Northern Territory Allied Health Workforce

This report presents data from the ABS 2001. It covers the clinical allied health professions of audiology, dietetics, hospital pharmacy, medical imaging, occupational therapy, orthoptics, orthotics and prosthetics, physiotherapy, podiatry, psychology, social work and speech pathology. The decision to limit the analysis of workforce data from these professions followed the production by Services for Australian Rural and Remote Allied Health (SARRAH), a peak national organisation representing 'grass roots' rural and remote allied health professionals and administrator of NRRAHAS, of a discussion paper titled *'Clinical Allied Health Professions - A method of classification developed from common usage of the term 'allied health', as applicable to rural and remote Australia'*[1]

Reporting limitations as a result of the nature of the ABS data and the manner in which it is collected are highlighted throughout the report. This report follows the Australian Standard Geographic Classification Remoteness Classification Structure[i] to define regional and remote areas of Australia, as utilized by the ABS in its analysis of data obtained from the 2001 Australian population census.

Under the Australian Standard Geographical Classification (ASGC) the whole of the Northern Territory population is classified as residing in rural and remote regions.

The Northern Territory, like other states, appears to experience high levels of its qualified allied health professional workforce indicating on their census forms that they were either not employed in their area of qualification or were working in other health or non-health related areas. The data does not give any indication as to reasons for this apparent wastage of the allied health professional workforce. There is minimal difference in the profile of workforce participation between Darwin and more remote areas.

Employers are experiencing difficulty in recruiting and retaining allied health professionals, particularly in rural and remote regions. The difficulty in recruiting and retaining allied health professionals includes those who are experienced or working in specialized areas within disciplines.

The NT Health and Community Services Department provides a general professional development scheme for all health professionals in the Territory. There is also a senior project officer for allied based in Central Australia. [ii]

[1] *'Clinical Allied Health Professions - A method of classification developed from common usage of the term 'allied health', as applicable to rural and remote Australia'* Collated by Ann O'Kane, NRRAHAS Project Officer and Shelagh Lowe, NRRAHAS Co-Project Manager, 2003.

Northern Territory population and allied health workforce

On census night 2001, 210,664 (1%) of Australia's population resided in the Northern Territory (Table 1). 443 (1%) of the allied health workforce resided in the Northern territory on census night 2001 (Table 2). At a broad level this represents a balanced proportion of workforce to population. However, further investigations of specific health needs of the Northern Territory population is required to assess whether there are specific health issues requiring a larger proportion of the workforce, for example the indigenous population, which represents 28% of the total Northern Territory Population.

The total population of the Northern Territory resides in rural and remote regions, as under the ASGC the Northern Territory does not have a capital city or inner regional category (Table 1). Approximately half of the population residents resides in outer regional areas (which would primarily be Darwin).

It should also be noted that anomalies can be present in census data in that it records where people are located on census night which may not necessarily be where they regularly reside, or where they regularly are employed, and thus discrepancies can occur in the data. The data will not record that an allied health professional may be located in a remote or very remote community due to an outreach program from an inner or outer regional location occurring on census day. Discrepancies also occur in ABS data due to confidentiality requirements for small cell sizes[iii]. (See endnote)

Table 1 – The population of Northern Territory by ASGC regions (ABS Census 2001 data)

Northern Territory	Total Population	Major Capital	Inner Regional	Outer Regional (% of total)	Remote (% of total)	Very Remote (% of total)
	210,664	0	0	109,420 (52)	46,663 (22)	52,289 (25)

Table 2 – Allied health professions by ASGC regions (ABS Census 2001 data)

Allied health Professions	Number (%)	Major Capital	Inner Regional	Outer Regional	Remote*	Very Remote*
Audiology	3 (0.7)	0	0	0	3	0
Dietetics	32 (7)	0	0	14	12	6
Hospital pharmacy	16 (4)	0	0	10	3	3
Medical Imaging	59 (13)	0	0	35	18	6
Occupational therapy	52 (12)	0	0	35	10	7
Orthoptics	0	0	0	0	0	0
Orthotics /prosthetics	3 (0.7)	0	0	3	0	0
Physiotherapy	94 (21)	0	0	56	26	12
Podiatry	3 (0.7)	0	0	3	0	0
Psychology	72 (16)	0	0	54	18	0
Social Work	78 (18)	0	0	56	19	3
Speech Pathology	31 (7)	0	0	19	9	3
Total	**443**	**0**	**0**	**285**	**118**	**40**

*for some disciplines these figures could be unreliable due to the census data confidentiality practices

It should be noted that social workers and psychologists can be employed in a number of areas not related to health, including Education, Justice and Industry. The ABS data does not give a breakdown on the data supplied for these two professions as to the percentage working specifically in health. It is therefore difficult to obtain from the data a true representation of the supply of psychologists and social workers in the health category.

Comparison of allied health profession ratios across geographical areas

When the number of allied health professionals per 10,000 head of population is calculated the data indicates that the residents of Darwin (Outer Regional) and remote locations such as Alice Springs and Katherine have similar levels of access to the various allied health disciplines. For some disciplines, the level of access may be slightly better in remote areas then in the outer metropolitan area of Darwin – audiology, dietetics, medical imaging, physiotherapy, speech pathology. The level of access drops significantly for

residents in the very remote regions of the Northern Territory. It should also be noted that residents of the Northern Territory, according to the data obtained from the 2001 ABS census, have no access to the discipline of orthoptics. Orthotics/prosthetics and podiatry is not available in remote and very remote areas of the NT.

