local input can be gained.

2. In the Report, the Commission outlined two approaches to measuring need for health resources — a multi-factor approach and a minimum level of service approach. This section contains further details on them and outlines some other approaches to measuring need.

Approaches to Measuring Need

3. There are a number of different ways in which need for health resources can be measured and the concept of need can be defined in several different ways. All are related to some notion of equity of the distribution of resources. Attachment G contains an outline of different ways of measuring need. The equity principle and the definition of need adopted has an important bearing on the type of measure used. The purpose to which indicators of need will be put is also an important consideration in choosing indicators of need. Different measures may be appropriate for different purposes and/or geographic levels.

4. Attachment A outlines the Commonwealth's approach to distributing resources. Key Commonwealth programs such as Medicare and PBS are distributed according to demand (mitigated by access). There are some programs such as the Remote Communities Initiative where the Commonwealth looks at gaps in access to services in determining the distribution of program resources. In this case, need is defined by reference to access (or lack of) to services. In other cases, resources are allocated on the basis of submission or according to historical patterns and need as such is not directly factored in.

5. The Australian Health Ministers Advisory Council has developed an agreed set of National Aboriginal and Torres Strait Islander Performance Indicators. The indicators are used to monitor health status, and access to and use of all health services, but not to distribute resources. Indicators are divided into a number of categories including life expectancy and mortality, morbidity, access, health service impacts, workforce development, risk factors, intersectional issues, community involvement, and quality of service provision. Each State is required to report on the agreed set of indicators. The Commonwealth reports on the indicators relevant to the programs that it manages. In 1998 no jurisdiction was able to report on all indicators¹. The agreed set of Indicators was reviewed in 2000.

6. When allocating resources, State health departments generally use measures that take into account population, access to services and health status. New South Wales uses a resource allocation formula to distribute resources to Area Health Services. The formula includes a measure of standardised mortality, socio-economic status and rurality. The assumption is that those with relatively higher mortality rates and lower socio-economic status have poorer health status and are in greater need of resources.

7. Regional health plans have adopted a number of different approaches to measuring need including:

- (i) population to staff ratios (a measure of access);
- (ii) availability of health services (a measure of access);
- (iii) morbidity data (a measure of health status or the extent of illness);

¹ AIHW, *National Summary of the 1998 Jurisdictional Reports Against the Aboriginal and Torres Strait Islander Health Performance Indicators*, The National Health Information Management Group for the Australian Health Minister's Advisory Council, AIHW cat. no. IHW 5.

- (iv) adequacy and appropriateness of housing and infrastructure (a proxy measure of the extent of illness); and
- (v) local knowledge.

8. Table 3-1 summarises the approach to measuring need used in the health plans that have been completed. The plans aim to identify need and will be used to plan services and distribute funds under the PHCAP program. A key aspect of the plans is that they aim to identify need at a very small geographic level. However, detailed data are not always available at this level. An important point to note is that even where data were available it was necessary to qualify it using local knowledge and information that often highlighted issues and problems that the data did not.

Table 3-1 METHOD OF ASSESSING NEED AND PRIORITIES IN REGIONAL HEALTH PLANS

State	Method of needs assessment
New South Wales	Communities/areas identified key health issues that needed to be addressed. Strategies to address these issues were developed. The summary of the regional health plans includes information on household income, occupation, unemployment and pension rates, schooling, housing, and morbidity.
Victoria	Not yet available.
Queensland	Health status as measured by morbidity data. This is used to identify key health issues and areas of high need.
Western Australia	Different regions used different methods. Ranged from the use of mortality and morbidity data to population to staff ratios, and conclusions based on consultation.
South Australia	Mortality and morbidity data, demographic data, access to services, quality and appropriateness of housing and infrastructure, and consultation.
Tasmania	Not yet available.
Australian Capital Territory	Base on consultation.
Northern Territory	Both the Top End and Central Australian plans used population to staff ratios. The plans also contain a detailed overview of service providers by region and community.

