Optometrist labour force

1999

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NATIONAL HEALTH LABOUR FORCE SERIES
Number 18

Optometrist labour force 1999

Australian Institute of Health and Welfare
Canberra
AIHW cat. no. HWL 17

This publication is part of the Australian Institute of Health and Welfare's Disability Series. A complete list of the Institute's publications is available from the Publications Unit, Australian Institute of Health and Welfare, GPO Box 570, Canberra ACT 2601, or via the Institute's web site (http://www.aihw.gov.au).

ISSN 1327-4309
ISBN 1 74024 062 6

Suggested citation

Australian Institute of Health and Welfare 2000. Optometrist Labour Force 1999. AIHW cat. no. HWL 17. Canberra: AIHW (National Health Labour Force Series No. 18).

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Published by Australian Institute of Health and Welfare

Printed by Elect Printing; Acrobat conversion by Green Words & Images, Canberra

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Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
DHAC	Department of Health and Aged Care
DIMA	Department of Immigration and Multicultural Affairs
DETYA	Department of Education, Training and Youth Affairs
GCCA	Graduate Careers Council of Australia Limited

Symbols and other usages

Throughout this publication, percentages may not add up to 100.0 due to rounding.

Italics within a table denote a subtotal.

Percentages printed as 0.0 may denote less than 0.05%.

* denotes estimates subject to sampling variability too high for most or all practical purposes.

. . denotes not applicable.

— denotes nil.

n.a. denotes not available.

n.p. denotes not available for publication but included in table totals where applicable.

Acknowledgments

This report was compiled by Anne Aisbett, Ann Leverton, John Harding, Warwick Conn, Graham Angus and Kathy Southgate of the Labour Force and Data Management units of the Australian Institute of Health and Welfare.

This publication comprises data from several sources. The Institute is especially appreciative of the considerable assistance provided by Mr Ross Saunders and his staff in the Financing and Analysis Branch of the Department of Health and Aged Care in provision of tabulations of unpublished Medicare data.

Thanks are also extended to the following for data used in this publication:

The Australian Bureau of Statistics for optometrist survey, national health survey, population census and other population data; the Department of Education, Training and Youth Affairs for tertiary education data; and the Department of Immigration and Multicultural Affairs for migration data.

Explanatory notes

Background

In reviewing priorities for the national health labour force collections in 1997, State health authorities identified optometry as one of the allied health occupations with a priority for periodic national workforce monitoring. National workforce monitoring for optometry is easier than for other allied health professions because all optometrists are Medicare providers. Up-to-date information on optometry providers and the utilisation of their services is therefore available.

Data sources

Data for this publication were obtained from a number of sources. The Department of Health and Aged Care provided the Medicare data on optometrists and optometry services. Further data on optometrists were obtained from the national population census and the 1997–98 survey of private sector optometrists by the Australian Bureau of Statistics. Data from the National Health Survey, population projections and other population data were also provided by the Australian Bureau of Statistics. Data on the numbers of students undertaking courses in optometry were obtained from the Department of Education, Training and Youth Affairs, and information on the destination of optometry graduates was obtained from the 1998 graduate destination survey run by the Graduate Careers Council of Australia Limited. The Department of Immigration and Multicultural Affairs provided international migration data.

Medicare data

Data on Medicare providers of optometry services have been collected since 1984-85. This data includes all providers rendering at least one Medicare service during each financial year. However, prior to 1992–93, provider numbers were not allocated to individual optometrists, therefore statistics for these years are not included in this publication.

Demographic characteristics of optometry providers were poorly collected for several years from 1984–85 for administrative reasons, and age and sex were not known for many providers. This is being progressively remedied, and complete data will be available in the future. The proportion of optometrists for whom age was unknown decreased from 29.6% in 1992–93 to 15.7% in 1998–99, and the proportion for which sex was unknown reduced from 5.2% to 0.7% in the same period. This limitation of the data has, however, restricted the usefulness of the Medicare data for the age and sex analysis of optometrists.

Services

The Medicare tables relate to services provided on a ‘fee-for-service’ basis for which Medicare benefits were paid in the period in question. They therefore exclude:

- services rendered under an entitlement conferred by legislation other than the *Health Insurance Act*: for example, services rendered to repatriation beneficiaries or defence personnel, or services covered by third party or workers’ compensation provisions for which a provisional Medicare benefit has not been paid;
- services rendered for insurance or employment purposes;
- health screening services.

The 1998 survey of optometrists found that Medicare payments accounted for 85.5% of optometrists' payments for services (ABS 1999). This figure is subject to sampling variability, but may give some indication of the proportion of services provided by optometrists that do not come under Medicare.

Providers

Unless otherwise stated, the data in these tables are for practitioners who provided at least one service under Medicare in the year in question. The data reflect the year of processing rather than the year of service.

The number of Medicare providers for optometry services was higher than the number of optometrists counted in the 1996 census, and the number of private sector optometrists estimated from the 1997–98 survey of optometrists, for the following reasons:

- Medicare data relate to all claims made during the entire financial year, while census counts relate to the census night in August of 1996, and the results of the survey of private sector optometrists relate to March 1998.
- Providers whose occupation was classified in the census as other than optometry, for instance university teachers or administrators, are not included in the census data on employed optometrists, but are included in the Medicare data.
- Some providers with only a small number of Medicare services during the year are included in the Medicare data, but may have been enumerated in the census as either not in the labour force, unemployed or employed in another occupation.
- Under-enumeration at the census.

The data in these tables incorporate the effect of Medicare adjustments. Medicare adjustments are made to correct errors in previously processed claims and to reflect adjustments resulting from cheque cancellations; these are generally not significant. Any practitioner who had net negative claims in any year (for example, resulting from the fact that one or more stale cheques had been cancelled by the Health Insurance Commission and no other claims for the practitioner were processed in the period) is not included in the tables for that year.

Population census data

The national census of population and housing is conducted every five years, and provides the best measure of long-term trends in the optometrist labour force. The data include counts of optometrists employed during the week before the census. However, the following should be considered when interpreting data from the population census:

- Occupation of employed persons in the census is coded according to main employment activity. The population census data therefore excludes optometrists whose main employment was in teaching, research, administration or management. In other health professions, such persons usually represent from 2% to 5% of the professional workforce.
- Some optometrists may have a highest qualification in a field other than optometry, such as in business administration or in education, and these will not be included in the counts of those with a highest qualification in optometry.
- The definition of a qualification in optometry includes qualifications in optical mechanics, optical dispensing, and optical fitting and surfacing (ABS 1993). Hence the data on the number of persons with a highest qualification in optometry includes those with qualifications in any of these fields. Many of the estimated 3,056 employed optical mechanics in the 1996 national population census may have been included in the 5,905

people that reported having a highest qualification in optometry, in addition to those who were actually qualified optometrists. Data in Tables 19–22 should therefore be treated with caution.

- There is some minor degree of under-counting due to non-response and to respondents omitting the question or responding incorrectly.
- There are minor discrepancies in optometrist numbers in some of the tables due to random adjustments of small numbers by ABS to preserve confidentiality.

Education data

Education data from the Department of Education, Training and Youth Affairs do not differentiate between New Zealand citizens and Australian citizens or permanent residents for completions in 1996 and for commencements in 1997.

Before 1993, not all universities had citizenship information for all students completing courses. The completion data for this time period may therefore include students for whom citizenship / residency status was unknown. Consequently there may be a small overstatement of Australian student course completions before 1993.

Trends in the optometrist labour force

This publication provides an overview of trends in the optometrist labour force from 1991 to 1999, information on the utilisation of optometry services in recent years, and basic projections of the future supply and utilisation of optometry services to 2019.

Information on trends in the optometrist labour force and the utilisation of optometrist services is drawn from data from the 1986, 1991 and 1996 national population censuses, the 1998 Australian Bureau of Statistics (ABS) survey of optometry and optical dispensing services, and Medicare data from 1992–93 to 1998–99.

Data on the utilisation of optometrist services is drawn from the Medicare data and from the 1995 National Health Survey. Information is also included on the tertiary education of optometry students from 1990 to 1999, the destination and starting salaries of optometrist graduates in 1998, and the migration of optometrists to and from Australia from 1994–95 to 1998–99.

Both the optometrist workforce and the utilisation of optometrist services have been growing rapidly. As the number of optometry services required tends to increase with the age of the patient, the increasing proportion of older people in the population in addition to population growth is expected to lead to further increases in the demand for optometry services.

Features of the optometrist workforce include:

- Between the 1986 and 1991 population censuses the optometry workforce increased by 23.5%, from 1,470 to 1,816 persons. It increased by a further 24.2% between 1991 and 1996, to 2,255. Over the period from 1986 to 1996 the number of persons working as optometrists per 100,000 population increased from 9.2 to 12.3 (Table 11).
- In 1998–99, there were 2,787 optometrists rendering at least one Medicare service within the financial year, an increase of 18.3% over the 1992–93 figure of 2,356. The number of optometrists per 100,000 population increased by 10.3% in the same period, from 13.4 to 14.8 (Table 1 and Figure 1).
- In 1998–99, 50.6% of optometrist Medicare providers whose age was known were aged less than 35, and 82.8% were aged less than 45 (the age of 15.7% was unknown) (Table 2). At the 1996 population census there were only 3.7% or 83 optometrists aged 65 or more, and another 4.8% or 108 aged between 55 and 64 (Table 12). There can therefore be expected to be relatively low levels of attrition to the workforce from age retirement in the next 10 to 15 years.
- The proportion of females in the workforce has risen steadily, from 30.0% in 1991 to 36.2% in 1996 (Table 12). In 1998–99 it was 36.9% of providers according to Medicare data. Females accounted for 55.3% of all optometrists aged less that 25 in 1998-99, and for 52.1% of those aged between 25 and 34 years (Table 2). In 1998, 52.9% of Australian permanent residents completing optometry undergraduate courses were female (Table 34). According to the 1996 census, females with a highest qualification in optometry, optical dispensing or optical mechanics were less likely to be in the labour force in all age groups over the age of 25. For instance, 88.1% in the 25–34 age

group were in the labour force, compared with 97.3% of males. Females were also more likely to retire early — 46.9% of those aged 55 to 64 were not in the labour force, compared with 22.6% of males (Table 19).

- In 1998–99, a total of $147.9 million in fees was charged by optometrists, of which $146.1 million was paid by Medicare benefits, and $1.8 million by direct patient copayments (Table 3). Optometry is a participating scheme in which the participants agree to adhere to the Medical Benefits Schedule fee. In the September quarter 1999, 99.2% of optometrists' Medicare services observed the scheduled fee (optometrists may bill above the Schedule fee for domiciliary visits), and 95.7% bulk-billed (DHAC 1999). The average copayment as a percentage of total fees charged decreased from 1.7% in 1992–93 to 0.7% in 1996–97, reflecting changes in the Medicare Schedule, and then increased slightly to 1.2% in 1998–99. Overall, it decreased by 28.9% over the total period (Table 3).
- The number of Medicare services rendered increased by 30.0% from 1992–93 to 1998–99, to 3.9 million. These services represented an average of 1,402 services per optometrist, a 9.9% increase over the 1992–93 average of 1,276; and an average of 20.7 services per 100 population, a 21.2% increase over the 1992–93 average of 17.1 (Table 3 and Figure 1).
- The number of services per 100 population rises with age, in 1998–99 increasing from 9.5 per 100 for those aged less than 10, to 32.4 for those aged 45 to 54, to a high of 34.0 per 100 population aged 65 to 74. It then decreased to 27.5 for those aged 85 or over (Table 10). Australia's population is projected to age substantially over the next 20 years, with the proportion of the population aged 45 or more projected to increase from 34.5% in 1999 to 43.8% in 2019 (Table 49). An increasing number of optometry services per head of population may therefore be expected for some time into the future.

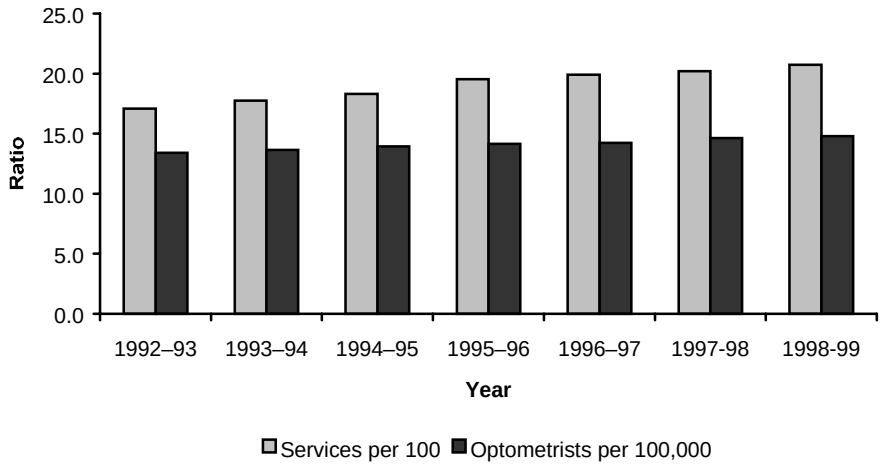

Figure 1: Optometrists per 100,000 and services per 100 population, Australia, 1992–93 to 1998–99

- Applying the 1998–99 rates of service for each age group (Table 49) to the 1992–93 population, population increase and the ageing of the population would account for an estimated 9% increase in services rendered. In fact, the number of Medicare services rendered increased by 30.0% over this period. Some of the additional increase

is due to patients attending optometrists rather than opthalmologists for refraction testing.

The preceding features are examined in more detail in the following overview.

Age structure

The optometry workforce is relatively young, although the proportions in the older age groups have increased during the 1990s:

- In the 1996 population census, 46.0% of the workforce was aged less than 35 years, compared with 57.1% in 1991, and 35.4% of the workforce was aged between 35 and 44 years compared with 24.1% in 1991 (Table 12).
- The 1998 Australian Bureau of Statistics' survey of private sector optometrists reported 42.9% of the workforce aged less than 35, and only 5.6% aged less than 25 in 1998 (Table 26). In 1996, 98.4% of the optometry workforce worked in the private sector (Table 25 and Figure 2).

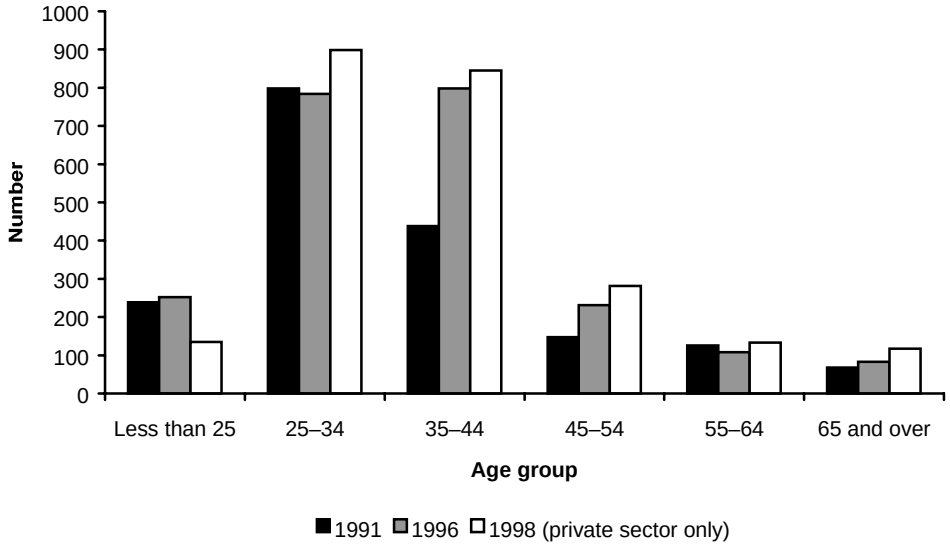

Figure 2: Employed optometrists: age group, Australia, 1991, 1996 and 1998

Female participation

Female participation in the optometry workforce has risen steadily throughout the 1990's. Some features are:

- The proportion of female optometrists increased from 30.0% of the workforce in 1991 to 36.2% in 1996 according to the population census (Table 12), and according to Medicare data 37.1% of the optometrist workforce for whom sex was known were female in 1998–99 (Table 1). Most (62.6%) of the female workforce was aged less than 35 in 1996 (Table 12).