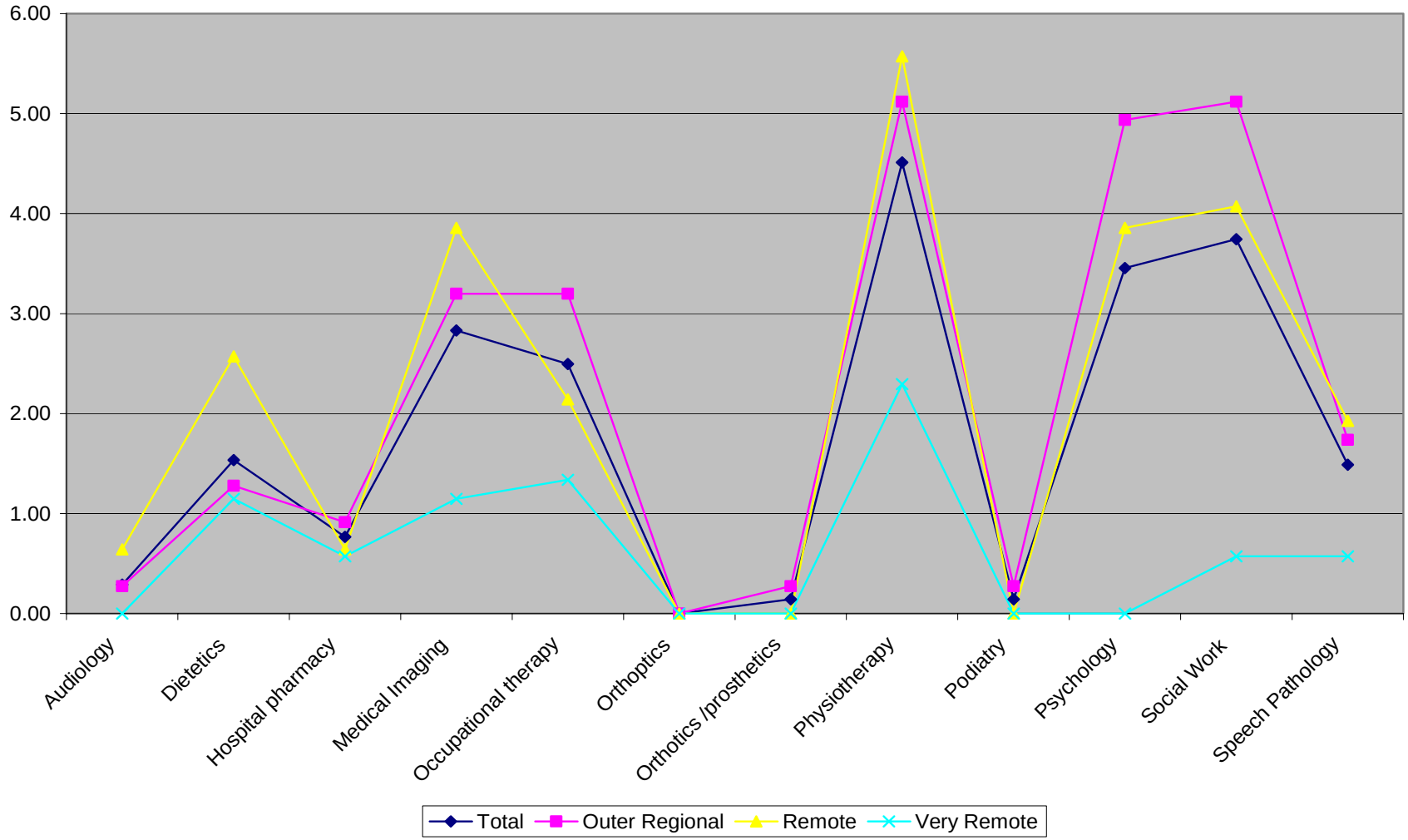
In terms of access to specific professional groups, residents in Darwin have higher access to occupational therapists, psychologists and social workers. On average, residents in the very remote regions have less than a third of the access available to residents in Darwin and small towns like Alice Springs and Katherine. Please note: the data does not differentiate between psychologists and social workers working in health and those working in other, non-health related areas.

Table 3 – Number of allied health professions per 10,000 head of population in the recognized Northern Territory ASGC regions

Allied health Professions	**Total**	**Outer Regional**	**Remote**	**Very Remote***
Audiology	0.29	0.27	0.64	0.00
Dietetics	1.54	1.28	2.57	1.15
Hospital pharmacy	0.77	0.91	0.64	0.57
Medical Imaging	2.83	3.20	3.86	1.15
Occupational therapy	2.50	3.20	2.14	1.34
Orthoptics	0.00	0.00	0.00	0.00
Orthotics /prosthetics	0.14	0.27	0.00	0.00
Physiotherapy	4.51	5.12	5.57	2.29
Podiatry	0.14	0.27	0.00	0.00
Psychology	3.46	4.94	3.86	0.00
Social Work	3.74	5.12	4.07	0.57
Speech Pathology	1.49	1.74	1.93	0.57
Average	**1.78**	**2.19**	**2.11**	**0.64**

*for some disciplines these figures could be unreliable due to the census data confidentiality practices

Distribution of Allied Health Professionals in the Northern Territory per 10,000 population



Qualified and employed allied health professionals

Table 4 displays data from those that have indicated on their Census 2001 form that they have attained a level of qualification in one of the allied health professional fields covered in this study. Comparing these figures with those detailed previously in this study (Table 2) it would appear that there are considerably more people with allied health professional qualifications then have been identified as a relevant allied health professional on the census form. The proportion varies between the different allied health professions covered in this study.