Multi-factor Model

9. Several submissions noted that different factors influence health status and the need for services. The DHAC submission noted that health status is influenced by:

- (i) socio-economic status;

- (ii) environmental factors (such as housing and infrastructure);
- (iii) socio-cultural factors (such as removal from land, separation of families and mistrust of mainstream services);
- (iv) lack of access to primary health care (including financial barriers and poor health service links); and
- (v) specific health risk factors (such as poor nutrition, smoking and alcohol consumption)².

Similar views were expressed in discussions with State authorities and community groups.

10. Consultations highlighted the links between functional areas. In a number of communities, it was noted that poor health outcomes were related to poor environmental health and, in particular, inadequate housing and infrastructure. In urban areas, it was noted that social, spiritual and cultural isolation; dislocation; and a lack of culturally appropriate services affected health and service use. Poverty, poor community infrastructure, isolation, poor education outcomes and the cost of living in some areas all combine to impact on health outcomes. In relation to community delivered services, it was said to be essential that a community's capacity to manage services is developed.

11. The Commission considered it desirable that measures of need reflect this variety of influences on the need for resources. The Office of Aboriginal Health (OAH) in the Health Department of Western Australia (HDWA) was engaged to assist in examining a multi-factor approach to measuring need. They were asked to consider how it could be used to distribute funds. A full copy of the Report is in the Volume of Consultants' Reports, a summary of the approach follows.

12. ***The multi-factor approach.*** A key aspect of the method used is that the views and priorities of people affected by funding are incorporated into any definition of need. As a starting point, the notion of need was workshopped with a group of people including community representatives, service providers, service funders and academics. The aim was to identify the components of an Indigenous view of health need. The following features were identified:

- cultural security (language, family formation, social networking, civic participation, land);
- good environment (dwellings, 'dunnies', ditches, drains, dogs);
- poverty free (income, education, employment); and
- physical wellbeing (mortality and morbidity).

13. Turning this definition of need into a tool for resource allocation was assisted by the Social and Public Health Economic Research Group (SHPERe). *An equal access for*

² Commonwealth Department of Health and Aged Care Initial Submission, June 2000.

equal need approach, which defines need by reference to capacity to benefit is used. Under this approach need is measured with reference to health status. Greater weight is given to those conditions for which the greatest health gains could be made. That is, the focus is on diseases and illness that are easiest to cure. In looking at access to services cultural and other barriers are examined, as are the costs of providing services.

14. ***Principles and aims.*** The key principle is that resources should be allocated according to where the most good can be done. The definition of ‘the good’ is subjective but based on the views of the people it affects, in this case Indigenous people. The ‘good’ was defined as better health and the development of community capacity to deliver services.

15. ***The multi-factor model.*** The model incorporates the various aspects of need identified above. It also attempts to factor in the identified priorities. It includes a measure of:

- (i) health status that is weighted to reflect capacity to benefit from the allocation of resources;
- (ii) relative disadvantage;
- (iii) the need for the development of capacity to manage resources (Management, Economic, Social and Human Infrastructure);
- (iv) differences in the cost of providing a culturally secure service; and
- (v) the geographical costs of providing services.

16. The development of capacity to manage and deliver services was considered a key priority. However, this is considered a separate need from needs associated with poor health status and has been separately identified in the model. One is a need for program resources, the others are needs for the development of resources to implement programs. The model assumes that funds for the development of capacity to manage and deliver services will be included in total program expenditure. A proportion of expenditure that should be spent on the development of capacity is identified and the measure of need for the development of this capacity applied to it.

17. Figure 3-1 contains the formula used for estimating resources. The various factors used in the model are outlined below.

18. ***Capacity to benefit (CTB).*** Health status was measured using mortality and morbidity data. These data were used to calculate rates of death and disease. Standardised rates were used as the aim was to identify areas of excess mortality and morbidity. Rates were standardised to remove the effect of the population and sex structure on the incidence of disease and death.

19. The data on mortality and morbidity were divided into three categories:
- (i) those diseases and illness related to environmental factors (for example respiratory illnesses, parasitic and infectious diseases);

- (ii) those related to social factors (for example alcohol and smoking related diseases); and
- (iii) those related to lifestyle factors (for example diabetes).