- Females represent more than half of all Australian permanent resident students commencing and completing optometry courses, with 59.8% of those commencing undergraduate courses in 1999 (Table 29), and 52.9% of those completing undergraduate courses in 1998 (Table 34) being female.
- In 1998–99, female participation in the optometry workforce was highest in the Northern Territory, the Australian Capital Territory and Victoria, with 50.0%, 42.1% and 40.9% respectively. It was lowest in Western Australia and South Australia, with 28.9% and 30.9% respectively (Table 1).
- According to the 1996 population census, females with a highest qualification in optometry (including optical mechanics and optical dispensing) were more likely than males to be in the labour force, at 87.7% compared with 85.3%. However, this was in large part due to the preponderance of males in the older age groups, where many have retired (Table 19). Females were actually less likely to be in the labour force in all age groups over the age of 25.
- Of females with a highest qualification in optometry aged between 25 and 34, 88.1% were in the labour force, as compared with 97.3% of males in the same age group. For those aged between 35 and 44, 89.6% of females were in the labour force, compared with 97.0% of males. For those aged less than 25, 95.5% of females and 95.2% of males were in the labour force (Table 19).
- As in other health professions, female optometrists were also more likely to work part-time than males. In the week before the 1996 census, 34.8% of female optometrists worked part-time, compared with 12.1% of male optometrists. Male optometrists were more likely to work 49 or more hours in the week than females, with 24.1% of all male optometrists in this category compared with 7.2% of all female optometrists (Table 17).

Geographic distribution

There was considerable variation in the distribution of optometrists among the States and Territories, and among geographic regions.

- Nationally, there were 14.9 optometrists per 100,000 population in 1998–99 according to Medicare data. New South Wales, Tasmania and Queensland had higher ratios, with 15.7, 15.3 and 15.3 respectively. The Northern Territory had a much lower ratio, with 11.6, as did South Australia with 12.2 and the Australian Capital Territory with 12.3. Victoria with 14.9 and Western Australia with 13.8 were closer to the average (Table 4 and Figure 3).
- The largest increases in the numbers of optometrists per 100,000 population between 1992–93 and 1998–99 occurred in the Australian Capital Territory (25.9%), followed by Tasmania (18.1%). The smallest increases occurred in South Australia (7.4%), Western Australia (8.4%) and the Northern Territory (8.4%) (Table 1).
- Optometrists were also unevenly distributed by geographic region. In 1998-99 there were more per 100,000 population in large rural centres (18.7), capital cities (16.8), and small rural centres (16.1), compared with other metropolitan areas (13.2), remote centres (11.6), other rural areas (6.2) and other remote areas (0.9) (Table 5 and Figure 4).
- There were substantially more patients per optometrist in other rural areas (2,717 and 3,228 respectively) and other remote areas (12,717 and 14,440 respectively), compared with the national averages of 1,183 patients per optometrist and 1,401 services per

optometrist. However, these figures include many patients who travel to consult an optometrist in metropolitan or rural centres (Table 5).

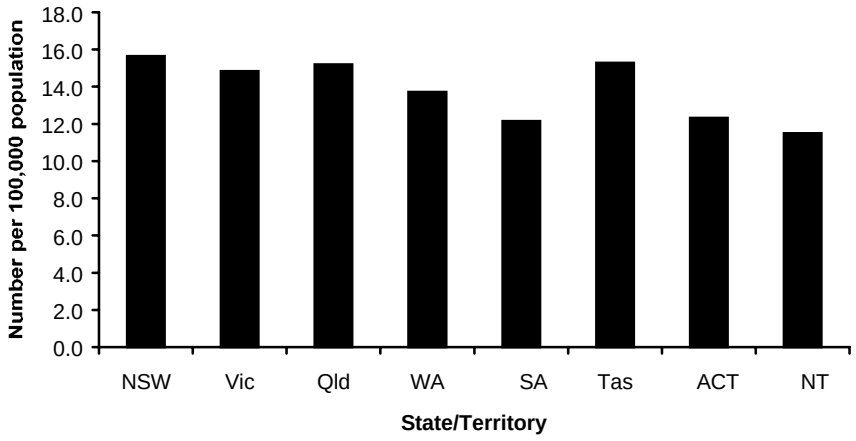

Figure 3: Optometrists per 100,000 population: States and Territories, Australia, 1998–99

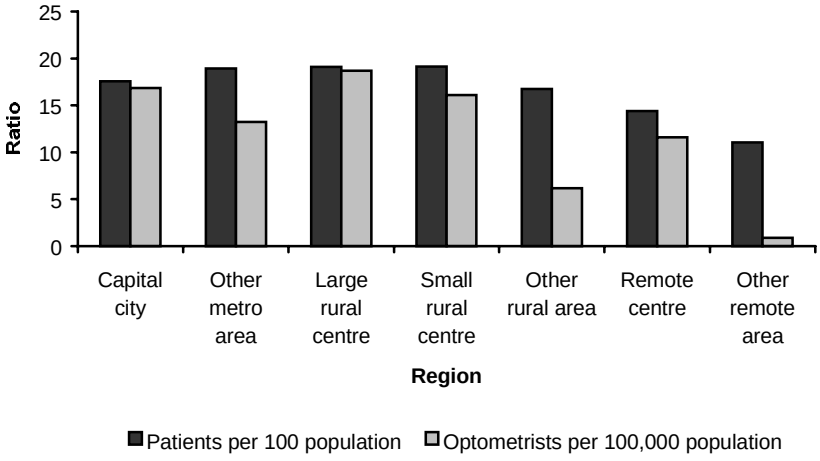

Figure 4: Patients per 100 population and optometrists per 100,000 population: geographic region, Australia, 1998–99

- According to the 1998 Australian Bureau of Statistics' survey of private sector optometrists, the highest ratio of population per optometrist occurred in the Northern Territory, with 10,555, followed by the Australian Capital Territory with 10,280 and South Australia with 10,187. New South Wales had the lowest ratio, at 7,101 people per optometrist, followed by Queensland with 7,186. The national average was 7,780 (Table 27 and Figure 6).

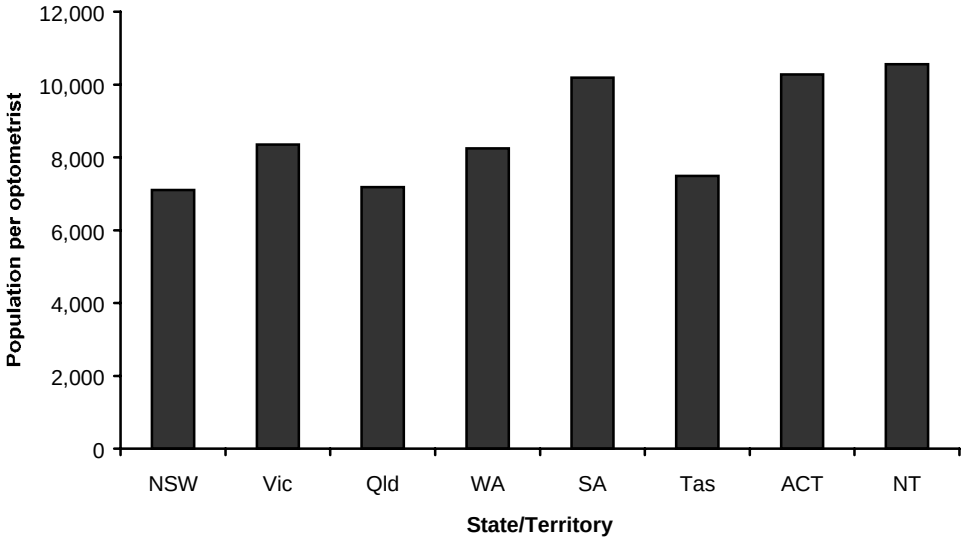

Figure 5: Private sector optometrists: population per optometrist, States and Territories, Australia, 1998

Income and hours worked

Data is available from the 1996 population census on the annual income and hours worked of optometrists. Some features include:

- In 1996, most (61.2%) optometrists worked between 35 and 48 hours per week, 20.2% worked part-time, with less than 35 hours per week, and 18.0% worked 49 or more hours per week. Most of those working part-time (61.9%) were female (Table 17).
- Most of the optometry workforce earned more than $41,600 in annual gross income, with 41.7% earning between $41,600 and $77,999, and 13.4% earning more than $78,000 in 1996. Of the latter, 37.1% worked 49 or more hours in the week before the census. A further 37.0% earned between $20,800 and $41,599, of which 27.2% worked part-time, and 7.0% earned less than $20,800, of which 62.8% worked part-time (Table 16).
- Optometry graduates had the third highest starting salaries of 23 selected fields of study in each of the five years from 1994 to 1998, only ranking below dentistry and medicine graduates. Bachelor degree graduates aged less than 25 and in their first full-time employment earned an average annual starting salary of $38,000 in 1998 (GCCA 1999).
- In 1998–99, optometrists charged on average $53,059 for an average of 1,402 services, and received on average $52,404 in Medicare benefits. The average fees charged per optometrist increased by 5.0% from 1992–93 to 1998–99, and the average Medicare benefits paid per optometrist increased by 5.6% in the same period. The average copayment decreased from an average of 1.7% of fees charged to 1.2% in the same period (Table 3).

Country of birth

According to the 1996 population census, 73.3% of employed optometrists were born in Australia, a similar proportion to the 73.9% of 1991. In 1996, 8.2% were born in Asia, 6.6% in the United Kingdom or Ireland, 4.0% in other European countries, 2.9% in Africa excluding North Africa, 1.3% in each of New Zealand and the Middle East or North Africa, and 1.2% in other Oceania countries (Table 23).

According to the 1996 population census, Australian-born persons with a highest qualification in optometry, optical dispensing or optical mechanics were more likely to be employed than overseas-born persons, at 85.3% compared with 80.3%. Overseas-born persons with a highest qualification in optometry, optical dispensing or optical mechanics obtained after arrival in Australia were most likely to be employed, at 89.3%. This was partly due to the fact that all of these last were under the age of 54 and therefore none were retired, while only 83.8% of the Australian-born persons were (Tables 20-22).

Of the 124 Australian permanent residents that completed optometry courses in 1998, 59.7% were born in Australia, 12.9% were born in Vietnam, and 18.5% were born elsewhere in Asia. The proportion born in Australia was much lower than the 1993 proportion of 77.4%, but higher than the 56.1% of 1996 (Table 38).

Aboriginal and Torres Strait Islander optometrists

No employed optometrists identified themselves as of Aboriginal or Torres Strait Islander origin in the 1996 population census. There were 12 Aborigines or Torres Strait Islanders with a highest qualification in optometry, optical mechanics or optical dispensing (Table 15).

Survey of private sector optometry and optical dispensing businesses, 1997–98

In 1997-98, the Australian Bureau of Statistics conducted surveys of private sector optometrists and of optometry and optical dispensing businesses, as part of a series of health industries surveys (ABS 1999).

The findings of the survey of optometrists include:

- In March 1998, there were 2,410 optometrists in private practice. Of these, 37.7% were female, and 78.0% were aged less than 45 (Table26).
- The 2,410 optometrists in private practice had an estimated 96,417 consultations per week, an average of 40 per practitioner. Of all optometrists in private practice, 24.6% held less than 25 consultations per week, 42.9% held between 25 and 49, 24.7% held between 50 and 74, and 7.8% held 75 or more consultations per week (Table 28).

The findings from the survey of optometry and optical dispensing businesses include:

- At the end of June 1998, there were 1,557 optometry and optical dispensing businesses in Australia. They employed an aggregate of 8,915 persons, including 2,702 optometrists and 2,448 optical dispensers (persons employed in more than one business were counted once for each business in which they worked). Most (58.2%) businesses were sole proprietorships or partnerships, and most (53.0%) operated with only one optometrist or optical dispenser (ABS 1999).
- Optometry and optical dispensing businesses operated from 2,196 locations in capital cities and 840 locations elsewhere (ABS 1999).

- The total income of optometry and optical dispensing businesses was $818.4 million, of which $653.4 million or 79.8% was from the sale of goods, and $150.3 million or 18.4% was from fees for optometry services. These fees included $128.5 million or 85.5% in Medicare bulk billing payments, $3.5 million or 2.3% in payments from the Department of Veterans' Affairs, $15.2 million or 10.1% in direct patient payments, and $3.0 million or 2.0% in other payments for services (ABS 1999).
- 54.5% of optical dispensers employed were female, compared with 36.5% of optometrists (ABS 1999).

Optometrist education

The number of optometry graduates has declined slightly from the levels reached in 1992 and 1993. Nevertheless, more than a hundred Australian permanent resident students have graduated from optometry courses in each year since 1989, with the exception of 1991 when only 95 students graduated (Table 34). Optometrist education is highly concentrated, and is only available from three institutions located in the eastern States. Most optometry students are sourced from these States, and these States also have among the highest ratios of employed optometrists per 100,000 head of population.

Features of optometrist education in recent years include:

- 104 Australian permanent residents completed undergraduate optometry courses in 1998, and 20 completed postgraduate courses. Undergraduate completion numbers were fairly stable over the decade from 1989 to 1998, with the exception of slightly higher outputs of 114 in 1992 and 1993 (Table 34 and Figure 6).
- 122 Australian permanent resident students commenced undergraduate optometry courses in 1999, similar to the previous year's figure of 127, and close to the average for the previous nine years of 124.6 (Table 29 and Figure 6).

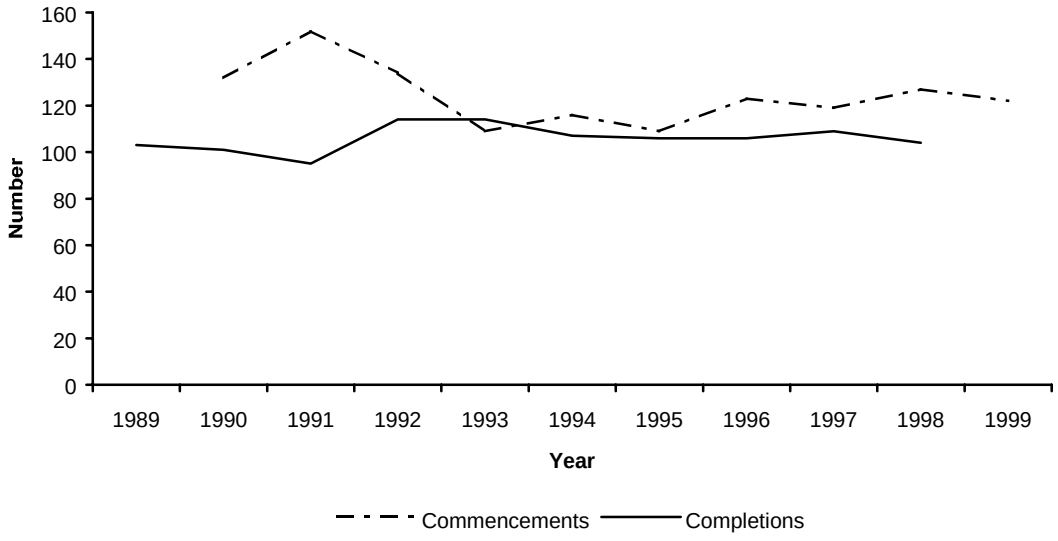

Figure 6: Australian permanent residents commencing and completing undergraduate optometry courses: Australia, 1989 to 1999

- The number of Australian permanent resident students commencing postgraduate optometry courses has fluctuated considerably in recent years, from 6 in 1991 to 45 in 1994, and was 27 in 1999 (Table 29).
- The proportion of Australian permanent residents commencing undergraduate optometry courses that are female has also fluctuated in recent years, from a low of 47.8% in 1992 to a high of 61.3% in 1997. In 1999 it was 59.8% (Table 29).
- Optometry courses are offered at the University of New South Wales, the University of Melbourne and the Queensland University of Technology. In 1999, 94.2% of Australian permanent resident students commencing undergraduate courses in optometry came from the three States where these institutions are based (41.8% from New South Wales, 26.2% from Victoria, and 26.2% from Queensland. Only 7 students, or 5.7% of the total, came from other States or Territories (2.5% from South Australia, 1.6% from the Australian Capital Territory, and 1.6% from Western Australia). There were no students from Tasmania or the Northern Territory. This pattern has remained fairly consistent since at least 1990, with very few or no commencing students from Western Australia, South Australia and the Australian Capital Territory each year, and only 3 students from both Tasmania and the Northern Territory in all ten years combined (Table 33).
- There were 4.5 commencing students per 100,000 population aged between 15 and 24 in 1999, a similar level to the 4.6 of 1996, 4.5 of 1997 and 4.8 of 1998. Commencements per 100,000 population in this age range were highest in Queensland (6.2), New South Wales (5.7), and Victoria (4.8), and were much lower in the Australian Capital Territory (3.8), South Australia (1.5) and Western Australia (0.7). As already noted, there were no commencing students from Tasmania or the Northern Territory in 1999 (Table 33 and Figure 7).