Table 4 – Allied health professionals: levels of qualification and identified allied health professionals by three ASGC Remote Classification regions (ABS 2001 census data)

Allied Health Professions	**Outer Regional**			**NT Remote & Very Remote***		
	Identified Number	Postgraduate Qualification	Bachelor or Entry Level Qualification	**Identified Number**	Postgraduate Qualification	Bachelor or Entry Level Qualification
Audiologist	**3**	12	0	**3**	3	0
Dietitians	**14**	9	9	**18**	9	9
Medical Imaging	**35**	0	51	**24**	0	30
Occupational Therapists	**35**	3	56	**17**	0	30
Physiotherapists	**56**	15	66	**38**	9	40
Podiatrists	**3**	0	3	**0**	0	6
Psychologists	**54**	84	154	**18**	33	57
Social Workers	**56**	15	155	**22**	9	89
Speech Pathologists	**19**	3	24	**12**	0	10

***** small cell sizes could be unreliable due to ABS data confidentiality practices

1. The figures for Hospital Pharmacy, Orthoptics and Orthotics have not been given, as these figures were not adequately separated out within the data obtained from the ABS. The writers of this report could not ensure the accuracy of the data provided.
2. The figures for Dietetics includes the figures for Nutritionists

Table 5 gives further information on qualifications and employment activity. It tables the numbers who, on census night, indicated that they were not working as an allied health professional within their specific discipline. These respondents were either employed in other health related jobs, jobs not related to health, or were not active in the workforce (could be retired, on extended family leave, unemployed, overseas trained professionals on holidays, study leave) The data does not indicate the reason they were not an active part of the workforce. This could represent a substantial level of wastage for the allied health workforce.

Table 5– Allied Health Professionals with qualifications not employed in health or not active in the workforce (ABS 2001 Census data)

Allied Health Professions	Outer Regional			NT Remote & Very Remote		
	Total with qualifications (from Table 4)	Working in areas other then health	Not part of active workforce	**Total with qualifications (from Table 4)**	Working in areas other then health	Not part of active workforce
Audiology	**12**	6	3	**3**	0	0
Dietetics	**18**	9	3	**18**	6	3
Medical Imaging	**51**	16	6	**30**	0	7
Occupational Therapy	**59**	17	11	**30**	10	9
Physiotherapy	**81**	18	16	**49**	3	10
Podiatry	**3**	0	0	**6**	0	3
Psychology	**238**	137	46	**90**	48	24
Social Work	**170**	101	29	**98**	60	17
Speech Pathology	**27**	10	3	**10**	0	3

It should be noted that the small figures appearing in the table could be unreliable due to ABS data confidentiality practices.

Gender ratios of the Northern Territory Allied Health Professional Workforce

Table 6 - Percentage of allied health professional workforce that is male by ASGC Remoteness Classification regions (ABS 2001)

Allied Health Professions	NT Outer Regional			NT Remote			NT Very Remote			Total Male (% of total)	Total Female	**Total**
	Male (% of total outer regional)	Female	**Total**	Male (% of total remote)	Female	**Total**	Male (% of total very remote)	Female	**Total**			
Audiologist	0	3	**3**	0	3	**3**	0	0	**0**	0	0	**6**
Dietitians	0	14	**14**	6 (50)	6	**12**	0	6	**6**	6 (19)	26	**32**
Medical Imaging	10 (29)	25	**35**	6 (33)	12	**18**	0	6	**6**	16 (27)	43	**59**
Occupational Therapists	3 (9)	32	**35**	0	10	**10**	0	7	**7**	3 (6)	49	**52**
Orthoptist	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
Orthotist	3 (100)	0	**3**	0	0	**0**	0	0	**0**	3 (100)	0	**3**
Physiotherapists	17 (30)	39	**56**	6 (23)	20	**26**	0	12	**12**	23 (24)	61	**94**
Podiatrists	0	3	**3**	0	0	**0**	0	0	**0**	0	3	**3**
Psychologists	22 (41)	32	**54**	5 (28)	13	**18**	0	0	**0**	27 (38)	45	**72**
Public pharmacists	6 (60)	4	**10**	0	3	**3**	3 (100)	0	**3**	9 (56)	7	**16**
Social Workers	7 (13)	49	**56**	4 (21)	15	**19**	0	3	**3**	11 (14)	67	**78**
Speech Pathologists	0	19	**19**	3 (33)	6	**9**	0	3	**3**	3 (10)	28	**31**

*for some disciplines these figures could be unreliable due to the census data confidentiality practices

Table 6 indicates the percentage of the allied health workforce that is male, across three ASGC Remoteness Structure Regions. Remote figures may be unreliable due to confidentiality factors. Table 7 gives the numbers per 10,000 population, giving better indication of the distribution of and access to male versus female allied health professionals in the three ASGC Remoteness Classification Regions.