20. These three categories were given different weights according to the perceived health gains that could be made from the allocation of resources. The weights used were:

- Environmental Mortality and Morbidity (EMMI) 0.5
- Social Mortality and Morbidity (SMMI) 0.3
- Lifestyle Morbidity and Mortality (LMMI) 0.2

21. The greater weight given to environmental related conditions reflects, indirectly, the identification of 'good environment' as a key component of good health under the Aboriginal definition of need. It also reflects a view that the causes of environmental related diseases are relatively easier to fix and the potential for gains in health status greater in the short term, than are the causes of other diseases. Diseases related to social factors were given a higher weight than lifestyle factors because the associated behaviours were considered to be easier to change. It was also noted that it was more expensive to address some lifestyle diseases.

Figure 3-1 MULTI-FACTOR MODEL FOR ALLOCATING RESOURCES

$$RAI = \text{popn} \times \{(1 - \text{MESH P}) \times \text{CTB} \times \text{RDI} \times \text{CLI} + (\text{MESH P} \times \text{MESH R})\} \times \text{Remoteness}$$

Where:

- RAI** = **R**esource **A**llocation **I**ndex
- Popn** = Aboriginal Population
- CLI** = **C**ultural/**L**anguage **I**ndex
- MESH P** = Proportion of expenditure available for building MESH
- MESH R** = MESH relative need
- RDI** = **R**elative **D**isadvantage **I**ndex
- CTB** = Capacity to Benefit = (0.5 x EMMI + 0.3 x SMMI + 0.2 x LMMI)

Where

- EMMI** = **E**nvironmental **M**ortality and **M**orbidity **I**ndex
- SMMI** = **S**ocial **M**ortality and **M**orbidity **I**ndex
- LMMI** = **L**ifestyle **M**ortality and **M**orbidity **I**ndex

22. **Relative disadvantage index (RDI).** The experimental index of Indigenous socio-economic disadvantage developed by the ABS for the Commission was used in the model as a means of taking account of the social and economic aspects of the Aboriginal definition of need. The link between socio-economic disadvantage and health status has

been documented³. Such studies have shown that those in lower socio-economic groups generally have poorer health. In the model those areas that are relatively more disadvantaged attract a higher level of funding. The weights used were:

- Highly disadvantaged 1.2
- Very disadvantaged 1.1
- Moderately disadvantaged 1.0
- Disadvantaged 0.9
- Less Disadvantaged 0.8

23. **Management, Economic, Social and Human Infrastructure (MESH).** This aspect attempts to capture the need for the development of capacity to deliver and manage services (MESH R). This capacity can take various forms, for example the training of staff, or the development of physical infrastructure such as buildings. When this capacity is lacking services cannot be effectively delivered. It has been assumed that 40 per cent of total program expenditure should be allocated to the development of MESH (MESH P = 0.4). The amount received in each region/community would vary according to MESH needs. The need for physical infrastructure and services was measured using the 1997 Survey of Environmental Needs of Aboriginal Communities in Western Australia⁴, and CHINS data. The report suggests that other aspects are best assessed at the community level through self-assessment and local knowledge.

24. **Cultural Language Index (CLI).** Cultural security was identified as a key aspect to improving both health outcomes and access to services. For example, in areas where English is a second or third language there are difficulties in gaining effective access to services. In such areas there is a need to employ interpreters or use other means to overcome barriers. This means it is more costly to provide services. The index attempts to capture this aspect by identifying areas where the costs of delivering services would be higher because of cultural and language barriers.

25. Cultural security was measured using data on the number of people who speak an Indigenous language as their first language. The consultant applied a cost weight of 1.1 (or 10 per cent) in areas where a high proportion of the population speaks an Indigenous language. The Report noted that other aspects of cultural security are difficult to quantify and more research is need.

26. **Remoteness.** The model identified differences, by geographical area, in the costs of providing services. The ARIA classification has been used to identify areas that are relatively more inaccessible. The consultants conducted a survey of Western Australian services in each of the ARIA categories to obtain details of staffing and some service delivery costs. On the basis of this survey, the following cost weights were derived:

³ For an overview of Australia research see G Turrell, B Oldenburg, I McGuffog, R Dent, *Socio-economic Determinants of Health: towards a national research program and a policy intervention agenda*, Queensland University of Technology, School of Public Health Centre for Public Health Research, Canberra, 1999.

