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Abbreviations

ABS	Australian Bureau of Statistics
AHS	Aboriginal health service
AHW	Aboriginal Health Worker (Aboriginal Health Worker or Torres Strait Islander Health Worker)
AIHW	Australian Institute of Health and Welfare
ANZSIC	*Australian and New Zealand Standard Industrial Classification*
ASCO	*Australian Standard Classification of Occupations*
Census	Census of Population and Housing
DEEWR	Australian Government Department of Education, Employment and Workplace Relations
FTE	full-time equivalent
GDS	Graduate Destination Survey
HESC	Higher Education Statistics Collection
MLFS	Medical Labour Force Survey
NCVER	National Centre for Vocational Education Research
NHDD	*National health data dictionary*
NMLFS	Nursing and Midwifery Labour Force Survey
SAR	Service Activity Reporting
SOS	Student Outcomes Survey
TAFE	technical and further education
VET	vocational education and training

Symbols used in the tables

. .	not applicable
—	nil or rounded to zero
n.a.	not available
nec	not elsewhere classified
nfd	not further defined
n.p.	not published
’000	thousand

Executive summary

Indigenous health labour force statistics

The report found that there were increases in the size of the Indigenous health labour force in most sectors, although data quality issues mean that care should be taken in interpreting the results.

- The Census of Population and Housing (Census) recorded 106 Indigenous medical practitioners in 2006 (82 general and 24 specialist). There was a higher number (147) of Indigenous medical practitioners found in the 2006 Medical Labour Force Survey (MLFS). However, some of this difference may be explained by the presence of a large number of Indigenous status not stated responses in the Census—a proportion of which is likely to be Indigenous.
- Between the 1996 Census and the 2006 Census, the number of Indigenous general practitioners doubled (from 41 to 82).
- The 2006 Census recorded 1,135 Indigenous registered nurses. The 2005 Nursing and Midwifery Labour Force Survey (NMFLS) recorded a much lower figure of 644, possibly related to a low response rate and other data quality issues.
- The 2006 Census found that there were 222 Indigenous enrolled nurses, while the 2005 NMLFS recorded a higher number at 419.
- The number of Indigenous enrolled nurses declined 61% between the 1996 and 2006 Censuses, while the number of registered nurses increased by 71%. This can be partially explained by nurses upgrading their qualifications.
- The number of Aboriginal Health Workers increased from 669 in 1996 to 961 in 2006.
- The number of Indigenous students enrolled in a vocational education and training (VET) health course decreased between 2002 and 2006, from 3,565 to 3,255.
- However, the number of Indigenous health students in higher education increased between 2001 and 2006, from 1,104 to 1,426.
- The number of Indigenous people with a post-school qualification in health more than doubled between 1996 and 2006 (from 2,707 to 6,326).

Data quality issues

A range of data quality issues were identified, including:

- the under-identification of Indigenous people which was common to most of the data sets examined, seen in the high proportion of missing ('not stated') responses to the Indigenous status question
- the Census undercount of the Indigenous population, which was estimated to be 12% in 2006, twice as high as in the 2001 Census (6%). This may have affected the counts of Indigenous health professionals
- low response rates in both the MLFS and the NMLFS data collections, particularly in the Northern Territory.

1 Introduction

1.1 Background

There is considerable interest in information about the Australian health labour force, including changes to its size and distribution, the composition of the various health professions and the potential effects any changes may have on health care (AIHW 2008b). Access to reliable, comprehensive, timely and nationally consistent trend data is one of the key elements in gaining an understanding of the current health labour force.

The focus of this report is on the health labour force as it relates to Indigenous health. It forms part of the work program of the National Advisory Group on Aboriginal and Torres Strait Islander Health Information and Data (NAGATSIHID) and was funded by the Australian Health Ministers' Advisory Council. The 2006–08 NAGATSIHID Strategic Plan recognises that the health workforce is a priority area for information and data (AIHW 2006b).

This report has two purposes. The first is to present information on health labour force statistics as they relate to Aboriginal and Torres Strait Islander people, drawing on a number of data sources. The second is to examine the quality of the data. The information presented focuses on three groups in the health labour force:

- Indigenous people in the health workforce
- health professionals working in Aboriginal health services
- Indigenous people undertaking health-related study or training.

1.2 Indigenous people in the health workforce

The role of the primary health care practitioner is threefold: prevention, treatment of common conditions and acting as a gatekeeper to specialists. The World Health Organization's International Conference of Primary Health Care meeting in Alma-Ata in 1978 declared, among other things, that primary health care is essential to leading a socially and economically productive life.

> It is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care process (WHO 1978 paragraph VI).

The involvement of Indigenous doctors and nurses in the primary health care of Indigenous people and the availability of Indigenous-specific health services have been examined in several studies. These studies have emphasised the importance of Indigenous primary health care practitioners and services to improving the health of Aboriginal and Torres Strait Islander people.

In the United States, a number of studies involving blacks ('black' and 'race' are the terminology used in these studies) and Hispanics examined the degree of satisfaction a patient has for his or her physician. Cooper-Patrick and colleagues (1999) reported that patients in race-concordant relationships (that is, the race of the patient and the physician is

the same) rated visits as significantly more participatory than patients in race-discordant relationships. García and colleagues, in a qualitative study, concluded that concordance contributed to a practitioner's empathy and improved communication between physician and patient. A better relationship in turn contributed to a stronger therapeutic relationship and better health outcomes (García et al. 2003).

Saha and colleagues' (2000) research shows that, although blacks make up 4% of the medical labour force in the United States, they treat 25% of the black population. This could not be fully explained by geographic proximity. Around one-quarter of blacks and Hispanics consider race when choosing a physician and there is a significant association between the ability to choose and having a physician of the same race, suggesting that, given a choice, some blacks seek out a physician of the same race (Saha et al. 2000). This effect was not limited to race or ethnicity. For example, some women also preferred women doctors and some Spanish speakers preferred Spanish-speaking doctors (García et al. 2003).

In Australia, the poorer health of Aboriginal and Torres Strait Islander Australians has been well documented (ABS & AIHW 2008). The Australian Indigenous Doctors' Association states that:

> The positive effects of Aboriginal and Torres Strait Islander doctors for their peoples' physical, emotional and cultural wellbeing, as well as their community capacity and political determination, have long been recognised by government and other Indigenous and non-Indigenous stakeholders (AIDA 2008).

Some of the strengths of Indigenous doctors include empathy with Aboriginal and Torres Strait Islander people and their culture, knowing family groups and having patients who know the doctor's family, and the ability to interpret western medicine according to Indigenous understandings of health (AIDA 2008).

Kowanko and colleagues (2003) found that in the mental health area the availability of specific services for Aboriginal people was an issue for 35% of Aboriginal people in urban areas, 46% in rural areas and 39% in remote areas. Exposure to racial discrimination was also an important issue, with 47% of Aboriginal people in urban areas, 41% in rural and 34% in remote areas reporting this as a problem. A need for more welcoming health services, incorporating cultural awareness training and the employment of more Aboriginal staff, was also identified (Kowanko et al. 2003).

One study of access to general practice services in rural New South Wales found that Aboriginal participants called for the employment of Aboriginal people in general practices and for cross-cultural training for all non-Indigenous staff (Andrews et al. 2002). O'Donoghue (1999) suggested an approach that 'aimed at the recruitment, training and retention of Indigenous health professionals' and 'prioritised primary health care, concentrating on preventative strategies for lifestyle illnesses'.

National standard for Indigenous status

Many data collections include a question on Indigenous status, which allows respondents to indicate whether they are of Aboriginal and/or Torres Strait Islander origin. Ideally the national standard question is used. The adherence to national standards for variables in data collection helps to harmonise different collections and promotes confidence that the same concept is being measured in each collection. Data standards in health statistics are published in the *National health data dictionary* (NHDD) and in the Metadata Online Registry (METeOR), located at <meteor.aihw.gov.au>.

Box 1.1: National health data dictionary standard Indigenous status question

[Are you] [Is the person] [Is (name)] of Aboriginal or Torres Strait Islander origin?

(For persons of both Aboriginal and Torres Strait Islander origin, mark both 'Yes' boxes.)

No ☐

Yes, Aboriginal ☐

Yes, Torres Strait Islander. ☐

Source: HDSC 2006.

The national standard question for Indigenous status is shown in Box 1.1. Apart from the instruction to tick both 'Yes' boxes if the person is of both Aboriginal and Torres Strait Islander origin, no other guidance is given and respondents are free to use whatever interpretation of the question they wish. An individual may change his or her response over time.

Not all data collections use this national data standard. Asking the question in a different way may elicit a different response, and this will affect data quality.

1.3 Indicators of data quality

There are a number of methods that can be used to assess data quality. In this report, the quality of the Indigenous data was assessed against three main indicators: the rate of 'not stated' responses, fluctuations over time, and the degree of agreement between different sources. These three indicators are described in more detail below.

Percentage of 'not stated' responses

The absence of a response to a question is referred to as a 'not stated' response. A high level of not stated responses indicates that data quality is poor.

The characteristics of those with a not stated response may be different from those who answered the question. Higher levels of not stated responses introduce greater uncertainty to the data. This report is particularly concerned with the level of not stated responses to Indigenous status but also considers not stated responses in other variables such as industry and field of education. Measuring not stated responses is a proxy indicator for data quality and is widely used in the absence of other information.

In the Census of Population and Housing (Census), the Australian Bureau of Statistics (ABS) creates records for persons about whom no or little information can be obtained apart from their residence, because they are not at home each time the Census collector calls. In these cases, basic information on the number of persons and their sex may be gained from a neighbour. However, the Indigenous status of the person is not obtained in this way and is recorded as 'not stated'.

Variability over time

The number of persons with a characteristic seldom changes rapidly. It is assumed that the number and proportion of Indigenous health professionals are steadily growing over time, at least by the same rate at which the population is increasing, and possibly faster if there are specific programs to encourage young Indigenous Australians into health professions. Therefore the change in variables over time should be gradual. Large fluctuations over time are indicative of a data quality issue or small numbers. Variations could be partially due to changes in the way the Indigenous status question is answered over time, for example, it may be left blank in one year but marked as Indigenous in the next. They may also be due to difficulties in enumeration for a particular survey or census.

Comparison of different data sets

Making comparisons is ideally a way of corroborating sources and thus confirming the quality of each data set. Unfortunately comparisons are seldom straightforward in practice, as data sets often vary in scope and definitions. Some comparisons can be made as long as differences in definitions and scope are taken into account and results are treated with caution. For example, observations can be made in terms of whether figures from one data collection should be lower or higher than those in another, or proportional distributions should be similar, rather than focusing on the absolute numbers themselves.

1.4 Other data issues

Population coverage

The number of Indigenous health professionals recorded in a data set can increase in two ways: there may be a real increase in the number of Indigenous health professionals, or the increase may be due to improved identification of Indigenous health professionals already counted but previously recorded as non-Indigenous or not stated.

In the first instance, there could be a real increase in absolute numbers. For example, if the real number of Indigenous medical practitioners is 1,000 and all are recorded correctly, then an extra 200 Indigenous medical practitioners will increase the number of practitioners to 1,200, an increase of 20%.

In the second instance, the increase in the number of Indigenous medical practitioners can be due to improved coverage. This occurs where the identification of Indigenous medical practitioners improves without any increase in the real number of practitioners. For instance, if the true number of Indigenous medical practitioners is also 1,000 but only half (500) are correctly identified then identifying another 200 Indigenous practitioners correctly increases the number to 700, an increase of 40%, without there being any new Indigenous practitioners.

In both cases, the end result is an increase of 200 Indigenous medical practitioners recorded, but only the first case reflects a real increase in the number of Indigenous practitioners. In addition, the proportional increase is much higher in the second example than the first.

Undercount

The Census is subject to an undercount; in other words, more people are missed than are counted twice. There is no way of determining the detailed characteristics of those missed although estimates are made for some broad groups, including Indigenous status. In 2001, the undercount was 6.1% of the total Indigenous population and 1.8% of the total population (ABS 2003: 17, 22). In 2006, the undercount for Indigenous people was 11.5% compared with 2.7% for the total population (ABS 2007b: 7, 2007c: 6). A correction factor of 1.130 may be applied to 2006 data so that totals are in line with the estimated resident population, but correction factors are not available for more detailed categories such as labour force status or qualification.

Confidentiality and rounding

Each collection has its own way of dealing with the confidentiality of data. The Census randomly allocates values of 1 or 2 to counts of 0 to 3. Also, in tables based on the 2006 Census, any cell may be randomly altered. As a result, totals in different tables may not be the same within this publication and in comparison to other publications using Census data.

The Medical Labour Force Survey (MLFS) and Nursing and Midwifery Labour Force Survey (NMLFS) data are estimates based on benchmarks provided by health professional registration boards. Not all practitioners respond to the survey, so stated responses are assigned weights to produce a population in accordance with the provided benchmarks. The estimates produced in the MLFS and NMLFS for each characteristic are fractions that are rounded to whole numbers for publication. However, when data are added or subtracted, the fractions are used and totals in different tables may differ due to the effects of rounding. In addition, counts of less than three are generally suppressed.

National Vocational Education and Training (VET) Provider Collection data are rounded to the nearest 0 or 5. Students Outcomes Survey (SOS) benchmarks are rounded to the nearest 10, but all data were provided as proportions only.

Rates

In some sections, the rates of practitioners per 100,000 population presented do not take into account the different hours worked, that is, they are based on the total number of persons regardless of whether they worked 10 hours or 40 hours a week. For example, a medical practitioner may work half-time and is only 50% available compared with a full-time medical practitioner, but in some sections each is counted as one medical practitioner.

An alternative concept, which takes into account the different availability of practitioners, is full-time equivalent practitioners (FTE). The FTE number of practitioners is the number of practitioners if all part-time practitioners were converted to fractions of full-time hours and then summed to make full-time equivalents. For example, two half-time workers would make one FTE worker. This requires a judgment as to what are full-time hours. For *Medical labour force 2006*, full-time hours were 45 hours per week for medical practitioners and in *Nursing and midwifery labour force 2005* full-time hours were 35 hours per week for nurses (AIHW 2008b: 22, 2008c: 20). The FTE rate is the FTE number divided by the total population for the area in which the practitioner works, to produce a rate of FTE practitioners per 100,000 population.

Classifications

Occupation data from the Census used in this report are based on the second edition of the *Australian Standard Classification of Occupations* (ASCO) (ABS 1997). Although there is a more recent update of ASCO, the *Australian and New Zealand Standard Classification of Occupations* (ABS & SNZ 2006a), which was used in the 2006 Census, the older classification was used to retain comparability of Census data over time. Census 2006 data have been recoded to the earlier classifications. Likewise, data for industry is based on the 1993 edition of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC) (ABS & SNZ 1993) rather than the more recent 2006 edition (ABS & SNZ 2006b). This means that the occupation and industry data in this report will differ slightly from analyses based on the 2006 classifications.

MLFS and NMLFS data do not need to use an occupational classification as they are based on registrations and enrolments which, by definition, are medical and nursing occupations.

The Australian Standard Geographical Classification defines a Remoteness structure which is used throughout this report. Remoteness areas are based on distances from population centres of varying sizes. The five categories are *Major cities*, *Inner regional*, *Outer regional*, *Remote* and *Very remote* (ABS 2006b: 38–40).

1.5 Structure of the report

This report is structured around three main health occupations—medical practitioners, nurses and Aboriginal Health Workers (AHWs). The report presents a discussion of particular data quality issues at the end of each section.

Chapter 2 provides information on the sources of data used in this report.

Chapter 3 considers information about medical practitioners, drawing on data from the Census and the MLFS.

Chapter 4 examines information about nurses, with the two main sources of information being the Census and the NMLFS.

Chapter 5 explores the Census data on AHWs .

Chapter 6 looks at education and training, drawing mainly on data from the National VET Provider Collection, the Higher Education Statistics Collection and the Census.

Chapter 7 outlines a number of conclusions.

2 Sources of data

A number of national data sources provide information on the health workforce.

In this report, data on medical practitioners are drawn from two main data sources, the Census and the MLFS. The Census, conducted every 5 years by the ABS, is the only national data source able to provide information on medical occupation by Indigenous status over time. The MLFS is a census of registered medical practitioners. MLFS data by Indigenous status were publishable for the first time in 2006 and have been included in this report. The MLFS does, however, provide information over time on medical practitioners working in Aboriginal health services. Some comparisons with Service Activity Reporting (SAR) are also included. The SAR is a data collection of Australian government-funded Aboriginal and Torres Strait Islander primary health care services, which includes FTE figures on health professionals working in these services.

Data on nurses are drawn from two data sources, the Census and the NMLFS. The NMLFS is a census of registered and enrolled nurses and midwives, and NMLFS data have been published by Indigenous status for a number of years. The NMLFS also provides information over time on nurses working in Aboriginal health services.

Information on Aboriginal Health Workers was sourced from the Census. Some comparisons with SAR data are presented.

The chapter on training and qualifications of health professionals draws data from five data sources. The National VET Provider Collection is an administrative collection of data on enrolments in, and completions of, vocational training, primarily provided in technical and further education (TAFE) colleges. The Higher Education Statistics Collection (HESC) is an administrative collection of data from higher education institutions and provides data on university study. It includes information on enrolments, student load and completions. The Student Outcomes Survey (SOS) is an independent sample survey of recent VET graduates and module completers (a course of study that does not lead to an award). The Graduate Destination Survey (GDS) is a mail-out survey of all recent higher education graduates, which collects information on graduate destinations and satisfaction with courses. Finally, data on post-school qualifications are drawn from the Census. This provides information on completed qualifications, no matter how long ago they were gained.

Tables 2.1a and 2.1b summarise the main features of each of the data sources used in this report.

Table 2.1a: Sources of data, selected characteristics

	Medical Labour Force Survey (MLFS)	Nursing and Midwifery Labour Force Survey (NMLFS)	Census of Population and Housing (Census)	National Vocational Education and Training (VET) Provider Collection
Provider	Australian Institute of Health and Welfare (AIHW)	AIHW	ABS	National Centre for Vocational Education Research (NCVER)
Description	Census of registered medical practitioners	Census of registered and enrolled nurses and midwives	Census of population and housing	National VET provider collection
Purpose	Monitoring trends in supply, hours worked and geographic location of medical practitioners	Monitoring trends in supply, hours worked and geographic location of nurses and midwives	Baseline population data, information for small groups and small area planning	Informing policy and practice in the VET sector
Methodology	State and territory medical boards send survey form with annual registration renewals to all medical practitioners. Imputation for item non-response; weighting—estimation for population non-response. Weights align with registration board benchmarks	State and territory nursing and midwifery registration boards send survey form with annual registration renewals to all nurses and midwives Imputation for item non-response; weighting—estimation for population non-response. Weights align with registration board benchmarks	Form per household, questions for persons, households and dwellings; are edits, imputations; not weighted as a census	Administrative data from training providers through state and territory agencies
Scope	All medical practitioners required to renew their registration with state and territory medical boards. Does not include new registrants (not renewing)	All nurses and midwives required to renew their registration or enrolment with state and territory registration boards. Does not include new registrants (not renewing)	All persons, households, dwellings present in Australia on census night, excluding diplomatic personnel and their families	Public VET system
Actual coverage (response rates)	70.2% of medical registrations (2006), weighted to benchmark characteristics	In 2005 all nurses 55.0%, registered nurses 55.9% and enrolled nurses 50.8% weighted to benchmark characteristics.	Undercount is 2.7% in 2006, 1.8% in 2001; for Indigenous Australians it was 11.5% in 2006 and 6.1% in 2001 (ABS 2003, 2007b, 2007c).	Complete
Geographical coverage	Australia, states and territories, remoteness areas	Australia, states and territories, remoteness areas	Australia, states and territories, remoteness areas and subregions	Australia, states and territories
Frequency	Annual	Annual	5-yearly	Annual

(continued)

Table 2.1a (continued): Sources of data, selected characteristics

	Medical Labour Force Survey (MLFS)	Nursing and Midwifery Labour Force Survey (NMLFS)	Census of Population and Housing (Census)	National Vocational Education and Training (VET) Provider Collection
Collection unit	Persons	Persons	Persons, families, households, dwellings	Persons aggregated to enrolments, qualifications or courses, units of competency, training providers, delivery location and awards
Indigenous status	Collected	Collected	Collected	Collected
Key variables	The MLFS collects the Indigenous status of medical practitioners but has not published it until the 2006 survey due to concerns about the accuracy of the data. It includes information about the settings in which medical practitioners work, among them 'Aboriginal health service' (AHS). The survey also collects the average number of hours worked. In conjunction with SAR data (see Table 2.1b), these data could establish the number of medical practitioners, both full and part-time, working in AHSs (AIHW 2008a: 2–4, 27–30; 2008b: 8, 38)	Indigenous status is collected and published in the NMLFS. Thus information about Aboriginal and Torres Strait Islander nurses and midwives is available for all variables 'Indigenous health' is one option for principal area of main job for clinical nurses (AIHW 2008c: 2–3, 42–5).	Indigenous status is available for cross-classification with all census variables. Variables to note are occupation, and field and level of qualification. Occupation will give detailed information on health occupations Qualification level and field can be compared with both NCVER data on vocational achievement and Department of Education, Science and Training data on higher education (ABS 2005, 2006a)	The VET includes the ABS standard Indigenous status question. Data are available for enrolled students and for completions. Data on enrolled students are potentially comparable with the Census. Other variables may be examined for non-response issues (NCVER 2007a: 5, 8, 10)

Table 2.1b: Sources of data, selected characteristics

	Student Outcomes Survey (SOS)	**Higher Education Statistics Collection (HESC)**	**Graduate Destination Survey (GDS)**	**Service Activity Reporting (SAR)**
Provider	NCVER	Department of Education, Employment and Workplace Relations	Graduate Careers Australia	Department of Health and Ageing, National Aboriginal Community Controlled Health Organisation
Description	Survey of recent VET graduates and module completers	Collection of enrolments, student load and completions data	Survey of recent higher education graduates	Survey of Australian government-funded Aboriginal and Torres Strait Islander primary health care services
Purpose	Assessment of performance of the VET system with respect to further study or employment and student satisfaction	Performance and policy in higher education	Information on graduate destinations and satisfaction with course	Service planning, service end-of-year reporting to funding body
Methodology	Survey, mail-out to random sample	Administrative data from higher education institutions	Mail-out survey	Data for non-response not estimated as services may differ in important ways.
Scope	Students who completed a qualification or a module, i.e. complete part of a course and then leave the VET system; from TAFE and other government providers, private providers and community education providers in New South Wales and Victoria	Students enrolled in units of study at the census date in an award course, enabling course or non-award course, or award course completions	All new graduates at the end of a calendar year	Australian government-funded Aboriginal and Torres Strait Islander primary health care services. May receive funding from other sources. Data relates to activities, event, structure and programs, resulting from all funding sources
Actual coverage (response rates)	42.6% for graduates and 36.6% for module completers	Near complete	62.8% in 2007	99% (138 out of 140 services)
Geographical coverage	Australia, states and territories	Australia, states and territories	Australia, states and territories	Australia
Frequency	Annual	Annual	Annual	Annual
Collection unit	Persons	Students aggregated to enrolments, load, completions	Persons	Health service

(continued)

Table 2.1b (continued): Sources of data, selected characteristics

	Student Outcomes Survey (SOS)	Higher Education Statistics Collection (HESC)	Graduate Destination Survey (GDS)	Service Activity Reporting (SAR)
Indigenous status	Collected	Collected	Collected	Collected for patients and staff
Key variables	Indigenous status, field of qualification, level of qualification, completions, employment outcomes (NCVER 2007b: 13)	Enrolled student numbers, field and level of education and completions (DEST 2007: 1–4)	Labour force status, starting salaries, course satisfaction, further study (GCA 2007)	Collects Indigenous status of staff and their hours. Estimates episodes of care for Indigenous people SAR only covers Commonwealth-funded AHSs (DoHA & NACCHO 2006: 1)

3 Medical practitioners

The ABS Census reports medical practitioner data in two broad Australian Standard Classification of Occupations (ASCO) groups: generalist medical practitioners and specialist medical practitioners. Generalist practitioners include general practitioners and hospital non-specialists, while specialist practitioners include specialists and specialist registrars. In the AIHW MLFS, medical practitioners are divided into primary care practitioners, hospital non-specialists, specialists and specialists-in-training. The focus of this chapter is generalist medical practitioners in the Census and primary care practitioners in the MLFS. It should be noted, for comparison, that the Census's generalist medical practitioners include hospital non-specialists while the MLFS's primary care practitioners do not.

The Census is the only data collection that has reported both Indigenous status and medical occupation over an extended period. The MLFS collects Indigenous status but the data collected up to 2006 have been assessed as not of publishable quality. Data on Indigenous status in 2006 are publishable and are presented here. While Census figures on medical practitioners working in Aboriginal health services are not available, the MLFS does provide this information.

3.1 Census

The 5-yearly Census data presented in this chapter are for employed practitioners working as clinicians, excluding those looking for work, those in other work, those who are retired and those who work in medical administration or research.

Counts

At the time of the 1996 Census there were 61 Indigenous medical practitioners, including both general and specialist medical practitioners. By 2006, this had increased to 106, an increase of nearly three-quarters (73.8%). The corresponding increase for the total medical practitioner population was one-quarter (24.9%). If generalist medical practitioners alone are considered, there were 41 Indigenous generalist medical practitioners in 1996; by 2006 this had doubled to 82. In contrast, the total number of generalist medical practitioners rose by just over one-fifth, or 21.8% (tables 3.1 and 3.2).