Table 7 - Gender distribution within the Northern Territory allied health workforce per 10,000 head of population

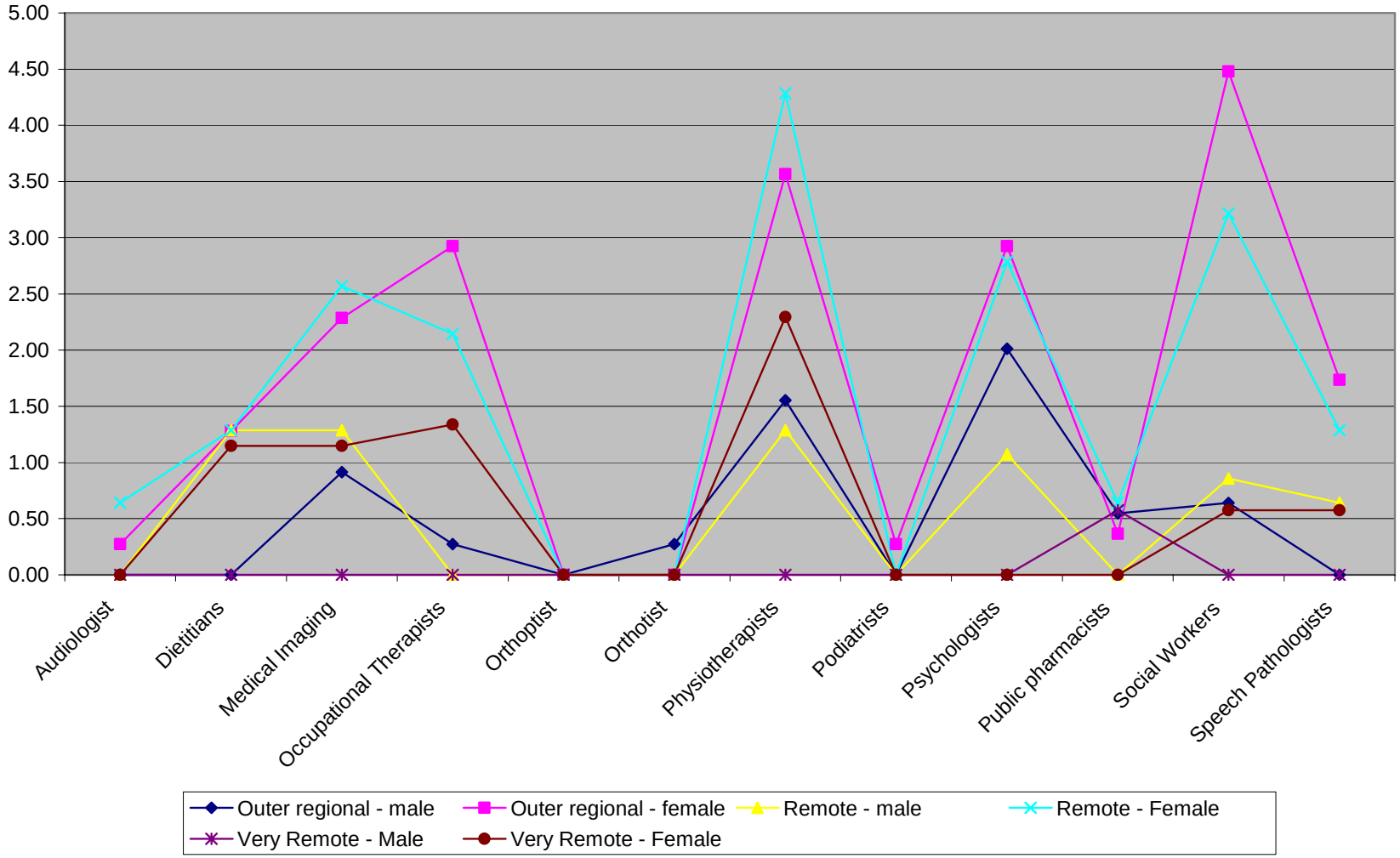
Allied Health Professions	NT Outer Regional			NT Remote			NT Very Remote			Total Average Male	Total Average Female	**Total Average**
	Male	Female	**Total**	Male	Female	**Total**	Male	Female	**Total**			
Audiologist	0.00	0.27	**0.27**	0.00	0.64	**0.64**	0.00	0.00	**0.00**	0.00	0.31	**0.31**
Dietitians	0.00	1.28	**1.28**	1.29	1.29	**2.57**	0.00	1.15	**1.15**	0.43	1.24	**1.67**
Medical Imaging	0.91	2.28	**3.20**	1.29	2.57	**3.86**	0.00	1.15	**1.15**	0.73	2.00	**2.73**
Occupational Therapists	0.27	2.92	**3.20**	0.00	2.14	**2.14**	0.00	1.34	**1.34**	0.09	2.14	**2.23**
Orthoptist	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Orthotist	0.27	0.00	**0.27**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.09	0.00	**0.09**
Physiotherapists	1.55	3.56	**5.12**	1.29	4.29	**5.57**	0.00	2.29	**2.29**	0.95	3.38	**4.33**
Podiatrists	0.00	0.27	**0.27**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.09	**0.09**
Psychologists	2.01	2.92	**4.94**	1.07	2.79	**3.86**	0.00	0.00	**0.00**	1.03	1.90	**2.93**
Public pharmacists	0.55	0.37	**0.91**	0.00	0.64	**0.64**	0.57	0.00	**0.57**	0.37	0.34	**0.71**
Social Workers	0.64	4.48	**5.12**	0.86	3.21	**4.07**	0.00	0.57	**0.57**	0.50	2.76	**3.25**
Speech Pathologists	0.00	1.74	**1.74**	0.64	1.29	**1.93**	0.00	0.57	**0.57**	0.21	1.20	**1.41**

*for some disciplines these figures could be unreliable due to the census data confidentiality practices

The data indicates that the professions detailed within this report are largely female dominated. The exception is orthotics.