⁴ Environmental Health Needs Coordinating Committee, *Environmental Health Needs of Aboriginal Communities in Western Australia, the 1997 Survey and its Findings*, EHNCC, Western Australia, 1998.

- Very remote 1.7
- Remote 1.2
- Moderately accessible 1.0
- Accessible 0.9
- Highly accessible 0.7

27. **Application of the approach.** Table 3-2 provides a summary of the results obtained by applying the model to Western Australian ATSIC regions. In this example the consultant assumed that 40 percent of available funds were for the development of MESH.

Table 3-2 CALCULATION OF RESOURCE ALLOCATION INDEX (RAI) BY ATSIC REGION, WESTERN AUSTRALIA

ATSIC Region	Population	Population share	CTB	RDI	CLI	Remote	MESH R	RAI ^(a)	Share	RAI Per Capita ^(b)
	(A)	(B)	(C)	(D)	(E)	(F)	(G)			
	No	%							%	\$pc
Perth	17 998	35.4	0.70	0.80	1.00	0.79	2.00	16 152	12.90	1.00
Broome	3 423	6.7	1.00	1.10	1.10	1.70	2.00	8 884	7.10	2.89
Kununurra	4 088	8.0	1.30	1.20	1.20	1.70	3.00	16 152	12.90	4.40
Warburton	2 688	5.3	1.38	1.20	1.20	1.70	4.50	13 680	10.90	5.66
Narrogin	6 204	12.2	0.76	0.90	1.00	1.00	3.00	9 991	8.00	1.80
South Hedland	4 298	8.5	1.62	1.10	1.10	1.70	3.00	17 369	13.80	4.48
Derby	3 958	7.8	1.30	1.20	1.20	1.70	4.50	19 678	15.70	5.53
Kalgoorlie	3 152	6.2	1.44	1.10	1.20	1.17	3.00	8 262	6.60	2.92
Geraldton	5 006	9.9	1.00	1.10	1.10	1.70	3.00	15 325	12.20	3.40
Total	50 815	100						125 493		

(a) $G = A \{ (1-0.4) \times B \times C \times D + (0.4 \times E) \} \times (F)$

(b) RAI per capita has been calculated relative to Perth. It shows the dollars per capita a region would receive for every dollar the Perth region receives.

28. On these results a greater than population share of resources would go to all ATSIC regions except Perth and Narrogin. For every \$1.00 per capita Perth would receive under this allocation index, Narrogin would receive \$1.80 and Warburton would receive \$5.66. Perth was assessed to have the lowest relative needs (mainly because its weighted health status was relatively better, as was its rank on the index of socio-economic disadvantage) and the lowest cost of providing services. The need for the development of community capacity was also relatively lower. Of the remote regions, Broome and Kalgoorlie regions would receive the closest to population share as assessed needs are relatively lower in these two regions. For Broome this is mainly because of relatively lower mortality and morbidity rates than other remote ATSIC regions. For Kalgoorlie it is mainly because of a relatively better score on the relative disadvantage index and a relatively lower cost of providing services compared to more remote ATSIC Regions.

29. As the division between lifestyle and social factors was based on judgement, Table 3-3 below provides a summary of results when social and lifestyle factors were given the same weight. The difference between the two approaches in RAI share was less than 1 per cent for all regions.