The category 'specialist medical practitioners' includes specialists such as emergency medicine specialists, obstetricians and gynaecologists, pathologists, specialist physicians, psychiatrists, radiologists and surgeons (ABS 1997). Numbers in this category were smaller and fluctuated over the period 1996 to 2006 (tables 3.1 and 3.2).

Table 3.1: Medical practitioners by type of practitioner by Indigenous status, 1996, 2001 and 2006, Census[(a)], number and per cent

	1996		2001		2006	
	Number	Per cent	Number	Per cent	Number	Per cent
			Generalist medical practitioners[(b)]			
Indigenous	41	0.1	54	0.2	82	0.2
Non-Indigenous	28,914	99.5	31,839	99.5	35,169	99.3
Not stated	106	0.4	107	0.3	156	0.4
Total	**29,061**	**100.0**	**32,000**	**100.0**	**35,407**	**100.0**
			Specialist medical practitioners[(c)]			
Indigenous	20	0.1	34	0.2	24	0.1
Non-Indigenous	14,859	99.4	15,767	99.3	19,261	99.4
Not stated	71	0.5	76	0.5	88	0.5
Total	**14,950**	**100.0**	**15,877**	**100.0**	**19,373**	**100.0**
			Total medical practitioners[(d)]			
Indigenous	61	0.1	92	0.2	106	0.2
Non-Indigenous	43,916	99.5	47,936	99.4	54,793	99.4
Not stated	177	0.4	183	0.4	244	0.4
Total	**44,154**	**100.0**	**48,211**	**100.0**	**55,143**	**100.0**

(a) Census data are subject to ABS-introduced random error.

(b) Generalist medical practitioners are ASCO code 2311 (ABS 1997), which includes generalist medical practitioner, medical practitioner in training and generalist medical practitioner not further defined (nfd).

(c) Specialist medical practitioners are ASCO code 2312 (ABS 1997), which includes anaesthetist, dermatologist, emergency medicine specialist, obstetrician and gynaecologist, ophthalmologist, paediatrician, pathologist, specialist physician, psychiatrist, radiologist, surgeon, specialist medical practitioner not elsewhere classified and specialist medical practitioner nfd.

(d) Total medical practitioners includes medical practitioner nfd.

Sources: Unpublished 1996, 2001 and 2006 Census data.

Table 3.2: Medical practitioners by type of practitioner by Indigenous status, proportional change, 1996–2001, 2001–2006 and 1996–2006, Census[(a)], per cent

	1996–2001	2001–2006	1996–2006
		Generalist medical practitioners[(b)]	
Indigenous	31.7	51.9	100.0
Non-Indigenous	10.1	10.5	21.6
Not stated	0.9	45.8	47.2
Total	**10.1**	**10.6**	**21.8**
		Specialist medical practitioners[(c)]	
Indigenous	70.0	–29.4	20.0
Non-Indigenous	6.1	22.2	29.6
Not stated	7.0	15.8	23.9
Total	**6.2**	**22.0**	**29.6**
		Total medical practitioners[(d)]	
Indigenous	50.8	15.2	73.8
Non-Indigenous	9.2	14.3	24.8
Not stated	3.4	33.3	37.9
Total	9.2	14.4	24.9

(a) Census data are subject to ABS-introduced random error.

(b) Generalist medical practitioners is ASCO code 2311 (ABS 1997), which includes and generalist medical practitioner, medical practitioner in training and generalist medical practitioner not further defined (nfd).

(c) Specialist medical practitioners are ASCO code 2312 (ABS 1997), which includes anaesthetist, dermatologist, emergency medicine specialist, obstetrician and gynaecologist, ophthalmologist, paediatrician, pathologist, specialist physician, psychiatrist, radiologist, surgeon, specialist medical practitioner not elsewhere classified and specialist medical practitioner nfd.

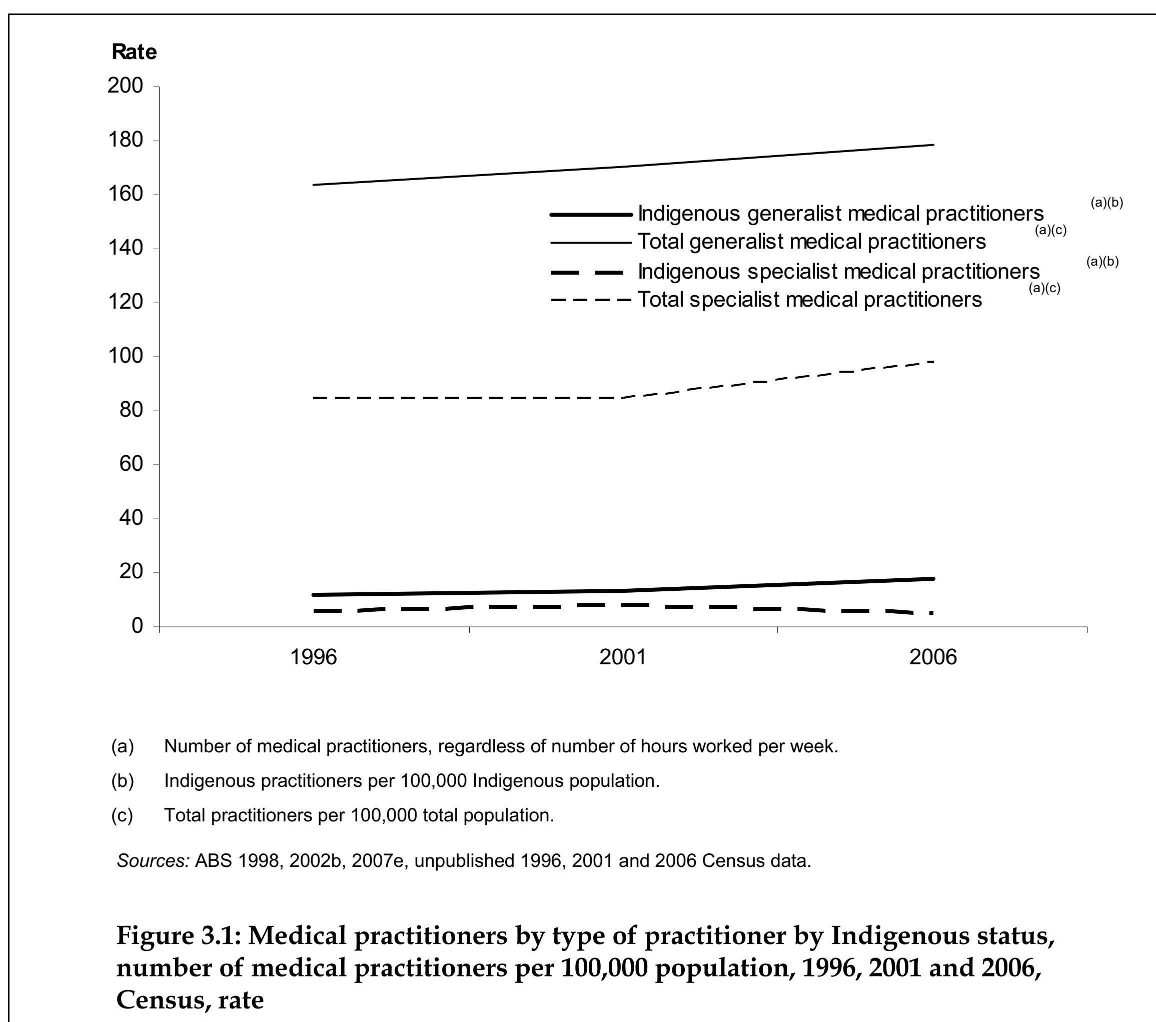
(d) Total medical practitioners includes medical practitioner nfd.

Sources: Unpublished 1996, 2001 and 2006 Census data.

Rates

In Figure 3.1, rates are shown for the number of Indigenous medical practitioners per 100,000 Indigenous population and the number of total medical practitioners per 100,000 total population. These rates are not FTE (see section 1.4).

Rates for the Indigenous population were low compared with the rates for the total population, with 11.6 Indigenous generalist medical practitioners per 100,000 Indigenous population in 1996 and 18.0 per 100,000 Indigenous population in 2006. In contrast, there were 163.7 generalist medical practitioners per 100,000 total population in 1996 and 178.3 per 100,000 in 2006 (Figure 3.1).



(a) Number of medical practitioners, regardless of number of hours worked per week.

(b) Indigenous practitioners per 100,000 Indigenous population.

(c) Total practitioners per 100,000 total population.

Sources: ABS 1998, 2002b, 2007e, unpublished 1996, 2001 and 2006 Census data.

Figure 3.1: Medical practitioners by type of practitioner by Indigenous status, number of medical practitioners per 100,000 population, 1996, 2001 and 2006, Census, rate

Industry

One of the industry groups in the 1993 edition of the Australian and New Zealand Industrial Classification (ANZSIC) is the health and community services industry, which covers hospitals and nursing homes, medical and dental services and other health services such as pathology, optometry and physiotherapy. 'Industry' refers to the employer's main business so it is possible to be employed as a medical practitioner but not be in the health and community services industry. For example, the defence department may employ its own medical practitioners and these would be classified as part of the government administration and defence industry and not the health and community services industry.

Most generalist medical practitioners, both Indigenous and non-Indigenous, worked in the health and community services industry (83.8% for Indigenous practitioners and 96.4% for non-Indigenous practitioners) (Table 3.3). Similarly, nearly all medical practitioners whose Indigenous status was not stated were also employed in the health and community services industry. The number of responses with a not stated Indigenous status was twice the number of Indigenous responses (159 and 80 respectively).

Table 3.3: Generalist medical practitioners by industry group[(a)] by Indigenous status, 2006, Census[(b)], number and per cent

	Indigenous	Non-Indigenous	Not stated	Total
		Number		
Health and community services	67	33,889	150	34,106
Government administration and defence	3	478	3	484
Education	3	233	0	236
Personal and other services	3	80	3	86
Property and business services	0	200	0	200
Other[(c)]	4	219	0	223
Not stated	0	71	3	74
Total	**80**	**35,170**	**159**	**35,409**
		Per cent		
Health and community services	83.8	96.4	94.3	96.3
Government administration and defence	3.8	1.4	1.9	1.4
Education	3.8	0.7	—	0.7
Personal and other services	3.8	0.2	1.9	0.2
Property and business services	—	0.6	—	0.6
Other[(c)]	5.0	0.6	—	0.6
Not stated	—	0.2	1.9	0.2
Total	**100.0**	**100.0**	**100.0**	**100.0**

— Nil or rounded to zero

(a) Based on 1993 edition of ANZSIC.

(b) Census data are subject to ABS-introduced random error. Small cells may have been randomly adjusted to preserve confidentiality. These data should be treated with caution. In addition, due to these adjustments totals may differ between tables. See section 1.4.

(c) Other includes agriculture, forestry and fishing; mining; manufacturing; electricity, gas and water supply; construction; wholesale trade; retail trade; accommodation, cafes and restaurants; transport and storage; communication services; finance and insurance; cultural and recreational services; and non-classifiable economic units.

Source: Unpublished 2006 Census data.

Information on medical practitioners working in Aboriginal health services cannot be reported here, as 'Aboriginal health service' was not a separate industry in the 1993 edition of ANZSIC, nor was it one in the 2006 edition (ABS & SNZ 1993, 2006b). In the 2006 edition, 'Aboriginal health centres—providing a range of allied health services' were coded as 'other allied health services'. The concording 1993 categories were parts of 'community health centres' and 'health services not elsewhere classified'. As many Aboriginal health services provide medical care, it is not known how many Aboriginal health services would fall within this category of primarily providing a range of allied health services.

Among more detailed categories, the two most common industries for both Indigenous and non-Indigenous generalist medical practitioners in 2006 were 'general practice medical services' and 'hospitals (except psychiatric hospitals)' (Table 3.4).

Table 3.4: Generalist medical practitioners by most common industry[(a)] of employment by type of practitioner by Indigenous status, 2006, Census[(b)], number

	Indigenous	Non-Indigenous	Not stated	Total
		Generalist medical practitioners		
General practice medical services	39	21,284	95	21,418
Hospitals (except psychiatric hospitals)	28	10,312	31	10,371
Specialist medical services	0	534	3	537
Total[(c)]	**82**	**35,169**	**156**	**35,407**

(a) 1993 edition of ANZSIC.

(b) Census data are subject to ABS-introduced random error.

(c) Total includes all other categories not shown.

Source: Unpublished 2006 Census data.

Remoteness

A practitioner's location is an important indicator of a possible mismatch between the availability of practitioners and the location of their clients. Table 3.5 provides data examining the distribution of Indigenous medical practitioners and the broader Indigenous population.

The largest share of the Indigenous population (32.4%) resided in *Major cities*, where the number of Indigenous generalist medical practitioners per 100,000 Indigenous population was highest at 31.2. However, nearly one-quarter of Indigenous people lived in *Remote* or *Very remote* areas but there were only 2.8 Indigenous generalist medical practitioners per 100,000 Indigenous population in these areas (Table 3.5).

Table 3.5: Indigenous generalist medical practitioners by remoteness areas, 2006, Census[(a)], number, rate and per cent

	Indigenous generalist medical practitioners		Proportion of Australian Indigenous population[(c)]
	Number	**Rate[(b)]**	**Per cent**
Major cities	46	31.2	32.4
Inner regional	13	13.1	21.8
Outer regional	22	22.3	21.7
Remote/Very remote	3	2.8	23.8
Total	**84**	**18.5**	**100.0**

(a) Census data are subject to ABS-introduced random error.

(b) Number per 100,000 Indigenous population using unadjusted Census data.

(c) Proportion of total Indigenous population resident in each remoteness area.

Sources: ABS 2007e, unpublished 2006 Census data.

State and territory

The number of Indigenous generalist medical practitioners per 100,000 Indigenous population was highest in South Australia (43.0), Victoria (36.5) and New South Wales (24.5). The lowest rates of Indigenous generalist medical practitioners were in the Australian Capital Territory, Northern Territory and Western Australia (0.0, 5.6 and 6.8 respectively) (Table 3.6).

Table 3.6: Indigenous generalist medical practitioners by state and territory, 2006, Census[(a)], number, rate and per cent

	Number of Indigenous generalist medical practitioners		Proportion of total Australia Indigenous population[(c)]
	Number	**Rate[(b)]**	**Per cent**
New South Wales	34	24.5	30.4
Victoria	11	36.5	6.6
Queensland	18	14.1	28.0
Western Australia	4	6.8	12.9
South Australia	11	43.0	5.6
Tasmania	3	17.9	3.7
Australian Capital Territory	0	—	0.9
Northern Territory	3	5.6	11.8
Australia	**84**	**18.5**	**100.0**

— Nil or rounded to zero

(a) Census data are subject to ABS-introduced random error.

(b) Number per 100,000 Indigenous population using unadjusted Census data.

(c) Proportion of total Indigenous population resident in each state and territory.

Source: Unpublished 2006 Census data.

3.2 Medical Labour Force Survey

The main source of information about registered medical practitioner numbers is the annual MLFS (see Table 2.1a). Data on Indigenous medical practitioners were published, for the first time, in *Medical labour force 2006* (AIHW 2008b). Before then, data were not publishable by Indigenous status due to a range of issues which resulted in poor quality data. Limited Indigenous data for 2006 are presented while the main body of the data relates to the 2006 medical practitioner population as a whole.

Counts

According to the 2006 MLFS, there were 147 Aboriginal and Torres Strait Islander medical practitioners in Australia employed as clinicians. This includes primary care practitioners, hospital non-specialists, specialists, specialists-in-training but not administrators, teachers, researchers, public health physicians and occupational health physicians (AIHW 2008b: 5).

Data for some states and territories have been combined due to small numbers. New South Wales and the Australian Capital Territory combined had the highest number of Indigenous clinicians (48), followed by Victoria and Tasmania combined with 40 (AIHW 2008b: 9, 53) (Table 3.7). The proportion of clinicians who were Indigenous varied from 0.1% in Western Australia to 0.5% in South Australia and the Northern Territory combined.

Table 3.7: Aboriginal and Torres Strait Islander medical practitioners who work primarily as clinicians[(a)], state and territory, 2006, MLFS, number

Indigenous status	NSW–ACT	Vic–Tas[(b)]	Qld[(b)]	WA	SA–NT[(c)]	Total
Indigenous	48	40	25	8	26	147
Total	20,859	16,566	9,278	5,901	5,562	58,167
Percentage Indigenous[(d)]	0.2	0.2	0.3	0.1	0.5	0.3

(a) Clinicians include primary care practitioners, hospital non-specialists, specialists and specialists-in-training.

(b) AIHW figures are underestimates as benchmark figures in Queensland and Tasmania did not include all registered medical practitioners.

(c) AIHW figures for the Northern Territory are based on responses to the 2007 MLFS weighted to 2006 benchmark figures, equivalent to a response rate of 28.6%. Care should be taken when interpreting these figures.

(d) Percentage of Indigenous medical practitioners working primarily as clinicians excludes the not stated category.

Note: Some states and territories have been combined due to small cell sizes in some jurisdictions.

Sources: AIHW 2008b: 53.

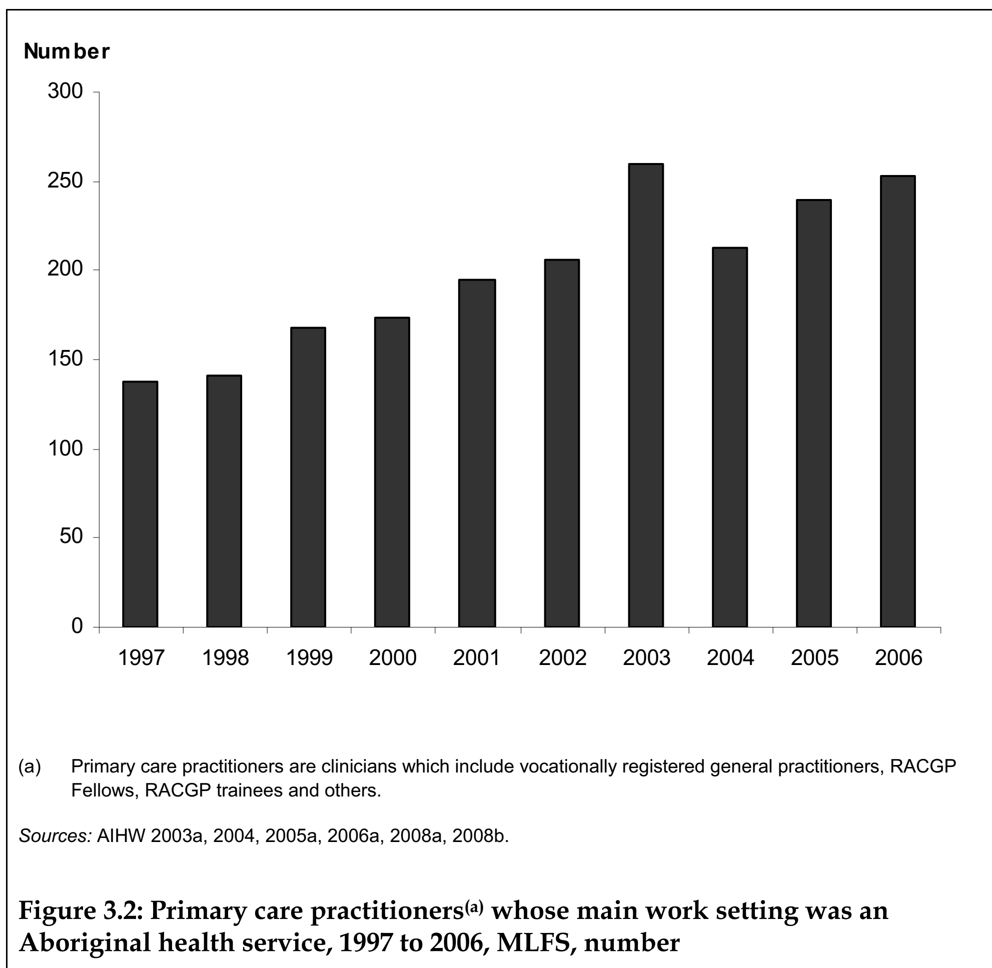
Work setting

Although information on the Indigenous status of medical practitioners has not been published before the 2006 MLFS, data on the work setting of employed medical practitioners, one of which is the Aboriginal health service, have been. A work setting is the type of service or facility in which a practitioner works (AIHW 2008a: 16) and is based on working 1 hour or more in the previous week. The focus of this section is primary care practitioners working in Aboriginal health services as their main work setting. These figures may be underestimates as some practitioners may not answer the question on work setting.

In 2006 there were 253 employed primary care practitioners and an additional 65 other practitioners, a total of 318, whose main work setting was an Aboriginal health service

(AIHW 2008b). However, it was also possible for a practitioner to have an Aboriginal health service as their non-main work setting.

Nationally, the number of primary care practitioners in Aboriginal health service work settings rose from 137 in 1997 to 253 in 2006, an increase of 84.7%. The highest number during that period was in 2003, with 260 primary care practitioners in an Aboriginal health service work setting (Figure 3.2). The proportion of primary care practitioners in the main work setting of an Aboriginal health service has risen fairly steadily over the period 1997–2005, from 0.7% of all primary care practitioners in 1997 to 1.1% in 2006. Non-response to the work setting question remained fairly constant over the same period, with 5.3% of primary care practitioners having a work setting of not stated in 1997 and 4.8% in this group in 2006.



(a) Primary care practitioners are clinicians which include vocationally registered general practitioners, RACGP Fellows, RACGP trainees and others.

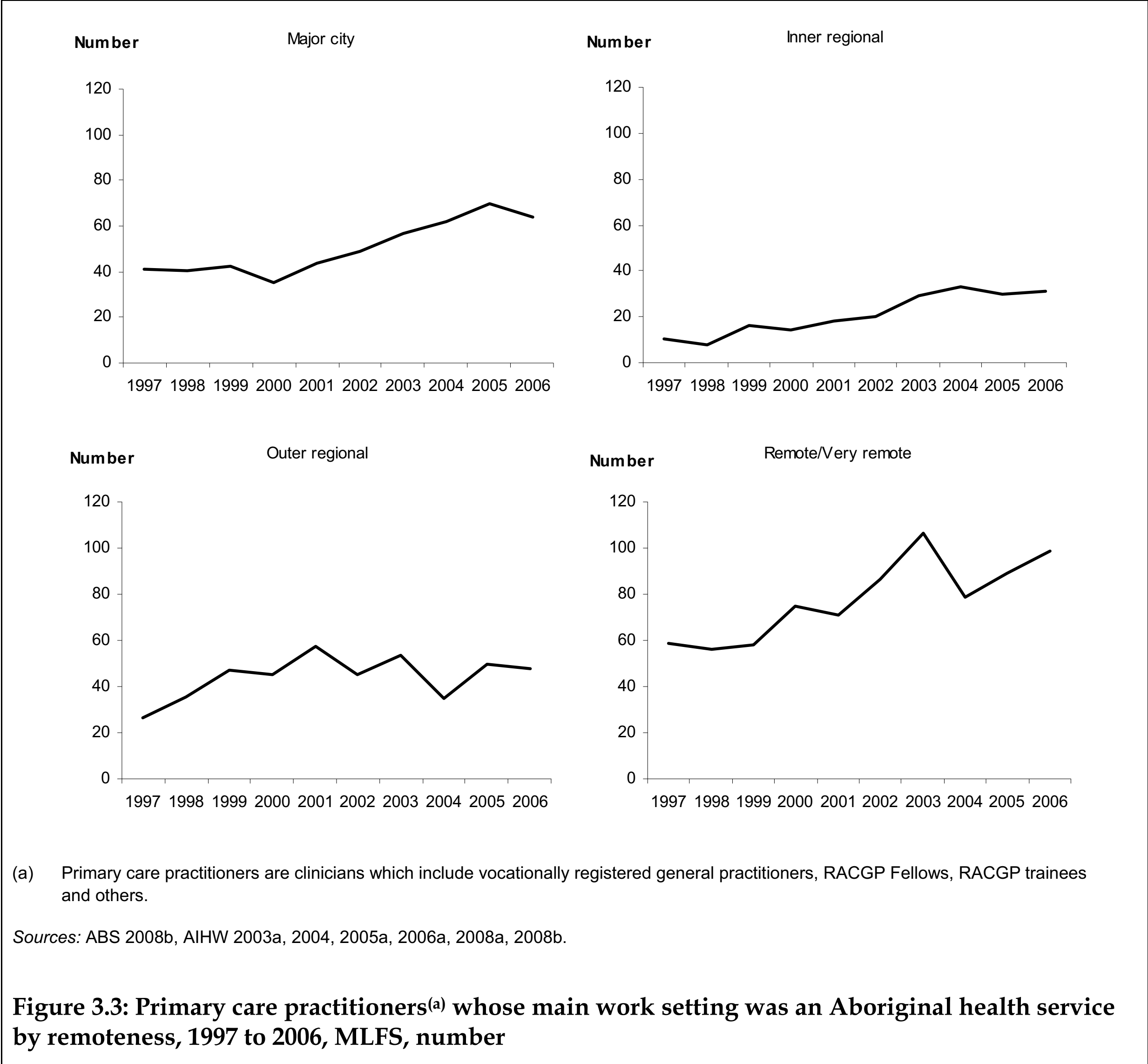
Sources: AIHW 2003a, 2004, 2005a, 2006a, 2008a, 2008b.