There is an increase in the male proportion of the workforce for speech pathology and medical imaging between outer regional and remote area of the Northern Territory. For the other disciplines, the proportion of male representatives within the workforce decreases as the work location becomes more remote.

Northern Territory Allied Health Gender Distribution per 10,000 population



Public versus Private options for employment

Table 8 and 9 indicate the numbers of allied health professionals who are employed in public or private practice by the three ASGC Remoteness Structure regions. Remote figures may be unreliable due to confidentiality factors.

The data indicates the predominance of private practice for Podiatry, Physiotherapy, Medical Imaging, Psychology and Occupational Therapy in the Outer regional area of the Northern Territory (Darwin). For access to the other disciplines discussed in this report, the community is reliant on the public sector. Generally the percentage of allied health professionals employed in private practice decreases with increasing remoteness. The exception is psychology and social work where there are more private practitioners in remote areas. It is difficult to judge proportion of public versus private allied health professionals due to the unreliability of the census data when looking at small figures (i.e. 3)

Table 8 - Public versus Private Practice for three ASGC Remoteness Structure Regions (ABS 2001)

Allied Health Professions	**Outer Regional**			**Remote**			**Remote**		
	Public	Private (% of total)	**Total**	Public	Private (% of total)	**Total**	Public	Private (% of total)	**Total**
Audiologist	4	0	**4**	0	0	**0**	0	0	**0**
Dietitians	8	0	**8**	11	0	**11**	3	3 (50)	**6**
Medical Imaging	13	24 (65)	**37**	10	3 (23)	**13**	0	3 (100)	**3**
Occupational Therapists	14	17 (55)	**31**	12	0	**12**	3	3 (50)	**6**
Orthoptist	0	0	**0**	0	0	**0**	0	0	**0**
Orthotist	6	0	**6**	0	0	**0**	0	0	**0**
Physiotherapists	16	32 (67)	**48**	13	10 (43)	**23**	8	6 (43)	**14**
Podiatrists	0	3 (100)	**3**	0	0	**0**	0	0	**0**
Psychologists	21	35 (63)	**56**	4	11 (73)	**15**	0	0	**0**
Public pharmacists	10	0	**10**	6	0	**6**	3	0	**3**
Social Workers	33	15 (31)	**48**	12	10 (45)	**22**	0	0	**0**
Speech Pathologists	14	6 (30)	**20**	6	0	**6**	0	0	**0**

It should be noted that this data does not indicate where the allied health practitioner was working in a public practice / private practice mix.

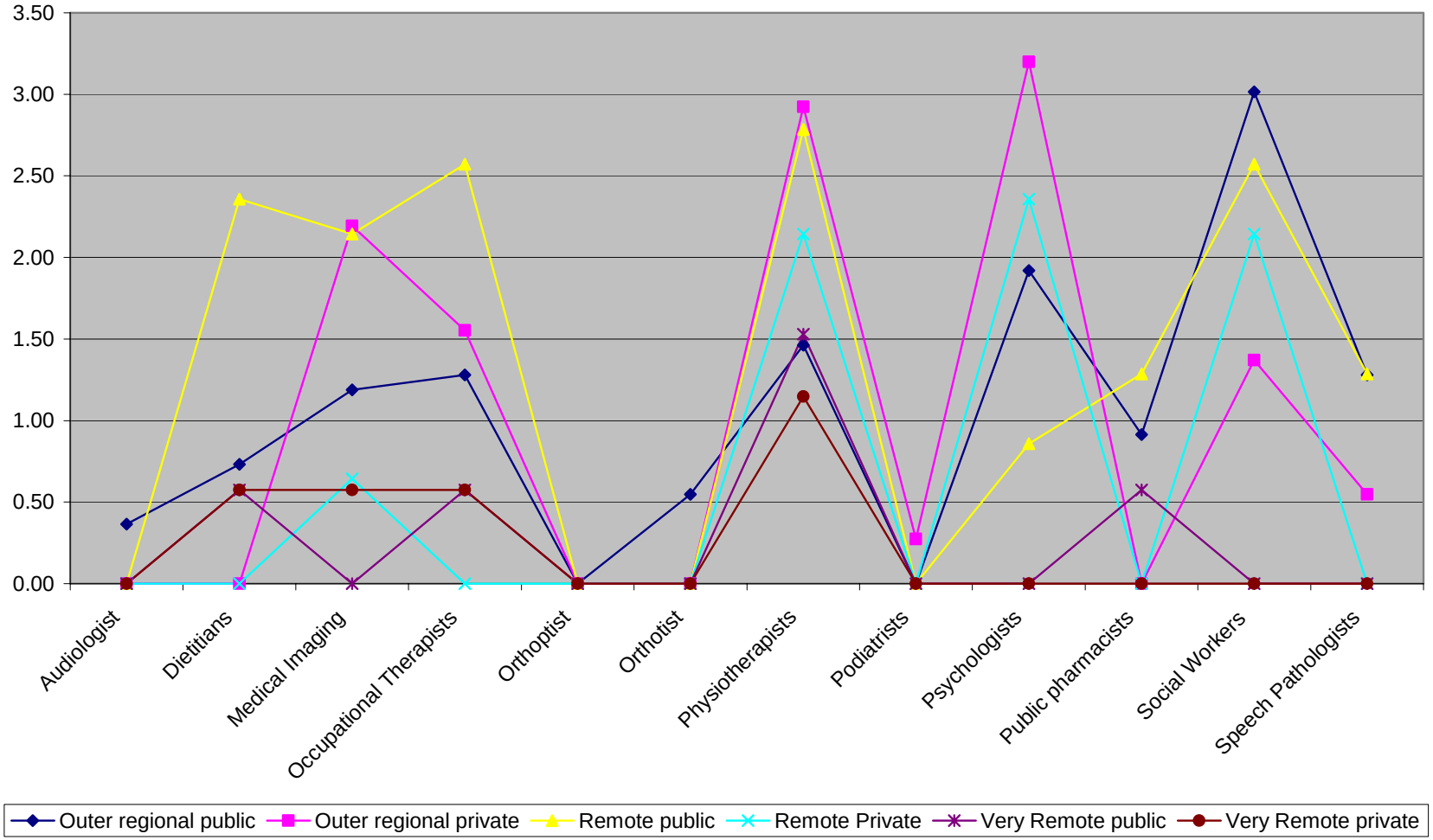
Table 9 indicates the public versus private distribution of Northern Territory Allied Health Professionals per 10,000 head of population