Table 3-3 ALTERNATIVE CALCULATION OF RESOURCE ALLOCATION INDEX (RAI) BY ATSI REGION, WESTERN AUSTRALIA

ATSI Region	Population	Population share	CTB	RDI	CLI	Remote	MESH R	RAI ^(a)	Share	RAI Per Capita ^(b)
	(A)	(B)	(C)	(D)	(E)	(F)	(G)			
	No	%							%	\$pc
Perth	17 998	35.4	0.70	0.80	1.00	0.79	2.00	16 152	12.6	1.00
Broome	3 423	6.7	1.00	1.10	1.10	1.70	2.00	8 880	7.0	2.89
Kununurra	4 088	8.0	1.30	1.20	1.20	1.70	3.00	16 145	12.8	4.40
Warburton	2 688	5.3	1.35	1.20	1.20	1.70	4.50	13 555	10.7	5.62
Narrogin	6 204	12.2	0.78	0.90	1.00	1.00	3.00	10 041	7.9	1.80
South Hedland	4 298	8.5	1.60	1.10	1.10	1.70	3.00	17 255	13.6	4.47
Derby	3 958	7.8	1.30	1.20	1.20	1.70	4.50	19 669	15.5	5.54
Kalgoorlie	3 152	6.2	1.43	1.10	1.20	1.17	3.00	8 588	6.8	3.04
Geraldton	5 006	9.9	1.00	1.10	1.10	1.70	3.00	16 391	12.9	3.65
Total	50 815	100.0						126 676	100.0	

(a) $G = A \{ (1-0.4) \times B \times C \times D + (0.4 \times E) \} \times (F)$

(b) RAI per capita has been calculated relative to Perth. It shows the dollars per capita a region would receive for every dollar the Perth region receives.

30. **What can the model be used for?** In the Report, the Commission said that the model can best be used to identify where new or additional funds should be placed. It was noted that, given the extent of Indigenous needs relative to non-Indigenous needs, there was no evidence that any area is over funded. Under these circumstances a redistribution of existing resources would take resources away from areas that have high needs *vis-à-vis* the majority of the Australian population. However, needs do vary with the Indigenous population and some areas currently receive more funding than others. This approach could be used to target additional resources or new money to areas that are in relatively greater need. It could be used at the program level or it can be used at the broad geographic level as a guide to where resources should be targeted. As it uses weighted health status and relative disadvantage to identify need it is most useful when there are large differences in these measures between groups.

31. **Benefits.** A key benefit of this approach is that, consistent with an Indigenous perspective on health, it recognises that need is multi-dimensional. It uses measures of health status and socio-economic status and gives a greater weight to environmental health conditions.

32. The model also recognises that there is not a simple proportional relationship between need (as measured through health status) and the requirement for funding. That is, it does not assume that if health status in one region is three times worse than in another then three times the resources should be allocated to the first region. Such an assumption would not hold. For example, some illness are more costly to treat, some are easier and less costly to prevent, and some can be effectively treated in a primary health care setting while others require treatment in an acute care facility. In assigning weights to different groups of illness the consultant's model recognises that the potential health gains from allocating resources differs depending on the nature of the illness.

33. The model also places the importance of human resources and infrastructure development at the forefront. It explicitly recognises that for programs to work on the ground appropriate facilities and resources should be available to support and train service providers.

34. ***Weaknesses and areas where further work is required.*** One key limitation of the model is that at this stage it relies heavily on judgement. Judgement is used in determining the weights and priorities which have significant effects on the results. While this allows greater flexibility to adjust the model in accordance with identified priorities it also opens the approach to criticism. For example, the model gives a greater weight to environmental related conditions as, in the short term, greater gains can be made. Others may argue that the high incidence of social and lifestyle related diseases indicates a need to focus on preventive measures at an early stage of life as there is a potential for long term gain.

35. There are some data difficulties that would need to be overcome if this approach were to be used in other jurisdictions. Reliable mortality data at the regional level are not currently available for all States. The ABS considers mortality data to be reliable below the State level only for Western Australia, South Australia and the Northern Territory. Until data improve, proxies would have to be derived for other States. The model also relies heavily on morbidity as measured by using hospital data. While these data are available for all States they reflect met need and as such may not be a true reflection of need for resources.

36. In the Report the Commission concluded that further consideration of the approach is warranted.

Population Based Models

37. Population based approaches are generally based on establishing benchmarks for inputs required to provide services. The benchmark can then be compared with the existing practice to see if there are gaps in service provision. Those most in need are furthest below the benchmark. This approach is based on the equity principle of equal access to services and can allow for population differences and the costs of providing services. The Commission looked at two different ways of deriving benchmarks — population to staff ratios and expenditure benchmarks.