Figure 3.2: Primary care practitioners[(a)] whose main work setting was an Aboriginal health service, 1997 to 2006, MLFS, number

Remoteness

In 2006 most primary care practitioners working in an Aboriginal health service as their main work setting were working in *Remote/Very remote* areas. This number increased by 68.1% from 1997 to 2006 (from 59 to 99 practitioners) (Figure 3.3). On average, the numbers in *Major cities* and *Inner regional* areas also increased steadily from 1997 to 2006, by 56.3% for *Major cities* (from 41 to 64) and 203.0% for *Inner regional* (10 to 31). *Outer regional* areas also rose over the same period, by 83.1% (26 to 48). Recent fluctuations in the number of primary care

practitioners for *Remote*, *Very remote* and *Outer regional* areas could be due to the fluctuations in the Northern Territory estimates as a result of low response rates.



(a) Primary care practitioners are clinicians which include vocationally registered general practitioners, RACGP Fellows, RACGP trainees and others.

Sources: ABS 2008b, AIHW 2003a, 2004, 2005a, 2006a, 2008a, 2008b.

Figure 3.3: Primary care practitioners[(a)] whose main work setting was an Aboriginal health service by remoteness, 1997 to 2006, MLFS, number

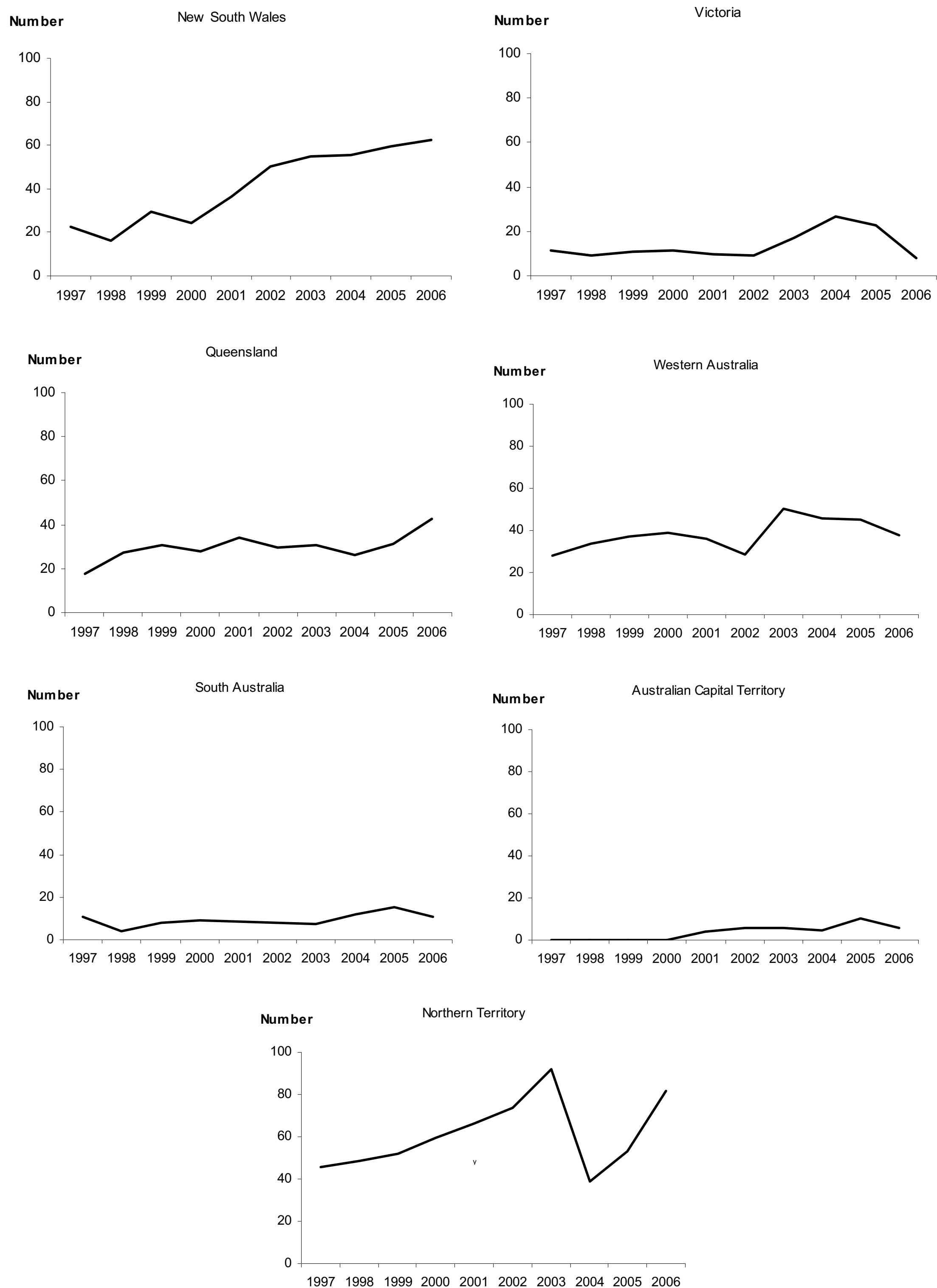
The high rate of Indigenous primary care practitioners in an Aboriginal health service work setting in *Remote/Very remote* areas (77.4 per 100,000) is likely to be due to the fact that the highest proportion of Aboriginal health services are located in these areas—one in four according to one study (DoHA & NACCHO 2008b: 5).

States and territories

Figure 3.4 shows the number of primary care practitioners in an Aboriginal health service main work setting in each state and territory over time. Overall, most primary care practitioners whose main work setting was an Aboriginal health service were located in the Northern Territory, New South Wales, Western Australia and Queensland although there was some fluctuation, most likely due to small numbers.

The most striking feature of Figure 3.4 is the sharp decline in the number of primary care practitioners in an Aboriginal health service in the Northern Territory between 2003 and 2004. Overall, between 2003 and 2006 the number of primary care practitioners in this main work setting in the Northern Territory fell by 12.0%. The drop in the Northern Territory accounted for most of the overall decline in numbers of primary care practitioners in an Aboriginal health service main work setting in 2004. It is possible that more practitioners have come to the Northern Territory to work but remain registered elsewhere.

However, it should be noted that in 2004, 2005 and 2006 response rates for the Northern Territory were low (43.8% in 2004, 31.8% in 2005 and 28.6% in 2006), continuing a trend since 2003 (AIHW 2008a: 29, 2008b: 38). The proportion of those who did not answer the work setting question was 4.8% in 2006. There is no way of knowing how many of these not stated responses had a work setting of Aboriginal health service (AIHW 2008b).



(a) Primary care practitioners are clinicians which include vocationally registered general practitioners, RACGP Fellows, RACGP trainees and others.

Note: Data for Tasmania were not publishable.

Sources: AIHW 2003a, 2004, 2005a, 2006a, 2008a.

Figure 3.4: Primary care practitioners[(a)] whose main work setting was an Aboriginal health service, by state and territory, 1997 to 2006, MLFS, number

Service Activity Reporting

The Australian Government, through the Office for Aboriginal and Torres Strait Islander Health, funds some Aboriginal health services, with 151 community-controlled services funded in 2006. These Aboriginal health services submit annual returns, the SAR, that include FTE figures on health professionals working in these services (see section 1.4, Table 2.1b) (DoHA & NACCHO 2008b: 2). The number of FTE medical practitioners in 2006 was 234 and the rate per 100,000 Indigenous population was 45.2.

It is unclear from the SAR how the Indigenous status of clients and staff is ascertained. The questionnaire simply asks for the number of Aboriginal and Torres Strait Islander clients and staff.

Overall, it was estimated that there were 414 medical practitioners, both Indigenous and non-Indigenous, based on a 35-hour week and 532 based on a 45-hour week (Table 3.9).

3.3 Data quality

Census

Out of all medical practitioners in the 2006 Census, the percentage with a not stated Indigenous status rate was very low (less than 1%), but there were more not stated responses to Indigenous status than there were Indigenous responses. Because small numbers are involved, if only a small proportion of the respondents with a not stated Indigenous status were Indigenous, it could have a large effect on the proportion that was Indigenous. Small numbers also affect the extent to which disaggregation is possible. With only 24 specialist medical practitioners in 2006 (Table 3.1), most analyses were not possible for this group.

Furthermore, the Census undercount for Indigenous people is higher than that for non-Indigenous people (see section 1.4). Although correction for total population figures is possible, it is not possible to correct for individual characteristics such as occupation. As a result these figures may be lower than is actually the case.

There was a gradual increase in the number of generalist medical practitioners in the Census data between 1996 and 2006. There was a fall in the number of Indigenous specialist medical practitioners between 2001 and 2006. However, this involved small numbers (34 to 24), and may have been due to random fluctuation or to imprecision or errors in the reporting of the type of medical practitioner.

Improved identification of Indigenous generalist medical practitioners and increasing numbers of practitioners may both be responsible for increases in the reported number of Indigenous medical practitioners (see section 1.3).

Most medical practitioners were employed in the health services industry, especially in general practice medical services and hospitals (except psychiatric hospitals). Also, the rate of Indigenous medical practitioners per 100,000 Indigenous population was considerably lower in *Remote* and *Very remote* areas than in *Major cities*.

Medical Labour Force Survey

Indigenous status

In the 2005 and prior rounds of the MLFS, versions of the Indigenous status question were asked in all states and territories; however, most were non-standard and data quality was generally poor. Quality was affected by inconsistent forms, low response rates and low numbers. As a result, data from the 2005 MLFS and earlier surveys have not been published by Indigenous status. Data from the 2006 MLFS were assessed as being of sufficient quality to be published for the first time and were included in *Medical labour force 2006* (AIHW 2008b).

For all states and territories except the Northern Territory, there were more Indigenous status not stated responses than Indigenous responses. Some Indigenous practitioners are likely to be missed through not identifying as Indigenous on the survey form. In addition, among those who do not respond to the survey at all, some may be Indigenous persons. These cannot be separately identified, as benchmarks are not available by Indigenous status.

Response rates

Nationally, the level of response has remained fairly constant from 2002 to 2006. However, at the state and territory level, the rate of response to the survey has fluctuated, most noticeably with reduced response rates for the Northern Territory.

These figures have some caveats attached. There was a large increase in the number of practitioners between 2002 and 2003 (26.2%) followed by a fall between 2003 and 2004. The fall was almost certainly due to a fall in Northern Territory numbers but the reason for the large increase between 2002 and 2003 is unclear. The 2005 data for the Northern Territory should also be treated with caution as the overall response rate to the survey was very low (7.5%). Northern Territory figures, as a result, are 2004 MLFS estimates weighted to the 2005 population giving a revised response rate of 31.8% (AIHW 2008a: 27–29). Data for Queensland, Western Australia and the Northern Territory for 2005 are also undercounts as benchmarking excluded some specialist medical practitioners.

In 2006, as the survey was not conducted in the Northern Territory, responses used were those from the 2007 MLFS weighted to the 2006 benchmarks. This gave a response rate of 28.6%. Other states and territories with low response rates were Western Australia (47.6%) and the Australian Capital Territory (58.7%) (AIHW 2008b: 35).

Table 3.8: Response rates, Medical Labour Force Survey, 2001 to 2006, per cent

	NSW	Vic	Qld[(a)]	WA[(b)]	SA	Tas[(c)]	ACT	NT[(d)]	Total
2002	66.0	66.2	87.7	59.9	72.0	71.0	67.7	49.1	69.2
2003	76.5	66.0	81.3	61.7	68.6	64.6	70.6	38.8	71.4
2004	71.5	65.4	87.5	65.5	76.1	60.7	67.5	43.8	71.4
2005	72.4	68.6	83.8	66.6	69.9	62.0	67.1	31.8	71.3
2006	75.4	72.0	79.7	47.6	67.9	64.1	58.7	28.6	70.2

(a) Based on general registrants and conditionally registered specialists only.

(b) From 2002 to 2005, the response rate in Western Australia was artificially around 12–19% higher than 2006 due to the survey being administered to both general and conditional registrants but benchmark figures were for general registrants only. In 2006, the scope is consistent, that is, the survey population and the benchmark figures are based on general and conditional registrants, hence the drop in response rate between 2005 and 2006.

(c) Based on general registrants, conditionally registered specialists and non-practising practitioners only.

(d) Northern Territory data for 2006 are based on responses to the 2007 MLFS weighted to 2006 benchmark figures, equivalent to a response rate of 28.6%.

Source: AIHW 2008b: 38.

Work setting

Non-response to the survey as a whole also affects work setting data in that work setting is not imputed for records where there is no response to the question. In addition, some practitioners may complete parts of the survey relating to labour force details but not respond to the work setting question. As a result some practitioners will have a work setting of not stated. Rates for these not stated responses were around 1 in 20 for the years between 1997 and 2006 (5.3% in 1997 and 4.8% in 2006) (AIHW 2008a, 2008b).

Other

The MLFS defines employed clinicians as employed medical practitioners who worked the most hours in a clinical capacity in the week before the survey. This is close to the Census definition, which is based on occupation coding and excludes non-clinicians. The reference period for the Census is also the week before the collection.

The Census reports data for the main job held last week whereas the MLFS refers to the main medical job held last week. However, before 2006, the MLFS definition was inconsistent across states and territories, with some referring to the ‘current’ time period.

For more information on this and other data quality issues in the MLFS, see Appendix A, *Medical labour force 2006* (AIHW 2008b: 34–44).

Comparisons

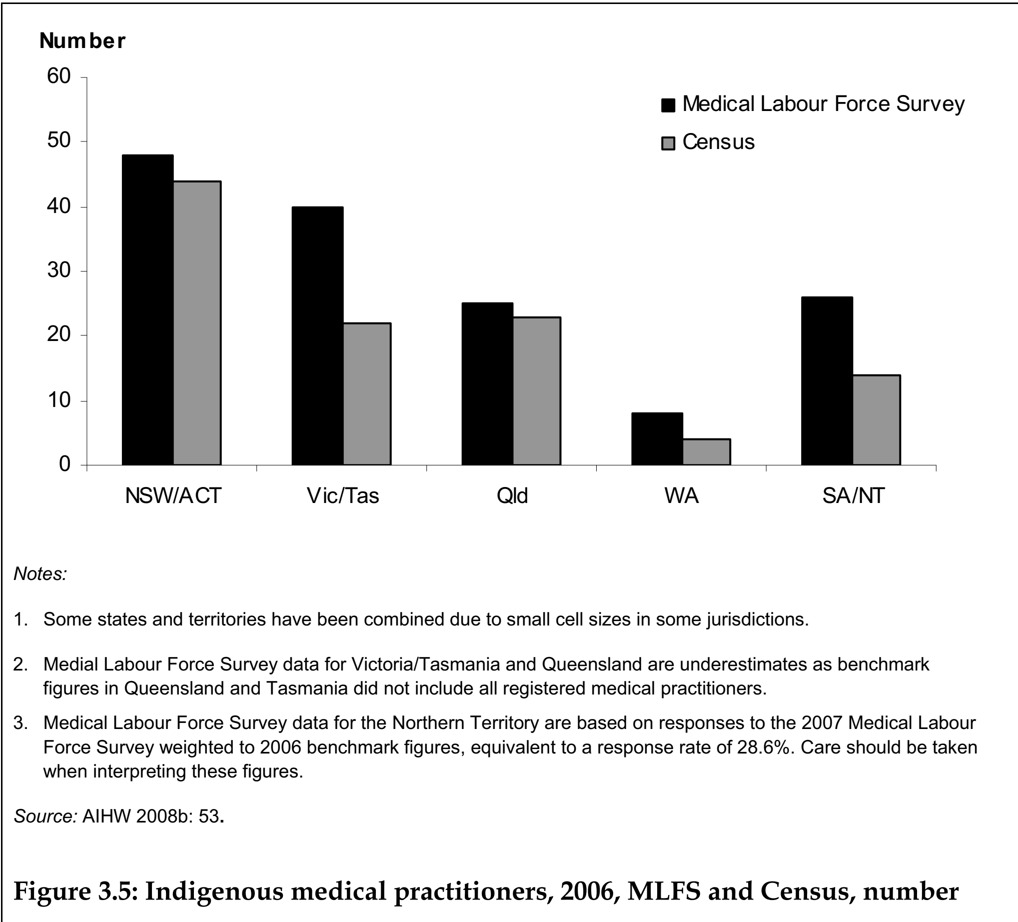
A comparison may be made between the 2006 Census and the 2006 MLFS for medical practitioners. In order to match the Census data, MLFS figures used are for clinicians only. Data in Figure 3.5 include both generalist and specialist medical practitioners in the Census and primary care practitioners, hospital non-specialists, specialists and specialists-in-training in the MLFS.

Census and MLFS data for Indigenous persons do not match in any state or territory. In all individual or groups of states and territories there were more Indigenous medical practitioners in the MLFS than in the Census. There are several possible reasons for this.

Census correction factors, usually used to change counts to a more accurate level, are only available at the state level and do not take into account any differences in the characteristics of small subgroups. Therefore they cannot be applied to these Indigenous Census counts and the data remains as an underestimate of the true figure.

An additional source of undercount in the census compared to the MLFS is the high number of non response to the Indigenous status question in the Census. There were 245 medical practitioners in the Census who did not respond to the Indigenous status question, more than twice as many as those who responded as Indigenous. Some of these 245 will be Indigenous persons, however, the exact number is not known.

In addition, the Census is a self-completed form whereas the MLFS is a benchmarked survey. The benchmarks used in the MLFS are supplied by the state and territory registration boards and it is assumed that nearly all medical practitioners will be registered. In addition, not all Indigenous medical practitioners may have identified as such on the Census or survey forms, people completing a Census form may not have provided sufficient detail to be coded as a medical practitioner, some part-time clinicians are excluded from the MLFS, and the survey is conducted over the course of a year whereas the Census is only on one day. For more information see Appendix D of *Medical labour force 2006* (AIHW 2008b: 52–54).



Notes:

1. Some states and territories have been combined due to small cell sizes in some jurisdictions.
2. Medial Labour Force Survey data for Victoria/Tasmania and Queensland are underestimates as benchmark figures in Queensland and Tasmania did not include all registered medical practitioners.
3. Medical Labour Force Survey data for the Northern Territory are based on responses to the 2007 Medical Labour Force Survey weighted to 2006 benchmark figures, equivalent to a response rate of 28.6%. Care should be taken when interpreting these figures.

Source: AIHW 2008b: 53.

Figure 3.5: Indigenous medical practitioners, 2006, MLFS and Census, number

It is difficult to compare these data to other sources, as the Census has no Aboriginal health service work setting or industry, the MLFS has a publishable Indigenous identifier for 1 year only and the SAR covers a limited number of Aboriginal health services.

Even when SAR data are compared with MLFS data for this work setting, inconsistencies remain. The SAR is partially comparable to the MLFS work setting of Aboriginal health service. The MLFS covers all Aboriginal health services whereas the SAR only includes those with some Australian Government funding. In 2005–06, there were 234 FTE practitioners employed by Aboriginal health services funded by the Australian Government (DoHA & NACCHO unpublished data) (Table 3.9).

To convert FTE practitioners back into actual numbers of medical practitioners requires the number of hours in a standard working week and the average hours worked per week. The AIHW cites a widely used definition of a standard 35 hours per week but points out that medical practitioners work 45 hours per week on average (AIHW 2008b: 22). In this report, data based on both 35- and 45-hour week standards are presented. Average hours worked per week was the average figure for all employed medical practitioners working in the public sector Aboriginal health service setting, taken from the 2006 MLFS. The average was 19.8 hours (AIHW 2008b: 21).

Using these assumptions, in 2006 there were 414 actual medical practitioners based on a 35-hour week or 532 based on a 45-hour week in the SAR. By comparison, there were 253 primary care practitioners in the MLFS with a main work setting of an Aboriginal health service and 401 who did any work at all in a public Aboriginal health service. These data are for both Indigenous and non-Indigenous practitioners.

Table 3.9: SAR and MLFS estimates of the number of employed medical practitioners, 2006

	Number
SAR Commonwealth-funded Aboriginal health service	
FTE practitioners[(a)]	234
Actual practitioners based on a 45-hour working week	532
Actual practitioners based on a 35-hour working week	414
MLFS Aboriginal health service work setting (any hours)	
Main work setting—primary care practitioners	253
Main work setting—all employed practitioners	318
Main and non-main public Aboriginal health service work setting — primary care practitioners	401

(a) Average hours is 19.8, the same as in a public sector Aboriginal health service for all employed medical practitioners from the 2006 MLFS (AIHW 2008b: 21). Apart from the FTE figure, all other figures include both full- and part-time practitioners.

Sources: AIHW 2008b: 21 and additional material; unpublished DoHA & NACCHO data.

4 Nurses

This chapter focuses on employed clinical registered and enrolled nurses. Registered nurses have a minimum 3-year degree and enrolled nurses have a 1-year diploma. Enrolled nurses commonly work with registered nurses to provide patients with basic nursing care, undertaking less complex procedures than registered nurses (AIHW 2008c: 48–50). Like medical practitioners, some nurses work in primary care. These nurses may be identified by the industry they work in, their work setting or their principal area of practice.

Data for nurses are more comprehensive than for medical practitioners as, in addition to the ABS Census data, the AIHW NMLFS data on Indigenous nurses have been published for a number of years.

4.1 Census

Census data on nurses presented here are for employed nurses only regardless of industry. 'Registered nurses' includes ASCO codes 2323 Registered nurses, 2324 Registered midwives, 2325 Registered mental health nurses and 2326 Registered developmental disability nurses. 'Enrolled nurses' are covered by ASCO code 3411.

Counts

From 1996 to 2006, the number of Indigenous registered nurses increased by 70.7% (from 665 to 1,135), compared with 20.6% for all registered nurses (tables 4.1 and 4.2). In 1996 the proportion of Indigenous registered nurses out of all registered nurses was 0.4%; in 2006 it was 0.6%.

The most striking feature of Table 4.2 is the 64.2% drop in the number of Indigenous enrolled nurses between 1996 and 2001, from 564 to 202. The total number of enrolled nurses also dropped, by 20.6%, suggesting that this is not solely a phenomenon among Indigenous nurses.

The number of Indigenous registered nurses (1,135) was similar to the number of registered nurses whose Indigenous status was not stated (1,177). However, there were more Indigenous enrolled nurses (222) than enrolled nurses whose Indigenous status was not stated (131) (Table 4.1). The proportion of nurses with a not stated Indigenous status was low for both registered and enrolled nurses (0.6% and 0.7% respectively).

Table 4.1: Nurses by type of nurse by Indigenous status, 1996, 2001 and 2006, Census[(a)], number and per cent

	1996		2001		2006	
	Number	Per cent	Number	Per cent	Number	Per cent
			Registered nurse[(b)]			
Indigenous	665	0.4	862	0.5	1,135	0.6
Non-Indigenous	150,456	99.0	159,300	99.0	181,019	98.7
Not stated	851	0.6	786	0.5	1,177	0.6
Total	**151,972**	**100.0**	**160,948**	**100.0**	**183,331**	**100.0**
			Enrolled nurse[(c)]			
Indigenous	564	2.3	202	1.0	222	1.1
Non-Indigenous	23,868	97.2	19,198	98.5	19,038	98.2
Not stated	135	0.5	98	0.5	131	0.7
Total	**24,567**	**100.0**	**19,498**	**100.0**	**19,391**	**100.0**

(a) Census data are subject to ABS-introduced random error.

(b) Registered nurse includes ASCO 1993 occupations 2323 Registered nurses, 2324 Registered midwives, 2325 Registered mental health nurses and 2326 Registered developmental disability nurses.

(c) Enrolled nurse is ASCO code 3411 (ABS 1997: 162–164, 272).

Sources: Unpublished 1996, 2001 and 2006 Census data.

Table 4.2: Nurses by type of nurse, by Indigenous status, proportional change, 1996–2001, 2001–2006 and 1996–2006, Census[(a)], per cent

	Change 1996–2001	Change 2001–2006	Change 1996–2006
		Registered nurse[(b)]	
Indigenous	29.6	31.7	70.7
Non-Indigenous	5.9	13.6	20.3
Not stated	–7.6	49.7	38.3
Total	**5.9**	**13.9**	**20.6**
		Enrolled nurse[(c)]	
Indigenous	–64.2	9.9	–60.6
Non-Indigenous	–19.6	–0.8	–20.2
Not stated	–27.4	33.7	–3.0
Total	**–20.6**	**–0.5**	**–21.0**

(a) Census data are subject to ABS-introduced random error.

(b) Registered nurse includes ASCO 1993 occupations 2323 Registered nurses, 2324 Registered midwives, 2325 Registered mental health nurses and 2326 Registered developmental disability nurses.

(c) Enrolled nurse is ASCO code 3411 (ABS 1997: 162–164, 272).