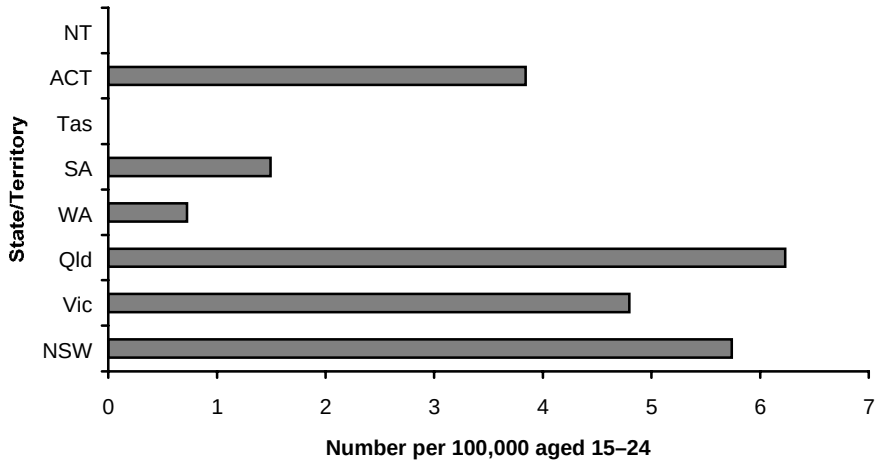

Figure 7: Australian permanent residents commencing undergraduate optometry courses: number per 100,000 population aged 15–24, States and Territories, Australia, 1999

- Most (90.2%) Australian permanent resident students commencing optometry undergraduate courses came from metropolitan areas in 1999, while 2.5% came from large rural centres, 7.4% from other rural areas, and none from remote areas. There were 5.5 commencing students per 100,000 population aged between 15 and 24 from

metropolitan areas, only 1.8 and 2.0 respectively from large rural centres and other rural areas, and none at all from remote areas (Table 32).

- There were 6 overseas residents that completed optometry courses in 1998, including 3 completing undergraduate and 3 completing postgraduate studies (Table 35).
- The average age of Australian permanent residents completing undergraduate optometry courses has remained fairly stable since at least 1990. In 1998 it was 22.0, or 22.1 for males and 21.9 for females (Table 37).
- Of the 1997 optometry graduates in optometry, 91.2% were in full-time employment in 1998, including 80.2% in the private health sector, 2.5% in the public health sector, 6.1% in private practice, business or industry, and 1.2% in other employment. A further 5.2% were in full-time study and 1.2% were working part-time. Only 1.2% were still seeking full-time employment in early 1998. Optometry graduates were more likely to be in full-time employment than initial nursing, dentistry, pharmacy, occupational therapy, physiotherapy or speech pathology graduates (Table 39).

Optometrist migration

Both permanent and temporary migration of optometrists to and from Australia has increased in recent years. Some features include:

- In 1998–99, 98 overseas resident optometrists migrated permanently to Australia, a 16.7% increase over the 1997–98 figure of 84, and a 250% increase over the 1994–95 figure of 28. In 1998–99, most (75) of these optometrists came from New Zealand (Table 40).
- In the same year, 47 Australian resident optometrists permanently migrated overseas. Of these, 12 went to New Zealand, 11 to the United Kingdom or Ireland, 9 to Asia, 6 to other European countries, 6 to North and South America, and 3 to other countries (Table 40).
- There was also a substantial increase in the number of overseas resident optometrists that temporarily migrated to Australia for employment, from 71 in 1997–98 to 101 in 1998–99, a 42.3% increase. The 1998–99 figure included 70 migrating for long-term stays of 12 months or more, of which 47 came from New Zealand, and 31 migrating for short-term stays (Table 41).
- 113 temporary visitors departed after a long-term stay in Australia in 1998–99, including 46 going to New Zealand and 41 to Asia (Table 41).
- In 1998–99, 30 Australian permanent residents migrated from Australia for a long-term overseas stay for employment, a 26.8% decrease from the 1997–98 figure of 41 (Table 41).

Utilisation of optometry services

The National Health Survey conducted in 1995 provides national data on the prevalence of eyesight problems, and on the frequency of consultations with optometrists and opticians. Some features from this survey include:

- In 1995, 47.1% of the population had an eyesight problem that was totally or partially correctable by glasses. The prevalence of eyesight problems increased with age, with 8.1% of those aged less than 15 having an eyesight problem that was totally or partially correctable by glasses, compared with 84.5% of those aged between 45 and 54, and 93.9% of those aged 75 or more (Table 42 and Figure 8).

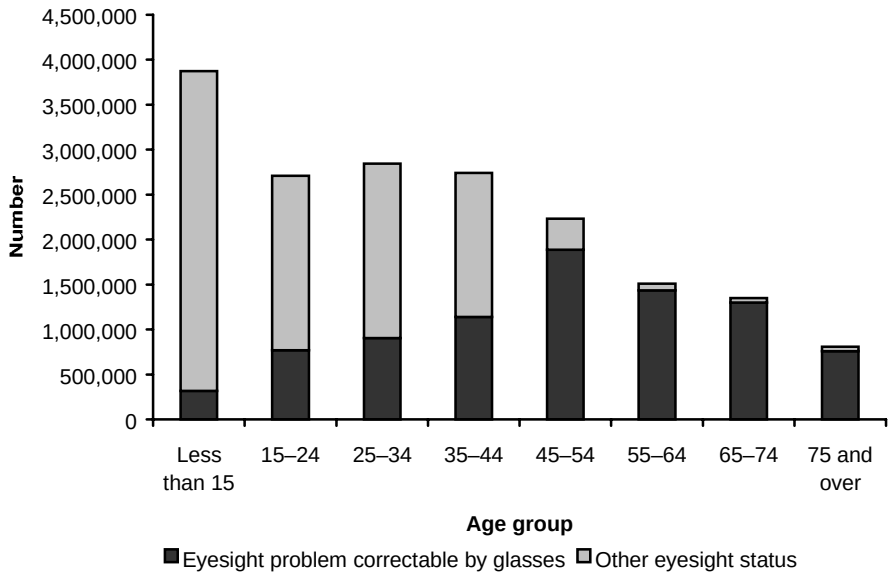

Figure 8: Eyesight problem correctable by glasses and population: age group, Australia, 1995

- On average, 8.5 people per 1,000 population consulted an optometrist or optician in the two weeks before the survey. Females had a higher rate of consultation, at 9.0 per 1,000 population, compared with 7.9 for males. The proportion of people consulting an optometrist or optician increased with age, from 5.0 per 1,000 population aged less than 15 to 18.7 for those aged 65 to 74, before declining slightly to 15.6 for those aged 75 or more (Table 43).
- The rate of consultations per 1,000 population was highest in Tasmania (10.7), the Australian Capital Territory (10.3), and South Australia (9.5), and lowest in the Northern Territory (6.6) (Table 44). Some of this variability may be explained by the differing age structures of the States and Territories (Figures 9 and 10).

According to Medicare data on optometrist services in 1998–99:

- In 1998–99, females were more likely to seek optometry services than males, with an average of 20.2 patients and 23.9 services per 100 population, compared with 14.9 and 17.5 respectively for males (Table 10).
- The peak age for use of optometry services was the 45–54 age group, with 28.4 patients per 100 population in 1998–99. The number of services per patient declined from 1.3 for patients aged less than 10 to 1.1 for patients aged between 35 and 54, and then increased to 1.3 for patients aged 75 or more (Table 10).

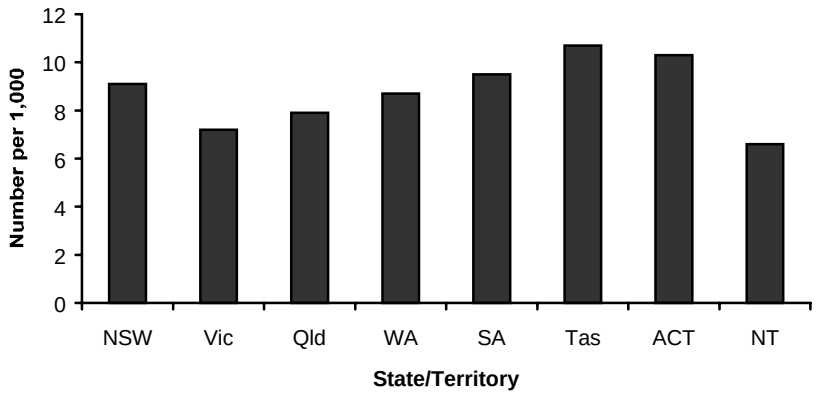

Figure 9: Persons consulting an optometrist or optician in the two weeks before the survey: States and Territories and age, Australia, 1995

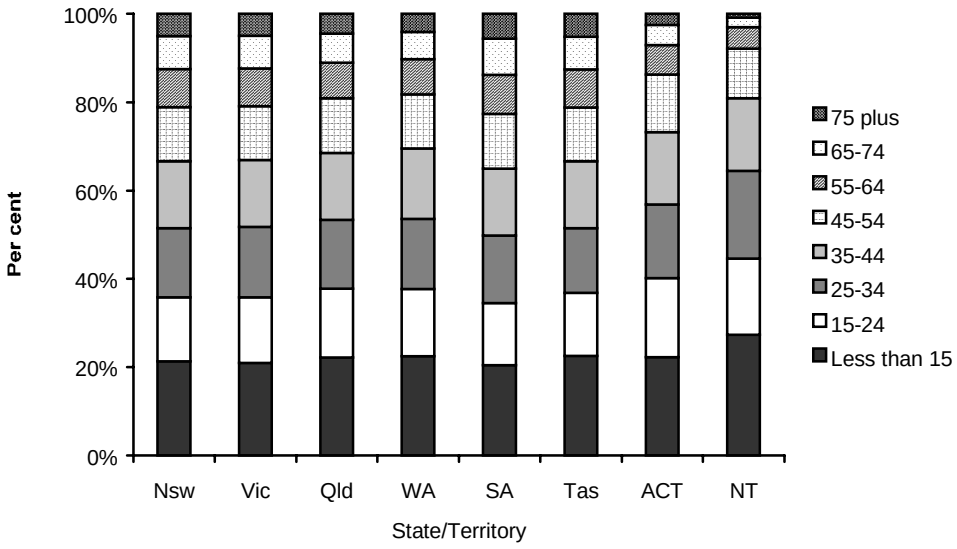

Figure 10: Population age structure by States and Territories, Australia, 1995

Future supply and utilisation of optometry services

Information on the utilisation of optometry services is available from Medicare data for the seven years from 1992–93, and from the National Health Survey for 1995. Long-term data on the number of employed optometrists is available from the population census and from Medicare data. By comparing the long-term trends in the supply of optometrists, and in the utilisation of optometrist services, it is possible to estimate the demand for optometry services over the next decade, and the likely capacity of the optometry workforce to meet this demand. These estimates are simplistic; for instance they assume that there will be no significant change from the current pattern of use of optometrist services, the numbers of graduates in optometry, workforce participation rates or the pattern of hours worked by sex.

The estimates are based on Medicare services provided, however the 1998 Australian Bureau of Statistics' survey of private sector optometrists estimated that approximately 14% of optometrists' fees for service came from sources other than Medicare (ABS 1999).

Optometrists

- According to the national population census, the number of employed optometrists increased by 23.5% from 1986 to 1991, and by a further 24.2% to 1996. The number of employed optometrists per 100,000 population increased by 14.5% from 9.2 in 1986 to 10.5 in 1991, and by 17.2% from 1991 to 12.3 in 1996 (Table 11). The number of optometrists providing services under Medicare increased by 18.3% in the six years from 1992–93 to 1998–99, and the number per 100,000 population increased by 10.3%, from 13.4 to 14.8 (Table 1).
- The age structure of the optometrist workforce is relatively young, with 78.0% aged less than 45 according to the Australian Bureau of Statistics' 1998 survey of private sector optometrists (Table 26), and 82.8% of Medicare providers for whom age was known (Table 2). The rate of attrition due to retirements in the next 10–15 years can therefore be expected to be quite low, but to increase from 2009 as the group currently aged 35–44 reaches retirement age.
- Since 1992 there have been over 100 optometry graduates each year (Table 34), and the number of students commencing optometry undergraduate courses has remained fairly constant (Table 29).
- There has, however, been a considerable increase in the number of overseas resident optometrists migrating to Australia for employment, with 98 permanent and 101 temporary entrants in 1998–99 (Tables 40 and 41).
- The annual average increase in the number of optometrists between 1992–93 and 1998–99 was 71.8 optometrists per year. The net increase from 1997–98 to 1998–99 was 65, including 13 males and 52 females (Table 46). This figure comprises additions from new graduates, net migration, and optometrists returning to the workforce, minus retirements and optometrists temporarily leaving the workforce.
- To estimate the size of the optometry workforce in 2009 and 2019, two possible scenarios have been constructed. In the first, the migration of optometrists is assumed to remain at the level of 1998–99 (the high migration scenario), and in the second, migration levels are assumed to return to the relatively low levels of 1994–95 (the low migration scenario). As the number of graduates completing optometry courses has been fairly constant, and as no significant increase or decrease in attrition rates in the workforce is anticipated, the 1997–98 to 1998–99 net increase of 65 has been used to construct the high migration scenario. For the low migration scenario, this figure has

been modified to incorporate 1994–95 migration levels, resulting in a net annual increase of 23.

- Under the high migration scenario, there would be an estimated 3,400 optometrists in 2009, and 4,100 in 2019. Under the low migration scenario there are estimated to be 3,000 optometrists in 2009 and 3,250 in 2019 (Table 47). The high migration scenario has been used in the following calculations.
- An increasing proportion of the optometry workforce is female. Females are more likely to work part-time than males, at 34.8% compared with 12.1% (Table 17), and to not participate in the workforce (for instance, 88.1% of females aged 25–34 with a highest qualification in optometry were in the labour force in 1996, compared to 97.3% of males (Table 19)). Using the 1996 proportions of male and female optometrists working part-time, and assuming that each part-time optometrist is equivalent to 0.6 of a full-time optometrist, the number of full-time equivalent optometrists in 1998–99 is estimated to be 2,558, or 13.5 per 100,000 population (Table 48).
- In 2009 the number of full-time equivalent optometrists under the high migration scenario is therefore projected to be 3,129, including 1,789 males and 1,340 females, and in 2019 it is projected to be 3,701, including 1,912 males and 1,789 females (Table 48). The number of full-time equivalent optometrists per 100,000 population is projected to be 15.1 in 2009 and 16.6 in 2019.

Utilisation of optometry services

- The number of Medicare services rendered increased by 30.0% from 1992–93 to 1998–99 (Table 3). The proportion bulk-billed increased from 90.2% in 1992–93 to 96.0% in 1996–97, reflecting changes to the Medicare schedule, but then decreased marginally to 95.4% in 1998–99 (Table 45).
- The number of optometry services required generally increase with the age of the patient. Australia's population is projected to age over the next 20 years, therefore the number of optometry services required is expected to increase by more than the expected increase in population size. While the population is projected to increase by 9.7% from 1999 to 2009, the number of optometry services required is projected to increase by 14.8%. Similarly, the population is projected to increase by 18.0% from 2009 to 2019, and the number of optometry services required by 27.8% (Table 49).
- The above calculations assume that the age specific use of optometry services remains constant. However, there appears to have been a considerable increase in the level of optometry services over and above that caused by population growth and the increasing age of the population between 1992–93 and 1998–99. This trend may not continue, and levels of service for each age group have been held constant at 1998–99 levels.
- The average number of services per full-time equivalent optometrist in 1998–99 was 1,527, assuming as above that each part-time optometrist is equivalent to 0.6 of a full-time optometrist. Assuming that this remains constant, it is estimated that 2,937 full-time equivalent optometrists will be required in 2009, and 3,270 in 2019.

Matching supply and expected utilisation of optometry services

- It is therefore estimated that 2,937 full-time equivalent optometrists will be required to meet expected utilisation rates in 2009, the actual workforce will number around 3,100. However, this assumes high migration of optometrists continuing and various other patterns of utilisation and workforce participation remaining unchanged.

- The estimates do not take account of the increase in optometry services per head of population that has occurred over and above the increase induced by an ageing population structure. This increase was approximately 18% between 1992–93 and 1998–99, an annual average increase of 2.8%.
- Hence, while there appears to be no evidence of a projected shortage of optometrists during the next 10 years, nor of significant excess supply, this methodology is based on simple extrapolations of current trends. It is currently planned under the National Health Information Agreement work program to monitor the size and composition of the optometry workforce in some detail every 3 years, and this will provide further guidance on the key trends. Medicare, immigration and training statistics are available annually for more frequent monitoring of the total numbers.