38. ***Population to staff.*** One way to compare the relative level of service available to different population groups is look at staff to population ratios. A number of

the regional health plans (Central Australian, Northern Territory Top End, and Kimberley) have used this approach to identify the areas that are most in need.

39. Table 3-4 contains a summary of the staff to population ratios used in the *Review of Northern Territory Government Remote Health Services in Central Australia*⁵ and the refinements of those ratios adopted in the Northern Territory Central Australian, Northern Territory Top End and Kimberley regional health plans. All these studies and plans advocate more than the national average number of doctors, nurses and Aboriginal Health Workers per person in rural and remote areas to overcome the affects of population dispersion. The national average figures are also in the table.

Table 3-4 POPULATION TO STAFF RATIOS^(a)

	Medical Practitioners	Nurses	AHW
National Average ^(b)	904	107	-
Wakerman et al.	800	250	100
Central Australian and Top End			
population over 800	800	400	200
400-799	600	200	100
250-399	400	200	75
75-249	400	150	50
less than 75	400	50	50
Kimberley region	600	250	100

(a) The ratios are a guide only and would need to be adjusted to reflect local circumstances. For example, there may be a preference for AHWs and doctors and therefore a lower number of nurses would be required.

(b) See Table 3-4.

Source: D Atkinson, C Bridge, D Gray, *Kimberley Regional Aboriginal Health Plan*, Steering Committee of the Joint Planning Forum, December 1999; B Bartlett, P Duncan, D Alexander, J Hardwick, *Central Australian Health Planning Study, Final Report*, PlanHealth Pty Ltd, July 1997; B Bartlett and P Duncan, *Top End Health Planning Study, Final Report*, PlanHealth Pty Ltd, April 2000; and J Wakerman, M Bennett, V Healy, I Warchivker, *Review of Northern Territory Government Remote Health Services in Central Australia*, Menzies School of Health, Territory Health Services and Rural Health Support Education and Training, 1997.

40. Using population to staff ratios requires assumptions about the type of service offered and the type of staff required. For illustrative purposes, the Commission focused on medical practitioners, nurses and Aboriginal Health Workers (AHWs). Obviously for a comprehensive primary health care service a number of other practitioners for example dentists and counsellors would also be required.

⁵ J Wakerman, M Bennett, V Healy, I Warchivker, *Review of Northern Territory Government Remote Health Services in Central Australia*, Menzies School of Health, Territory Health Services and Rural Health Support Education and Training, 1997.

41. Table 3-5 shows the average number of people for every medical practitioner and nurse by State and by RRMA⁶. It shows that the actual number of people per medical practitioner generally increases with increasing remoteness. This reflects the lack of access to medical practitioners in rural and remote areas.

Table 3-5 POPULATION TO STAFF RATIOS BY STATE AND RRMA^(a)

	Average population per staff								
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Medical Practitioners (1998)									
Capital city	795	805	814	930	776	611	797	736	808
Other metro centre	1 053	935	856	0	0	0	0	0	965
Large rural centre	1 013	776	869	0	2 176	758	0	0	890
Small rural centre	1 178	861	910	1 278	982	1 096	0	0	1 042
Other rural area	1 275	1 509	1 763	1 391	925	1 266	0	1 808	1 381
All remote	2 370	2 281	2 371	1 343	2 677	585	0	950	1 603
Total	901	881	957	1 014	829	794	804	869	904
Registered Nurses (1996)									
Capital city	109	102	82	98	81	79	107	83	97
Other metro centre	103	92	208	0	0	0	0	0	121
Large rural centre	64	52	92	0	94	70	0	0	72
Small rural centre	110	62	147	105	89	96	0	0	97
Other rural centre	135	157	226	150	164	176	0	428	163
All remote	207	196	115	115	146	86	0	94	120
Total	108	101	115	114	92	93	108	138	107

(a) These ratios are based on the total population. They do not reflect actual use but the location of the labour force. The ratios represent the average number of people each staff member could service. For example, across the whole of Australia there is on average, there is one nurse for every 107 people.