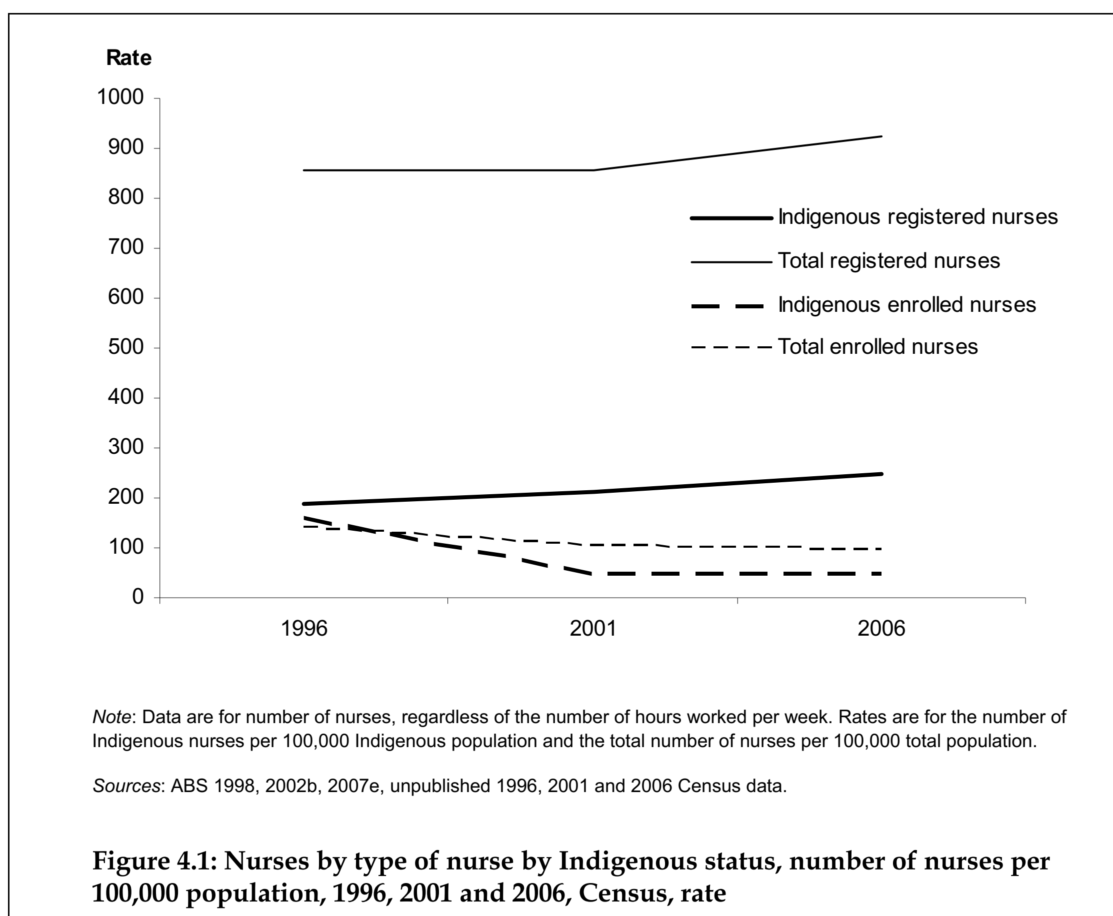
Sources: Unpublished 1996, 2001 and 2006 Census data.

Rates

The availability of Indigenous nurses may be measured using the number of Indigenous nurses in the Census as a proportion of the Indigenous Census population. These are not FTE rates (see section 1.4).

The number of Indigenous registered nurses per 100,000 Indigenous population steadily increased over the 1996–2006 period. The same pattern was observed for total registered nurses. Despite the increases, the Indigenous rates were all considerably lower than the rates for the total population, with the rate for Indigenous registered nurses at less than one-quarter of the total rates.

Rates for enrolled nurses decreased between 1996 and 2006 for both Indigenous and total populations, with the rate in 2006 for Indigenous enrolled nurses at around half the rate of all enrolled nurses (Figure 4.1).

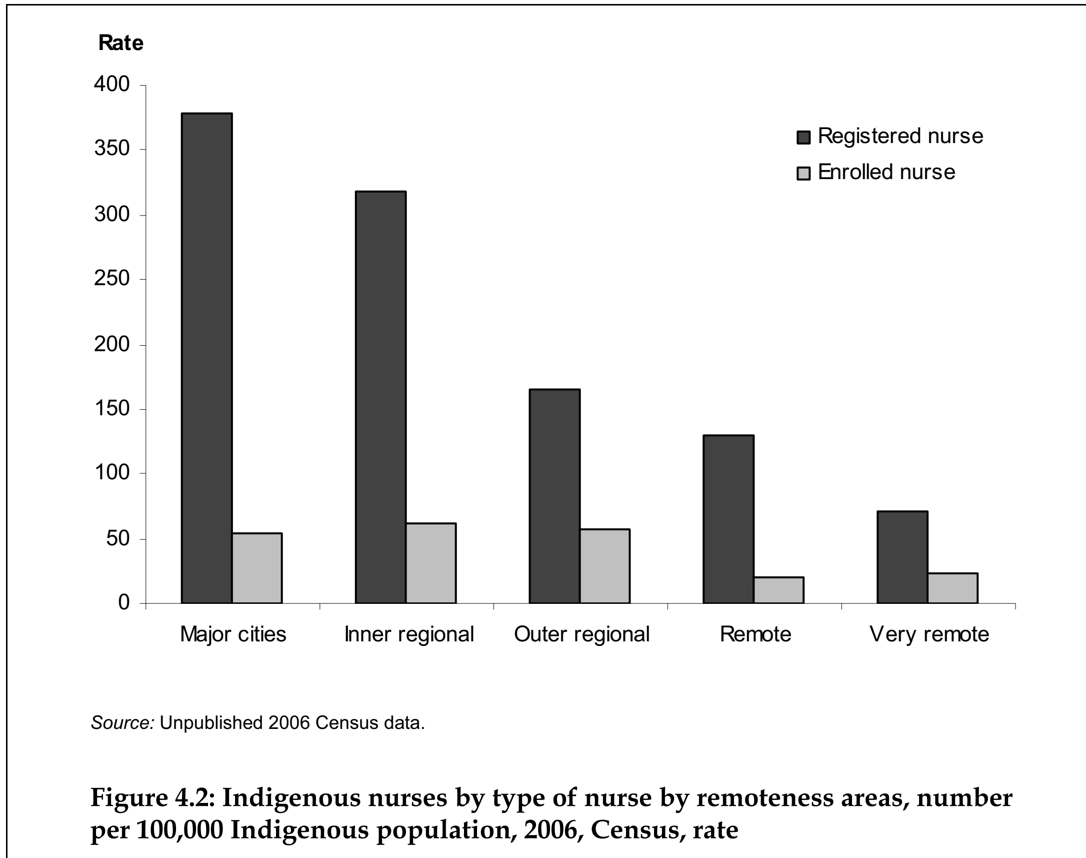


Note: Data are for number of nurses, regardless of the number of hours worked per week. Rates are for the number of Indigenous nurses per 100,000 Indigenous population and the total number of nurses per 100,000 total population.

Sources: ABS 1998, 2002b, 2007e, unpublished 1996, 2001 and 2006 Census data.

Figure 4.1: Nurses by type of nurse by Indigenous status, number of nurses per 100,000 population, 1996, 2001 and 2006, Census, rate

In 2006, the number of Indigenous registered and enrolled nurses per 100,000 population decreased considerably with increasing remoteness (Figure 4.2). This was most pronounced for registered nurses, falling from 378 per 100,000 Indigenous population for *Major cities* to 71 per 100,000 for *Very remote* areas.



Source: Unpublished 2006 Census data.

Figure 4.2: Indigenous nurses by type of nurse by remoteness areas, number per 100,000 Indigenous population, 2006, Census, rate

Industry

Most (92.2%) Indigenous registered nurses worked in the 'health and community services' industry. Small numbers worked in property and business services, and government administration and defence. Indigenous enrolled nurses also primarily worked in health and community services (87.8%), with some also in government administration and defence (Table 4.3). Nurses employed in property and business services were mainly in the contract staff services industry, and most government administration and defence employees were in state or local government.

Table 4.3: Nurses by type of nurse by industry group by Indigenous status, 2006, Census[a], per cent

	Indigenous	Non-Indigenous	Not stated	Total
		Registered nurses		
Health and community services[b]	92.2	94.5	93.1	94.5
Government administration and defence	3.5	1.9	1.4	1.9
Education	—	0.4	—	0.4
Personal and other services	0.8	0.4	0.7	0.4
Property and business services	1.7	1.7	1.9	1.7
Other[c]	0.8	0.6	1.3	0.7
Not stated	1.1	0.4	1.6	0.4
Total per cent	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**1,140**	**181,017**	**1,176**	**183,333**
		Enrolled nurses		
Health and community services[b]	87.8	93.8	90.2	93.8
Government administration and defence	6.8	2.8	5.3	2.9
Education	1.4	0.2	—	0.2
Personal and other services	—	0.4	2.3	0.4
Property and business services	2.7	2.1	2.3	2.1
Other[c]	1.4	0.5	—	0.5
Not stated	—	0.2	—	0.2
Total per cent	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**222**	**19,039**	**132**	**19,393**

— Nil or rounded to zero

(a) Census data are subject to ABS-introduced random error.

(b) Health and community services includes hospitals and nursing homes, medical and dental services, other health services, veterinary services, child care services and community care services.

(c) Other includes agriculture, forestry and fishing; mining; manufacturing; electricity, gas and water supply; construction; wholesale trade; retail trade; accommodation, cafes and restaurants; transport and storage; communication services; finance and insurance; cultural and recreational services; and non-classifiable economic units.

Source: Unpublished 2006 Census data.

The ANZSIC does not include 'Aboriginal health service' as a distinct category (ABS & SNZ 1993). However, it does include other relevant detailed industries. In 2006 half of all Indigenous registered nurses worked in 'Hospitals (excluding psychiatric hospitals)'.

Appropriately qualified nurses may perform some services which have their own Medicare item numbers. These are immunisation, wound management, Pap tests in regional, rural and remote areas only and chronic disease management. These services may be performed in general practice medical services under the supervision of a medical practitioner (DoHA 2008a). There were only 26 Indigenous nurses or 2.3% of all Indigenous nurses employed in general practice medical services.

Indigenous registered nurses were less likely to work in non-psychiatric hospitals and in general practice medical services than all registered nurses and more likely to work in nursing homes and accommodation for the aged. Indigenous enrolled nurses, on the other hand, were more likely than all enrolled nurses to work in non-psychiatric hospitals and less

likely to work in nursing homes and accommodation for the aged. There were no Indigenous enrolled nurses recorded as working in general practice medical services (Table 4.4).

Table 4.4: Nurses by most common industries of employment by type of nurse by Indigenous status, 2006, Census[(a)], per cent

	Indigenous	Non-Indigenous	Not stated	Total
		Registered nurses		
Hospitals (except psychiatric hospitals)	50.4	62.6	46.3	62.4
Nursing homes	10.1	6.8	10.7	6.9
Accommodation for the aged	7.5	5.8	7.7	5.8
Health and community services, undefined	7.4	3.4	9.1	3.5
Health services, undefined	5.4	5.1	8.2	5.2
General practice medical services	2.3	2.7	1.8	2.7
Non-residential care services, nec	2.2	1.2	1.7	1.2
State government administration	2.4	1.1	1.2	1.1
Total per cent	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**1,140**	**181,017**	**1,176**	**183,333**
		Enrolled nurses		
Hospitals (except psychiatric hospitals)	60.8	57.4	56.8	57.4
Nursing homes	8.1	9.6	9.1	9.6
Accommodation for the aged	5.4	10.1	9.1	10.1
Health and community services, undefined	2.3	3.2	—	3.1
Health services, undefined	4.1	4.5	5.3	4.5
General practice medical services	—	1.6	—	1.6
Non-residential care services, nec	—	1.4	2.3	1.4
State government administration	1.4	0.6	2.3	0.6
Total per cent	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**222**	**19,039**	**132**	**19,393**

— Nil or rounded to zero

(a) Census data are subject to ABS-introduced random error.

Source: Unpublished 2006 Census data.

Remoteness

Around 9 out of 10 (90.9%) Indigenous registered nurses resided in *Major cities*, *Inner regional* and *Outer regional* areas. This was also true for Indigenous enrolled nurses (89.1%). The proportions of all nurses (Indigenous and non-Indigenous) who resided in these areas were higher (98.2% of registered nurses and 97.4% of enrolled nurses).

For both registered and enrolled Indigenous nurses, the proportions who resided in *Remote* and *Very remote* areas were much lower than the proportions of the Indigenous population as a whole who resided in those same areas. For example, 4.3% of Indigenous registered nurses resided in *Very remote* areas compared with 15.1% of the total Indigenous population.

Table 4.5: Indigenous nurses by type of nurse by population by remoteness areas, 2006, Census[(a)], per cent

	Registered nurses	Enrolled nurses	Australian population[(b)]
		Indigenous	
Major cities	48.9	35.7	32.4
Inner regional	27.7	27.6	21.8
Outer regional	14.3	25.8	21.7
Remote	4.5	3.6	8.7
Very remote	4.3	7.2	15.1
Total per cent	**100.0**	**100.0**	**100.0**
Total number[(c)]	**1,139**	**221**	**455,027**
		Total	
Major cities	68.0	58.8	68.4
Inner regional	21.5	25.5	19.7
Outer regional	8.7	13.1	9.4
Remote	1.2	1.8	1.5
Very remote	0.5	0.7	0.8
Total per cent	**100.0**	**100.0**	**100.0**
Total number[(c)]	**183,330**	**19,391**	**19,855,287**

(a) Census data are subject to ABS-introduced random error.

(b) Distribution of all Indigenous and all persons by remoteness areas.

(c) Total includes migratory and no usual address.

Source: Unpublished 2006 Census data, ABS 2008a.

4.2 Nursing and Midwifery Labour Force Survey

NMLFS data have been published by Indigenous status for 2003 to 2005. These data can be combined with reported work setting or principal area of practice to build a profile of Indigenous and other nurses who work in Indigenous health. The Census occupation of 'nursing assistant' is neither a registered nor enrolled nurse and is therefore out of scope of this survey. The survey was not conducted in all states and territories in 2006 and data are not available for that year.

Counts

In the period 2003–2005, the proportion of the registered nurse population that was Indigenous was 0.3% to 0.4% while for enrolled nurses the proportion was a consistent 0.9%, (Table 4.6). The number of Indigenous registered and enrolled nurses declined between 2004 and 2005 by 9.6% and 9.1% respectively (Table 4.7).

Data for the last few years have been affected by low response rates (see section 4.3). For each year in the period 2003–2005, the number of people who did not answer the Indigenous status question was higher than the number of Indigenous nurses. There was a large drop in the number of Indigenous status not stated responses for both registered nurses and enrolled

nurses from 2003 to 2004. Indigenous status not stated responses increased by 29.9% for registered nurses from 2004 to 2005. For enrolled nurses the increase was 5.8% over the same period. At the same time, the number of Indigenous registered and enrolled nurses decreased (tables 4.6 and 4.7).

Table 4.6: Nurses by type of nurse by Indigenous status, 2003 to 2005, NMLFS, number and per cent

	2003		2004		2005	
	Number	Per cent	Number	Per cent	Number	Per cent
			Registered			
Indigenous	689	0.4	712	0.4	644	0.3
Non-Indigenous	185,744	98.2	193,168	98.9	195,777	98.7
Not stated	2,638	1.4	1,459	0.7	1,895	1.0
Total	**189,071**	**100.0**	**195,339**	**100.0**	**198,315**	**100.0**
			Enrolled			
Indigenous	441	0.9	461	0.9	419	0.9
Non-Indigenous	46,349	97.4	47,607	98.0	45,086	97.9
Not stated	784	1.6	510	1.0	540	1.2
Total	**47,574**	**100.0**	**48,577**	**100.0**	**46,044**	**100.0**

Sources: AIHW 2005b, 2006c, 2008c.

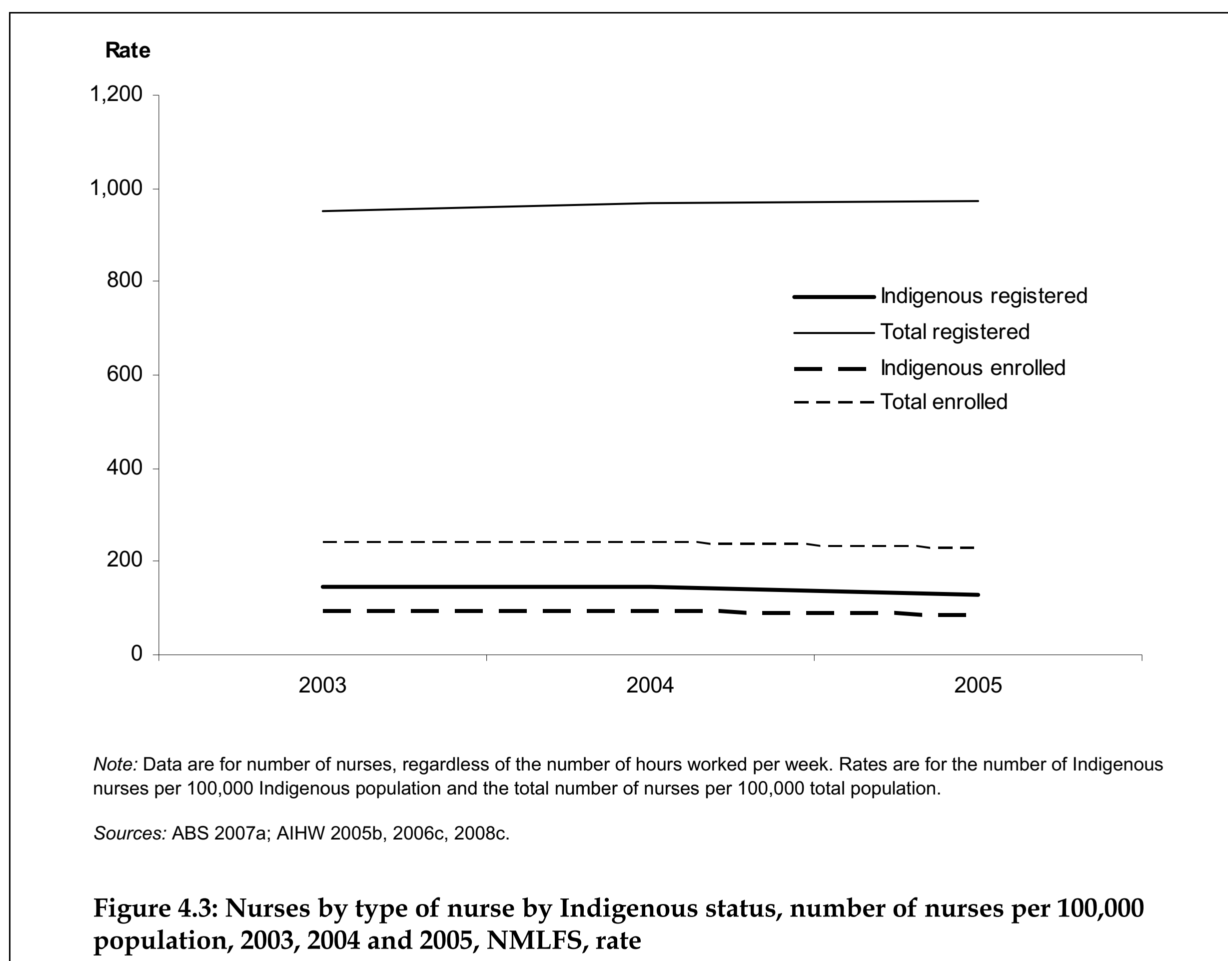
Table 4.7: Nurses by type of nurse by Indigenous status, proportional change, 2003–2004 and 2004–2005, NMLFS, per cent

	Change 2003–2004	Change 2004–2005
	Registered	
Indigenous	3.5	–9.6
Non-Indigenous	4.0	1.4
Not stated	–44.7	29.9
Total	**3.3**	**1.5**
	Enrolled	
Indigenous	4.4	–9.1
Non-Indigenous	2.7	–5.3
Not stated	–34.9	5.8
Total	**2.1**	**–5.2**

Sources: AIHW 2005b, 2006c, 2008c.

Rates

Based on data from the NMLFS, the number of Indigenous registered and enrolled nurses per 100,000 Indigenous population remained constant in 2003 and 2004, before dropping in 2005 (Figure 4.5). There were about 50 more Indigenous registered nurses than Indigenous enrolled nurses per 100,000 Indigenous persons in each year.



Note: Data are for number of nurses, regardless of the number of hours worked per week. Rates are for the number of Indigenous nurses per 100,000 Indigenous population and the total number of nurses per 100,000 total population.

Sources: ABS 2007a; AIHW 2005b, 2006c, 2008c.

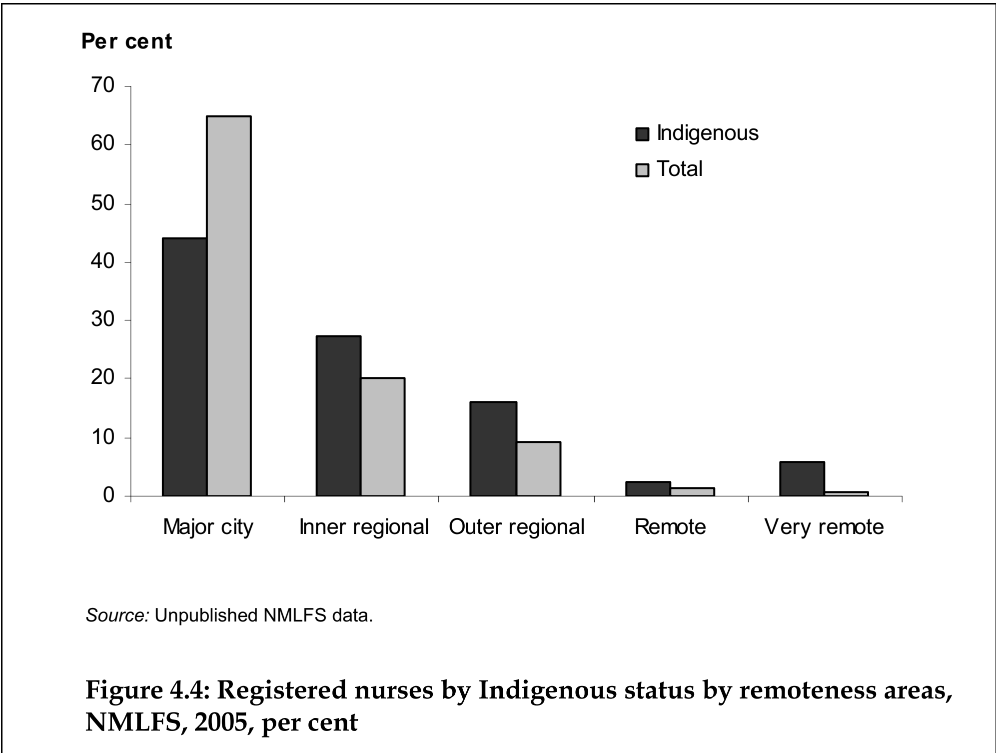
Figure 4.3: Nurses by type of nurse by Indigenous status, number of nurses per 100,000 population, 2003, 2004 and 2005, NMLFS, rate

Remoteness

The NMLFS collects information on workplace location by postcode. These data are then mapped to the Remoteness Structure (see Chapter 1). The remoteness data in figures 4.6 and 4.7 demonstrate the different patterns of work location for Indigenous and all nurses. Just under half (44.2%) of Indigenous registered nurses worked in *Major cities*, compared with nearly two-thirds of the total registered nurse population. Indigenous registered nurses were more likely than the total population of registered nurses to work in all other areas (*Inner regional*, *Outer regional*, *Remote* and *Very remote*). In particular, Indigenous registered nurses were found in *Remote* areas and *Very remote* areas at twice and seven times the proportion of all registered nurses, respectively.

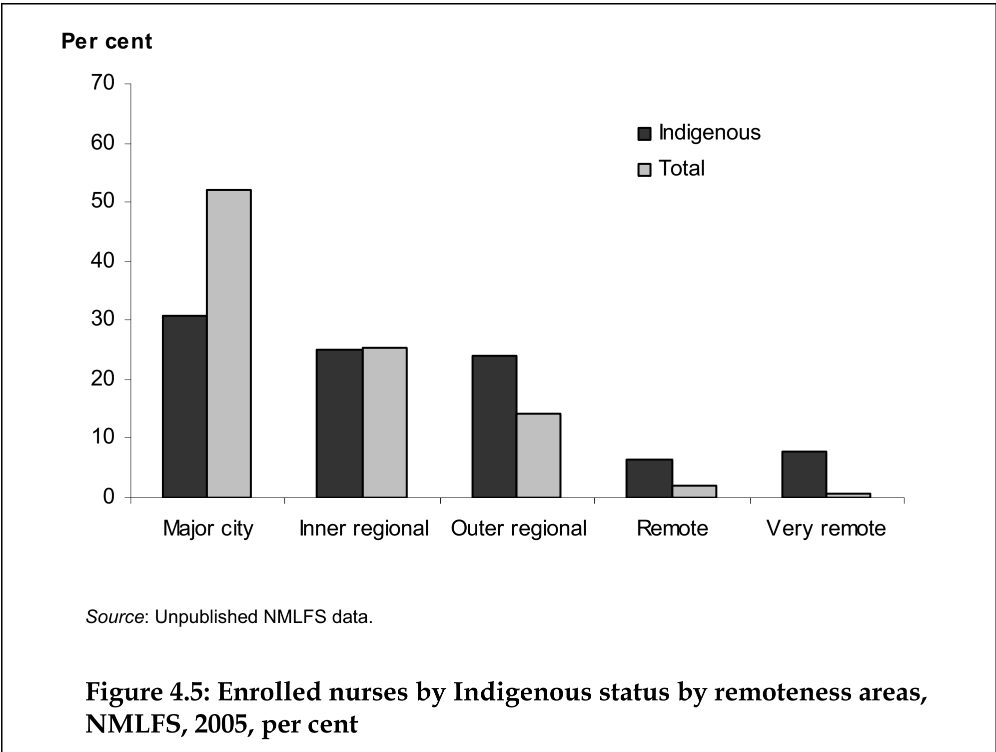
The difference in proportions in *Major cities* was even more pronounced for enrolled nurses. Under one-third of Indigenous enrolled nurses worked in *Major cities* compared with over half of all enrolled nurses. The proportion of Indigenous enrolled nurses in *Remote* areas was

3 times that of all enrolled nurses and in *Very remote* areas the difference was 10 times. Indigenous enrolled nurses were also more likely to be found in *Outer regional* areas than all enrolled nurses.