Tables

Table 1: Employed optometrists: sex, States and Territories, 1992–93 to 1998–99

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Males									
1992–93	568	352	285	152	115	43	16	11	1,542
1993–94	580	359	290	154	117	46	19	11	1,576
1994–95	591	373	293	157	117	45	18	10	1,604
1995–96	604	377	309	162	116	43	22	9	1,642
1996–97	615	381	318	167	116	46	19	13	1,675
1997–98	628	393	328	172	121	44	21	11	1,718
1998–99	618	400	345	176	122	46	22	11	1,740
Females									
1992–93	264	185	119	50	39	n.p.	n.p.	n.p.	691
1993–94	290	199	137	55	45	n.p.	n.p.	5	762
1994–95	308	221	156	61	47	n.p.	n.p.	6	831
1995–96	323	241	174	62	43	n.p.	n.p.	5	879
1996–97	334	251	174	63	47	n.p.	n.p.	8	910
1997–98	358	254	177	75	56	24	17	10	971
1998–99	378	284	184	73	56	26	16	11	1,028
Unknown									
1992–93	28	51	20	9	11	n.p.	n.p.	n.p.	123
1993–94	17	36	14	7	9	n.p.	n.p.	—	86
1994–95	13	27	8	9	7	n.p.	n.p.	—	65
1995–96	9	28	7	6	4	n.p.	n.p.	—	55
1996–97	4	15	6	7	3	n.p.	n.p.	—	36
1997–98	5	17	3	5	3	—	—	—	33
1998–99	n.p.	n.p.	—	4	3	—	—	—	19
Persons									
1992–93	860	588	424	211	165	61	29	18	2,356
1993–94	887	594	441	216	171	66	33	16	2,424
1994–95	912	621	457	227	171	64	32	16	2,500
1995–96	936	646	490	230	163	61	36	14	2,576
1996–97	953	647	498	237	166	67	32	21	2,621
1997–98	991	664	508	252	180	68	38	21	2,722
1998–99	997	695	529	253	181	72	38	22	2,787
% change 1992–93 –1998–99	*15.9*	*18.2*	*24.8*	*19.9*	*9.7*	*18.0*	*31.0*	*22.2*	*18.3*
% female									
1992–93	30.7	31.5	28.1	23.7	23.6	n.p.	n.p.	n.p.	29.3
1993–94	32.7	33.5	31.1	25.5	26.3	n.p.	n.p.	31.3	31.4
1994–95	33.8	35.6	34.1	26.9	27.5	n.p.	n.p.	37.5	33.2
1995–96	34.5	37.3	35.5	27.0	26.4	n.p.	n.p.	35.7	34.1
1996–97	35.0	38.8	34.9	26.6	28.3	n.p.	n.p.	38.1	34.7
1997–98	36.1	38.3	34.8	29.8	31.1	35.3	44.7	47.6	35.7
1998–99	37.9	40.9	34.8	28.9	30.9	36.1	42.1	50.0	36.9
Optometrists per 100,000 population									
1992–93	14.4	13.2	13.8	12.7	11.3	13.0	9.8	10.6	13.4
1993–94	14.7	13.3	14.0	12.8	11.7	14.0	11.0	9.3	13.7
1994–95	15.0	13.8	14.2	13.2	11.7	13.5	10.6	9.1	13.9
1995–96	15.2	14.2	14.8	13.1	11.1	12.9	11.8	7.8	14.2
1996–97	15.3	14.1	14.8	13.3	11.2	14.1	10.4	11.4	14.2
1997–98	15.7	14.3	14.8	13.9	12.1	14.4	12.4	11.2	14.6
1998–99	15.6	14.8	15.2	13.7	12.2	15.3	12.3	11.5	14.8
% change 1992–93 –1998–99	*8.8*	*12.7*	*9.9*	*8.4*	*7.4*	*18.1*	*25.9*	*8.4*	*10.3*

Sources: DHAC, ABS population data.

Table 2: Employed optometrists: age and sex, Australia, 1992–93 to 1998–99

	Age group							
Year/Sex	Less than 25	25–34	35–44	45–54	55–64	65 or more	Unknown	Total
Males								
1992–93	96	453	289	94	110		500	**1,542**
1993–94	92	436	343	96	117		492	**1,576**
1994–95	82	444	392	98	117		471	**1,604**
1995–96	82	442	422	110	122		464	**1,642**
1996–97	90	443	454	129	122		437	**1,675**
1997–98	84	469	496	143	144		382	**1,718**
1998–99	85	479	495	177	137		367	**1,740**
Females								
1992–93	113	343	137	17	6		75	**691**
1993–94	139	357	160	22	6		78	**762**
1994–95	147	384	183	30	9		78	**831**
1995–96	136	413	207	35	11		77	**879**
1996–97	102	466	213	48	12		69	**910**
1997–98	110	484	253	58	14		52	**971**
1998–99	105	521	261	79	11		51	**1,028**
Unknown								
1992–93	—	—	—	—	—		123	**123**
1993–94	—	—	—	—	—		86	**86**
1994–95	—	—	—	—	—		65	**65**
1995–96	—	—	—	—	—		55	**55**
1996–97	—	—	—	—	—		36	**36**
1997–98	—	—	—	—	—		33	**33**
1998–99	—	—	—	—	—		19	**19**
Persons								
1992–93	209	796	426	111	64	52	698	**2,356**
1993–94	231	793	503	118	60	63	656	**2,424**
1994–95	229	828	575	128	66	60	614	**2,500**
1995–96	218	855	629	145	73	60	596	**2,576**
1996–97	192	909	667	177	73	61	542	**2,621**
1997–98	194	953	749	201	94	64	467	**2,722**
1998–99	190	1000	756	256	91	57	437	**2,787**
% persons								
1992–93	8.9	33.8	18.1	4.7	2.7	2.2	29.6	**100.0**
1993–94	9.5	32.7	20.8	4.9	2.5	2.6	27.1	**100.0**
1994–95	9.2	33.1	23.0	5.1	2.6	2.4	24.6	**100.0**
1995–96	8.5	33.2	24.4	5.6	2.8	2.3	23.1	**100.0**
1996–97	7.3	34.7	25.4	6.8	2.8	2.3	20.7	**100.0**
1997–98	7.1	35.0	27.5	7.4	3.5	2.4	17.2	**100.0**
1998–99	6.8	35.9	27.1	9.2	3.3	2.0	15.7	**100.0**
% female								
1992–93	54.1	43.1	32.2	15.3	5.2		10.7	29.3
1993–94	60.2	45.0	31.8	18.6	4.9		11.9	31.4
1994–95	64.2	46.4	31.8	23.4	7.1		12.7	33.2
1995–96	62.4	48.3	32.9	24.1	8.3		12.9	34.1
1996–97	53.1	51.3	31.9	27.1	9.0		12.7	34.7
1997–98	56.7	50.8	33.8	28.9	8.9		11.1	35.7
1998–99	55.3	52.1	34.5	30.9	7.4		11.7	36.9

Note: The age categories 55-64 and 65 or more have been combined in some cases as individual figures are not available for publication.

Source: DHAC.

Table 3: Employed optometrists: services, fees charged and benefits paid, Australia, 1992–93 to 1998–99

Item	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	% change 1992–93–1998–99	Annual ave.
Optometrists	2,356	2,424	2,500	2,576	2,621	2,722	2,787	18.3	2.84
Services rendered ('000)	3,006	3,155	3,288	3,556	3,666	3,764	3,907	30.0	4.47
Fees charged ($million)	119.0	125.7	131.5	143.2	147.3	144.2	147.9	24.2	3.68
Benefits paid ($million)	117.0	123.8	129.9	141.9	146.2	142.7	146.1	24.9	3.77
Copayment ($million)	2.1	1.8	1.6	1.4	1.0	1.5	1.8	–11.6	–2.04
Average copayment as % of fees charged	1.7	1.5	1.2	1.0	0.7	1.1	1.2	–28.9	–5.52
Optometrists per 100,000 population	13.4	13.6	13.9	14.2	14.2	14.6	14.8	10.3	1.65
Services per 100 population	17.1	17.8	18.3	19.5	19.9	20.2	20.7	21.2	3.26
Average services per optometrist	1,275	1,296	1,314	1,380	1,399	1,382	1,402	10.0	1.58
Average fees charged per optometrist ($)	50,500	51,641	52,560	55,585	55,185	52,945	53,059	5.1	0.82
Average benefits paid per optometrist ($)	49,624	50,882	51,912	55,055	55,791	52,384	52,404	5.6	0.91

Sources: DHAC, ABS population data.

Table 4: Employed optometrists: geographic location of practice, States and Territories, 1998–99

Geographic location	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Optometrists									
Capital city	732	542	286	211	148	40	38	16	2,013
Other metropolitan centres	96	25	67	. .	. .	. .	. .	. .	188
Large and small rural centres	116	94	127	24	17	27	. .	. .	405
Other rural areas and remote areas	53	34	49	18	16	5	. .	6	181
Total	**997**	**695**	**529**	**253**	**181**	**72**	**38**	**22**	**2,787**
Optometrists per 100,000 population									
Capital city	18.4	16.1	18.2	15.7	13.6	20.5	12.3	18.5	16.8
Other metropolitan centres	11.9	16.2	14.5	. .	. .	. .	. .	. .	13.2
Large and small rural centres	14.8	18.9	18.7	18.1	16.2	19.1	. .	. .	17.3
Other rural areas and remote areas	6.9	5.3	6.6	5.0	5.4	3.7	. .	5.8	6.0
Total	**15.7**	**14.9**	**15.3**	**13.8**	**12.2**	**15.3**	**12.3**	**11.6**	**14.9**

Note: ABS population data for 1998 was used in this table, as 1999 population data by region was not yet available.

Sources: DHAC, ABS population data.

Table 5: Employed optometrists: services and patients by geographic region, Australia, 1998–99

	Metropolitan		Rural			Remote		
Item	Capital Citv	Other metro centre	Large rural centre	Small rural centre	Other rural area	Remote centre	Other remote area	Total
Optometrists	2,013	188	209	196	152	26	3	2,787
Patients ('000)	2,098	268	213	232	413	32	38	3,297
Services rendered ('000)	2,482	317	254	280	490	37	43	3,905
Average services per patient	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.2
Patients per optometrist	1,042	1,430	1,022	1,188	2,717	1,239	12,717	1,183
Services per optometrist	1,233	1,687	1,217	1,429	3,228	1,441	14,440	1,401
Patients per 100 population	17.6	18.9	19.1	19.1	16.7	14.4	11.0	17.6
Optometrists per 100,000 population	16.8	13.2	18.7	16.1	6.2	11.6	0.9	14.9

Notes

1. ABS population data for 1998 was used in this table, as 1999 population data by region was not yet available.
2. Medicare data excludes some records for which the geographic location was undefined. There are therefore small differences in the number of patients and services between this table and other tables.

Source: DHAC, ABS population data.

Table 6: Optometrists billing under Medicare in 1996–97 but not in 1995–96: age and sex, Australia

	Age group								
	Less than 25	25–29	30–34	35–39	40–44	45 or over	Unknown	Total	%Total
Selected characteristics	(number)								
Males	39	16	10	9	n.p	n.p	n.p	**91**	**53.2**
Females	33	21	13	4	n.p	n.p	n.p	**75**	**43.9**
Unknown	—	—	—	—	—	—	5	**5**	**2.9**
Total	**72**	**37**	**23**	**13**	**4**	**7**	**15**	**171**	**100.0**
	(per cent)								
Males	42.9	17.6	11.0	9.9	n.p	n.p	n.p	**100.0**	. .
Females	44.0	28.0	17.3	5.3	n.p	n.p	n.p	**100.0**	. .
Unknown	—	—	—	—	—	—	100.0	**100.0**	. .
Total	**42.1**	**21.6**	**13.5**	**7.6**	**2.3**	**4.1**	**8.8**	**100.0**	**. .**

Source: DHAC.

Table 7: Optometrists billing under Medicare in 1996–97 but not in 1995–96: country of initial qualification, Australia

Country of initial qualification	Number	Per cent
Australia	135	78.9
New Zealand	7	4.1
United Kingdom/Ireland	13	7.6
Other	6	3.5
Unknown	10	5.8
Total	**171**	**100.0**

Source: DHAC.

Table 8: Optometrists billing under Medicare in 1995–96 but not in 1996–97: age and sex, Australia

	Age group									
	Less than 25	25–29	30–34	35–39	40–44	45–64	65 or over	Unknown	Total	%Total
Selected characteristics	(number)									
Males	n.p.	6	7	7	4	n.p.	n.p.	n.p.	**59**	**46.8**
Females	n.p.	20	5	6	6	n.p.	n.p.	n.p.	**44**	**34.9**
Unknown	—	—	—	—	—	—	—	23	**23**	**18.3**
Total	**6**	**26**	**12**	**13**	**10**	**6**	**8**	**45**	**126**	**100.0**
	(per cent)									
Males	n.p.	10.2	11.9	11.9	6.8	n.p.	n.p.	n.p.	**100.0**	. .
Females	n.p.	45.5	11.4	13.6	13.6	n.p.	n.p.	n.p.	**100.0**	. .
Unknown	—	—	—	—	—	—	—	100.0	**100.0**	. .
Total	**4.8**	**20.6**	**9.5**	**10.3**	**7.9**	**4.8**	**6.3**	**35.7**	**100.0**	**. .**

Source: DHAC.

Table 9: Optometrists billing under Medicare in 1995–96 but not in 1996–97: country of initial qualification, Australia

Country of initial qualification	Number	Per cent
Australia	61	48.4
New Zealand	4	3.2
United Kingdom/Ireland	21	16.7
Other	6	4.8
Unknown	34	27.0
Total	**126**	**100.0**

Source: DHAC.

Table 10: Optometry services and patients: patients' age and sex, Australia, 1998–99

	Patients' age group										
Patients and services	**Less than 10**	**10–14**	**15–19**	**20–34**	**35–44**	**45–54**	**55–64**	**65–74**	**75–84**	**85 or over**	**Total**
Males											
Patients ('000)	95	77	63	195	186	323	217	163	64	15	1,397
Services rendered ('000)	126	91	72	225	209	365	252	201	84	20	1,643
Average services per patient	1.3	1.2	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.2
Patients per 100 population	7.1	11.4	9.2	9.1	12.8	25.6	26.1	26.2	20.3	21.0	14.9
Services per 100 population	9.4	13.5	10.6	10.5	14.4	28.9	30.4	32.4	26.4	27.9	17.5
Females											
Patients ('000)	96	97	119	352	274	386	243	193	119	34	1,914
Services rendered ('000)	122	113	137	407	312	444	286	240	155	44.0	2,262
Average services per patient	1.3	1.2	1.2	1.2	1.1	1.1	1.2	1.2	1.3	1.3	1.2
Patients per 100 population	7.6	15.1	18.4	16.7	18.8	31.2	29.8	28.5	26.2	21.3	20.2
Services per 100 population	9.6	17.6	21.2	19.3	21.4	35.9	35.0	35.6	34.3	27.3	23.9
Persons											
Patients ('000)	191	174	181	547	460	709	460	356	183	49	3,311
Services rendered ('000)	249	204	209	632	521	809	538	442	239	64	3,905
Average services per patient	1.3	1.2	1.1	1.2	1.1	1.1	1.2	1.2	1.3	1.3	1.2
Patients per 100 population	7.3	13.2	13.7	12.9	15.8	28.4	28.0	27.4	23.8	21.2	17.6
Services per 100 population	9.5	15.5	15.8	14.9	17.9	32.4	32.7	34.0	31.0	27.5	20.7

Sources: DHAC, ABS population data.

Table 11: Employed optometrists and persons employed in optometry businesses, Australia, 1986, 1991 and 1996

	1986	1991	1996	% increase 1986–91	% increase 1991–96
Employed optometrists					
Number	1,470	1,816	2,255	23.5	24.2
Per 100,000 population	9.2	10.5	12.3	14.5	17.2
Persons employed in optometry businesses					
Number	5,250	7,064	8,244	34.6	16.7
Per 100,000 population	32.8	40.9	45.0	24.7	10.2

Source: National population census, ABS.

Table 12: Employed optometrists: age and sex, Australia, 1991 and 1996

	Age						
	Less than 25	25–34	35–44	45–54	55–64	65 and over	Total
Year/sex				(number)			
1991							
Males	126	529	319	121	111	65	1,272
Females	113	269	119	26	15	3	544
Persons	**239**	**798**	**438**	**147**	**126**	**68**	**1,816**
% female	*47.3*	*33.7*	*27.1*	*17.6*	*11.8*	*4.3*	*30.0*
1996							
Males	101	424	562	176	97	80	1,439
Females	151	360	236	55	11	3	816
Persons	**252**	**784**	**798**	**231**	**108**	**83**	**2,255**
% female	*59.9*	*45.9*	*29.6*	*23.8*	*10.2*	*3.6*	*36.2*
				(per cent)			
1991							
Males	9.9	41.6	25.1	9.5	8.7	5.1	100.0
Females	20.8	49.4	21.9	4.7	2.7	0.5	100.0
Persons	**13.2**	**43.9**	**24.1**	**8.1**	**6.9**	**3.8**	**100.0**
1996							
Males	7.0	29.4	39.0	12.2	6.7	5.6	100.0
Females	18.5	44.1	28.9	6.7	1.3	0.4	100.0
Persons	**11.2**	**34.8**	**35.4**	**10.2**	**4.8**	**3.7**	**100.0**

Source: National population census, ABS.