Allied Health Professions	Outer Regional			Remote			Very Remote*		
	Public	Private	**Total**	Public	Private	**Total**	Public	Private	**Total**
Audiologist	0.37	0.00	**0.37**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Dietitians	0.73	0.00	**0.73**	2.36	0.00	**2.36**	0.57	0.57	**1.15**
Medical Imaging	1.19	2.19	**3.38**	2.14	0.64	**2.79**	0.00	0.57	**0.57**
Occupational Therapists	1.28	1.55	**2.83**	2.57	0.00	**2.57**	0.57	0.57	**1.15**
Orthoptist	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Orthotist	0.55	0.00	**0.55**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Physiotherapists	1.46	2.92	**4.39**	2.79	2.14	**4.93**	1.53	1.15	**2.68**
Podiatrists	0.00	0.27	**0.27**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Psychologists	1.92	3.20	**5.12**	0.86	2.36	**3.21**	0.00	0.00	**0.00**
Public pharmacists	0.91	0.00	**0.91**	1.29	0.00	**1.29**	0.57	0.00	**0.57**
Social Workers	3.02	1.37	**4.39**	2.57	2.14	**4.71**	0.00	0.00	**0.00**
Speech Pathologists	1.28	0.55	**1.83**	1.29	0.00	**1.29**	0.00	0.00	**0.00**

*for some disciplines these figures could be unreliable due to the census data confidentiality practices

Skills mix in services delivery has not been included in the analysis, although services are delivered by allied health aides (occupational therapy, physiotherapy), nurses who provide services in remote areas such as radiology, foot care, counsellors who provide counselling services. The ABS data does not give the breakdown of the delivery of allied health services, the method (for example by outreach to the rural area from the major capital) or by whom (therapy aids, nurses providing diabetes or asthma education). In the context of this report it is not possible to comment on these issues due to lack of data.

Private versus Public Distribution of Allied Health Professionals in the Northern Territory per 10,000 population



Age structure of the Northern Territory Allied Health Professional Workforce

Table 10 - Age structure of the allied health professional workforce across the three ASGC Remoteness Structure regions (ABS 2001).

Allied Health Professions	Outer Regional				Remote				Very Remote*			
	0-34 years (% of total capital)	35-54 years (% of total capital)	55+	**Total**	0-34 years (% of total regional)	35-54 years (% of total regional)	55+	**Total**	0-34 years (% of total remote)	35-54 years (% of total remote)	55+	**Total**
Audiologist	0	3 (100)	0	**3**	3 (100)	0	0	**3**	0	0	0	**0**
Dietitians	11 (79)	3 (21)	0	**14**	3 (25)	9 (75)	0	**12**	6 (100)	0	0	**6**
Medical Imaging	18 (51)	17 (49)	0	**35**	9 (50)	9 (50)	0	**18**	3 (50)	3 (50)	0	**6**
Occupational Therapists	19 (54)	16 (46)	0	**35**	7 (70)	3 (30)	0	**10**	4 (57)	3 (43)	0	**7**
Orthoptist	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
Orthotist	3 (100)	0	0	**3**	0	0	0	**0**	0	0	0	**0**
Physiotherapists	32 (57)	21	3	**56**	13 (50)	10 (38)	3	**26**	4 (33)	8 (67)	0	**12**
Podiatrists	3 (100)	0	0	**3**	0	0	0	**0**	0	0	0	**0**
Psychologists	11 (20)	32	11	**54**	4 (22)	14 (78)	0	**18**	0	0	0	**0**
Public pharmacists	4 (40)	3 (30)	3	**10**	3 (100)	0	0	**3**	3 (100)	0	0	**3**
Social Workers	19 (34)	34 (61)	3	**56**	4 (21)	12 (63)	3	**19**	0	3 (100)	0	**3**
Speech Pathologists	13 (68)	6 (32)	0	**19**	6 (67)	0	3	**9**	3 (100)	0	0	**3**

*these figures will be unreliable due to the census data confidentiality practices.