Source: Unpublished NMLFS data.

Figure 4.4: Registered nurses by Indigenous status by remoteness areas, NMLFS, 2005, per cent



Source: Unpublished NMLFS data.

Figure 4.5: Enrolled nurses by Indigenous status by remoteness areas, NMLFS, 2005, per cent

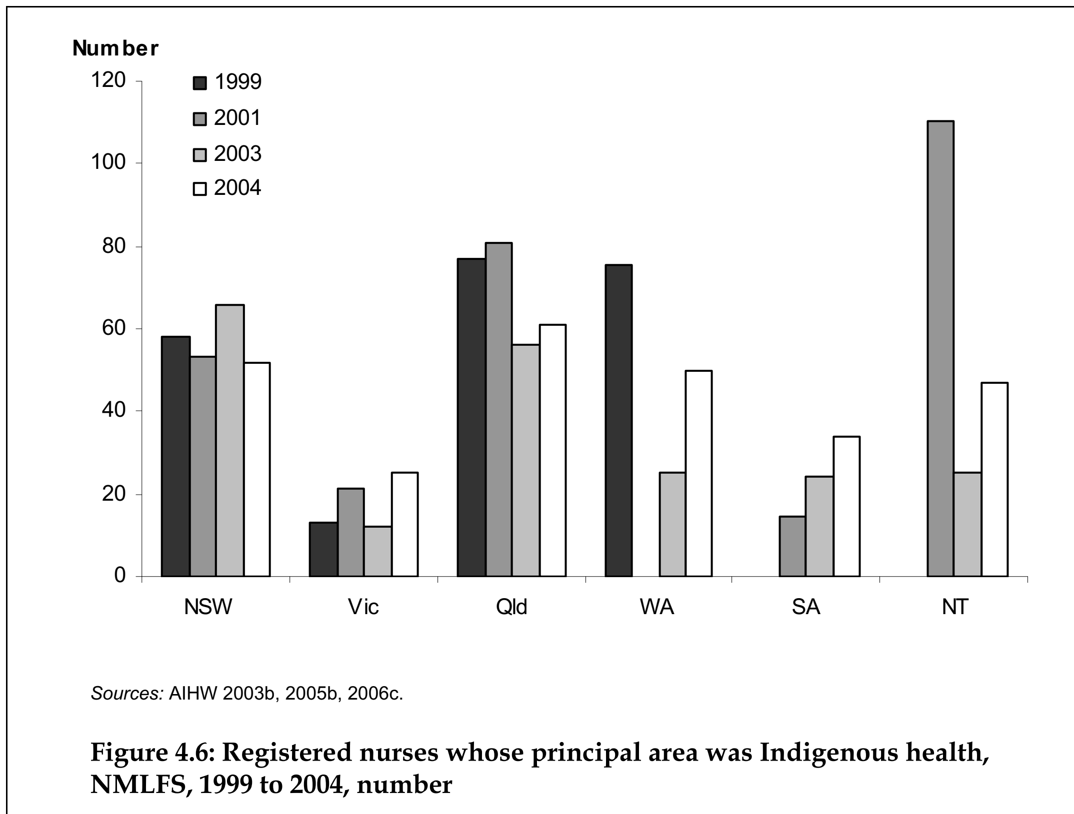
Principal area of nursing

In the NMLFS, the principal area of nursing (clinical area of nursing) is the clinical role in which nurses work the most hours. Indigenous health is an area of nursing for which data have been available in some states and territories since 1997. Principal area data were not available nationally for 2005. In 2004, both registered and enrolled nurses in the principal area of Indigenous health made up less than 0.5% of all nurses who responded to the question about principal area.

In 2004 there were 277 registered nurses, both Indigenous and non-Indigenous, whose principal area of nursing was Indigenous health. This was up from 2003 by one-third. However, from 2001 to 2003 the number of registered nurses in the Indigenous health principal area had dropped by 26.8%. The majority of this decrease was attributable to data from the Northern Territory, where the number of registered nurses in Indigenous health fell from 110 in 2001 to 25 in 2003 (figures 4.8 and 4.9).

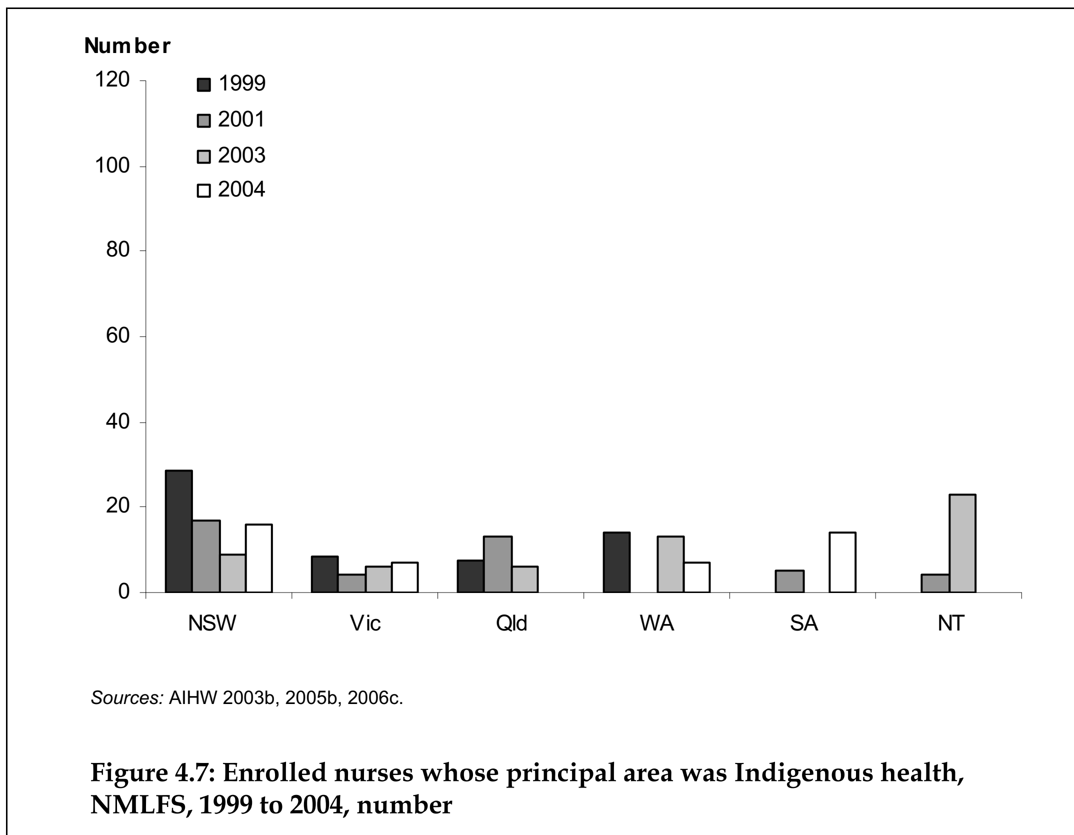
Data for enrolled nurses showed the opposite pattern, with an increase of one-third between 2001 and 2003 overall but a decrease of nearly one-quarter between 2003 and 2004. The Northern Territory recorded a fivefold increase in enrolled nurses between 2001 and 2003. No data for Western Australia in 2001 or the Northern Territory in 1999 were available. The large fluctuations in the Northern Territory numbers may reflect low response rates in this jurisdiction. Response rates have been under 60% since the 1999 survey.

The number of registered nurses, both Indigenous and non-Indigenous, whose principal area was Indigenous health has varied by jurisdiction. The number of enrolled nurses by state was small and all fluctuated markedly over time.



Sources: AIHW 2003b, 2005b, 2006c.

Figure 4.6: Registered nurses whose principal area was Indigenous health, NMLFS, 1999 to 2004, number



Sources: AIHW 2003b, 2005b, 2006c.

Figure 4.7: Enrolled nurses whose principal area was Indigenous health, NMLFS, 1999 to 2004, number

Work setting

A work setting is the service environment in which a nurse practises. One of these is the Aboriginal health service. Data for New South Wales are not available due to the use of different categories. Numbers of enrolled nurses are generally small and should be treated with caution. Regardless, the numbers of both registered nurses and enrolled nurses whose work setting was an Aboriginal health service nearly doubled between 1999 and 2001 (Table 4.8). Most of these increases can be accounted for by changes in Western Australia where the number of registered nurses and enrolled nurses increased nearly fourfold and more than threefold, respectively. Of the 1,776 employed, registered nurses in the Northern Territory in 2001, only 58 were working in an Aboriginal health service. This may point to a data quality issue. The work setting classification was changed after 2001 so data on Aboriginal health services are not available from 2003 onwards.

Table 4.8: Nurses by type of nurse whose main work setting was an Aboriginal health service by state and territory, 1997 to 2001, NMLFS, number

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
					Registered nurse				
1997	. .	21	. .	. .	. .	n.p.	8	. .	31
1999	. .	28	74	79	81	28	8	. .	298
2001	. .	61	93	298	50	8	11	58	580
					Enrolled nurse				
1997	. .	8	. .	. .	. .	—	—	. .	8
1999	. .	6	10	20	5	12	—	. .	52
2001	. .	13	7	67	9	n.p.	—	n.p.	100

Source: AIHW 2003b.

The number of nurses with an Aboriginal health service as their main work setting was generally higher than the number of nurses with Indigenous health as their principal area, as nurses working in an Aboriginal health service may have child or maternal health, for instance, as their principal area. This is true for all states and territories except the Northern Territory, where Indigenous health figures were higher than Aboriginal health service work setting. Given the proportionally large Indigenous population in the Northern Territory, it is possible that more nurses may work primarily in Indigenous health in non-Aboriginal health service settings, such as hospitals.

4.3 Data quality

Census

Levels of not stated responses to the Indigenous status question in nursing data fluctuated, with large falls for enrolled nurses between 1996 and 2001 (Table 4.1).

The proportion of not stated responses to the Indigenous status question for registered nurses was about the same as the proportion of Indigenous registered nurses (0.6% in 2006).

For enrolled nurses, the Indigenous proportion was higher than the not stated proportion (1.1% and 0.7% respectively).

There was an overall drop in the Census in the number of enrolled nurses, both Indigenous and non-Indigenous, from 1996 to 2006. Some possible explanations are the re-training of enrolled nurses, the misclassification of nurses due to ambiguous responses or nurses leaving the profession.

As reported in *Nursing and midwifery labour force 2005* (AIHW 2008c: 40), enrolled nurses have been encouraged to upgrade their qualifications to that of registered nurse, particularly after the shift from hospital to university-based training, producing a drop in the number of enrolled nurses and a rise in the number of registered nurses.

Non-specific responses such as 'nurse' or 'cares for patients' to the Census employment questions may be part of the explanation for the decline in the number of enrolled nurses. One possibility is that these have been coded as registered nurses. Another is that they have been coded to a third group, nursing assistants. The occupation description of an enrolled nurse (ASCO code 3411) is 'assists registered nurses, doctors and other health professionals in the provision of patient care in hospitals, nursing homes and other health care facilities'. The description of ASCO code 6314-13 Nursing assistants is 'assists registered nurses in hospitals, nursing homes and other health care facilities, in the provision of patient care'. It is possible, therefore, that some enrolled nurses were classified as nursing assistants or vice versa if responses were not clear enough. Although the number of nursing assistants increased between both 1996 and 2001, and 2001 and 2006, the increases were not large enough to account for all of the fall in the number of enrolled nurses, supporting the theory that the drop in enrolled nurse numbers is also due to upgraded qualifications.

Nursing and Midwifery Labour Force Survey

The number of nurses recorded in the NMLFS should be complete as the registered and enrolled nurse populations are drawn from a register and a roll, and registration or enrolment is required to practise as a nurse. However, some issues may affect the data, for example re-registration forms are sent out in accordance with each state and territory's registration timetable. This means that the survey is not taken at the same time in each state or territory. In addition, nurses who registered during the year are not eligible as they are not renewing their registration.

The standard question for ascertaining Indigenous status was used on all state and territory registration renewal survey forms in 2005. The NMLFS form changed in 2003 to ensure consistency across jurisdictions (AIHW 2005c: 3).

Data for the last few years have been affected by the response rate to the survey. This may have affected the quality of Indigenous status data as some non-respondents were likely to be Indigenous. Data for 2005 in particular should be treated with caution as response rates were low for Western Australia and the Northern Territory and 2005 data for Victoria were estimated from 2006 data. National 2005 data, therefore, are likely to be underestimates (AIHW 2008c). As there was a low response rate in 2005, many records were imputed with only basic characteristics. For instance, in 2005 in the Northern Territory only 13.7% of nurses responded and in 2003 the percentage was 31.1%. In Western Australia in 2005 the response rate was 26.9% and in 2003 it was 19.0%.

These high levels of survey non-response and Indigenous status not stated responses would have affected the counts, resulting in an undercount of Indigenous nurses.

Given that there is a specific question asking whether the nurse is registered or enrolled and that the survey is only sent to those eligible to renew their registration or enrolment, it is likely that the data quality of the type of nurse variable is reliable.

The benchmarks are provided from each state and territories' registration board. If not available, basic characteristics such as age and sex are imputed. Indigenous status is not imputed, so where there is high non-response there will also be high numbers of not stated responses for Indigenous status (AIHW 2008c).

The number of nurses in an Aboriginal health service work setting was much higher than those nurses whose principal area was Indigenous health in 2001, mostly due to a large increase in nurse numbers in Western Australia. New South Wales data are not published due to slight differences in the survey arrangements. It is difficult to draw any conclusions from these data as the number of nurses in an Aboriginal health service work setting doubled between 1999 and 2001 for Western Australia, and the Northern Territory only had data for 1 year (2001).

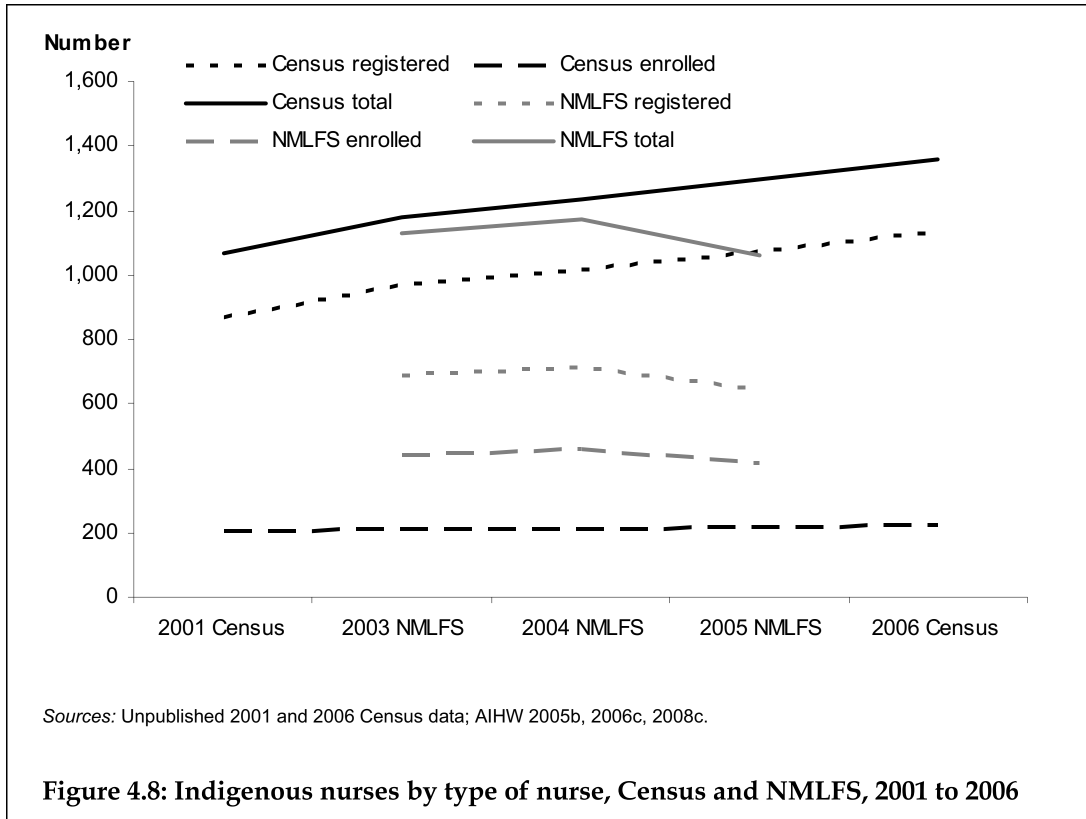
Principal area data were not available for all states and all years, and nationally none were available for 2005.

Comparisons

The Census recorded a higher rate of Indigenous registered nurses than the NMLFS but also a lower rate of Indigenous enrolled nurses. However, when registered and enrolled nurse numbers were combined, the rates were closer, although Indigenous nurse rates were still higher in the Census.

As there were no 2006 NMLFS data, 2005 data had to be used for comparisons with the Census. The 2006 Census recorded that there were 1,135 employed Indigenous registered nurses and 222 enrolled nurses, a total of 1,357, whereas the 2005 NMLFS counted 644 Indigenous registered nurses and 419 Indigenous enrolled nurses, 1,063 in total.

However, a range of issues make comparison between the NMLFS and the Census problematic. These include the fact that the NMLFS is benchmarked to administrative records whereas the Census is not; the difference in collection timing; differences in scope (registration versus self-report); the possible inclusion of nursing assistants in the enrolled or registered population in the Census; the exclusion of nursing administrators, managers, teachers and researchers from the Census data; the effects of undercount on small groups in the Census; and higher proportions of not stated Indigenous status responses in the NMLFS.



Sources: Unpublished 2001 and 2006 Census data; AIHW 2005b, 2006c, 2008c.

Figure 4.8: Indigenous nurses by type of nurse, Census and NMLFS, 2001 to 2006

It is assumed that nurses in the SAR collection refer to both registered nurses and enrolled nurses. In the 2006 SAR 54 FTE Indigenous and 332 FTE non-Indigenous nurses were identified, giving a total of 386. This is equivalent to 437 actual nurses using an average working week of 33 hours and a standard full-time week of 35 hours. An average of 33 hours per week is taken from the 2005 NMLFS (AIHW 2008c: 20).

However, the 2001 NMLFS found that there were 680 nurses in total, both Indigenous and non-Indigenous, whose work setting was an Aboriginal health service. This figure includes the very large number of nurses in Western Australia and excludes data for New South Wales. This suggests that many nurses whose work setting is an Aboriginal health service do not work for Commonwealth-funded services (AIHW 2003b).

5 Aboriginal Health Workers

Aboriginal Health Workers (AHWs) are Aboriginal and/or Torres Strait Islander people who work in a number of roles in the health sector. In the Aboriginal community-controlled sector they are described by the Central Australian Aboriginal Congress thus:

> Aboriginal Health Workers are at the 'front line' of providing primary health to their communities. They are the first point of contact for many patients at an Aboriginal Medical Service.
>
> Their clinical skills and knowledge mean that they can diagnose and treat a range of common medical conditions. Their skills of health education and health promotion enable them to assist communities to develop healthier lifestyles.
>
> AHWs are committed to improving the health of Aboriginal communities and see health as, not only the [personal wellbeing] of an individual, but the social, emotional, cultural and spiritual wellbeing of a whole community.
>
> Therefore, health workers are involved in helping the health of people and communities on a social, emotional, political level as well as physical (CAAC 2004).

AHWs require a certificate or higher educational qualification. The revised National Aboriginal and Torres Strait Islander Health Worker National Competencies underpin these qualifications. They were introduced in March 2007 and articulate the skills and knowledge required by AHWs.

There has been some debate over time on how AHWs should be defined, and a number of definitions exist. At its December 2008 meeting, the National Aboriginal Health Worker Association Advisory Group agreed on a definition that has a focus on qualifications. This Group includes representatives from state and territory government, the Aboriginal community-controlled health sector and senior AHW representatives. The members confirmed that an AHW is a person who is an Aboriginal and/or Torres Strait Islander person and who is in possession of the minimum baseline qualification as accepted and listed by each jurisdiction and who provides evidence of such qualification or registration. The qualification must be within primary health care work or clinical practice.

Some states have previously adopted their own definition. For example the New South Wales Department of Health states that:

> An Aboriginal Health Worker [within the New South Wales public health system] is:
>
> - An Aboriginal or Torres Strait Islander person.
> - Employed in an identified position in the New South Wales Public Health System and provides health services or health programs directly to Aboriginal people regardless of whether the person is employed in a generalist or specialist position. It encompasses all/any areas, irrespective of the award that covers employment of the worker (NSW Health 2005).

The sex of an AHW plays a significant role in the fulfilment of their duties. It is culturally important that there is sex-concordance between health worker and client (Ivers et al. 1997: 6).

The Northern Territory is the only state with a registration system for AHWs. Registration allows AHWs in the Northern Territory to provide services on a 'for and on behalf of' basis under particular items in the Medical Benefits Schedule covering immunisation, wound

management, antenatal services, and the monitoring and support of patients with a chronic disease care plan (DoHA 2008b). These services are provided under the supervision of a medical practitioner and it is the medical practitioner who makes the claim for payment.

In all states and territories (including the Northern Territory), AHWs with a Certificate level III or above can apply for a provider number and provide services to a person who has a medical condition and complex care needs being managed by a general practitioner under an enhanced primary care plan. The service(s) must be provided by the AHW on referral from a general practitioner who has used a referral form issued by the Department of Health and Ageing. The AHW submits the claim for payment.

5.1 Census

The Census is the main source of information about AHWs. In the 2006 Census, around 5% of persons who reported that they worked as an AHW also reported that they were non-Indigenous. This group is not considered in this chapter.

Counts

In 2006 there were 961 AHWs, an increase of 12.7% from 2001 (tables 5.1 and 5.2). The increase from 1996 to 2001 was 27.5%. In each Census, the majority of AHWs (around 70%) were female. From 1996–2006 the number of male and female AHWs rose by 41.7% and 44.5% respectively.

Table 5.1: Aboriginal Health Workers by sex, 1996, 2001 and 2006, Census[(a)], number and per cent

	1996		2001		2006	
	Number	Per cent	Number	Per cent	Number	Per cent
Male	199	29.7	265	31.1	282	29.3
Female	470	70.3	588	68.9	679	70.7
Total	**669**	**100.0**	**853**	**100.0**	**961**	**100.0**

(a) Census data are subject to ABS-introduced random error.

Sources: Unpublished 1996, 2001 and 2006 Census data.

Table 5.2: Aboriginal Health Workers by sex, proportional change, 1996–2001, 2001–2006 and 1996–2006, Census[(a)], per cent

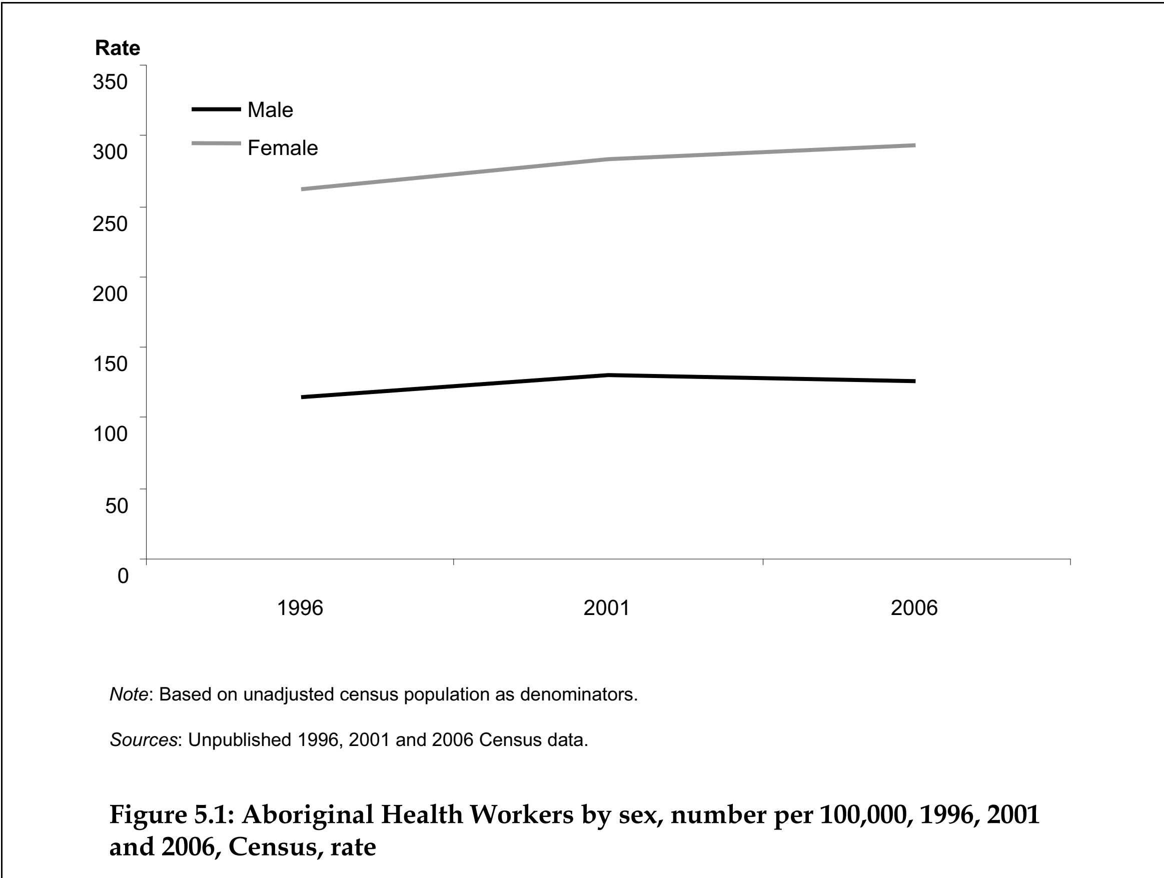
	Per cent change 1996–2001	Per cent change 2001–2006	Per cent change 1996–2006
Male	33.2	6.4	41.7
Female	25.1	15.5	44.5
Total	**27.5**	**12.7**	**43.6**

(a) Census data are subject to ABS-introduced random error.