Table 13: Employed optometrists: States and Territories, 1991 and 1996

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
1991									
Males	481	300	230	113	95	35	15	7	1,277
Females	211	137	102	30	34	12	10	4	539
Persons	**692**	**437**	**332**	**143**	**129**	**47**	**25**	**11**	**1,816**
% female	*30.4*	*31.3*	*30.6*	*21.0*	*26.5*	*25.0*	*40.9*	*37.5*	*29.7*
Employed optometrists per 100,000 population	11.9	9.8	10.8	8.7	9.1	9.4	7.6	4.8	10.4
1996									
Males	537	330	279	132	107	36	11	8	1,440
Females	312	212	156	61	40	19	10	5	815
Persons	**849**	**542**	**435**	**193**	**147**	**55**	**21**	**13**	**2,255**
% female	*36.7*	*39.1*	*35.9*	*31.6*	*27.2*	*34.5*	*47.6*	*38.5*	*36.1*
Employed optometrists per 100,000 population	13.7	11.9	13.0	10.9	10.0	11.6	6.8	7.1	12.3

Source: National population census, ABS.

Table 14: Optometrists: statistical region of usual residence, Australia, 1996

	Optometrists	Population	Population per optometrist	Optometrists per 100,000 population
NSW				
Inner Sydney	45	269,869	5,997	16.7
Eastern Suburbs	92	242,046	2,631	38.0
St George-Sutherland	85	411,173	4,837	20.7
Canterbury-Bankstown	41	303,097	7,393	13.5
Fairfield-Liverpool	16	313,400	19,588	5.1
Outer South Western Sydney	12	215,877	17,990	5.6
Inner Western Sydney	50	155,101	3,102	32.2
Central Western Sydney	29	279,973	9,654	10.4
Outer Western Sydney	20	301,829	15,091	6.6
Blacktown-Baulkham Hills	42	365,416	8,700	11.5
Lower Northern Sydney	61	280,612	4,600	21.7
Hornsby-Ku-ring-gai	71	248,878	3,505	28.5
Northern Beaches	32	223,460	6,983	14.3
Sydney	*596*	*3,610,731*	*6,058*	*16.5*
Gosford-Wyong	24	270,405	11,267	8.9
Hunter	47	555,154	11,812	8.5
Illawarra	38	372,860	9,812	10.2
South Eastern	16	178,939	11,184	8.9
Richmond-Tweed	19	200,542	10,555	9.5
Mid-North Coast	40	262,441	6,561	15.2
Northern	14	178,579	12,756	7.8
Far West-North Western	15	142,607	9,507	10.5
Central West	19	172,438	9,076	11.0
Murray-Murrumbidgee	18	260,032	14,446	6.9
NSW excluding Sydney	*250*	*2,593,997*	*10,376*	*9.6*
Total NSW	*846*	*6,204,728*	*7,334*	*13.6*
Victoria				
Inner Melbourne	51	227,066	4,452	22.5
Inner Eastern Melbourne	152	568,056	3,737	26.8
North Eastern Melbourne	44	408,737	9,289	10.8
North Western Melbourne	22	257,552	11,707	8.5
Southern Melbourne	70	380,728	5,439	18.4
South Eastern Melbourne	14	323,469	23,105	4.3
Outer Eastern Melbourne	33	369,148	11,186	8.9
Outer Western Melbourne	36	521,532	14,487	6.9
Mornington Peninsula	9	226,990	25,221	4.0
Melbourne	*431*	*3,283,278*	*7,618*	*13.1*
Barwon-Western District	20	339,687	16,984	5.9
Central Highlands-Wimmera	19	186,864	9,835	10.2
Loddon-Mallee	23	244,496	10,630	9.4
Goulburn-Ovens-Murray	23	271,770	11,816	8.5
All Gippsland	24	234,060	9,753	10.3
Victoria excluding Melbourne	*109*	*1,276,877*	*11,714*	*8.5*
Total Victoria	*540*	*4,560,155*	*8,445*	*11.8*
Queensland				
Brisbane City Inner Ring	115	364,019	3,165	31.6
Brisbane City Outer Ring	64	455,573	7,118	14.0
South and East BSD Balance	24	330,885	13,787	7.3
North and West BSD Balance	31	369,517	11,920	8.4
Brisbane	*234*	*1,519,994*	*6,496*	*15.4*

(continued)

Table 14 (continued): Optometrists: statistical region of usual residence, Australia, 1996

	Optometrists	Population	Population per optometrist	Optometrists per 100,000 population
Queensland(continued)				
South and East Moreton	47	338,861	7,210	13.9
North and West Moreton	37	279,367	7,550	13.2
Wide Bay-Burnett	22	224,282	10,195	9.8
Darling Downs-South West	19	226,414	11,917	8.4
Mackay-Fitzroy-Central West	36	310,880	8,636	11.6
Northern-North West	19	228,126	12,007	8.3
Far North	21	210,766	10,036	10.0
Queensland excluding Brisbane	*201*	*1,818,696*	*9,048*	*11.1*
Total Queensland	*435*	*3,338,690*	*7,675*	*13.0*
Western Australia				
Central Metropolitan	49	117,962	2,407	41.5
East Metropolitan	18	213,094	11,839	8.4
North Metropolitan	35	395,829	11,309	8.8
South West Metropolitan	28	266,987	9,535	10.5
South East Metropolitan	32	301,220	9,413	10.6
Perth	*162*	*1,295,092*	*7,994*	*12.5*
Lower Western WA	19	237,217	12,485	8.0
Remainder - balance WA	12	232,947	19,412	5.2
Western Australia excluding Perth	*31*	*470,164*	*15,167*	*6.6*
Total Western Australia	*193*	*1,765,256*	*9,146*	*10.9*
South Australia				
Northern Adelaide	8	334,883	41,860	2.4
Western Adelaide	20	208,691	10,435	9.6
Eastern Adelaide	61	218,867	3,588	27.9
Southern Adelaide	32	316,671	9,896	10.1
Adelaide	*121*	*1,079,112*	*8,918*	*11.2*
Northern and Western SA	7	160,593	22,942	4.4
Southern and Eastern SA	18	234,548	13,030	7.7
South Australia excluding Adelaide	*25*	*395,141*	*15,806*	*6.3*
Total South Australia	*146*	*1,474,253*	*10,098*	*9.9*
Tasmania				
Greater Hobart-Southern	31	230,187	7,425	13.5
Mersey-Lyell	8	110,209	13,776	7.3
Northern	16	134,047	8,378	11.9
Total Tasmania	*55*	*474,443*	*8,626*	*11.6*
Australian Capital Territory				
Australian Capital Territory	*21*	*308,251*	*14,679*	*6.8*
NorthernTerritory				
Darwin	10	82,232	8,223	12.2
Balance Northern Territory	3	99,611	33,204	3.0
Total Northern Territory	*13*	*181,843*	*13,988*	*7.2*
Australia	**2,255**	**18,307,619**	**8,140**	**12.3**

Note: These statistics are derived from responses based on place of residence of the optometrist, not place of practice. The data on distribution of optometrists within metropolitan areas, in particular, should therefore be interpreted with caution.

Source: National population census, ABS.

Table 15: Aboriginal and Torres Strait Islander optometrists, Australia, 1996

Persons with a highest qualification in optometry, optical dispensing or optical mechanics	12
Persons employed in optometry	—

Source: National population census, ABS.

Table 16: Employed optometrists: total hours worked in the week before the census and annual gross income, Australia, 1996

	Hours worked during the previous week						
Annual gross income	**None**	**1–34**	**35–48**	**49 or more**	**Not stated**	**Total**	**Per cent**
Negative/nil income	—	3	2	1	—	**6**	*0.3*
$1–$10,399	2	26	2	6	2	**38**	*1.7*
$10,400–$20,799	3	64	40	5	—	**112**	*5.0*
$20,800–$41,599	23	204	474	129	5	**835**	*37.0*
$41,600–$77,999	20	85	683	148	5	**941**	*41.7*
$78,000+	7	18	165	112	—	**302**	*13.4*
Not stated	—	2	14	5	—	**21**	*0.9*
Total	**55**	**402**	**1,380**	**406**	**12**	**2,255**	***100.0***
Per cent	*2.4*	*17.8*	*61.2*	*18.0*	*0.5*	***100.0***	*. .*

Source: National population census, ABS.

Table 17: Employed optometrists: total hours worked in the week before the census and sex, Australia, 1996

	Hours worked during the previous week					
	None	**1–34**	**35–48**	**49 or more**	**Not stated**	**Total**
Sex			**(number)**			
Male	30	144	912	347	7	1,440
Female	25	258	468	59	5	815
Persons	**55**	**402**	**1,380**	**406**	**12**	**2,255**
% female	*45.5*	*64.2*	*33.9*	*14.5*	*41.7*	*36.1*
			(per cent)			
Male	2.1	10.0	63.3	24.1	0.5	100.0
Female	3.1	31.7	57.4	7.2	0.6	100.0
Persons	**2.4**	**17.8**	**61.2**	**18.0**	**0.5**	**100.0**

Source: National population census, ABS.

Table 18: Employed optometrists as a proportion of persons with a highest qualification in optometry, optical dispensing or optical mechanics, States and Territories, 1996

Year	**NSW**	**Vic**	**Qld**	**WA**	**SA**	**Tas**	**ACT**	**NT**	**Australia**
Persons with a highest qualification in optometry, optical dispensing or optical mechanics									
1991	2,129	1,081	866	387	345	94	82	33	5,017
1996	2,441	1,376	993	458	411	113	83	32	5,907
% increase 1991–1996	*14.7*	*27.3*	*14.7*	*18.3*	*19.1*	*20.2*	*1.2*	*–3.0*	*17.7*
Employed optometrists									
1991	692	437	332	143	129	47	25	11	1,816
1996	849	542	435	193	147	55	21	13	2,255
% increase 1991–1996	*22.7*	*24.0*	*31.0*	*35.0*	*14.0*	*17.0*	*–16.0*	*18.2*	*24.2*
Employed optical mechanics									
1996	1,072	690	436	297	421	63	63	14	3,056

Source: National population census, ABS.

Table 19: All persons with a highest qualification in optometry, optical dispensing or optical mechanics: age, labour force status and sex, Australia, 1996

	Age group						
	Less than 25	25–34	35–44	45–54	55–64	65 and over	Total
Employment status	(number)						
Males							
Employed	253	974	1,171	511	282	122	3,313
Unemployed	5	26	20	20	16	3	90
Not in the labour force	13	27	33	26	87	396	582
Not stated	—	—	3	3	—	—	6
Total	*271*	*1,027*	*1,227*	*560*	*385*	*521*	*3,991*
Persons employed in optometry only	101	424	562	176	97	80	1,440
Females							
Employed	296	791	437	105	17	4	1,650
Unemployed	8	12	9	—	—	—	29
Not in the labour force	13	108	52	19	15	28	235
Not stated	—	—	—	—	—	—	—
Total	*317*	*911*	*498*	*124*	*32*	*32*	*1,914*
Persons employed in optometry only	151	360	236	55	11	3	816
Persons							
Employed	549	1,765	1,608	616	299	126	4,963
Unemployed	13	38	29	20	16	3	119
Not in the labour force	26	135	85	45	102	424	817
Not stated	—	—	3	3	—	—	—
Total	**588**	**1,938**	**1,725**	**684**	**417**	**553**	**5,905**
Persons employed in optometry only	252	784	798	231	108	83	2,256
	(per cent)						
Males							
Employed	93.4	94.8	95.4	91.3	73.2	23.4	83.0
Unemployed	1.8	2.5	1.6	3.6	4.2	0.6	2.3
Not in the labour force	4.8	2.6	2.7	4.6	22.6	76.0	14.6
Not stated	—	—	0.2	0.5	—	—	0.2
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	37.3	41.3	45.8	31.4	25.2	15.4	36.1
Females							
Employed	93.4	86.8	87.8	84.7	53.1	12.5	86.2
Unemployed	2.5	1.3	1.8	—	—	—	1.5
Not in the labour force	4.1	11.9	10.4	15.3	46.9	87.5	12.3
Not stated	—	—	—	—	—	—	—
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	47.6	39.5	47.4	44.4	34.4	9.4	42.6
Persons							
Employed	93.4	91.1	93.2	90.1	71.7	22.8	84.0
Unemployed	2.2	2.0	1.7	2.9	3.8	0.5	2.0
Not in the labour force	4.4	7.0	4.9	6.6	24.5	76.7	13.8
Not stated	—	—	0.2	0.4	—	—	0.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	42.9	40.5	46.3	33.8	25.9	15.0	38.2

Source: National population census, ABS.

Table 20: Australian-born persons with a highest qualification in optometry, optical dispensing or optical mechanics: age, labour force status and sex, Australia, 1996

	Age group						
	Less than 25	25–34	35–44	45–54	55–64	65 and over	Total
Employment status				(number)			
Males							
Employed	222	780	907	380	210	97	2,596
Unemployed	4	19	13	14	15	—	65
Not in the labour force	10	18	20	14	66	304	432
Not stated	—	—	3	—	—	—	3
Total	*236*	*817*	*943*	*408*	*291*	*401*	*3,096*
Persons employed in optometry only	82	319	420	127	71	62	1,081
Females							
Employed	252	603	292	70	5	3	1,225
Unemployed	5	5	3	—	—	—	13
Not in the labour force	9	80	27	6	8	18	148
Not stated	—	—	—	—	—	—	—
Total	*266*	*688*	*322*	*76*	*13*	*21*	*1,386*
Persons employed in optometry only	117	248	160	41	5	—	571
Persons							
Employed	474	1,383	1,199	450	215	100	3,821
Unemployed	9	24	16	14	15	—	78
Not in the labour force	19	98	47	20	74	322	580
Not stated	—	—	3	—	—	—	3
Total	**502**	**1,505**	**1,265**	**484**	**304**	**422**	**4,482**
Persons employed in optometry only	199	567	580	168	76	62	1,652
				(per cent)			
Males							
Employed	94.1	95.5	96.2	93.1	72.2	24.2	83.9
Unemployed	1.7	2.3	1.4	3.4	5.2	—	2.1
Not in the labour force	4.2	2.2	2.1	3.4	22.7	75.8	14.0
Not stated	—	—	0.3	—	—	—	0.1
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	34.7	39.0	44.5	31.1	24.4	15.5	34.9
Females							
Employed	94.7	87.6	90.7	92.1	38.5	14.3	88.4
Unemployed	1.9	0.7	0.9	—	—	—	0.9
Not in the labour force	3.4	11.6	8.4	7.9	61.5	85.7	10.7
Not stated	—	—	—	—	—	—	—
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	44.0	36.0	49.7	53.9	38.5	—	41.2
Persons							
Employed	94.4	91.9	94.8	93.0	70.7	23.7	85.3
Unemployed	1.8	1.6	1.3	2.9	4.9	—	1.7
Not in the labour force	3.8	6.5	3.7	4.1	24.3	76.3	12.9
Not stated	—	—	0.2	—	—	—	0.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	39.6	37.7	45.8	34.7	25.0	14.7	36.9

Source: National population census, ABS.

Table 21: Overseas-born persons with a highest qualification in optometry, optical dispensing or optical mechanics: age, labour force status and sex, Australia, 1996

	Age group						
	Less than 25	25–34	35–44	45–54	55–64	65 and over	Total
Employment status	(number)						
Males							
Employed	31	194	264	131	72	25	717
Unemployed	1	7	7	6	1	3	25
Not in the labour force	3	9	13	12	21	92	150
Not stated	—	—	—	3	—	—	3
Total	*35*	*210*	*284*	*152*	*94*	*120*	*895*
Persons employed in optometry only	19	105	142	49	26	18	359
Females							
Employed	44	188	145	35	12	1	425
Unemployed	3	7	6	—	—	—	16
Not in the labour force	4	28	25	13	7	10	87
Not stated	—	—	—	—	—	—	—
Total	*51*	*223*	*176*	*48*	*19*	*11*	*528*
Persons employed in optometry only	34	112	76	14	6	3	245
Persons							
Employed	75	382	409	166	84	26	1,142
Unemployed	4	14	13	6	1	3	41
Not in the labour force	7	37	38	25	28	102	237
Not stated	—	—	—	3	—	—	3
Total	**86**	**433**	**460**	**200**	**113**	**131**	**1,423**
Persons employed in optometry only	53	217	218	63	32	21	604
	(per cent)						
Males							
Employed	88.6	92.4	93.0	86.2	76.6	20.8	80.1
Unemployed	2.9	3.3	2.5	3.9	1.1	2.5	2.8
Not in the labour force	8.6	4.3	4.6	7.9	22.3	76.7	16.8
Not stated	—	—	—	2.0	—	—	0.3
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	54.3	50.0	50.0	32.2	27.7	15.0	40.1
Females							
Employed	86.3	84.3	82.4	72.9	63.2	9.1	80.5
Unemployed	5.9	3.1	3.4	—	—	—	3.0
Not in the labour force	7.8	12.6	14.2	27.1	36.8	90.9	16.5
Not stated	—	—	—	—	—	—	—
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	66.7	50.2	43.2	29.2	31.6	27.3	46.4
Persons							
Employed	87.2	88.2	88.9	83.0	74.3	19.8	80.3
Unemployed	4.7	3.2	2.8	3.0	0.9	2.3	2.9
Not in the labour force	8.1	8.5	8.3	12.5	24.8	77.9	16.7
Not stated	—	—	—	1.5	—	—	0.2
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	61.6	50.1	47.4	31.5	28.3	16.0	42.4

Source: National population census, ABS.