Source: AIHW, *Nursing Labour Force 1998*, AIHW, Canberra, 2000, Table 29; AIHW, *Medical Labour Force 1998*, AIHW, Canberra, 2000, Table 61; and *Population – ABS 1996 Census*.

42. A comparison of the benchmarks in Table 3-4 with workforce data in Table 3-5, shows that the actual number of people per medical practitioner in rural and remote areas is generally above the national average and the benchmarks set in other studies. The gap between the benchmark and the number of people per medical practitioner was greatest in remote areas of South Australia, Queensland, New South Wales and Victoria. Tasmania was the only State in which the number of people per medical

⁶ Both the ARIA and the RRMA classifications seek to classify locations on the basis of remoteness. The RRMA classification was the first remoteness classification system developed. In essence, it classifies locations on the basis of population size and distance from nearby centres. It is being replaced by ARIA for most analytical purposes.

practitioner in remote areas was below the benchmark. The number of people per medical practitioner in Western Australia was above the benchmark in all regions. The number of people per nurse was generally above the national average in other rural and remote areas. In most States, there were fewer people per nurse in large rural areas than there were in other regions. In Queensland, Western Australia, South Australia and the Northern Territory, there were generally fewer people per nurses in remote areas than there were in other rural areas.

43. *Limitations and benefits.* The staff to population approach could be used to identify differences in physical access to services but it says nothing about other barriers to accessing services such as social and cultural access problems. For example, the number of doctors in metropolitan areas as a proportion of population exceeds the national average. However, Indigenous use of private doctors in metropolitan areas is much lower than that of non-Indigenous people in those areas.

44. The main benefit of the population approach is that, once benchmarks have been set, it is transparent and relatively simple to use. However, setting the benchmarks requires judgement as data on nurses and doctors are only collected in national surveys on the health workforce and on a broad geographic level. Application of the approach also requires accurate details of the population of small communities. Some regional plans have collected this information but it is not available for all regions.

45. *Potential use.* The population approach is most useful at the service provider level for measuring physical access to services and as a broad guide to where there are access problems. The Central Australian and Top End regional health plans demonstrate the usefulness of this approach at the low geographic level where data are available⁷. It is difficult to apply at the broad level where there are multiple service providers and Indigenous people do not make up a majority of the population. Data at the broad level can mask significant variations in access to services at a lower level.

46. *Future value.* The Commission saw some potential in the development of agreed population to staff ratios to monitor the relative level of service provided in different regions and identify where there are gaps in service provision.

47. *Expenditure benchmarks.* Relative service levels can also be compared using expenditure levels. A benchmark can be set and then actual expenditure levels compared with this benchmark.

48. The *Preliminary Findings of the Report on Expenditures on Health Services for Aboriginal and Torres Strait Islander People, 1998-99*⁸ contains data on Commonwealth and State expenditure on primary health care which could be used to derive benchmarks. The national average expenditure could be a suitable starting point. However, allocation of resources on the basis of such a standard would also have to take account of

⁷ B Bartlett, P Duncan, D Alexander, J Hartwick, *Central Australian Health Planning Study, Final Report*, Plan Health Pty Ltd, July 1997.

B Bartlett and P Duncan, *Top End Health Planning Study, Final Report*, PlanHealth Pty Ltd, April 2000.

⁸ AIHW, *Preliminary Findings of the Report on Expenditures on Health Services for Aboriginal and Torres Strait Islander People, 1998-99* (forthcoming), AIHW/DHAC, Canberra, 2001.

particular factors that would affect the costs of providing services in each region. These factors would include:

- (i) the greater level of health need of Indigenous people, possibly measured by morbidity and mortality data;
- (ii) the pattern of service use or availability — the general lack of a private sector in some regions may mean that people are more reliant on the public sector; and
- (iii) the effects of geographic location on the costs of providing services — it is more costly to provide services in remote areas.

Given the present limitations of data availability, adjustments for each of these factors would require judgement.