Sources: Unpublished 1996, 2001 and 2006 Census data.

Rates

Overall, the number of AHWs per 100,000 Indigenous people increased over the 1996–2006 period, from 189.5 per 100,000 to 211.2 per 100,000 (Figure 5.1). While rates for females increased over both periods, from 1996 to 2001 and 2001 to 2006, rates for males decreased slightly between 2001 and 2006. There were more than twice as many female AHWs per 100,000 female Indigenous population than there were male AHWs per 100,000 male Indigenous population.



Note: Based on unadjusted census population as denominators.

Sources: Unpublished 1996, 2001 and 2006 Census data.

Figure 5.1: Aboriginal Health Workers by sex, number per 100,000, 1996, 2001 and 2006, Census, rate

Industry

Most AHWs (848) worked in health and community services, while a much smaller number (71) worked in the second largest industry category, government administration and defence (Table 5.3).

Table 5.3: Aboriginal Health Workers by industry group, 2006, Census[(a)], per cent

	Number	Per cent
Health and community services	848	88.1
Government administration and defence	71	7.4
Education	9	0.9
Personal and other services	11	1.1
Property and business services	6	0.6
Other[(b)]	6	0.6
Not stated	11	1.1
Total	**962**	**100.0**

(a) Census data are subject to ABS-introduced random error.

(b) Includes agriculture, forestry and fishing; mining; manufacturing; electricity, gas and water supply; construction; wholesale trade; retail trade; accommodation, cafes and restaurants; transport and storage; communication services; finance and insurance; and cultural and recreational services.

Source: Unpublished 2006 Census data.

Among detailed industries, the most common for AHWs were hospitals (except psychiatric hospitals), health services undefined, general practice medical services and community health centres (Table 5.4). Like nurses, the highest proportion of AHWs worked in hospitals (except psychiatric hospitals). 'Aboriginal health service' is not a separate category in the ANZSIC, which is used in the Census, so Census data on AHWs working in Aboriginal health services are not available.

A total of 96 AHWs worked in general practice medical services, which was more than the number of registered nurses who worked there. There were large numbers of AHWs in undefined and not elsewhere classified industries such as health services undefined, health and community services undefined, community services undefined and non-residential care services not elsewhere classified, which may be where some Aboriginal health services have been coded. In addition, the codes for general practice medical services and community health centres may also have been used for Aboriginal health services.

Table 5.4: Aboriginal Health Workers by most common industries of employment, 2006, Census[(a)], number and per cent

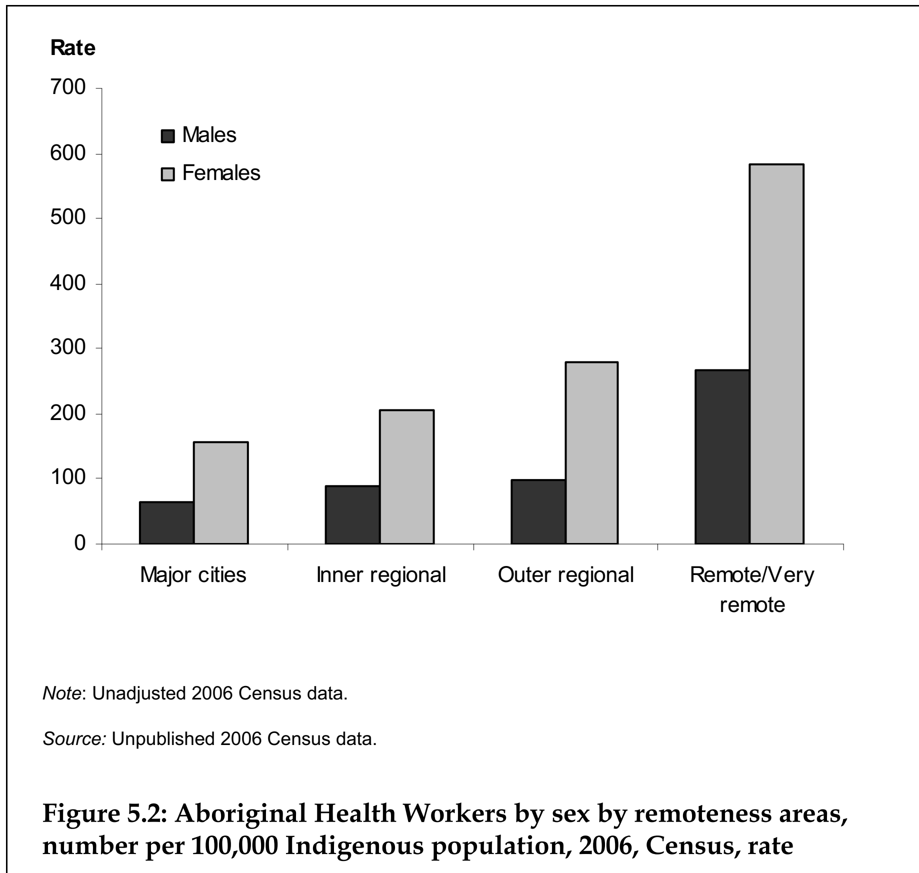
	Number	Per cent
Hospitals (except psychiatric hospitals)	280	29.1
Health services, undefined	163	16.9
General practice medical services	96	10.0
Community health centres	95	9.9
Health and community services, undefined	83	8.6
Community services, undefined	57	5.9
Non-residential care services, nec	38	4.0
Local government administration	33	3.4
State government administration	27	2.8
Health services, nec	26	2.7
Total	**962**	**100.0**

(a) Census data are subject to ABS-introduced random error.

Source: Unpublished 2006 Census data.

Remoteness

Nearly half of AHWs resided in *Remote* and *Very remote* areas (48.3%). The remainder were spread fairly evenly over the remaining categories—*Major cities*, *Inner regional* and *Outer regional* (17.0%, 15.2% and 19.6% respectively). Similarly, the number of AHWs per 100,000 Indigenous population was highest in *Remote/Very remote* areas at 429.0 per 100,000 Indigenous population and lowest in *Major cities* at 110.7 per 100,000 Indigenous population (Figure 5.2).



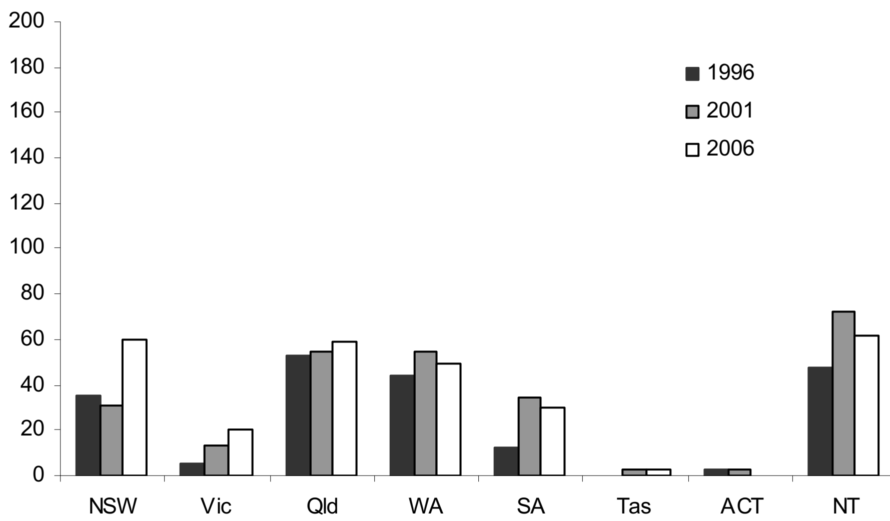
Note: Unadjusted 2006 Census data.

Source: Unpublished 2006 Census data.

Figure 5.2: Aboriginal Health Workers by sex by remoteness areas, number per 100,000 Indigenous population, 2006, Census, rate

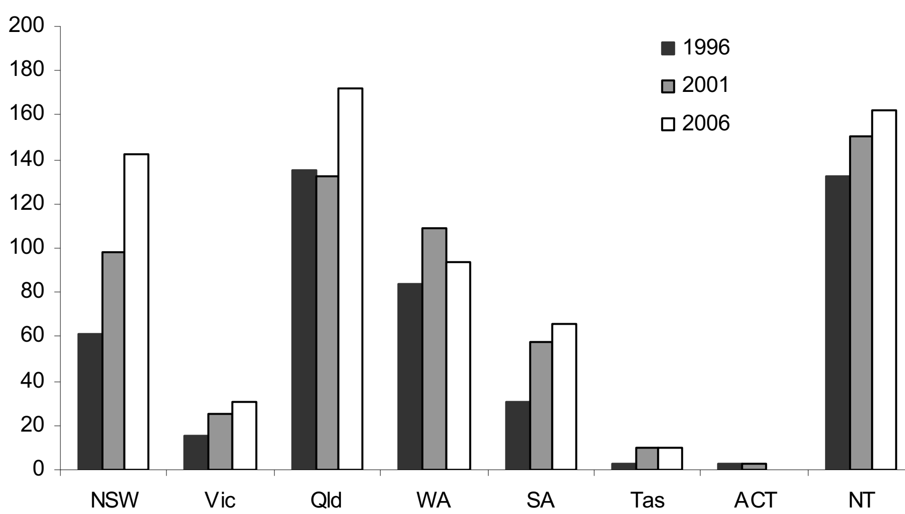
State and territory

From 2001–2006 the number of male AHWs increased in New South Wales, Victoria and Queensland but decreased or remained the same in the other states and territories. For female AHWs, numbers increased in New South Wales, Victoria, Queensland, South Australia and the Northern Territory but decreased or remained stable only in Western Australia, Tasmania and the Australian Capital Territory (Figures 5.3 and 5.4).



Sources: Unpublished 1996, 2001 and 2006 Census data.

Figure 5.3: Male Aboriginal Health Workers by state and territory, 1996, 2001 and 2006, Census, number



Sources: Unpublished 1996, 2001 and 2006 Census data.

Figure 5.4: Female Aboriginal Health Workers by state and territory, 1996, 2001 and 2006, Census, number

5.2 Data quality

Census

Rates of not stated responses to Indigenous status for the AHW occupation were very low at less than 1%, which represented seven persons. In addition, the Census time series for Australia was in accordance with expectations with gradual increases in numbers for both males and females, despite the decline in male AHWs in the Northern Territory and Western Australia.

The Northern Territory has compulsory registration for AHWs and has reported that there were 247 registrations at the end of 2005 and 277 at the end of 2006 (NTDHAF 2007). This compares with 224 in the 2006 Census for the Northern Territory.

With the exception of Western Australia, the Northern Territory and the Australian Capital Territory, the number of AHWs in all states increased from 1996 to 2006. Australian Capital Territory numbers were very small and fluctuated, and Western Australia and the Northern Territory were affected by high undercounts.

Comparisons

A source of comparative data is the SAR database. According to the 2006 Census, there were 961 AHWs, and only seven non-responses to the question on Indigenous status. The 2006 SAR reported 709 AHWs nationally. Without information on hours worked, however, no estimate can be made of actual numbers of AHWs. As could be expected, Census figures are greater than the SAR, reflecting the limited scope of the SAR and the fact that the SAR collects staffing data by FTE positions.

Table 5.5: Aboriginal Health Workers by sex, 2001, 2005 and 2006, Census and SAR, number

	2001		2006	
	Census	SAR	Census[(a)]	SAR
Male	265	191	282	232
Female	588	415	679	477
Total	853	606	961	709

(a) Census data are subject to ABS-introduced random error.

Sources: ABS 2002a p30, 2007d pp59, 61, 63, 65, 67, 69, unpublished 2001 and 2006 Census data; DoHA & NACCHO 2003, 2008a.

6 Training and qualifications

As well as the current number of health practitioners, the size and composition of the health labour force is affected by the number of students enrolled in and graduating from health-related education. The focus of this section is on Aboriginal and Torres Strait Islander students as they work through vocational or higher education. ABS Census data are limited on this topic as the Census does not collect information on field of study in current enrolment or annual completions. Census data, however, are presented in this chapter to profile Indigenous people with a completed qualification.

Two other collections provide information on post secondary school enrolments and completions. The National VET Provider Collection, from the National Centre for Vocational Education Research (NCVER), provides data on vocational training, primarily in TAFE colleges, and the HESC, from the Department of Education, Employment and Workplace Relations (DEEWR), provides data on university study.

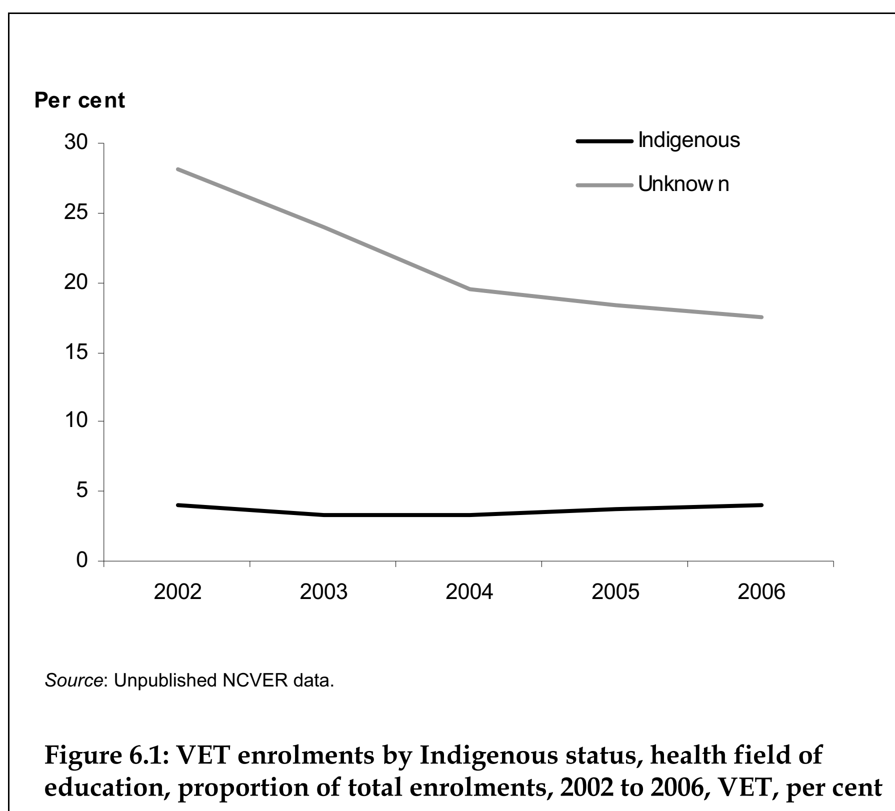
The health field of education includes medical studies, nursing, pharmacy, dental studies, optical science, veterinary studies, public health, radiography, rehabilitation therapies and complementary therapies (ABS 2001: 133).

6.1 Vocational education and training

National Vocational Education and Training Provider Collection Enrolments

Data from the National VET Provider Collection show that the proportion of all enrolled students who were Indigenous increased from 3.5% in 2002 to 4.0% in 2006. The proportion of records with an unknown Indigenous status decreased over the same period, from 20.1% in 2002 to 15.4% in 2006.

The proportion of Indigenous students enrolled in the health field of education fell from 4.0% in 2002 (3,565) to 3.3% in 2003 (3,380), and gradually increased again to 4.1% in 2006 (3,255). Proportions of unknown Indigenous status in the health field decreased steadily from 28.1% in 2002 to 17.5% in 2006 (Figure 6.1). However, this proportion was still more than 4 times the proportion of students who were Indigenous.



Source: Unpublished NCVER data.

Figure 6.1: VET enrolments by Indigenous status, health field of education, proportion of total enrolments, 2002 to 2006, VET, per cent

Field of education

Although the overall proportion of VET students in health with a 'not stated' Indigenous status was high (18.4% in 2005 and 17.5% in 2006), when information on courses leading to qualifications in the area of Aboriginal health was examined, the proportion of not stated responses was much lower (around 2%). Table 6.1 presents the number and proportion of students enrolled in courses leading to an AHW qualification.

Table 6.1: VET enrolments by Indigenous status by selected accredited courses[(a)] leading to the Aboriginal health worker qualification (ASCO=3493), 2005, VET, number and per cent

	Number	Per cent
Indigenous	705	95.9
Non-Indigenous	20	2.7
Unknown	15	2.0
All students	**735**	**100.0**

(a) All of these courses are classified as training for the Aboriginal and Torres Strait Islander health worker occupation.

Note: Percentages may not add to 100% due to rounding.

Source: Unpublished VET data.

Of the 67,840 Indigenous students enrolled in VET in 2006, 4.8% were enrolled in health-related courses. The corresponding figure for non-Indigenous students was 4.7%. More than

half (54.4%) of Indigenous students enrolled in health were enrolled in the public health field.

Table 6.2: VET enrolments by field of education by Indigenous status, 2006, VET, per cent

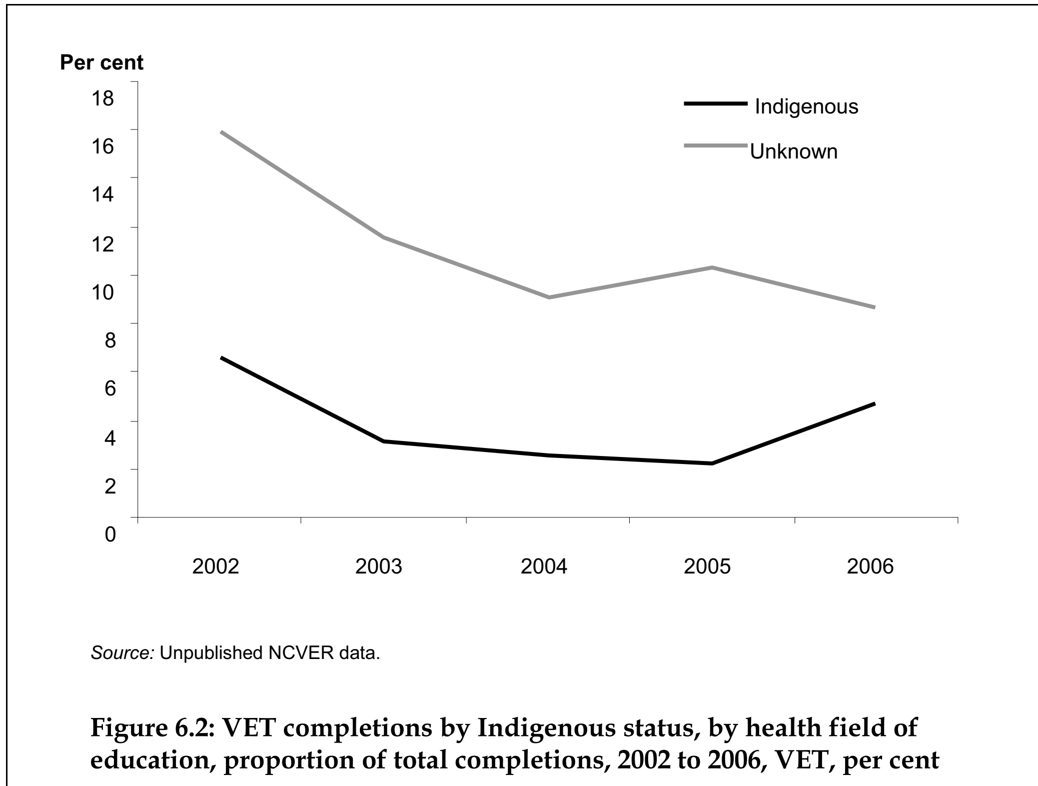
	Indigenous	Non-Indigenous	Unknown	Total
Natural and physical sciences	0.1	0.4	0.2	0.3
Information technology	1.7	3.6	2.7	3.4
Engineering and related technologies	11.3	17.8	14.5	17.0
Architecture and building	4.9	6.5	8.2	6.7
Agriculture, environmental and related studies	9.3	4.4	4.6	4.6
Health				
Medical studies	0.2	—	—	—
Nursing	0.5	1.0	0.7	0.9
Public Health	2.6	1.5	2.5	1.7
Health total	*4.8*	*4.7*	*5.4*	*4.8*
Education	5.4	2.4	4.2	2.8
Management and commerce	15.1	20.6	14.1	19.4
Society and culture	10.1	10.3	9.5	10.2
Creative arts	5.8	2.6	1.9	2.6
Food, hospitality and personal services	6.8	10.4	8.5	9.9
Mixed field programmes	19.2	10.7	16.7	12.0
Subject only—no field of education	5.5	5.8	9.3	6.3
Total per cent	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**67,840**	**1,349,330**	**258,795**	**1,675,965**

— Nil or rounded to zero

Source: Unpublished VET data.

National Vocational Education and Training Provider Collection Completions

The proportion of students who identified as Aboriginal or Torres Strait Islander and completed a VET course in a health field fluctuated between 2.3% and 6.6% over the period 2002–06 (Figure 6.2). The proportion of students for whom Indigenous status was unknown decreased from 15.9% to 8.7% over the period 2002–06. The total number of students (Indigenous and non-Indigenous) fluctuated over time.



Source: Unpublished NCVER data.

Figure 6.2: VET completions by Indigenous status, by health field of education, proportion of total completions, 2002 to 2006, VET, per cent

Field and level of education

Consistent with enrolment data, in 2006, there were 50 Indigenous Australians who completed a diploma or higher qualification in health. A further 145 Indigenous people completed a Certificate IV, 225 a Certificate III, 25 a Certificate II and five a Certificate I in health (Table 6.3). Completions in health, at all levels, accounted for 450 students or 6.0% of all VET course completions by Indigenous students. There were nearly twice that many students (835) who completed a VET course in the field of health who had an unknown Indigenous status.

Table 6.3: VET completions, field and level of study, 2006, VET, per cent

	Diploma or higher	Certificate IV/III	Certificate II/I	Total[(a)]
		Indigenous		
Engineering and related technologies	2.1	7.5	14.9	10.9
Health	10.6	11.5	0.8	6.0
Education	6.4	7.8	0.8	4.2
Management and commerce	31.9	22.9	24.8	24.3
Society and culture	36.2	27.1	5.1	16.5
Mixed field programmes	n.p.	3.1	18.7	11.1
Other[(a)]	9.6	20.2	34.7	27.0
Total per cent[(b)]	**100.0**	**100.0**	**100.0**	**100.0**
Total number[(b)]	**470**	**3,215**	**3,750**	**7,455**
		Non-Indigenous		
Engineering and related technologies	8.8	13.9	21.3	15.3
Health	4.4	4.6	1.6	3.7
Education	1.0	5.4	0.2	3.2
Management and commerce	45.5	26.2	27.3	29.1
Society and culture	16.2	22.8	11.2	18.4
Mixed field programmes	0.4	3.2	10.9	5.5
Other[(a)]	23.7	23.9	27.6	24.9
Total per cent[(b)]	**100.0**	**100.0**	**100.0**	**100.0**
Total number[(b)]	**31,930**	**126,785**	**65,895**	**225,640**

(continued)

Table 6.3 (continued): VET completions, field and level of study, 2006, VET, per cent

	Diploma or higher	Certificate IV/III	Certificate II/I	Total[a]
		Unknown Indigenous status		
Engineering and related technologies	9.1	12.5	33.6	19.0
Health	3.3	3.9	0.7	2.7
Education	1.2	10.6	0.3	5.5
Management and commerce	62.1	21.6	14.3	25.6
Society and culture	10.9	30.0	23.7	24.6
Mixed field programmes	0.5	2.3	7.4	4.2
Other[a]	12.9	19.1	20.0	18.4
Total per cent[b]	**100.0**	**100.0**	**100.0**	**100.0**
Total number[b]	**5,040**	**15,405**	**10,535**	**31,115**
		Total		
Engineering and related technologies	8.7	13.6	22.6	15.6
Health	4.3	4.7	1.4	3.6
Education	1.1	6.0	0.2	3.5
Management and commerce	47.6	25.6	25.5	28.6
Society and culture	15.7	23.6	12.6	19.0
Mixed field programmes	0.4	3.1	10.8	5.5
Other[a]	22.1	23.4	26.9	24.2
Total per cent[b]	**100.0**	**100.0**	**100.0**	**100.0**
Total number[b]	**37,435**	**145,410**	**80,170**	**264,205**

n.p. Not published due to small cell size.

(a) Other consists of Natural and physical sciences; Information technology; Architecture and building; Agriculture, environmental and related studies; Creative arts; Food, hospitality and personal services. Some of the Other cells for Indigenous students may be between 1 and 4. These cells are not included in the total figure for Other.

(b) Total includes Secondary: 20 Indigenous, 1035 Non-Indigenous, 135 unknown, 1190 total students undertaking secondary education.

Note: Numbers may be different from other tables due to rounding and confidentiality (see section 1.4).