Table 22: Overseas-born persons with a highest qualification in optometry, optical dispensing or optical mechanics obtained after arrival in Australia: age, labour force status and sex, Australia, 1996

	Age group						
	Less than 25	25–34	35–44	45–54	55–64	65 and over	Total
Employment status				(number)			
Males							
Employed	13	53	20	5	3	—	94
Unemployed	0	3	—	—	—	—	3
Not in the labour force	3	—	3	—	—	—	6
Not stated	—	—	—	—	—	—	—
Total	*16*	*56*	*23*	*5*	*3*	—	*103*
Persons employed in optometry only	11	24	8	3	—	—	46
Females							
Employed	24	54	11	—	—	—	89
Unemployed	—	—	—	—	—	—	—
Not in the labour force	3	4	3	3	—	—	13
Not stated	—	—	—	—	—	—	—
Total	*27*	*58*	*14*	*3*	—	—	*102*
Persons employed in optometry only	19	40	4	—	—	—	63
Persons							
Employed	37	107	31	5	3	—	183
Unemployed	—	3	—	—	—	—	3
Not in the labour force	6	4	6	3	—	—	19
Not stated	—	—	—	—	—	—	—
Total	**43**	**114**	**37**	**8**	**3**	**—**	**205**
Persons employed in optometry only	30	64	12	3	—	—	109
				(per cent)			
Males							
Employed	81.3	94.6	87.0	100.0	100.0	—	91.3
Unemployed	—	5.4	—	—	—	—	2.9
Not in the labour force	18.8	—	13.0	—	—	—	5.8
Not stated	—	—	—	—	—	—	—
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	—	*100.0*
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	68.8	42.9	34.8	60.0	—	—	44.7
Females							
Employed	88.9	93.1	78.6	—	—	—	87.3
Unemployed	—	—	—	—	—	—	—
Not in the labour force	11.1	6.9	21.4	100.0	—	—	12.7
Not stated	—	—	—	—	—	—	—
Total	*100.0*	*100.0*	*100.0*	*100.0*	—	—	*100.0*
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	70.4	69.0	28.6	—	—	—	61.8
Persons							
Employed	86.0	93.9	83.8	62.5	100.0	—	89.3
Unemployed	—	2.6	—	—	—	—	1.5
Not in the labour force	14.0	3.5	16.2	37.5	—	—	9.3
Not stated	—	—	—	—	—	—	—
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	—	**100.0**
Employed optometrists as % of those qualified in optometry or optical dispensing/mechanics	69.8	56.1	32.4	37.5	—	—	53.2

Source: National population census, ABS.

Table 23: Employed optometrists: country of birth, Australia, 1996

Country of birth	1991 Number	1991 %	1996 Number	1996 %
Australia	1,342	73.9	1,653	73.3
Asia	132	7.3	185	8.2
United Kingdom and Ireland	134	7.4	149	6.6
Other Europe	70	3.9	91	4.0
Africa (excluding North Africa)	56	3.1	66	2.9
America	31	1.7	30	1.3
New Zealand	18	1.0	29	1.3
Other Oceania	10	0.6	17	0.8
Middle East and North Africa[(a)]	—	—	28	1.2
Not stated/other	4	0.2	7	0.3
Unknown	19	1.0	—	—
Total	**1,816**	**100.0**	**2,255**	**100.0**

(a) The Middle East was included in Asia and North Africa was included in Africa in 1991.

Source: National population census, ABS.

Table 24: Employed optometrists: level of attainment of highest qualification, Australia, 1996

Level of attainment	Number	%
Higher degree	130	5.8
Postgraduate diploma	13	0.6
Bachelor degree	1,715	76.1
Undergraduate diploma	236	10.4
Associate diploma	45	2.0
Skilled vocational qualification	14	0.6
Basic vocational qualification	7	0.3
Inadequately described/not stated	94	4.2
Total	**2,255**	**100.0**

Source: National population census, ABS.

Table 25: Employed optometrists: sector, Australia, 1996

Sector	Number	%
Private sector	2,220	98.4
Public sector	26	1.2
Not stated	9	0.4
Total	**2,255**	**100.0**

Source: National population census, ABS.

Table 26: Optometrists in private practice: age and sex, Australia, 1998

	Age group						
	Less than 25	25–34	35–44	45–54	55–64	65 or more	Total
Sex				(number)			
Males	53	448	571	200	116	113	1,501
Females	82	451	274	81	*17	*3	909
Total	**135**	**899**	**845**	**281**	**133**	**117**	**2,410**
% female	*60.7*	*50.2*	*32.4*	*28.8*	*12.8*	*2.6*	*37.7*
				(per cent)			
Males	3.5	29.8	38.0	13.3	7.7	7.5	100.0
Females	9.0	49.7	30.2	8.9	1.9	0.3	100.0
Total	**5.6**	**37.3**	**35.1**	**11.7**	**5.5**	**4.9**	**100.0**

Source: ABS 1999.

Table 27: Optometrists in private practice: States and Territories and sex, Australia, 1998

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Sex					(number)				
Males	539	347	300	148	96	42	16	12	1,501
Females	354	211	181	73	50	20	14	*6	909
Total	**893**	**558**	**481**	**221**	**146**	**63**	**30**	**18**	**2,410**
% female	*39.6*	*37.8*	*37.6*	*33.0*	*34.2*	*31.7*	*46.7*	*33.3*	*37.7*
Population per practitioner	*7,101*	*8,353*	*7,186*	*8,247*	*10,187*	*7,490*	*10,280*	*10,555*	*7,780*
					(per cent)				
Males	35.9	23.1	20.0	9.9	6.4	2.8	1.1	0.8	100.0
Females	38.9	23.2	19.9	8.0	5.5	2.2	1.5	0.7	100.0
Total	**37.1**	**23.2**	**20.0**	**9.2**	**6.1**	**2.6**	**1.2**	**0.7**	**100.0**

Source: ABS 1999.

Table 28: Optometrists in private practice: age and number of consultations per week, Australia, 1998

	Age							
	Less than 25	25–34	35–44	45–54	55–64	65 or more	Total	Per cent
Consultations per week				(number)				
Less than 25	*19	149	232	63	42	87	592	24.6
25–49	68	415	335	122	70	*24	1,034	42.9
50–74	39	259	213	66	*15	*3	595	24.7
75 or more	*9	76	65	*30	*6	*3	189	7.8
Total optometrists	**135**	**899**	**845**	**281**	**133**	**117**	**2,410**	**100.0**
Total consultations per week	*5,733*	*38,436*	*33,792*	*11,776*	*4,459*	*2,220*	*96,417*	*. .*
				(per cent)				
Less than 25	3.2	25.2	39.2	10.6	7.1	14.7	100.0	*. .*
25–49	6.6	40.1	32.4	11.8	6.8	2.3	100.0	*. .*
50–74	6.6	43.5	35.8	11.1	2.5	0.5	100.0	*. .*
75 or more	4.8	40.2	34.4	15.9	3.2	1.6	100.0	*. .*
Total optometrists	**5.6**	**37.3**	**35.1**	**11.7**	**5.5**	**4.9**	**100.0**	**. .**
% Total consultations per week	*5.9*	*39.9*	*35.0*	*12.2*	*4.6*	*2.3*	*100.0*	*. .*

Source: ABS 1999.

Table 29: Australian permanent residents commencing optometry courses: level of course and sex, Australia, 1990–99

	1990	1991	1992	1993	1994	1995	1996	1997[(a)]	1998	1999
Males										
Undergraduate	60	65	70	54	50	56	63	46	52	49
Postgraduate	8	3	5	11	24	16	16	17	19	8
Total	*68*	*68*	*75*	*65*	*74*	*72*	*79*	*63*	*71*	*57*
Females										
Undergraduate	72	87	64	55	66	53	60	73	75	73
Postgraduate	7	3	10	7	21	14	14	16	24	19
Total	*79*	*90*	*74*	*62*	*87*	*67*	*74*	*89*	*99*	*92*
Persons										
Undergraduate										
Bachelor-pass	132	152	134	109	116	109	123	119	127	122
Postgraduate										
PhD	5	1	11	8	7	6	8	4	8	4
MSc-research	10	5	4	9	16	8	5	3	3	4
MSc-coursework	—	—	—	—	21	16	17	11	14	7
Postgraduate qualifying	—	—	—	1	1	—	—	—	—	—
Postgraduate diploma	—	—	—	—	—	—	—	15	18	12
Total postgraduate	*15*	*6*	*15*	*18*	*45*	*30*	*30*	*33*	*43*	*27*
Total	**147**	**158**	**149**	**127**	**161**	**139**	**153**	**152**	**170**	**149**
% female										
Undergraduate	54.5	57.2	47.8	50.5	56.9	48.6	48.8	61.3	59.1	59.8
Postgraduate	46.7	50.0	66.7	38.9	46.7	46.7	46.7	48.5	55.8	70.4
Total	**53.7**	**57.0**	**49.7**	**48.8**	**54.0**	**48.2**	**48.4**	**58.6**	**58.2**	**61.7**
% undergraduate/postgraduate										
Undergraduate	89.8	96.2	89.9	85.8	72.0	78.4	80.4	78.3	74.7	81.9
Postgraduate	10.2	3.8	10.1	14.2	28.0	21.6	19.6	21.7	25.3	18.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes New Zealand citizens, which were included with Australian permanent resident students data for 1997 by DETYA.

Source: AIHW analysis of DETYA data.

Table 30: Australian permanent residents commencing undergraduate optometry courses: university and sex, Australia, 1990–99

University	1990	1991	1992	1993	1994	1995	1996	1997[(a)]	1998	1999
Males										
University of Melbourne	17	11	21	9	14	20	22	13	16	15
University of New South Wales	27	41	37	22	19	16	21	15	20	18
Queensland University of	16	13	12	23	17	20	20	18	16	16
Total	*60*	*65*	*70*	*54*	*50*	*56*	*63*	*46*	*52*	*49*
Females										
University of Melbourne	23	25	14	21	21	16	12	22	23	19
University of New South Wales	30	44	32	22	25	26	30	38	37	36
Queensland University of	19	18	18	12	20	11	18	13	15	18
Total	*72*	*87*	*64*	*55*	*66*	*53*	*60*	*73*	*75*	*73*
Persons										
University of Melbourne	40	36	35	30	35	36	34	35	39	34
University of New South Wales	57	85	69	44	44	42	51	53	57	54
Queensland University of	35	31	30	35	37	31	38	31	31	34
Total	**132**	**152**	**134**	**109**	**116**	**109**	**123**	**119**	**127**	**122**
% female										
University of Melbourne	57.5	69.4	40.0	70.0	60.0	44.4	35.3	62.9	59.0	55.9
University of New South Wales	52.6	51.8	46.4	50.0	56.8	61.9	58.8	71.7	64.9	66.7
Queensland University of	54.3	58.1	60.0	34.3	54.1	35.5	47.4	41.9	48.4	52.9
Total	**54.5**	**57.2**	**47.8**	**50.5**	**56.9**	**48.6**	**48.8**	**61.3**	**59.1**	**59.8**
% by university										
University of Melbourne	30.3	23.7	26.1	27.5	30.2	33.0	27.6	29.4	30.7	27.9
University of New South Wales	43.2	55.9	51.5	40.4	37.9	38.5	41.5	44.5	44.9	44.3
Queensland University of	26.5	20.4	22.4	32.1	31.9	28.4	30.9	26.1	24.4	27.9
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes New Zealand citizens, which were included with Australian permanent resident students' data for 1997 by DETYA.

Source: AIHW analysis of DETYA data.

Table 31: Australian permanent residents commencing optometry undergraduate courses: sex and average age, Australia, 1990–99

Sex	1990	1991	1992	1993	1994	1995	1996	1997[(a)]	1998	1999
Male	19.0	18.6	19.5	19.5	20.1	18.9	18.9	19.8	20.3	19.4
Female	17.8	19.1	18.7	18.7	19.0	18.3	18.2	18.3	18.7	18.3
Total	**18.4**	**18.9**	**19.1**	**19.1**	**19.5**	**18.6**	**18.5**	**18.9**	**19.4**	**18.8**

(a) Includes New Zealand citizens, which were included with Australian permanent resident students' data for 1997 by DETYA.

Source: AIHW analysis of DETYA data.

Table 32: Australian permanent residents commencing undergraduate optometry courses: geographic area of home residence, Australia, 1990–99

Region of home residence	1990	1991	1992	1993	1994	1995	1996	1997[a]	1998	1999[b]
	(number)									
Capital city/other metropolitan centres	113	123	106	92	99	87	102	107	107	110
Large rural centres	7	8	10	4	5	5	6	1	12	3
Small rural centres/other rural areas	11	19	16	13	12	15	14	11	7	9
Remote centres/other remote areas	1	2	2	—	—	2	1	—	1	—
Total	**132**	**152**	**134**	**109**	**116**	**109**	**123**	**119**	**127**	**122**
	(per cent)									
Capital city/other metropolitan centres	85.6	80.9	79.1	84.4	85.3	79.8	82.9	89.8	84.3	90.2
Large rural centres	5.3	5.3	7.5	3.7	4.3	4.6	4.9	0.8	9.4	2.5
Small rural centres/other rural areas	8.3	12.5	11.9	11.9	10.3	13.8	11.4	9.3	5.5	7.4
Remote centres/other remote areas	0.8	1.3	1.5	—	—	1.8	0.8	—	0.8	—
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
	Commencements per 100,000 population aged 15–24									
Capital city/other metropolitan centres	5.6	6.0	5.2	4.5	4.9	4.3	5.1	5.4	5.4	5.5
Large rural centres	4.2	4.7	5.9	2.4	2.9	3.0	3.6	0.6	7.1	1.8
Small rural centres/other rural areas	2.3	4.1	3.5	2.8	2.7	3.4	3.2	2.5	1.6	2.0
Remote centres/other remote areas	1.1	2.3	2.3	—	—	2.5	1.3	—	1.3	—
Total	**4.8**	**5.5**	**4.9**	**4.0**	**4.3**	**4.0**	**4.6**	**4.5**	**4.7**	**4.6**

(a) Includes New Zealand citizens, which were included with Australian permanent resident students' data for 1997 by DETYA.

(b) Commencements per 100,000 population for 1999 figures were calculated using 1998 population data, as 1999 population data by region was not yet available.

Source: AIHW analysis of DETYA data, ABS population data.

Table 33: Australian permanent residents commencing undergraduate optometry courses: home state, Australia, 1990–99

	1990	1991	1992	1993	1994	1995	1996	1997[(a)]	1998	1999
State/Territory					**(number)**					
New South Wales	51	76	62	43	44	42	52	52	49	51
Victoria	37	36	34	30	33	38	35	32	38	32
Queensland	35	30	32	35	32	25	33	32	31	32
Western Australia	4	5	1	—	1	1	2	1	1	2
South Australia	2	3	1	—	4	2	—	2	5	3
Tasmania	1	—	2	—	—	—	—	—	—	—
Australian Capital Territory	2	1	1	1	2	—	1	—	2	2
Northern Territory	—	1	—	—	—	1	—	—	1	—
Overseas	—	—	1	—	—	—	—	—	—	—
Total	**132**	**152**	**134**	**109**	**116**	**109**	**123**	**119**	**127**	**122**
					(per cent)					
New South Wales	38.6	50.0	46.3	39.4	37.9	38.5	42.3	43.7	38.6	41.8
Victoria	28.0	23.7	25.4	27.5	28.4	34.9	28.5	26.9	29.9	26.2
Queensland	26.5	19.7	23.9	32.1	27.6	22.9	26.8	26.9	24.4	26.2
Western Australia	3.0	3.3	0.7	—	0.9	0.9	1.6	0.8	0.8	1.6
South Australia	1.5	2.0	0.7	—	3.4	1.8	—	1.7	3.9	2.5
Tasmania	0.8	—	1.5	—	—	—	—	—	—	—
Australian Capital Territory	1.5	0.7	0.7	0.9	1.7	—	0.8	—	1.6	1.6
Northern Territory	—	0.7	—	—	—	0.9	—	—	0.8	—
Overseas	—	—	0.7	—	—	—	—	—	—	—
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
					Commencements per 100,000 population aged 15–24					
New South Wales	5.6	8.3	6.8	4.8	4.9	4.7	5.9	5.9	5.6	5.7
Victoria	5.1	5.0	4.8	4.3	4.8	5.7	5.3	4.9	5.8	4.8
Queensland	7.3	6.2	6.5	7.0	6.3	4.9	6.5	6.3	6.1	6.2
Western Australia	1.5	1.9	0.4	—	0.4	0.4	0.8	0.4	0.4	0.7
South Australia	0.9	1.3	0.5	—	1.9	1.0	—	1.0	2.5	1.5
Tasmania	1.4	—	2.8	—	—	—	—	—	—	—
Australian Capital Territory	3.8	1.8	1.8	1.8	3.6	—	1.9	—	3.8	3.8
Northern Territory	—	3.3	—	—	—	3.3	—	—	3.2	—
Total	**4.8**	**5.5**	**4.9**	**4.0**	**4.3**	**4.0**	**4.6**	**4.5**	**4.8**	**4.5**

(a) Includes New Zealand citizens, which were included with Australian permanent resident students' data for 1997 by DETYA.