49. Expenditure benchmarks have been considered in a number of studies and also identified in submissions to and discussions with the Commission. The expenditure benchmarks suggested to the Commission generally implied that expenditure on Indigenous people should be in the order of 2 to 4 times that on non-Indigenous people. Other studies have used factors between 2 and 7⁹. The benchmarks vary substantially because of differences in assumptions about:

- (i) what the morbidity load is;
- (ii) what type of service is being offered; and
- (iii) estimates of the costs of providing services.

50. In a submission to the Inquiry, Deeble, Anderson and Sibthorpe¹⁰ estimated that, after allowing for the greater needs of Indigenous people (as measured by mortality rates), an additional \$230 million would have been required in 1995-96 to bring total health expenditure on Indigenous people to a level consistent with need. This calculation covered total government health expenditure, not just primary health care expenditure. It also assumed a combined need and cost factor of 1.9. As such, the calculation did not make an explicit provision to specifically reduce the gap in health status between Indigenous and non-Indigenous people.

51. The AMSANT submission¹¹ provided another estimate of the additional expenditure required. It estimated that additional Medicare expenditure of \$400 million

⁹ For example see R McDermot and C Beaver, Models for horizontal equity in resource allocation in Aboriginal Health, *Australian and New Zealand Journal of Public Health*, Vol 20, No 1, pp 13-15; C Runciman, G Walker, C Katz, 'Equitable provisions of health services to Aboriginal and Torres Strait Islander people of Queensland', *Australian and New Zealand Journal of Public Health*, Vol 20, No 1, pp 15-17; S Jan and G Mooney, *Provisions for Aboriginality in resource Allocation for Health services. The Commonwealth Grants Commission and Resource Allocation Formulae*. Discussion Paper 4/97, Series of Papers in Health Economic and Equity in Aboriginal and Torres Strait Islander Health, SPHERE, 1997

¹⁰ National Centre for Epidemiology and Population Health, initial submission, April 2000, p9.

¹¹ Aboriginal Medical Services Alliance of the Northern Territory, final submission, December 2000.

would be required to bring average per capita expenditure on Indigenous people to a level comparable with the expenditure on non-Indigenous people. This estimate was based on an assumption that Indigenous needs (measured on the basis of morbidity) were 2.5 times those of non-Indigenous people. The factor of 2.5 was based on a morbidity load factor used in the New South Wales Resource Distribution formula.

52. In its Submission and in further discussions with the Commission, DHAC¹² noted that in implementing the PHCAP program it intends to use an expenditure benchmark to determine the level of funding for each service providing primary health care. DHAC assumes that meeting the higher health needs of Indigenous people requires at least twice the national average per capita expenditure on primary health care. It also assumes that overcoming the higher costs of providing services in rural and remote areas requires a further doubling of the national average per capita expenditure. That is, they estimate that per capita expenditure should be up to four times the national average in rural and remote areas. This reflects the amount required to provide basic primary health care. The benchmark for comprehensive primary health care would be different.

53. In the Report the Commission concluded that the poorer health status of Indigenous people, and their greater reliance on the public health system, would justify at least double the average per capita government expenditure on non-Indigenous people. It noted that the cost data in the HDWA OAH study suggested that per capita costs in very remote areas could be twice those in highly accessible areas. It therefore concluded that per capita expenditure benchmarks that range from double the national average in highly accessible areas to just over four times the national average in very remote areas would not be unreasonable.

54. *Potential use.* The use of expenditure benchmarks provide a guide to where physical and other barriers may be affecting access to services. For example, a comparison of national average expenditure through Medicare with expenditure on Indigenous people shows that there are access problems. However, expenditure benchmarks are of limited use when there are large differences between groups in health status and demand for services. In such cases it is necessary to adjust benchmarks, to reflect differences in the extent of illness and the associated need for services.

55. *Future.* In the Report the Commission said that it saw some potential for use of expenditure benchmarks as a general indicator of the required relative level of expenditure on Indigenous people. However, there is a need to develop better indicators of cost weights by region, to discuss what the benchmark should be, and to derive methods of better linking the greater needs of Indigenous people with the requirement for additional funds.

¹² Commonwealth Department of Health and Aged Care, initial submission, June 2000, pp77-83.