Source: Unpublished VET data.

Student Outcomes Survey

In addition to the VET data on course completions, the NCVER runs the SOS. This is an independent sample survey of recent graduates and module completers (a course of study that does not lead to an award). The survey uses the NHDD standard question for Indigenous status. SOS data on graduates could be expected to be comparable with VET completions. Results from the two data collections, however, are different, with the number of graduates in the SOS 71.8% higher than the number of completions in the VET (Table 6.4). Both collections agree that, in 2006, 2.7%–2.8% of graduates identified as Indigenous. 'Not stated' Indigenous status in the SOS accounted for only 1.8% of graduates compared with 11.8% of VET graduates in the same category. The sample for the SOS was drawn from records supplied by institutions. The utility of the SOS data is limited due to such large discrepancies.

Table 6.4: VET completions and SOS graduates[(a)] by Indigenous status, National VET Provider Collection and SOS, 2006, VET, number and per cent

	VET		SOS	
	Number	Per cent	Number	Per cent
Indigenous	7,455	2.8	12,810	2.7
Non-Indigenous	225,640	85.4	456,570	95.5
Unknown	31,115	11.8	8,670	1.8
Total	**264,205**	**100.0**	**478,050**	**100.0**

(a) Graduates only; does not include module completions.

Notes:

1. VET data is preliminary; collected at the end of March 2007.
2. Percentages may not add to 100% due to rounding.

Sources: Unpublished VET data, NCVER 2007c.

6.2 Higher education

Higher Education Statistics Collection enrolments

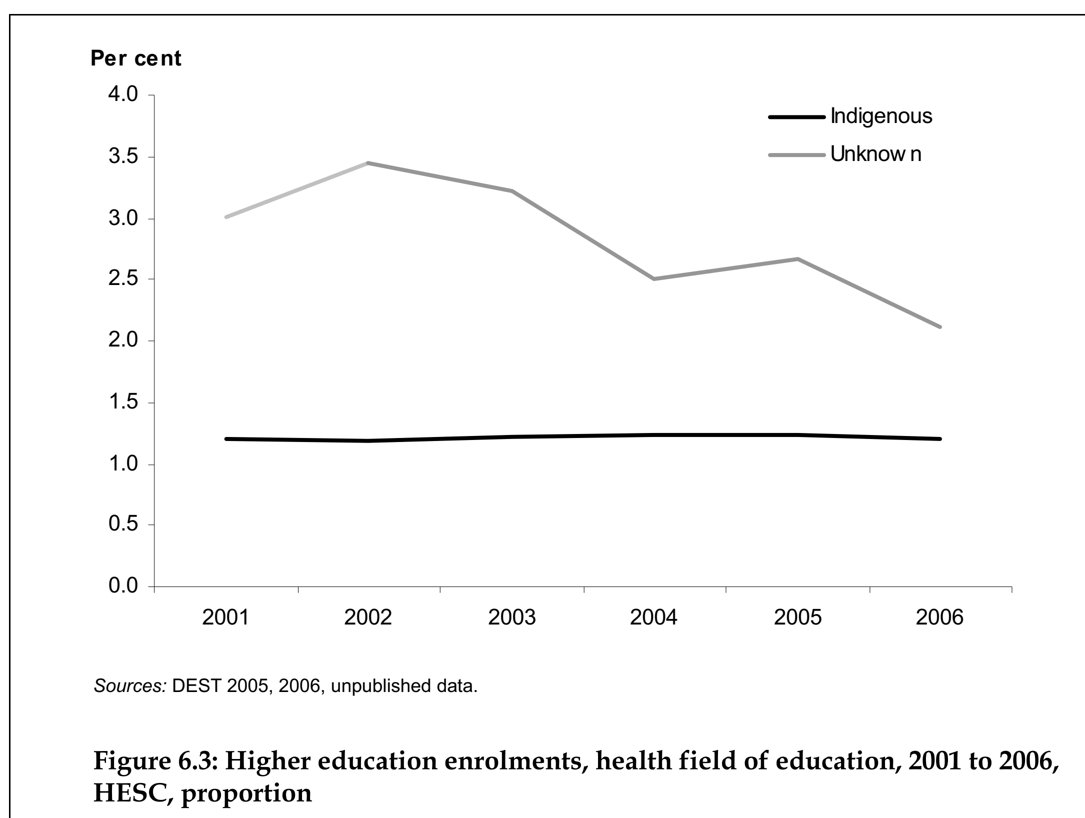
In this section, HESC data from 2001 onwards only are presented as there was a break in the series in 2001. Before 2001, data were collected as at a census date early in the year. Since 2001, data has been based on enrolments throughout the entire year, thus including students who commenced in the latter half of the year.

The number of all Indigenous students enrolled in higher education since 2001 has fluctuated between around 8,400 and 9,000 students. There was a large decrease in the number of Indigenous students from 8,895 in 2004 to 8,370 in 2005, a decrease of 5.9%. This is suggestive of a quality issue with Indigenous data for that year, particularly as enrolments for the total population have shown a steady increase across the 2001–06 period. However, this decrease was not reflected in enrolled Indigenous students in the health field of education. The number of these students has increased steadily from 1,104 in 2001 to 1,426 in 2006, an increase of 29.2%, and the proportion of Indigenous students out of the total student population in health was a constant 1.2% (Figure 6.3).

The level of not stated responses to Indigenous status ranged between 3.0% and 5.2%. These not stated proportions were particularly high in 2002 (5.2%) and 2005 (4.8%). Not stated Indigenous status responses in all years were at least three times higher than the proportion of Indigenous enrolments. The increase in records with a not stated Indigenous status in 2005 was matched by a decrease of about 500 Indigenous people in that year followed by an increase of almost 500 Indigenous people in the following year. This suggests that at least some of those who did not answer the Indigenous status question in 2005 were Indigenous. Possible reasons for this fluctuation may include processing errors, changes in the administration of the question or a change in responses from Indigenous to non-Indigenous.

Since 2005, DEEWR have implemented a change whereby once a student is reported as Indigenous they are considered Indigenous from that point onwards. Data for all fields in 2006 reported an increase of 5.8% in Indigenous students from 2005 and in the health field an

increase of 7.9%. This policy will reduce the rate of non-response and give a more stable population over time but will not allow a person to change their identification.



Sources: DEST 2005, 2006, unpublished data.

Figure 6.3: Higher education enrolments, health field of education, 2001 to 2006, HESC, proportion

Field and level of education

In 2006, according to HESC data, health was the third most popular field of study for Indigenous students after society and culture (which includes Indigenous studies and psychology) and education.

Health accounted for 16.1% of Indigenous enrolments (Table 6.5). Medical studies represented 1.5% of the total Indigenous enrolments, similar to the non-Indigenous student population (1.7%). However, Indigenous Australians were more likely than non-Indigenous Australians to be enrolled in nursing studies (5.9% and 4.4% respectively). There were 287 (3.2%) Indigenous students in the field of Indigenous health.

Overall, 3.5% of students did not answer the Indigenous status question. Of those students, 7.3% (2,496) were students in the field of health.

Table 6.5: Higher education enrolments by field, by Indigenous status, 2006, HESC, per cent

	Indigenous	Non-Indigenous	No information	Total
Health				
Medical studies	1.5	1.7	0.6	1.6
Nursing studies	5.9	4.4	2.3	4.3
Public health	5.6	0.9	0.9	0.9
Indigenous health[(a)]	3.2	—	—	—
Health total	*16.1*	*12.1*	*7.3*	*12.0*
Education	20.6	9.7	6.0	9.7
Management and commerce	9.0	27.0	44.4	27.4
Society and culture	32.6	20.0	12.3	19.8
Other[(b)]	21.7	31.1	30.0	31.0
Total per cent	**100.0**	**100.0**	**100.0**	**100.0**
Total no.	**8,854**	**941,008**	**34,284**	**984,146**

— Nil or rounded to zero

(a) Indigenous health is a subcategory of public health.

(b) Other consists of natural and physical sciences; information technology; engineering and related technologies; architecture and building; agriculture, environmental and related studies; creative arts; food, hospitality and personal services; mixed field programmes and non-award courses.

Source: DEST 2006.

Higher Education Statistics Collection completions

DEEWR also collects information on completions, that is, the number of students who finish their course in a given year. The number of both Indigenous and non-Indigenous students who completed higher education courses increased steadily over the period 2001–06, with the proportion of students who completed a higher education course who identified as Aboriginal or Torres Strait Islander constant at 0.5% to 0.6%. For those completing a qualification in health, the proportion of students who were Indigenous was also fairly constant within a range of 0.7% to 1.0% over the 2001–06 period (Table 6.6). Not stated responses ranged from 1.6% to 3.3% for the same period.

Table 6.6: Higher education completions in health by Indigenous status, 2001 to 2006, HESC, number and per cent

	2001	2002	2003	2004	2005	2006
			Number			
Indigenous	200	193	213	189	228	265
Non-Indigenous	21,900	23,212	23,611	24,976	25,309	26,817
Not stated	362	406	450	866	876	784
Total	**22,462**	**23,811**	**24,274**	**26,031**	**26,413**	**27,866**
			Per cent			
Indigenous	0.9	0.8	0.9	0.7	0.9	1.0
Non-Indigenous	97.5	97.5	97.3	95.9	95.8	96.2
Not stated	1.6	1.7	1.9	3.3	3.3	2.8
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Sources: DEST 2005, 2006, unpublished HESC data.

Field and level of qualification

In 2006, there were 19 Indigenous graduates in medical studies, 97 in nursing studies and 69 in Indigenous health (see proportions in Table 6.7). During the same year, 130 Aboriginal and/or Torres Strait Islander students were enrolled in medical studies, 518 in nursing studies and 287 in Indigenous health.

Overall, 19.5% of Indigenous people who completed a higher education course did so in a health field compared with just 11.9% of non-Indigenous students. The most striking difference was among nurses. Nearly 1 in 15 (7.1%) Indigenous graduates were in nursing studies compared with only 1 in 20 (4.9%) non-Indigenous graduates.

The most common fields for Indigenous graduates were similar to those for enrolments, that is, society and culture, education, and health.

Table 6.7: Higher education completions, selected fields, by Indigenous status, 2006, HESC, per cent

	Indigenous	Non-Indigenous	Not stated	Total
Health				
Medical studies	1.4	1.3	0.3	1.3
Nursing	7.1	4.9	2.6	4.8
Indigenous health	5.1	—	—	—
Health total	*19.5*	*11.9*	*6.3*	*11.6*
Education	23.9	11.5	7.6	11.4
Management and commerce	9.9	29.2	49.9	30.2
Society and culture	29.1	18.7	11.1	18.4
Other	17.6	28.7	25.1	28.5
Total per cent	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**1,360**	**225,684**	**12,416**	**239,460**

— Nil or rounded to zero

Note: Other consists of natural and physical sciences; information technology; architecture and building; agriculture, environmental and related studies; creative arts; food, hospitality and personal services.
Source: DEST 2006.

Graduate Destination Survey

The GDS is conducted by an independent body, Graduate Careers Australia. It aims to survey all recent graduates about the outcomes of their course, for example, whether they are now working or pursuing further study, and is another source of information about Indigenous people who complete tertiary education.

The survey does not achieve complete coverage. Data provided are unweighted responses as no estimate of the actual Indigenous population is made. The proportion of Indigenous graduates was very similar for both collections at 0.6% for the HESC and 0.7% for the GDS (Table 6.8). Not stated Indigenous status responses were much lower in the GDS than in the HESC. The usefulness of an unweighted data set is limited.

Table 6.8: Higher education completions by Indigenous status, HESC and GDS, 2006, number and per cent

	HESC		GDS	
	Number	**Per cent**	**Number**	**Per cent**
Indigenous	1,360	0.6	639	0.7
Non-Indigenous	225,684	94.2	93,137	98.2
Not stated	12,416	5.2	1,043	1.1
Total	**239,460**	**100.0**	**94,819**	**100.0**

Sources: DEST 2006; unpublished GDS data.

6.3 Health qualifications

Data for post-school qualifications were drawn from the Census. These are completed qualifications, no matter how long ago they were gained. There has been a steady increase in the number of Indigenous persons holding health qualifications over time. However, between 1996 and 2006 there was a fourfold increase in the number of health 'not further defined' qualifications for Indigenous people.

At the time of the 2006 Census, 6,326 Indigenous people aged 15 years or over reported that they held a non-school qualification in the health field, comprising 0.9% of the total number of persons with a health qualification (Table 6.9). This was twice as many Indigenous people who had a health qualification in 1996 (2,707 persons).

Non-response to the Indigenous status question accounted for 0.7% of the total. Both the proportion of Indigenous persons and of not stated Indigenous status responses in health-related fields increased slightly between each Census year. The health field of education is defined above in the introduction to this chapter.

The proportion of Indigenous people with qualifications in medicine, nursing and Indigenous health increased slightly between 1996 and 2006, from 0.4% to 0.7%.

Table 6.9: Completed qualification by health fields of qualification, 1996, 2001 and 2006, Census[(a)(b)], per cent

	1996	2001	2006	1996–2001	2001–2006
	Per cent	Per cent	Per cent	Per cent change	Per cent change
			Medical studies		
Indigenous	0.1	0.1	0.2	28.6	51.1
Non Indigenous	99.5	99.4	99.3	2.5	16.7
Not stated	0.4	0.5	0.5	15.7	33.2
Total	**100.0**	**100.0**	**100.0**	**2.6**	**16.8**
Total number	**59,032**	**60,547**	**70,733**	**. .**	**. .**
			Nursing studies		
Indigenous	0.5	0.6	0.7	20.1	36.2
Non Indigenous	98.7	98.7	98.4	1.9	13.2
Not stated	0.8	0.7	0.8	–7.8	35.6
Total	**100.0**	**100.0**	**100.0**	**1.9**	**13.5**
Total number	**328,498**	**334,761**	**379,949**	**. .**	**. .**
			Indigenous health		
Indigenous	n.a.	89.5	94.6	. .	96.7
Non Indigenous	n.a.	9.8	5.0	. .	–4.7
Not stated	n.a.	0.7	0.4	. .	—
Total	**n.a.**	**100.0**	**100.0**	**. .**	**86.1**
Total number	**n.a.**	**439**	**817**	**. .**	**. .**
			Health nfd		
Indigenous	4.2	3.2	3.2	238.9	19.3
Non Indigenous	95.0	96.2	96.1	361.9	19.1
Not stated	0.7	0.6	0.8	312.5	39.4
Total	**100.0**	**100.0**	**100.0**	**356.3**	**19.2**
Total number	**5,631**	**25,694**	**30,632**		
			Total health		
Indigenous	0.5	0.7	0.9	60.0	46.1
Non Indigenous	98.8	98.6	98.4	10.4	18.4
Not stated	0.7	0.6	0.7	3.3	40.1
Total	**100.0**	**100.0**	**100.0**	**10.6**	**18.8**
Total number	**535,391**	**592,009**	**703,163**	**. .**	**. .**

— Nil or rounded to zero

(a) Census data are subject to ABS-introduced random error.

(b) Persons aged 15 years or more.

Note: Medical studies includes general practice and specialities.

Sources: Unpublished 1996, 2001 and 2006 Census data.

6.4 Data quality

Vocational education and training

In the National VET Provider Collection, the proportion of Indigenous people enrolled in health decreased and then increased over time. By comparison, the rates of not stated responses to the Indigenous status question in enrolments in the health field were very high, peaking at 28.1% in 2002, reducing slowly to a not stated rate of 17.5% in 2006. While this is a substantial improvement, not stated responses are still four times the number of Indigenous responses.

Like enrolments, the proportion of completions in health decreased then increased over time. The proportion of not stated Indigenous status responses for completions in health was also high, but fell from 15.9% in 2002 to 8.7% in 2006. While the proportions of Indigenous people who graduate agree between the National VET Provider Collection and the SOS, the absolute numbers are so different that no further comparisons can be usefully made.

The time series for Indigenous VET students in both enrolments and completions showed slow increases in the number and the percentage of all students who were Indigenous. This low variability is one indicator of good data quality.

Higher Education Statistics Collection

While Indigenous enrolments in health increased steadily by 29.2% over the 2002–06 period, the proportion of Indigenous students in the whole student population remained static at 1.2%. In other words, the increase in the number of students is just enough to keep Indigenous people represented as they currently are. Although not stated Indigenous status responses decreased, they were still proportionally higher than Indigenous responses.

The proportion of Indigenous persons completing a course in health remained fairly constant between 2001 and 2006 at just under 1% of all enrolled health students. However, the proportion of not stated responses increased from 1.6% to 3.3% over the 2001–06 period. As data from the GDS were unweighted its utility is limited.

Qualifications

The proportion of Indigenous people with a qualification in health, out of all people with a post-school qualification, increased from 0.5% in 1996 to 0.9% in 2006. This compares with a proportion of 0.7% for not stated Indigenous status responses in 2006.

7 Conclusions

In this report, information is presented on health labour force statistics as they relate to Aboriginal and Torres Strait Islander people. An assessment of the availability and quality of the data in this area is also included, as access to reliable, comprehensive, timely and nationally consistent trend data is one of the key elements in gaining an understanding of the health labour force.

The information presented focuses on three groups in the health labour force:

- Indigenous people in the health workforce
- health professionals working in Aboriginal health services
- Indigenous people undertaking health-related study or training.

This final chapter outlines the main findings and the data quality issues that impact on the ability to report on this important aspect of health information.

The data analysis showed that, over time, there were increases in the number of Indigenous medical practitioners, primary care practitioners working in Aboriginal health services, Indigenous registered nurses, AHWs, Indigenous students enrolled in health courses, Indigenous students completing courses in the health field and persons with post-school qualifications in health.

In most cases, the increase in the number of health professionals was larger than the population increase over the same period. For example, between 1996 and 2006, the number of Indigenous medical practitioners increased from 11.6 to 18.0 Indigenous medical practitioners per 100,000 Indigenous population. The same was true for Indigenous registered nurses, with an increase in the rate over the same period from 188.4 to 249.4 registered nurses per 100,000 Indigenous population. However, the opposite was true for enrolled nurses—there were 48.8 enrolled nurses per 100,000 Indigenous population in 2006, compared to 159.8 per 100,000 Indigenous population in 1996. The rate for AHWs also increased somewhat, from 189.5 to 211.2 AHWs per 100,000 Indigenous population.

However, there were a number of data quality issues that affected the analysis of the Indigenous health workforce. These issues are summarised below.

Data quality

Not stated responses

While in a number of data collections the percentage of records with a not stated Indigenous status decreased, it was still relatively high in several of the data sets analysed. In several data sets the number of records with not stated Indigenous status was substantially higher than the number of records for Indigenous people.

In 2006 in the National VET Provider Collection, there were 3,255 enrolled students in health (4.1%) who identified as Indigenous and 14,020 (17.5%) with not stated Indigenous status. The proportion of VET completions in health with a not stated Indigenous status was 8.7% in 2006.

In the HESC data collection, of all students who completed their higher education course in health in 2006, the proportion of students with a not stated Indigenous status was 2.8%. In comparison, the proportion of Indigenous students was 1.0%.

Non-response can be an issue for data quality when dealing with a small population such as the Indigenous population. Small shifts in the numbers of not stated responses can have large effects on Indigenous numbers, proportions and rates.

Undercounting

The Census undercounts the Indigenous population. The undercount for the Indigenous population in the 2001 Census was estimated to be 6.1%. The estimated undercount for the 2006 Census was substantially higher at 11.5%. Some level of undercount also applies to the counts of subpopulations such as health professionals. Estimates of undercount are very useful in order to give an indication of the level of missing persons and the ability to use correction factors nationally and by state. However, undercount adjustments can be used only at a broad level and are not useful for adjustments at finer disaggregation.

Low response rate

There were low response rates to the MLFS and the NMLFS in some states and territories. For the MLFS, the national response rate has remained stable since 2003 (70.2% in 2006); however, the response rate varied by state. There were particularly low response rates to the MLFS since 2003 in the Northern Territory, with a response rate of 28.6% in 2006. In addition, the data showed a sharp decline (by 57.7%) in the number of primary care practitioners mainly working in an Aboriginal health service in the Northern Territory between 2003 and 2004.

Similarly, response rates to the NMLFS also varied by jurisdiction, with a national figure of 55.0% in 2005, and response rates of 13.7% in the Northern Territory and 26.9% in Western Australia also in 2005.

Low survey response rates are a problem as some non-respondents would be Indigenous and, like the not stated responses to individual questions, small numbers may have a large effect on a small population.

Variability

Large fluctuations in numbers over time may indicate a data quality problem.

The Census data showed that there was a large but gradual increase in the number of registered nurses between 1996 and 2006, both Indigenous and non-Indigenous, but a large sudden decrease in the number of enrolled nurses between 1996 and 2001. This may have been due to enrolled nurses upgrading their qualifications, changes in the training of nurses and the coding of cases of where unclear or insufficient information was provided.

The Census data did, however, show a gradual increase in the number of AHWs. The percentage of records with a not stated Indigenous status was low, indicative of good data quality.

The NMLFS found that there was a large fall in the number of registered nurses working in the area of Indigenous health area between 2001 and 2003, largely attributable to a fall in the numbers for the Northern Territory.

Also, according to the HESC, there was a substantial decrease in Indigenous students enrolled in higher education between 2004 and 2005, suggesting a possible data quality issue in that time period. However, the number of students enrolled in health continued to increase over this period.

Data gaps

The ANZSIC, used in the Census, does not have a separate industry code for Aboriginal health services. This means it is not possible to use Census data to report on the number of medical practitioners, nurses and AHWs working in Aboriginal health services. In the 2006 ANZSIC online search facility, 'Aboriginal health centre—providing a range of allied health services' is coded as 'other allied health services'. In the list of primary activities for 'other allied health services', however, Aboriginal health service does not appear (ABS & SNZ 2006b).

Data quality issues have prevented publication of MLFS data by Indigenous status until the 2006 survey.

Continuing issues with the administration of the MLFS and NMLFS mean that data for some states and territories are estimated from data for other years, benchmarked against the year of interest.

The future of the health labour force surveys

The AIHW MLF and NMLF surveys have been conducted since 1992. However it is expected that the 2009 surveys which are currently in the field will be the last of state-based health labour force surveys. Work is currently underway to redesign and harmonise these surveys so they can continue after the shift from state-based medical registration boards to the new National Registration and Accreditation Scheme (NRAS) in 2010. It is envisaged that the move to an NRAS-based collection will consolidate and build upon the recent improvements in the quality of Indigenous health professional data. Of particular importance will be the introduction of a national health data standard-based Indigenous status survey item, which should improve the national consistency of these data.

Missing information

High proportions of records with a 'not further defined' category may mean that insufficient information was provided by respondents. For instance, a person who responds to the industry question as 'health' will be coded as 'health services not further defined'. However, a more specific response such as 'Aboriginal health service' may also be coded as 'health services not further defined', because no specific category exists in the ANZSIC. Of all AHWs, nearly one in six (17%) worked in 'health services undefined'.

Comparability

There were comparability issues between the medical, nursing, AHW and education collections, for example due to differences in scope, counting units, categories, weighting or response rates. For instance, Census and MLFS definitions of generalist medical practitioners and primary care practitioners are slightly different; SAR data only covers Commonwealth-funded services; AHW registration statistics exist only for the Northern Territory and the GDS is unweighted. For further comparisons between collections see Chapter 2.

Appendix A: Detailed tables

Summary tables

Table A.1: Health professionals by Indigenous status by Census year, 1996, 2001 and 2006, number

	1996	2001	2006
		Indigenous	
Generalist medical practitioners	41	54	82
Specialist medical practitioners	20	34	24
Registered nurses	665	862	1,135
Enrolled nurses	564	202	222
Aboriginal Health Workers—male	199	265	282
Aboriginal Health Workers—female	470	588	679
		Total	
Generalist medical practitioners	29,061	32,000	35,407
Specialist medical practitioners	14,950	15,877	19,373
Registered nurses	151,972	160,948	183,331
Enrolled nurses	24,567	19,498	19,391
Aboriginal Health Workers—male	199	265	282
Aboriginal Health Workers—female	470	588	679

Table A.2: Health professionals by Indigenous status by Remoteness areas, 2006, Census, number

	Major cities	Inner regional	Outer regional	Remote	Very remote	Total[(a)]
			Indigenous			
Generalist medical practitioners	46	13	22	3	0	84
Specialist medical practitioners	14	0	0	3	0	21
Registered nurses	557	316	163	51	49	1,139
Enrolled nurses	79	61	57	8	16	221
Aboriginal Health Workers—male	46	44	48	43	100	281
Aboriginal Health Workers—female	117	102	140	103	218	680
			Total			
Generalist medical practitioners	27,790	5,011	2,121	339	98	35,409
Specialist medical practitioners	16,480	2,123	664	68	11	19,373
Registered nurses	124,714	39,383	15,911	2,124	899	183,330
Enrolled nurses	11,398	4,937	2,538	349	132	19,391
Aboriginal Health Workers—male	46	44	48	43	100	281
Aboriginal Health Workers—female	117	102	140	103	218	680

(a) Includes Migratory and No usual address.

Medical practitioners

Census

Table A.3: Medical practitioners by type of practitioner by Indigenous status, number of medical practitioners per 100,000 population, 1996, 2001 and 2006, Census[(a)], rate

	1996	2001	2006
		Generalist medical practitioners[(b)]	
Indigenous[(c)]	11.6	13.2	18.0
Total[(d)]	163.7	170.5	178.3
		Specialist medical practitioners[(b)]	
Indigenous[(c)]	5.7	8.3	5.3
Total[(d)]	84.2	84.6	97.6
Indigenous population[(e)] (no.)	352,970	410,003	455,030
Total population[(e)] (no.)	17,752,829	18,769,249	19,855,288

(a) Census data are subject to ABS-introduced random error.