The data in Tables 10 and 11 indicates the comparative ratio in three different age brackets. For medical imaging, public pharmacy and occupational therapy there is a relatively even proportion of professionals between the 0-34 and 35-53 age brackets. Social work, psychology and audiology have a higher proportion of the workforce in the 35-54 age bracket. The remaining disciplines have

the majority of their workforce in the 0-34 age group. Generally, these proportions remain for remote areas of the Northern Territory, with the exception of audiology and occupational therapy where the ratio favours the 0-34 age group.

Table 11 - Age distribution of allied health professionals per 10,000 head of population

Allied Health Professions	Outer Regional				Remote				Very Remote			
	0-34 years	35-54 years	55+	**Total Outer Regional**	0-34 years	35-54 years	55+	**Total Remote**	0-34 years	35-54 years	55+	**Total Very Remote**
Audiologist	0.00	0.27	0.00	**0.27**	0.64	0.00	0.00	**0.64**	0.00	0.00	0.00	**0.00**
Dietitians	1.01	0.27	0.00	**1.28**	0.64	1.93	0.00	**2.57**	1.15	0.00	0.00	**1.15**
Medical Imaging	1.65	1.55	0.00	**3.20**	1.93	1.93	0.00	**3.86**	0.57	0.57	0.00	**1.15**
Occupational Therapists	1.74	1.46	0.00	**3.20**	1.50	0.64	0.00	**2.14**	0.76	0.57	0.00	**1.34**
Orthoptist	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Orthotist	0.27	0.00	0.00	**0.27**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Physiotherapists	2.92	1.92	0.27	**5.12**	2.79	2.14	0.64	**5.57**	0.76	1.53	0.00	**2.29**
Podiatrists	0.27	0.00	0.00	**0.27**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Psychologists	1.01	2.92	1.01	**4.94**	0.86	3.00	0.00	**3.86**	0.00	0.00	0.00	**0.00**
Public pharmacists	0.37	0.27	0.27	**0.91**	0.64	0.00	0.00	**0.64**	0.57	0.00	0.00	**0.57**
Social Workers	1.74	3.11	0.27	**5.12**	0.86	2.57	0.64	**4.07**	0.00	0.57	0.00	**0.57**
Speech Pathologists	1.19	0.55	0.00	**1.74**	1.29	0.00	0.64	**1.93**	0.57	0.00	0.00	**0.57**

Indigenous status

Table 12 indicates the numbers within the allied health professional workforce identified as indigenous on census night. For many professions, the data could be unreliable due to the ABS confidentiality requirements. It does give indication however of the extremely poor representation the indigenous population has within the allied health professional workforce, particularly for the Northern Territory which has the highest proportional representation of indigenous population compared to the other states of Australia. The major representations (with figures still very small in comparison to the non-indigenous workforce) within the indigenous population were within social work and psychology – and these professionals were only located within the outer regional area of Darwin. This could be an indication of the Commonwealth Department of Health's strategies for indigenous health in recent years – for example: social welfare.

Table 12 - Indigenous status across three ASGC Remoteness structure regions (ABS 2001)

Allied Health Professions	NT Outer Regional		NT Remote		NT Very Remote	
	Total Non-Indigenous	Total Indigenous	Total Non-Indigenous	Total Indigenous	Total Non-Indigenous	Total Indigenous
Audiology	7	0	3	0	0	0
Dietetics	18	0	8	0	3	0
Medical Imaging	36	0	18	0	5	0
Occupational Therapy	32	0	7	0	11	0
Orthoptics	0	0	0	0	0	0
Orthotics /prosthetics	6	0	0	0	0	0
Physiotherapy	53	0	22	0	15	0
Podiatry	3	0	3	0	0	0
Psychology	55	6	19	0	0	0
Social Work	50	3	24	0	0	0
Speech Pathology	19	0	9	0	3	0

Workforce changes between 1996 and 2001

Overall the allied health workforce in Northern Territory grew by 23% between the 1996 and the 2001 census. It should be noted that discrepancies occur in ABS data due to confidentiality requirements for small cell sizes and many of the records for the Northern Territory have low numbers. Hospital pharmacy and audiology demonstrated a decline in growth rates. Orthotics and radiography stayed relatively at the same level and for the other professional groups there was a wide range of growth.

Table 13 – Comparison between the number of allied health professionals in the Northern Territory from the 1996 and 2001 census records

Allied Health Profession	Northern Territory	
	1996	**2001**
Audiologist	11	10 (-10)
Clinical psychologist	55	78 (+30)
Dietitian	14	28 (+50)
Hospital pharmacist	11	8 (- 40)
Occupational therapist	43	54 (+20)
Orthoptists	0	3 (+300)
Orthotists	3	3
Physiotherapist	53	87 (+39)
Podiatrist	3	4 (+25)
Radiographer	62	63 (+2)
Social worker	67	83 (+19)
Speech Pathologist	26	29 (+10)
Total	**348**	**450 (+23%)**

ENDNOTES

[i] The ASGC Remoteness Classification

A Steering Committee formed by the Commonwealth Department of Health and Aged Care in 1998 concluded that the ASGC concept of Urban/Rural, while useful in its own way, did not encompass all the factors which separate 'city' from 'country'. The terminology common at the time was 'urban', 'rural', and 'remote' but sometimes also included terms such as 'metropolitan' and 'regional' or even 'the bush' and 'the outback'. The Steering Committee concluded that the critical concept was 'remoteness' and that what defines 'city' and 'country' in this context is how far one travels to access goods and services.