Source: AIHW analysis of DETYA data, ABS population data.

Table 34: Australian permanent residents[(a)] completing optometry courses: level of course and sex, Australia, 1989–98

Level of course	1989	1990	1991	1992	1993	1994	1995	1996[(b)]	1997	1998
Males										
Undergraduate	60	48	45	48	45	46	50	56	48	49
Postgraduate	—	2	2	2	1	4	10	8	7	9
Total	*60*	*50*	*47*	*50*	*46*	*50*	*60*	*64*	*55*	*58*
Females										
Undergraduate	43	53	50	66	69	61	56	50	61	55
Postgraduate	1	2	2	2	—	3	3	9	10	11
Total	*44*	*55*	*52*	*68*	*69*	*64*	*59*	*59*	*71*	*66*
Persons										
Undergraduate										
Bachelor-pass	103	101	95	114	114	107	106	106	109	104
Postgraduate										
PhD	1	3	3	1	—	2	7	6	7	7
MSc-research	—	1	1	3	1	5	3	6	5	5
MSc-coursework	—	—	—	—	—	—	3	5	5	3
Postgraduate diploma	—	—	—	—	—	—	—	—	—	*5*
Total	*1*	*4*	*4*	*4*	*1*	*7*	*13*	*17*	*17*	*20*
Total	**104**	**105**	**99**	**118**	**115**	**114**	**119**	**123**	**126**	**124**
% female										
Undergraduate	41.7	52.5	52.6	57.9	60.5	57.0	52.8	47.2	56.0	52.9
Postgraduate	100.0	50.0	50.0	50.0	—	42.9	23.1	52.9	58.8	55.0
Total	**42.3**	**52.4**	**52.5**	**57.6**	**60.0**	**56.1**	**49.6**	**48.0**	**56.3**	**53.2**
% undergraduate/postgraduate										
Undergraduate	99.0	96.2	96.0	96.6	99.1	93.9	89.1	86.2	86.5	83.9
Postgraduate	1.0	3.8	4.0	3.4	0.9	6.1	10.9	13.8	13.5	16.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Before 1993, not all universities had citizenship information for all students completing courses, so these data include students for whom citizenship/residency status was unknown. Consequently, data before 1993 may slightly overstate the number of course completions by Australian citizen/resident students.

(b) Includes New Zealand citizens, which were included with Australian permanent resident students' data for 1996 by DETYA.

Source: AIHW analysis of DETYA data.

Table 35: Overseas residents[(a)] completing optometry courses: level of course and sex, Australia, 1989–98

Level of course	1989	1990	1991	1992	1993	1994	1995	1996[(b)]	1997	1998
Males										
Undergraduate	—	4	4	—	4	—	—	—	—	—
Postgraduate	1	—	—	1	—	1	—	—	1	1
Total	*1*	*4*	*4*	*1*	*4*	*1*	—	—	*1*	*1*
Females										
Undergraduate	1	3	6	3	1	2	2	—	1	3
Postgraduate	—	—	1	—	1	1	—	—	1	2
Total	*1*	*3*	*7*	*3*	*2*	*3*	*2*	—	*2*	*5*
Persons										
Undergraduate	1	7	10	3	5	2	2	—	1	3
Postgraduate	1	—	1	1	1	2	—	—	2	3
Total	**2**	**7**	**11**	**4**	**6**	**4**	**2**	**—**	**3**	**6**

(a) Before 1993, not all universities had citizenship information for all students completing courses, so these data exclude students for whom citizenship/residency status was unknown. Consequently, data before 1993 may slightly understate the number of course completions by overseas resident students.

(b) Excludes New Zealand citizens, which were included with Australian permanent resident students' data for 1996 by DETYA.

Source: AIHW analysis of DETYA data.

Table 36: Australian permanent residents[(a)] completing optometry undergraduate courses: university and year of completion, Australia, 1989–1998

University	1989	1990	1991	1992	1993	1994	1995	1996[(b)]	1997	1998
Males										
University of Melbourne	16	16	12	16	12	12	12	14	12	15
University of New South Wales	33	20	15	19	23	20	26	20	23	14
Queensland University of	11	12	18	13	10	14	12	22	13	20
Total	*60*	*48*	*45*	*48*	*45*	*46*	*50*	*56*	*48*	*49*
Females										
University of Melbourne	9	18	14	16	18	19	14	15	22	15
University of New South Wales	22	22	22	30	34	24	25	24	23	30
Queensland University of	12	13	14	20	17	18	17	11	16	10
Total	*43*	*53*	*50*	*66*	*69*	*61*	*56*	*50*	*61*	*55*
Persons										
University of Melbourne	25	34	26	32	30	31	26	29	34	30
University of New South Wales	55	42	37	49	57	44	51	44	46	44
Queensland University of	23	25	32	33	27	32	29	33	29	30
Total	**103**	**101**	**95**	**114**	**114**	**107**	**106**	**106**	**109**	**104**
% female										
University of Melbourne	36.0	52.9	53.8	50.0	60.0	61.3	53.8	51.7	64.7	50.0
University of New South Wales	40.0	52.4	59.5	61.2	59.6	54.5	49.0	54.5	50.0	68.2
Queensland University of	52.2	52.0	43.8	60.6	63.0	56.3	58.6	33.3	56.7	33.3
Total	**41.7**	**52.5**	**52.6**	**57.9**	**60.5**	**57.0**	**52.8**	**47.2**	**56.0**	**52.9**
% by university										
University of Melbourne	24.3	33.7	27.4	28.1	26.3	29.0	24.5	27.4	31.2	28.8
University of New South Wales	53.4	41.6	38.9	43.0	50.0	41.1	48.1	41.5	42.2	42.3
Queensland University of	22.3	24.8	33.7	28.9	23.7	29.9	27.4	31.1	26.6	28.8
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Before 1993, not all universities had citizenship information for all students completing courses, so these data include students for whom citizenship/residency status was unknown. Consequently, data before 1993 may slightly overstate the number of course completions by Australian citizen/resident students.

(b) Includes New Zealand citizens, which were included with Australian permanent resident students' data for 1996 by DETYA.

Source: AIHW analysis of DETYA data.

Table 37: Australian permanent residents[(a)] completing optometry undergraduate courses: age by year of completion, Australia, 1989–98

	1989	1990	1991	1992	1993	1994	1995	1996[(a)]	1997	1998
Age group					**(number)**					
Males										
Less than 21	24	17	17	16	11	21	16	19	14	15
21–22	30	22	20	24	22	20	22	19	20	24
23–29	5	7	6	7	9	5	11	13	12	7
30–39	1	2	1	1	3	—	1	5	2	3
40–49	—	—	1	—	—	—	—	—	—	—
Total	*60*	*48*	*45*	*48*	*45*	*46*	*50*	*56*	*48*	*49*
Average age	*21.2*	*21.8*	*21.8*	*21.5*	*22.3*	*21.0*	*21.8*	*22.7*	*22.4*	*22.1*
Females										
Less than 21	22	19	24	38	35	24	25	11	26	12
21–22	16	25	23	25	26	30	21	22	26	31
23–29	5	8	2	3	8	5	9	15	6	11
30–39	—	1	1	—	—	1	1	2	3	1
40–49	—	—	—	—	—	1	—	—	—	—
Total	*43*	*53*	*50*	*66*	*69*	*61*	*56*	*50*	*61*	*55*
Average age	*21.0*	*21.5*	*21.1*	*20.5*	*20.9*	*21.5*	*21.5*	*22.4*	*21.7*	*21.9*
Persons										
Less than 21	46	36	41	54	46	45	41	30	40	27
21–22	46	47	43	49	48	50	43	41	46	55
23–29	10	15	8	10	17	10	20	28	18	18
30–39	1	3	2	1	3	1	2	7	5	4
40–49	—	—	1	—	—	1	—	—	—	—
Total	**103**	**101**	**95**	**114**	**114**	**107**	**106**	**106**	**109**	**104**
Average age	**21.1**	**21.6**	**21.4**	**20.9**	**21.5**	**21.3**	**21.7**	**22.6**	**22.0**	**22.0**
					(per cent)					
Males										
Less than 21	40.0	35.4	37.8	33.3	24.4	45.7	32.0	33.9	29.2	30.6
21–22	50.0	45.8	44.4	50.0	48.9	43.5	44.0	33.9	41.7	49.0
23–29	8.3	14.6	13.3	14.6	20.0	10.9	22.0	23.2	25.0	14.3
30–39	1.7	4.2	2.2	2.1	6.7	—	2.0	8.9	4.2	6.1
40–49	—	—	2.2	—	—	—	—	—	—	—
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Females										
Less than 21	51.2	35.8	48.0	57.6	50.7	39.3	44.6	22.0	42.6	21.8
21–22	37.2	47.2	46.0	37.9	37.7	49.2	37.5	44.0	42.6	56.4
23–29	11.6	15.1	4.0	4.5	11.6	8.2	16.1	30.0	9.8	20.0
30–39	—	1.9	2.0	—	—	1.6	1.8	4.0	4.9	1.8
40–49	—	—	—	—	—	1.6	—	—	—	—
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Persons										
Less than 21	44.7	35.6	43.2	47.4	40.4	42.1	38.7	28.3	36.7	26.0
21–22	44.7	46.5	45.3	43.0	42.1	46.7	40.6	38.7	42.2	52.9
23–29	9.7	14.9	8.4	8.8	14.9	9.3	18.9	26.4	16.5	17.3
30–39	1.0	3.0	2.1	0.9	2.6	0.9	1.9	6.6	4.6	3.8
40–49	—	—	1.1	—	—	0.9	—	—	—	—
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Before 1993, not all universities had citizenship information for all students completing courses, so these data include students for whom citizenship/residency status was unknown. Consequently, data before 1993 may slightly overstate the number of course completions by Australian citizen/resident students.

(b) Includes New Zealand citizens, which were included with Australian permanent resident students' data for 1996 by DETYA.

Source: AIHW analysis of DETYA data.

Table 38: Australian permanent residents completing optometry courses: country of birth by year of completion, 1993–98

Course level/country of birth	1993	1994	1995	1996[(a)]	1997	1998
			(number)			
Undergraduate						
Australia	88	79	73	58	70	61
Other/unknown	26	28	33	48	39	43
Total	*114*	*107*	*106*	*106*	*109*	*104*
Postgraduate						
Australia	1	6	7	11	11	13
Other/unknown	—	1	6	6	6	7
Total	*1*	*7*	*13*	*17*	*17*	*20*
Total						
Australia	89	85	80	69	81	74
New Zealand	—	—	—	2	—	1
United Kingdom and Ireland	4	3	5	5	3	3
Other Europe and Russia	4	3	7	4	5	3
Hong Kong	3	6	1	4	1	6
Malaysia	2	4	2	4	2	6
Vietnam	6	4	5	20	18	16
Other Asia	1	6	10	7	9	11
Other	4	3	8	8	7	4
Unknown	2	—	1	—	—	—
Total	**115**	**114**	**119**	**123**	**126**	**124**
			(per cent)			
Undergraduate						
Australia	77.2	73.8	68.9	54.7	64.2	58.7
Other/unknown	22.8	26.2	31.1	45.3	35.8	41.3
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Postgraduate						
Australia	100.0	85.7	53.8	64.7	64.7	65.0
Other/unknown	—	14.3	46.2	35.3	35.3	35.0
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Total						
Australia	77.4	74.6	67.2	56.1	64.3	59.7
New Zealand	—	—	—	1.6	—	0.8
United Kingdom and Ireland	3.5	2.6	4.2	4.1	2.4	2.4
Other Europe and Russia	3.5	2.6	5.9	3.3	4.0	2.4
Hong Kong	2.6	5.3	0.8	3.3	0.8	4.8
Malaysia	1.7	3.5	1.7	3.3	1.6	4.8
Vietnam	5.2	3.5	4.2	16.3	14.3	12.9
Other Asia	0.9	5.3	8.4	5.7	7.1	8.9
Other	3.5	2.6	6.7	6.5	5.6	3.2
Unknown	1.7	—	0.8	—	—	—
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes New Zealand citizens, which were included with Australian permanent resident students' data for 1996 by DETYA.

Source: AIHW analysis of DETYA data.

Table 39: Labour force status in 1998 of 1997 graduates in optometry

Destination	Optometry	Initial nursing	Dentistry	Pharmacy	Medicine	Occu-pational therapy	Physio-therapy	Speech pathology /audiology	Total health
					(per cent)				
In full-time employment									
Government	1.2	0.8	27.3	0.3	1.5	6.9	1.6	7.1	3.6
Private practice, business or	6.1	1.1	41.9	29.0	0.2	2.7	1.3	0.5	5.2
Health									
Public	2.5	59.5	6.4	19.0	91.4	51.5	65.5	47.0	48.7
Private/Other	80.2	14.3	1.7	30.6	3.0	13.7	16.3	8.1	12.8
Total	*82.7*	*73.8*	*8.1*	*49.6*	*94.4*	*65.2*	*81.8*	*55.1*	*61.5*
Education	—	0.6	3.5	2.6	0.3	2.1	1.0	15.2	1.4
Other	1.2	1.1	0.6	2.2	0.2	2.1	0.8	1.0	1.0
Total	*91.2*	*77.4*	*81.4*	*83.7*	*96.6*	*79.0*	*86.5*	*78.9*	*72.6*
Seeking full-time employment									
Working part-time	—	3.8	7.0	0.3	—	8.6	5.8	6.1	3.8
Not working	1.2	1.2	1.2	1.0	0.1	3.3	1.3	2.5	1.7
Total	*1.2*	*5.0*	*8.2*	*1.3*	*0.1*	*11.9*	*7.1*	*8.6*	5.6
Not seeking full-time employment									
Working part-time	1.2	10.0	5.2	—	0.2	6.5	4.2	6.6	11.7
Not working, seeking part-time employment	—	0.7	—	—	—	0.3	0.3	0.5	0.5
Total	*1.2*	*10.7*	*5.2*	—	*0.2*	*6.8*	*4.5*	*7.1*	*12.1*
In full-time study	5.2	6.1	5.2	13.9	2.6	1.2	1.9	3.0	7.6
Unavailable for full-time work or study	—	—	—	1.0	0.3	1.2	—	2.5	2.1
Total									
Per cent	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Number	**81**	**3,208**	**172**	**310**	**934**	**336**	**380**	**198**	**9,223**

Source: GCCA.

Table 40: Permanent migration of optometrists to and from Australia for employment: 1994–95 to 1998–99

Category/country	1994–95	1995–96	1996–97	1997–98	1998–99
Permanent migration of overseas residents to Australia					
Country of previous residence					
New Zealand	8	3	5	66	75
United Kingdom and Ireland	7	6	11	3	5
Other Europe	1	3	—	1	3
Middle East	—	2	—	1	1
Asia	5	10	—	5	6
North/South America	1	—	—	—	2
Other countries	6	8	2	8	6
Total	*28*	*32*	*18*	*84*	*98*
Migration from Australia of Australian residents permanently departing					
Country of future residence					
New Zealand	5	—	2	18	12
United Kingdom and Ireland	1	—	3	5	11
Other Europe	—	1	1	2	6
Middle East	—	—	—	—	1
Asia	1	—	—	2	9
North/South America	2	—	—	5	6
Other countries	—	—	—	—	2
Total	*9*	*1*	*6*	*32*	*47*

Source: AIHW analysis of DIMA data.