(b) Number of medical practitioners, regardless of number of hours worked per week.

(c) Indigenous medical practitioners per 100,000 Indigenous population.

(d) Total medical practitioners per 100,000 total population.

(e) Unadjusted census population.

Sources: ABS 1998, 2002b, 2007e, unpublished 1996, 2001 and 2006 Census data.

Table A.4: Indigenous generalist medical practitioners by states and territories, 2006, Census[(a)], number, rate and per cent

	Number of practitioners	Indigenous generalist medical practitioners per 100,000 Indigenous population[(b)]	Proportion of total Australia Indigenous population[(c)]	Total Indigenous population
	Number	**Rate**	**Per cent**	**Number**
New South Wales	34	24.5	30.4	138,507
Victoria	11	36.5	6.6	30,143
Queensland	18	14.1	28.0	127,580
Western Australia	4	6.8	12.9	58,710
South Australia	11	43.0	5.6	25,556
Tasmania	3	17.9	3.7	16,768
Australian Capital Territory	0	—	0.9	3,875
Northern Territory	3	5.6	11.8	53,661
Australia	**84**	**18.5**	**100.0**	**455,028**

— Nil or rounded to zero

(a) Census data are subject to ABS-introduced error.

(b) Unadjusted census data.

(c) Proportion of total Indigenous population resident in each state and territory.

Source: Unpublished 2006 Census data.

Medical Labour Force Survey

Table A.5: Primary care practitioners[a] by main work setting, 1997 to 2006, MLFS, number and per cent

	Aboriginal health service		Other settings		Work setting not stated		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1997	137	0.7	18,938	94.1	1,058	5.3	20,134	100.0
1998	141	0.7	19,318	94.6	970	4.7	20,429	100.0
1999	168	0.8	19,845	96.3	603	2.9	20,616	100.0
2000	174	0.8	19,454	92.3	1,453	6.9	21,081	100.0
2001	195	0.9	20,424	94.2	1,052	4.9	21,671	100.0
2002	206	0.9	20,460	93.8	1,150	5.3	21,815	100.0
2003	260	1.2	20,402	93.1	1,257	5.7	21,919	100.0
2004	213	1.0	20,673	93.9	1,125	5.1	22,011	100.0
2005	240	1.1	21,338	94.5	1,011	4.5	22,589	100.0
2006	253	1.1	21,588	94.1	1,112	4.8	22,954	100.0

(a) Primary care practitioners include vocationally registered general practitioners, RACGP Fellows, RACGP trainees and others.

Note: Totals may not equal the sum of their parts due to rounding.

Sources: AIHW 2003a, 2004, 2005a, 2006a, 2008a, 2008b.

Table A.6: Primary care practitioners whose main work setting was an Aboriginal health service by remoteness areas, 2006, MLFS, per cent

	Primary care practitioners whose main work setting was an Aboriginal health service[a]	Indigenous population[b]
	Per cent	Per cent
Major cities	25.3	32.1
Inner regional	12.4	21.4
Outer regional	19.0	21.9
Remote/Very remote	38.9	24.6
Total per cent	**100.0**	**100.0**
Total number	**253**	**517,043**

(a) MLFS data is based on location of workplace.

(b) 2006 Census-based estimated resident Indigenous population.

Sources: ABS 2008a, 2008b.

Comparison

Table A.7: Aboriginal and Torres Strait Islander medical practitioners who work primarily as clinicians[a], Census[b] and MLFS, 2006

Indigenous status	NSW/ACT	Vic/Tas[c]	Qld[c]	WA	SA/NT[d]	Total
			AIHW Medical Labour Force Survey			
Indigenous	48	40	25	8	26	147
Total	20,859	16,566	9,278	5,901	5,562	58,167
% Indigenous	0.2	0.2	0.3	0.1	0.5	0.3
			ABS Census of Population and Housing			
Indigenous	44	22	23	4	14	107
Total	19,612	15,180	10,036	5,056	5,172	55,056
% Indigenous	0.2	0.1	0.2	0.1	0.3	0.2

(a) Clinicians include primary care practitioners, hospital non-specialists, specialists and specialists-in-training.

(b) Census data are subject to ABS-introduced random error.

(c) AIHW figures are underestimates as benchmark figures in Queensland and Tasmania did not include all registered medical practitioners.

(d) AIHW figures for the Northern Territory are based on responses to the 2007 MLFS weighted to 2006 benchmark figures, equivalent to a response rate of 28.6%. Care should be taken when interpreting these figures.

Note: Some states/territories have been combined due to small cell sizes in some jurisdictions.

Sources: AIHW 2008b; unpublished ABS 2006 Census data.

Nurses

Census

Table A.8: Nurses by type of nurse by Indigenous status, 1996, 2001 and 2006, Census[(a)], number and per cent

	1996		2001		2006	
	Number	Per cent	Number	Per cent	Number	Per cent
			Nursing assistant[(b)]			
Indigenous	345	1.3	397	1.7	454	1.9
Non-Indigenous	25,412	98.0	22,156	97.3	22,761	97.0
Not stated	184	0.7	219	1.0	259	1.1
Total	**2,5941**	**100.0**	**22,772**	**100.0**	**23,474**	**100.0**

(a) Census data are subject to ABS-introduced random error.

(b) Nursing assistant is ASCO code 6314-13.

Sources: Unpublished 1996, 2001 and 2006 Census data.

Table A.9: Nurses by type of nurse, by Indigenous status, proportional change, 1996–2001, 2001–2006 and 1996–2006, Census[(a)], per cent

	Change 1996–2001	Change 2001–2006	Change 1996–2006
		Nursing assistant[(b)]	
Indigenous	15.1	14.4	31.6
Non-Indigenous	–12.8	2.7	–10.4
Not stated	19.0	18.3	40.8
Total	**–12.2**	**3.1**	**–9.5**

(a) Census data are subject to ABS-introduced random error.

(b) Nursing assistant is ASCO code 6314-13.

Sources: Unpublished 1996, 2001 and 2006 Census data.

Table A.10: Nurses by type of nurse by Indigenous status, number of nurses per 100,000 population, 1996, 2001 and 2006, Census[(a)], rate

	1996	2001	2006
		Registered nurse[(b)]	
Indigenous[(c)]	188.4	210.2	249.4
Total[(d)]	856.0	857.5	923.3
		Enrolled nurse[(b)]	
Indigenous[(c)]	159.8	49.3	48.8
Total[(d)]	138.4	103.9	97.7
Indigenous population[(e)] (no.)	352,970	410,003	455,030
Total population[(e)] (no.)	17,752,829	18,769,249	19,855,288

(a) Census data are subject to ABS-introduced random error.

(b) Number of nurses, regardless of number of hours worked per week.

(c) Indigenous nurses per 100,000 Indigenous population.

(d) Total number of nurses per 100,000 total population.

(e) Unadjusted census population.

Sources: ABS 1998, 2002b, 2007e; unpublished 1996, 2001 and 2006 Census data.

Table A.11: Indigenous nurses by type of nurse by remoteness areas, number per 100,000 Indigenous population, 2006, Census[(a)], rate

	Registered nurse	Enrolled nurse	Indigenous population
	Rate	**Rate**	**No.**
Major cities	378.2	53.6	147,289
Inner regional	318.2	61.4	99,317
Outer regional	165.2	57.8	98,657
Remote	129.4	20.3	39,409
Very remote	71.3	23.3	68,754
Total	**250.3**	**48.6**	**455,008**

(a) Census data are subject to ABS-introduced random error.

Source: Unpublished 2006 Census data.

Table A.12: Nurses by type of nurse, by Indigenous status, proportional change, 1996–2001, 2001–2006 and 1996–2006, Census[(a)], per cent

	Change 1996–2001	Change 2001–2006	Change 1996–2006
		Registered nurse[(b)]	
Indigenous	29.6	31.7	70.7
Non-Indigenous	5.9	13.6	20.3
Not stated	–7.6	49.7	38.3
Total	**5.9**	**13.9**	**20.6**
		Enrolled nurse[(c)]	
Indigenous	–64.2	9.9	–60.6
Non-Indigenous	–19.6	–0.8	–20.2
Not stated	–27.4	33.7	–3.0
Total	**–20.6**	**–0.5**	**–21.0**
		Nursing assistant[(d)]	
Indigenous	15.1	14.4	31.6
Non-Indigenous	–12.8	2.7	–10.4
Not stated	19.0	18.3	40.8
Total	**–12.2**	**3.1**	**–9.5**

(a) Census data are subject to ABS-introduced random error.

(b) Registered nurse includes ASCO 1993 occupations 2323 Registered nurses, 2324 Registered midwives, 2325 Registered mental health nurses and 2326 Registered developmental disability nurses.

(c) Enrolled nurse is ASCO code 3411.

(d) Nursing assistant is ASCO code 6314-13.

Sources: Unpublished 1996, 2001 and 2006 Census data.

Nursing and Midwifery Labour Force Survey

Table A.13: Nurses by type of nurse by Indigenous status, number of nurses per 100,000 population, 2003, 2004, 2005 NMLFS and 2006 Census, rate

	2003 NMLFS	2004 NMLFS	2005 NMLFS	2006 Census
		Registered nurses[a]		
Indigenous[b]	144.9	147.2	130.6	249.4
Total[c]	950.3	970.5	972.4	923.3
		Enrolled nurses[a]		
Indigenous[b]	92.8	95.2	85.0	48.8
Total[c]	239.1	241.3	225.8	97.7
		Total[a]		
Indigenous[b]	237.7	242.4	215.7	298.2
Total[c]	1,189.4	1,211.9	1,198.1	1,021.0
		Number		
Indigenous population[d]	475,412	483,992	492,677	455,030
Total population[d]	19,895,435	20,127,363	20,394,791	19,855,288

(a) Number of nurses regardless of number of hours worked per week.

(b) Indigenous nurses per 100,000 Indigenous population.

(c) Total number of nurses per 100,000 total population.

(d) Denominator populations for NMLFS are 2001-based estimated resident populations for 30 June. Denominators for Census rate is unadjusted 2006 count.

Sources: ABS 2007a, 2007e; AIHW 2005b, 2006c, 2008c.

Table A.14: Nurses by type of nurse by Indigenous status by remoteness areas, 2005 NMLFS and 2006 Census, per cent

	2005 NMLFS				2006 Census
	Indigenous	**Not Indigenous**	**Not stated**	**Total**	**Indigenous**
			Registered		
Major city	44.1	65.1	65.9	65.0	48.9
Inner regional	27.3	20.1	19.5	20.1	27.7
Outer regional	16.0	9.1	8.1	9.2	14.3
Remote	2.5	1.3	0.7	1.3	4.5
Very remote	5.7	0.8	0.3	0.8	4.3
Not stated	3.5	3.6	5.5	3.6	—
Total per cent	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**644**	**195,777**	**1,895**	**198,315**	**1,139**
			Enrolled		
Major city	30.7	52.1	55.2	52.0	35.7
Inner regional	25.0	25.6	21.5	25.5	27.6
Outer regional	22.9	14.1	10.7	14.1	25.8
Remote	6.5	1.9	0.9	2.0	3.6
Very remote	7.9	0.8	0.7	0.8	7.2
Not stated	5.6	5.5	10.9	5.6	—
Total per cent	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**414**	**45,086**	**540**	**46,039**	**221**

Sources: Unpublished NMLFS data; unpublished 2006 Census data.

Table A.15: Nurses whose principal area was Indigenous health by type of nurse, 1999 to 2004, NMLFS, number

	1999	2001	2003	2004
		Registered nurses		
New South Wales	58	53	66	52
Victoria	13	21	12	25
Queensland	77	81	56	61
Western Australia	76	. .	25	50
South Australia	—	15	24	34
Tasmania	5	n.p.	—	n.p.
Australian Capital Territory	—	n.p.	—	n.p.
Northern Territory	. .	110	25	47
Australia	**229**	**284**	**208**	**277**
		Enrolled nurses		
New South Wales	29	17	9	16
Victoria	8	n.p.	6	7
Queensland	8	13	6	n.p.
Western Australia	14	. .	13	7
South Australia	—	5	n.p.	14
Tasmania	5	—	—	—
Australian Capital Territory	—	—	—	—
Northern Territory	. .	n.p.	23	n.p.
Australia	**64**	**43**	**57**	**44**

Sources: AIHW 2003b, 2005b, 2006c.

Comparison

Table A.16: Nurses by type of nurse by Indigenous status, 2001, 2006 Census[(a)] and 2003, 2004, 2005 NMLFS, number

	2001 Census	2003 NMLFS	2004 NMLFS	2005 NMLFS	2006 Census
			Registered nurses		
Indigenous	867	689	712	644	1,135
Not Indigenous	159,300	185,744	193,168	195,777	181,019
Not stated	786	2,638	1,459	1,895	1,177
Total	**160,953**	**189,071**	**195,339**	**198,315**	**183,331**
			Enrolled nurses		
Indigenous	202	441	461	419	222
Not Indigenous	19,198	46,349	47,607	45,086	19,038
Not stated	98	784	510	540	131
Total	**19,498**	**47,574**	**48,577**	**46,044**	**19,391**
			Total nurses		
Indigenous	1,069	1,130	1,174	1,063	1,357
Not Indigenous	178,498	232,093	240,775	240,863	200,057
Not stated	884	3,422	1,969	2,435	1,308
Total	**180,456**	**236,645**	**243,916**	**244,359**	**202,722**

(a) Census data are subject to ABS-introduced random error.

Sources: AIHW 2005b, 2006c, 2008c; unpublished 2001 and 2006 Census data.

Table A.17: Nurses by type of nurse by Indigenous status, 2005 NMLFS and 2006 Census[(a)], number and per cent

	2005 NMLFS		2006 Census[(a)]	
	Number	**Per cent**	**Number**	**Per cent**
		Registered		
Indigenous	644	0.3	1,135	0.6
Non-Indigenous	195,777	98.7	181,019	98.7
Not stated	1,895	1.0	1,177	0.6
Total	**198,315**	**100.0**	**183,331**	**100.0**
		Enrolled		
Indigenous	419	0.9	222	1.1
Non-Indigenous	45,086	97.9	19,038	98.2
Not stated	540	1.2	131	0.7
Total	**46,044**	**100.0**	**19,391**	**100.0**
		Total nurses		
Indigenous	1,063	0.4	1,357	0.7
Non-Indigenous	240,862	98.6	200,057	98.7
Not stated	2,435	1.0	1,308	0.6
Total	**244,360**	**100.0**	**202,722**	**100.0**

(a) Census data are subject to ABS-introduced random error.

Sources: AIHW 2008c; unpublished 2006 Census data.

Aboriginal Health Workers

Census

Table A.18: Aboriginal Health Workers by sex, number per 100,000 Indigenous population, 1996, 2001 and 2006, Census[(a)], rate

	1996	2001	2006
		Aboriginal Health Workers (rate)	
Male[(a)]	114.5	130.6	125.8
Female[(b)]	262.4	284.0	294.0
Total[(c)]	**189.5**	**208.0**	**211.2**
		Indigenous population (number)	
Males[(d)]	173,831	202,954	224,079
Females[(d)]	179,139	207,049	230,952
Total[(d)]	**352,970**	**410,003**	**455,031**

(a) Census data are subject to ABS-introduced random error.

(b) Male AHWs per 100,000 male Indigenous population.

(c) Female AHWs per 100,000 female Indigenous population.

(d) Total AHWs per 100,000 total Indigenous population.

Sources: ABS 1998, 2002b, 2007e; unpublished 1996, 2001 and 2006 Census data.

Table A.19: Aboriginal Health Workers by remoteness areas, 2006, Census[(a)], number, per cent and rate

	Aboriginal Health Workers			Total Indigenous population[(a)]
	Number	**Per cent**	**Rate[(b)]**	**Number**
		Males		
Major cities	46	16.4	63.8	72,082
Inner regional	44	15.7	89.0	49,463
Outer regional	48	17.1	99.3	48,322
Remote/Very remote	143	50.9	268.5	53,257
Total	**281**	**100.0**	**125.4**	**224,051**
		Females		
Major cities	117	17.2	155.6	75,207
Inner regional	102	15.0	204.6	49,854
Outer regional	140	20.6	278.1	50,335
Remote/Very remote	321	47.2	584.6	54,906
Total	**680**	**100.0**	**294.4**	**230,957**
		Total		
Major cities	163	17.0	110.7	147,289
Inner regional	146	15.2	147.0	99,317
Outer regional	188	19.6	190.6	98,657
Remote/Very remote	464	48.3	429.0	108,163
Total	**961**	**100.0**	**211.2**	**455,008**

(a) Census data are subject to ABS-introduced random error.

(b) Unadjusted 2006 Census data.

Source: Unpublished 2006 Census data.

Table A.20: Aboriginal Health Workers by state and territory, 1996, 2001 and 2006, Census[(a)], number

	1996		2001		2006	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
New South Wales	35	61	31	98	60	142
Victoria	5	15	13	25	20	31
Queensland	53	135	55	132	59	172
Western Australia	44	84	55	109	49	94
South Australia	12	31	34	58	30	66
Tasmania	0	3	3	10	3	10
Australian Capital Territory	3	3	3	3	0	0
Northern Territory	48	132	72	150	62	162
Australia	**200**	**464**	**266**	**585**	**283**	**680**

(a) Census data are subject to ABS-introduced random error.

Sources: Unpublished 1996, 2001 and 2006 Census data.

Education and training

Vocational education and training

Table A.21: VET enrolments by Indigenous status, 2000 to 2006, VET, per cent

	2000	2001	2002	2003	2004	2005	2006
Indigenous	3.0	3.3	3.5	3.4	3.6	3.8	4.0
Non-Indigenous	75.9	78.8	76.4	77.3	77.8	78.5	80.5
Unknown	21.1	17.8	20.1	19.4	18.6	17.6	15.4
Total per cent	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total number ('000)	**1,707.9**	**1,679.1**	**1,695.4**	**1,727.6**	**1,606.4**	**1,650.8**	**1,676.0**

Source: NCVER 2006, 2007b.

Table A.22: VET enrolments by Indigenous status, health field of education, 2002 to 2006, VET, number and per cent

	2002	2003	2004	2005	2006
			Number		
Indigenous	3,565	3,380	2,645	2,955	3,255
Non-Indigenous	59,925	75,390	62,795	60,740	62,890
Unknown	24,810	24,935	15,905	14,345	14,020
Total	**88,295**	**103,710**	**81,345**	**78,040**	**80,170**
			Per cent		
Indigenous	4.0	3.3	3.3	3.8	4.1
Non-Indigenous	67.9	72.7	77.2	77.8	78.4
Unknown	28.1	24.0	19.6	18.4	17.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: NCVER 2006, 2007b.

Table A.23: VET completions by Indigenous status, 2002 to 2006, VET, number and per cent

	2002	2003	2004	2005	2006
			Number		
Indigenous	7,600	6,845	6,740	7,630	7,455
Non-Indigenous	239,085	240,675	235,495	252,635	225,640
Unknown	43,195	37,705	32,605	39,385	31,115
Total	**289,880**	**285,225**	**274,840**	**299,650**	**264,205**
			Per cent		
Indigenous	2.6	2.4	2.5	2.5	2.8
Non-Indigenous	82.5	84.4	85.7	84.3	85.4
Unknown	14.9	13.2	11.9	13.1	11.8
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: NCVER 2007b.

Higher Education Statistics Collection

Table A.24: Higher education enrolments by Indigenous status, 2001 to 2006, HESC, number and per cent

	2001	2002	2003	2004	2005	2006
			Number			
Indigenous	8,661	8,871	8,988	8,895	8,370	8,854
Non-Indigenous	805,566	841,471	886,018	908,056	902,619	941,008
Not stated	27,956	46,279	34,946	28,026	46,187	34,284
Total	**842,183**	**896,621**	**929,952**	**944,977**	**957,176**	**984,146**
			Per cent			
Indigenous	1.0	1.0	1.0	0.9	0.9	0.9
Non-Indigenous	95.7	93.8	95.3	96.1	94.3	95.6
Not stated	3.3	5.2	3.8	3.0	4.8	3.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: All includes overseas and domestic students. Revised 2001 data.

Sources: DEST 2005, 2006, unpublished data.

Table A.25: Higher education enrolments by field and level, by Indigenous status, 2006, per cent

	Undergraduate	Postgraduate	Total[(a)]
		Indigenous	
Health			
Medical studies	1.7	1.2	1.5
Nursing studies	6.9	4.5	5.9
Public health	5.2	11.0	5.6
Indigenous health[(b)]	3.4	4.2	3.2
Total health	*17.5*	*19.0*	*16.1*
Education	22.5	20.9	20.6
Management and commerce	9.5	13.0	9.0
Society and culture	33.5	33.2	32.6
Other[(c)]	17.0	13.9	21.7
Total per cent	**100.0**	**100.0**	**100.0**
Total number	**6,623**	**1,286**	**8,854**
		Non-Indigenous	
Health			
Medical studies	1.7	1.7	1.7
Nursing studies	5.1	2.9	4.4
Public health	0.5	2.1	0.9
Indigenous health[(b)]	—	—	—
Total health	*13.3*	*10.4*	*12.1*
Education	8.9	12.5	9.7
Management and commerce	25.4	33.9	27.0
Society and culture	20.7	19.4	20.0
Other[(c)]	31.7	23.8	31.1
Total per cent	**100.0**	**100.0**	**100.0**
Total number	**654,289**	**259,360**	**941,008**
		Not stated	
Health			
Medical studies	0.7	0.5	0.6
Nursing studies	3.0	1.2	2.3
Public health	0.5	1.7	0.9
Indigenous health[(b)]	—	—	—
Total health	*8.9*	*4.7*	*7.3*
Education	5.2	9.1	6.0
Management and commerce	42.5	56.7	44.4
Society and culture	12.4	12.9	12.3
Other[(c)]	31.0	16.6	30.0
Total per cent	**100.0**	**100.0**	**100.0**
Total number	**22,761**	**9,803**	**34,284**

(continued)

Table A.25 (continued): Higher education enrolments by field and level, by Indigenous status, 2006, per cent

	Undergraduate	Postgraduate	Total
		Total	
Health			
Medical studies	1.7	1.7	1.6
Nursing studies	5.1	2.9	4.3
Public health	0.5	2.2	0.9
Indigenous health[(b)]	—	—	—
Total health	*13.2*	*10.2*	*12.0*
Education	8.9	12.5	9.7
Management and commerce	25.8	34.6	27.4
Society and culture	20.5	19.2	19.8
Other[(c)]	31.5	23.5	31.0
Total per cent	**100.0**	**100.0**	**100.0**
Total number	**683,673**	**270,449**	**984,146**

— Nil or rounded to zero

(a) Total includes enabling and non-award.

(b) Indigenous health is a subcategory of public health.

(c) Other includes natural and physical sciences; information technology; engineering and related technologies; architecture and building; agriculture, environmental and related studies; creative arts; food, hospitality and personal services.

Source: DEST 2006.

Table A.26: Higher education completions, selected fields and level, by Indigenous status, 2006, per cent

	Undergraduate	Postgraduate	Total
		Indigenous	
Health			
Medical studies	1.5	1.0	1.4
Nursing studies	7.2	6.7	7.1
Indigenous health	4.7	6.4	5.1
Total health	*18.8*	*21.9*	*19.5*
Education	24.8	20.5	23.9
Management and commerce	8.2	15.8	9.9
Society and culture	29.9	26.3	29.1
Other	18.3	15.5	17.6
Total per cent	**100.0**	**100.0**	**100.0**
Total number	**1,063**	**297**	**1,360**
		Non-Indigenous	
Health			
Medical studies	1.3	1.3	1.3
Nursing studies	5.5	3.8	4.9
Indigenous health	—	—	—
Total health	*12.8*	*10.4*	*11.9*
Education	8.9	15.8	11.5
Management and commerce	25.9	34.7	29.2
Society and culture	19.6	17.2	18.7
Other	32.9	21.9	28.7
Total per cent	**100.0**	**100.0**	**100.0**
Total number	**140,302**	**85,382**	**225,684**
		Not stated	
Health			
Medical studies	0.2	0.4	0.3
Nursing studies	3.4	1.2	2.6
Indigenous health	—	—	—
Total health	*7.1*	*4.8*	*6.3*
Education	5.4	11.9	7.6
Management and commerce	48.4	52.7	49.9
Society and culture	10.0	13.4	11.1
Other	29.1	17.3	25.1
Total per cent	**100.0**	**100.0**	**100.0**
Total number	**8,202**	**4,214**	**12,416**

(continued)

Table A.26 (continued): Higher education completions, selected fields and level, by Indigenous status, 2006, per cent

	Undergraduate	Postgraduate	Total
		Total	
Health			
Medical studies	1.2	1.3	1.3
Nursing studies	5.4	3.7	4.8
Indigenous health	—	—	—
Total health	*12.5*	*10.2*	*11.6*
Education	8.8	15.6	11.4
Management and commerce	27.0	35.5	30.2
Society and culture	19.2	17.0	18.4
Other	32.6	21.6	28.5
Total per cent	**100.0**	**100.0**	**100.0**
Total number	**149,567**	**89,893**	**239,460**

— Nil or rounded to zero

Note: Other includes natural and physical sciences; information technology; architecture and building; agriculture, environmental and related studies; creative arts; food, hospitality and personal services.

Source: DEST 2006.

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