DHAC Commissioned GISCA to develop a methodology to quantify 'remoteness'. A basic premise for GISCA's work was to provide a geographical definition of the urban/rural/remote continuum. In deference to the existing Section of State classification, the terms urban and rural were not used and instead the continuum became accessible/remote/very remote. The index of remoteness developed by GISCA is now known as the Accessibility/Remoteness Index of Australia (ARIA).

The latest version of ARIA is ARIA Plus and has indexed values between 0 and 15. In developing the ASGC Remoteness Classification, the ABS adapted the original ARIA.

The ASGC divided Australia into urban and rural areas … but it did not distinguish rural areas on the fringe of, say, Sydney from rural areas in the centre of Australia. The Remoteness classification was developed by the ABS in response to a demand for a statistical geography that allowed quantitative comparisons between 'city' and 'country' Australia where the defining difference between 'city' and 'country' is physical remoteness from goods and services. In July 2001, a new structure was added to the ASGC to divide Australia into regions based on relative remoteness. The 2001 census is the first major ABS collection to be disseminated on this classification.

REMOTENESS AREA CLASSES

REMOTENESS AREA CLASS	**ARIA Plus Score Range in the Class**
Major Cities of Australia	CDs with an average ARIA index value of 0 to 0.2
Inner Regional Australia	CDs with an average ARIA index value greater than 0.2 and less than or equal to 2.4
Outer Regional Australia	CDs with an average ARIA index value greater than 2.4 and less than or equal to 5.92

Remote Australia	CDs with an average ARIA index value greater than 5.92 and less than or equal to 10.53
Very Remote Australia	CDs with an average ARIA index value greater than 10.53
Migratory	Areas composed of off-shore, shipping and migratory CDs

[ii] Territory Health Services released a report in 1999, 'Allied Health Workforce Data Collection Project'. The report covered employers of THS and included information on:

- service and quality
- training an development
- infrastructure
- staff turnover
- recruitment
- geographical distribution
- employment profiles service setting distributions
- workforce issues by discipline

In 2002 the Department of Health and Community Services (previously THS) released the final report on the 'Professional Stream Recruitment and Retention Project'. This included information on all health professional disciplined employed by DHCS

The Centre for Remote Health, a joint centre of Flinders University and Northern Territory University released the report, 'Continuing education needs of allied health professionals in central Australia, in 2003

[iii] "The following explanation of the need for confidentiality through randomized cells was provided by the ABS.
Customized tables for some geographic areas can be produced with cells containing very small counts. In cases where this occurs small random adjustments are made to the data to avoid any risk of releasing identifiable information. These adjustments allow for a greater amount of detailed data to be released, and as they are small, do not affect the utility of the data. A comprehensive list of the precautions taken to ensure confidentiality of census data is listed in the information paper 2001 Census of Population and Housing: Nature and Content (Cat. no. 2008.0). Under the Census and Statistics Act 1905, it is an offence to release any information collected under the Act that would enable identification of any particular individual or organization. Introduced random error is used to ensure that no data are released which could risk the identification of individuals in the statistics.

Many classifications used in ABS statistics have an uneven distribution of data throughout their categories. For example, the number of people who are Anglican or born in Italy is quite large (3,903,324 and 238,246 respectively in 1996), while the number of people who are Buddhist or born in Chile (199,812 and 28,820 respectively in 1996) is relatively small. When religion is cross-classified with country of birth, the number in the table cell who are Anglican and who were born in Italy could be small, and the number of Buddhists born in Chile even smaller. These small numbers increase the risk of identifying individuals in the statistics. Even when variables are more evenly distributed in the classifications, the problem still occurs. The more detailed the classifications, and the more of them that are applied in constructing a table, the greater the incidence of very small cells. Care is taken in the specification of tables to minimize the risk of identifying individuals.

In addition, a technique has been developed to randomly adjust cell values. Random adjustment of the data is considered to be the most satisfactory technique for avoiding the release of identifiable census data. When the technique is applied, cells with very small values are slightly adjusted to prevent any identifiable data being exposed. These adjustments result in small introduced random errors. However the information value of the table as a whole is not impaired. The technique allows very large tables, for which there is a strong client demand, to be produced even though they contain numbers of very small cells.

The totals and sub-totals in summary tables are derived after the random adjustment process has been applied, thus they will include random error if there have been any adjustments to the cell components. Although each table of this kind is internally consistent, comparisons between tables which contain similar data may show some minor discrepancies. In addition the tables at different geographic levels are adjusted independently and tables at the higher geographic level may not be equal to the sum of the tables for the component geographic units. It is not possible to determine which individual figures have been affected by random error adjustments, but the small variance which may be associated with derived totals can, for the most part, be ignored.

Some small cells have been randomly altered to zero and some to three. Caution should be exercised in deducing that there are no people or households in an area having particular characteristics. The effect of the introduced random error is minimized if the statistic required is found direct from tabulation rather than from aggregating more finely classified data. Similarly, rather than aggregating data from small areas to obtain statistics about a larger standard geographic area, published data for the larger area should be used wherever possible. When calculating proportions, percentages or ratios from cross-classified or small area tables, the random error introduced can be ignored except when very small cells are involved, in which case the impact on percentages and ratios can be significant.