Table 41: Temporary migration of optometrists to and from Australia: 1994–95 to 1998–99

Category/country	1994–95	1995–96	1996–97	1997–98	1998–99
Temporary migration to Australia					
For employment					
Long-term stay					
Country of previous residence					
New Zealand	—	—	2	21	47
United Kingdom and Ireland	6	4	3	12	14
Other Europe	2	—	—	2	3
Middle East	—	—	—	1	—
Asia	—	—	—	2	2
North/South America	—	—	—	1	1
Other countries	1	—	—	3	3
Total	*9*	*4*	*5*	*42*	*70*
Short-term stay	3	41	2	29	31
Total	*12*	*45*	*7*	*71*	*101*
For education					
Long-term stay	4	3	6	7	6
Short-term stay	12	—	5	1	—
Total	*16*	*3*	*11*	*8*	*6*
Migration to Australia by Australian residents returning after a long-term overseas stay					
Country of long-term stay					
New Zealand	—	—	—	9	5
United Kingdom and Ireland	9	15	18	42	16
Other Europe	3	1	3	11	8
Middle East	—	—	1	3	6
Asia	8	6	5	20	15
North/South America	3	5	11	10	13
Other countries	2	2	3	6	2
Total	*25*	*29*	*41*	*101*	*65*
Migration of Australian residents from Australia for a long-term overseas stay					
For employment					
Country of long-term overseas stay					
New Zealand	—	—	—	6	4
United Kingdom and Ireland	4	5	7	14	16
Other Europe	—	—	—	5	3
Middle East	1	—	—	1	1
Asia	5	9	7	6	2
North/South America	3	1	—	5	3
Other countries	1	—	1	4	1
Total	*14*	*15*	*15*	*41*	*30*
For education	4	3	2	1	2
Temporary visitors departing after a long-term stay in Australia					
Country of future residence					
New Zealand	—	1	—	34	46
United Kingdom and Ireland	3	10	1	22	11
Other Europe	—	—	2	8	5
Middle East	—	—	1	1	—
Asia	4	—	1	41	41
North/South America	3	2	3	9	4
Other countries	—	—	1	18	6
Total	*10*	*13*	*9*	*133*	*113*

Note: Long-term stays refer to those involving 12 months or more.

Source: AIHW analysis of DIMA data.

Table 42: Eyesight status: age and glasses usage, 1995

Eyesight status/use of glasses[a]	Age group								
	Less than 15	15–24	25–34	35–44	45–54	55–64	65–74	75 and over	Total
	('000)								
Eyesight problem									
Totally or partially correctable by glasses									
Wears glasses	268.8	672.4	796.5	1,015.5	1,799.4	1,423.2	1,285.0	752.1	8,012.9
Doesn't wear glasses	45.6	95.1	106.8	123.3	86.6	12.8	14.0	6.1	490.2
Can't wear glasses	.7	—	—	—	—	—	—	—	.7
Total	*315.1*	*767.5*	*903.3*	*1,138.8*	*1,886.0*	*1,436.0*	*1,299.0*	*758.2*	*8,503.8*
Unknown whether correctable by glasses									
Could wear glasses	14.5	14.9	24.2	20.6	8.7	1.4	.7	1.3	86.5
Couldn't wear glasses	.3	—	—	—	—	—	—	—	.3
Total	*14.8*	*14.9*	*24.2*	*20.6*	*8.7*	*1.4*	*.7*	1.3	*86.7*
Not correctable by glasses	37.8	34.3	56.4	62.0	14.9	4.0	8.2	16.0	233.4
Eyesight status unknown	108.6	18.8	10.0	9.5	4.8	1.5	.4	—	153.3
No eyesight problem	3,396.4	1,874.8	1,850.0	1,509.4	316.7	65.3	39.7	31.5	9,083.8
Total	**3,872.7**	**2,710.3**	**2,843.7**	**2,740.3**	**2,231.1**	**1,508.0**	**1,348.0**	**807.0**	**18,061.1**
	(per cent)								
Eyesight problem									
Totally or partially correctable by glasses									
Wears glasses	6.9	24.8	28.0	37.1	80.6	94.4	95.3	93.2	44.4
Doesn't wear glasses	1.2	3.5	3.8	4.5	3.9	0.8	1.0	0.8	2.7
Can't wear glasses	0.0	—	—	—	—	—	—	—	0.0
Total	*8.1*	*28.3*	*31.8*	*41.6*	*84.5*	*95.2*	*96.4*	*93.9*	*47.1*
Unknown whether correctable by glasses									
Could wear glasses	0.4	0.6	0.9	0.8	0.4	0.1	0.1	0.2	0.5
Couldn't wear glasses	0.0	—	—	—	—	—	—	—	0.0
Total	*0.4*	*0.6*	*0.9*	*0.8*	*0.4*	*0.1*	*0.1*	*0.2*	*0.5*
Not correctable by glasses	1.0	1.3	2.0	2.3	0.7	0.3	0.6	2.0	1.3
Eyesight status unknown	2.8	0.7	0.3	0.3	0.2	0.1	0.0	—	0.8
No eyesight problem	87.7	69.2	65.1	55.1	14.2	4.3	2.9	3.9	50.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes contact lenses.

Source: AIHW analysis of ABS National Health Survey data.

Table 43: Persons consulting an optometrist or optician in the two weeks before the survey: age and sex, Australia, 1995

	Age group								
	Less than 15	15–24	25–34	35–44	45–54	55–64	65–74	75 and over	Total
Sex					(number)				
Males	8,902	7,815	6,646	10,097	11,683	8,661	11,378	6,227	71,409
Females	10,553	9,088	12,772	10,606	10,952	7,552	12,560	7,304	81,387
Total	**19,454**	**16,903**	**19,418**	**20,704**	**22,636**	**16,213**	**23,938**	**13,531**	**152,796**
					(per 1,000 population)				
Males	4.5	5.7	4.7	7.3	10.3	11.4	18.8	18.9	7.9
Females	5.6	6.9	9.0	7.7	10.0	10.0	18.5	13.5	9.0
Total	**5.0**	**6.3**	**6.8**	**7.5**	**10.2**	**10.7**	**18.7**	**15.6**	**8.5**

Source: AIHW analysis of ABS National Health Survey data.

Table 44: Persons consulting an optometrist or optician in the two weeks before the survey: State/Territory and geographic region, Australia, 1995

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Geographic region					(number)				
Capital cities	n.a.	n.a.	11,378	11,856	10,476	1,891	n.a.	n.a.	n.a.
Other metropolitan areas	n.a.	n.a.	1,826	. .	. .	. .	. .	. .	n.a.
Total metropolitan	*40,182*	*21,706*	*13,204*	*11,856*	*10,476*	*1,891*	*n.a.*	*n.a.*	*n.a.*
Large and small rural centres	7,789	5,852	7,020	1,453	981	1,084	. .	. .	24,180
Other rural areas and remote areas	7,859	5,098	5,619	1,745	2,552	2,112	n.a.	n.a.	n.a.
Total	**55,830**	**32,656**	**25,844**	**15,054**	**14,010**	**5,087**	**3,140**	**1,176**	**152,796**
					(per 1,000 population)				
Capital cities	n.a.	n.a.	7.7	9.3	9.7	9.7	n.a.	n.a.	n.a.
Other metropolitan areas	n.a.	n.a.	4.3	. .	. .	. .	. .	. .	n.a.
Total metropolitan	*8.7*	*6.4*	*6.9*	*9.3*	*9.7*	*9.7*	*n.a.*	*n.a.*	*n.a.*
Large and small rural centres	10.2	12.0	11.0	11.7	9.2	7.6	. .	. .	10.7
Other rural areas and remote areas	10.3	8.0	7.8	5.2	8.9	15.5	n.a.	n.a.	n.a.
Total	**9.1**	**7.2**	**7.9**	**8.7**	**9.5**	**10.7**	**10.3**	**6.6**	**8.5**

Sources: AIHW analysis of ABS National Health Survey data, ABS population data.

Table 45: Medicare optometry services rendered, Australia, 1992–93 to 1998–99

Year	Services	Annual % increase	% of services direct-billed
1992–93	3,005,867	. .	90.2
1993–94	3,154,552	4.9	91.7
1994–95	3,287,668	4.2	92.9
1995–96	3,555,871	8.2	94.5
1996–97	3,666,327	3.1	96.0
1997–98	3,763,709	2.7	95.7
1998–99	3,907,363	3.8	95.4

Source: AIHW analysis of DHAC data; DHAC 1999.

Table 46: Medicare optometry providers: numbers and annual change by sex, Australia, 1992–93 to 1998–99

	Males			Females			Total		
Year	Number	Annual change	Annual % change	Number	Annual change	Annual % change	Number	Annual change	Annual % change
1992–93	1,627	. .	. .	729	. .	. .	2,356	. .	. .
1993–94	1,634	7	0.4	790	61	8.4	2,424	68	2.9
1994–95	1,647	13	0.8	853	63	8.0	2,500	76	3.1
1995–96	1,678	31	1.9	898	45	5.3	2,576	76	3.0
1996–97	1,698	21	1.2	923	24	2.7	2,621	45	1.7
1997–98	1,739	41	2.4	983	60	6.5	2,722	101	3.9
1998–99	1,752	13	0.7	1,035	52	5.3	2,787	65	2.4
Average		*20.8*	*1.2*		*51.0*	*6.0*		*71.8*	*2.8*

Source: AIHW analysis of DHAC data.

Table 47: Optometrist workforce: estimated additions, withdrawals and total numbers, Australia, 1998–99, 2009 and 2019

		Additions		Withdrawals		
Year	Starting workforce	Education	Temporary and permanent migration	Migration	Other	Total workforce
High migration scenario:						
1998–99	2,722	104	264	190	113	2,787
2009	3,372	104	264	190	113	3,437
2019	4,022	104	264	190	113	4,087
Low migration scenario:						
1998–99	2,722	104	65	33	113	2,787
2009	2.994	104	65	33	113	3,017
2019	3,224	104	65	33	113	3,247

Note: Low migration scenario data is based on 1994–95 migration figures.

Source: AIHW analysis of DHAC, DIMA and DETYA data.

Table 48: Estimates of Medicare optometry providers: Numbers and full-time equivalents, Australia, 1998–99, 2009 and 2019

	Optometrists			Full-time equivalents		
Year	Males	Females	Total	Males	Females	Total
1998–99	1,752	1,035	2,787	1,667	891	2,558
2009, projected	1,881	1,556	3,437	1,789	1,340	3,129
2019, projected	2,009	2,078	4,087	1,912	1,789	3,701

Note: estimates are based on the high migration scenario.

Source: AIHW analysis of DHAC data.

Table 49: Estimates of Medicare optometry services, Australia, 1998–99, 2009 and 2019

	1999			2009		2019		% change in services	
	Population ('000s)	Services ('000s)	Average Services per head	Projected population ('000s)	Estimated services ('000s)	Projected population ('000s)	Estimated services ('000s)	1999–2009	1999–2019
Age group					**(number)**				
Less than 10	2,604	249	0.09544	2,415	231	2,409	230	–7.2	–7.5
10–14	1,316	204	0.15512	1,337	207	1,234	191	1.6	–6.3
15–19	1,330	208	0.15670	1,412	221	1,328	208	6.1	–0.2
20–34	4,236	632	0.14908	4,343	648	4,543	677	2.5	7.2
35–44	2,924	521	0.17824	3,023	539	3,038	542	3.4	3.9
45–54	2,533	809	0.31935	2,958	945	3,063	978	16.8	20.9
55–64	1,677	538	0.32096	2,477	795	2,901	931	47.7	73.0
65–74	1,297	442	0.34068	1,523	519	2,260	770	17.5	74.3
75–84	781	239	0.30583	939	287	1,142	349	20.2	46.2
85 and over	238	64	0.26764	344	92	431	115	44.4	80.8
Total	**18,937**	**3,905**	**0.20623**	**20,771**	**4,483**	**22,349**	**4,992**	**14.8**	**27.8**
					(per cent)				
Less than 10	13.7	6.4	. .	11.6	5.1	10.8	4.6	. .	. .
10–14	6.9	5.2	. .	6.4	4.6	5.5	3.8	. .	. .
15–19	7.0	5.3	. .	6.8	4.9	5.9	4.2	. .	. .
20–34	22.4	16.2	. .	20.9	14.4	20.3	13.6	. .	. .
35–44	15.4	13.3	. .	14.6	12.0	13.6	10.8	. .	. .
45–54	13.4	20.7	. .	14.2	21.1	13.7	19.6	. .	. .
55–64	8.9	13.8	. .	11.9	17.7	13.0	18.7	. .	. .
65–74	6.8	11.3	. .	7.3	11.6	10.1	15.4	. .	. .
75–84	4.1	6.1	. .	4.5	6.4	5.1	7.0	. .	. .
85 and over	1.3	1.6	. .	1.7	2.1	1.9	2.3	. .	. .
Total	**100.0**	**100.0**	**. .**	**100.0**	**100.0**	**100.0**	**100.0**	**. .**	**. .**

Notes

1. Assumes that the rate of Medicare services for each age group will remain constant at 1998-99 levels.
2. Population projections are from the ABS population projections, series κ.

Sources: AIHW analysis of DHAC, ABS population data.

Glossary

Country

The Australian Standard Classification of Countries for Social Statistics (ABS 1990) has been used to classify country of birth, and country of previous and future residence for immigration data.

Geographic classification

The *Rural, Remote and Metropolitan Areas Classification* (Department of Primary Industries and Energy & Department of Health and Family Services 1994) has been used to classify the geographic location optometrists' jobs and of patients' residences. The geographic boundaries of these categories are based on the 1991 population census. The classes of geographic location are listed below.

Metropolitan areas

1. *Capital cities* consist of the State and Territory capital cities: Sydney, Melbourne, Brisbane, Perth, Adelaide, Hobart, Darwin and Canberra.
2. *Other metropolitan centres* consist of one or more statistical subdivisions that have an urban centre of population of 100,000 or more: Newcastle, Wollongong, Queanbeyan (part of Canberra–Queanbeyan), Geelong, Gold Coast–Tweed Heads, Townsville–Thuringowa.

Rural zone

3. *Large rural centres* are statistical local areas where most of the population reside in urban centres of population of 25,000 to 99,999. These centres are: Albury–Wodonga, Dubbo, Lismore, Orange, Port Macquarie, Tamworth, Wagga Wagga (NSW); Ballarat, Bendigo, Shepparton–Mooroopna (Vic); Bundaberg, Cairns, Mackay, Maroochydore–Mooloolaba, Rockhampton, Toowoomba (Qld); Whyalla (SA); and Launceston (Tas).
4. *Small rural centres* are statistical local areas in rural zones containing urban centres of population between 10,000 and 24,999. These centres are Armidale, Ballina, Bathurst, Broken Hill, Casino, Coffs Harbour, Echuca–Moama, Forster–Tuncurry, Goulburn, Grafton, Griffith, Lithgow, Moree Plains, Muswellbrook, Nowra–Bombaderry, Singleton, Taree (NSW); Bairnsdale, Colac, Echuca–Moama, Horsham, Mildura, Moe–Yallourn, Morwell, Ocean Grove–Barwon Heads, Portland, Sale, Traralgon, Wangaratta, Warrnambool (Vic); Caloundra, Gladstone, Gympie, Hervey Bay, Maryborough, Tewantin–Noosa, Warwick (Qld); Mount Gambier, Murray Bridge, Port Augusta, Port Lincoln, Port Pirie (SA); Albany, Bunbury, Geraldton, Mandurah (WA); and Burnie–Somerset, Devonport (Tas).
5. *Other rural areas* are the remaining statistical areas within the rural zone. Examples are Cowra Shire, Temora Shire, Guyra Shire (NSW); Ararat Shire, Cobram Shire (Vic); Cardwell Shire, Whitsunday Shire (Qld); Barossa, Pinnaroo (SA); Moora Shire, York Shire (WA); George Town, Ross (Tas); and Coomalie, Litchfield (NT).

Remote zone

These are generally less densely populated than rural statistical local areas and are hundreds of kilometres from a major urban centre. Data in this publication are reported for the zone which comprises the two areas shown below.

6. *Remote centres* are statistical local areas in the remote zone containing urban centres of population of 5,000 or more: Blackwater, Bowen, Emerald, Mareeba, Moranbah, Mount Isa, Roma (Qld); Broome, Carnarvon, East Pilbara, Esperance, Kalgoorlie / Boulder, Port Hedland, Karratha (WA); and Alice Springs, Katherine (NT).
7. *Other remote areas* are the remaining areas within the remote zone. Examples are: Balranald, Bourke, Cobar, Lord Howe Island (NSW); French Island, Orbost, Walpeup (Vic); Aurukun, Longreach, Quilpie (Qld); Coober Pedy, Murat Bay, Roxby Downs (SA); Coolgardie, Exmouth, Laverton, Shark Bay (WA); King Island, Strahan (Tas); Daly, Jabiru, Nhulunbuy (NT).

Hours worked

The total number of hours worked per week, excluding time spent on travel between work locations and unpaid professional and / or voluntary activities. The ABS definition of full-time and part-time work has been used:

- *full-time:* 35 hours or more per week;
- *part-time:* less than 35 hours per week.

Optometrist

A person engaged in the diagnosis and treatment of eye and vision disorders, and the prescription of lenses, contact lenses and other visual aides. Optometrists must have obtained at least a bachelor degree, and must be registered with the relevant State or Territory board in order to practice.

Optical mechanic/optical dispenser

A person engaged in the grinding, fitting, or dispensing of lenses and other optical appliances. The minimal educational requirement is an AQF Certificate III. Optical mechanics must be registered to practice.

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