

Australian Medical Workforce Advisory Committee

Australian Institute of Health and Welfare

**CHARACTERISTICS OF STUDENTS ENTERING
AUSTRALIAN MEDICAL SCHOOLS
1989 to 1997**

AMWAC Report 1997.7

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ABBREVIATIONS

ABS	Australian Bureau of Statistics
AHMAC	Australian Health Ministers' Advisory Council
AIHW	Australian Institute of Health and Welfare
AMWAC	Australian Medical Workforce Advisory Committee
Aust	Australia
DEETYA	Commonwealth Department of Employment, Education and Training and Youth Affairs
DHFS	Commonwealth Department of Health and Family Services
ESL	English as a second language
FTE	Full-time-equivalent
FUSA	The Flinders University of South Australia
GAMSAT	Graduate Australian Medical School Admissions Test
GMC	Graduate Medical Course
GMP	Graduate Medical Program
GP	General Practitioner
GPA	Grade Point Average
GSM	Graduate School of Medicine
HSC	Higher School Certificate
MBBS	Bachelor of Medicine, Bachelor of Surgery
MCAT	North American Medical College Admission Test
Monash	Monash University
MOSA	Monash Orientation Scheme for Aborigines
MTRP	Medical Training Review Panel
NSW	New South Wales
OTDs	Overseas Trained Doctors
Pop	Population
Qld	Queensland
RDRN	Rural Doctors Resource Network

RMO	Registered Medical Officer
RRMAC	Rural, Remote, Metropolitan Areas classification
RUSC	Rural Undergraduate Steering Committee
SA	South Australia
SACE	South Australian Certificate of Education
SES	Socio-economic status
TAP	Targeted Access Program
Tas	Tasmania
TER	Tertiary Entrance Rank
TPS	Tertiary Performance Score
TRD	Temporary Resident Doctor
UAC	University Admission Centre
UAd	University of Adelaide
UK	United Kingdom
UMAT	Undergraduate Medical Admissions Test
UMelb	University of Melbourne
UNC	University of Newcastle
Uni	University
UNSW	The University of New South Wales
UQld	The University of Queensland
US	United States of America
USyd	The University of Sydney
UTas	The University of Tasmania
UWA	The University of Western Australia
Vic	Victoria
WA	Western Australia

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MEMBERSHIP OF AMWAC

AMWAC was formed in early 1995 to assist with the development of a more strategic focus on medical workforce planning in Australia. AMWAC is an advisory body which reports to the Australian Health Ministers' Advisory Committee. The prime focus of AMWACs work is Australian medical workforce research and data analysis, although AMWAC also aims to provide workable policy solutions where appropriate.

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College of Surgeons)

PREFACE

This Report examines the impact of doctor characteristics on workforce structure, describes changes in the characteristics of medical students likely to impact on the structure of the future workforce, reports university medical school admission policies and strategies influencing the characteristics of medical students and discusses the likely impact of trends in medical student characteristics on the future Australian medical workforce.

The focus of the paper is medical school intake of Commonwealth Department of Employment, Education and Training and Youth Affairs (DEETYA) funded initial degree students. These students are Australian citizens and permanent residents of Australia. The Report does not examine the characteristics of full-fee paying international medical students nor does it address the characteristics of medical students undertaking postgraduate studies.

The Report draws on the literature, reports the findings of an AMWAC survey of Medical Schools and an analysis of data conducted by the Labour Force Unit of the Australian Institute of Health and Welfare (AIHW) of information provided by DEETYA.

The project was overseen by Professor John Hamilton, AMWAC member and Dean, Faculty of Medicine and Health Sciences, University of Newcastle (Until January 1998).

The Report was presented in draft form to the Deans of Medical Schools, August/September/October 1997 for their consideration and comment.

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- Staff of the General Practice Branch, Commonwealth Department of Health and Family Services (DHFS);
- Staff of the Faculty of Medicine and Health Sciences, University of Newcastle;
- Gail Garvey, Aboriginal Liaison Officer, University of Newcastle;
- Paul Gavel, Executive Officer, AMWAC;
- John Harding, Head, Labour Force Unit, AIHW.

EXECUTIVE SUMMARY

This report examines the characteristics of students entering Australian medical schools and explores potential community health consequences of changes in student characteristics. The focus of the paper is medical school intake of Department of Employment, Education and Training and Youth Affairs (DEETYA) funded initial degree students. These students are Australian citizens and permanent residents of Australia. The Report does not examine the characteristics of full-fee paying international medical students nor does it address the characteristics of medical students undertaking postgraduate studies.

Impact of doctor characteristics on workforce structure

- Doctor characteristics influence workforce structure, hence, the characteristics of medical students require monitoring and adjusting in line with changing population health needs. Among the most influential characteristics are age and gender. Less well understood are the influence of home background (rural, country of birth, Aboriginal and Torres Strait Islander, socio-economic status) and personal preferences on choice of specialty, location of practice and workforce participation.

Characteristics of the Australian medical workforce

- The current workforce is characterised by an oversupply of general practitioners in urban areas, a relative shortage of specialists and an undersupply of doctors in many rural and remote areas.
- Between 1984-85 and 1995-96 the number of Medicare providers increased by 48% from 27,327 (174 per 100,000 population) to 40,428 (224 per 100,000 population).
- The medical workforce is ageing, with 42.5% of the workforce aged 45 years and over in 1995, compared with 35% in 1981.
- In 1995, 27% of employed practitioners were women compared with 19% in 1981.
- In 1995, 16% of doctors were practising in a rural area (29% of the population resided in a rural area); and 0.05% of doctors were Aboriginal and Torres Strait Islanders (2% of the Australian population).
- In 1994, 61% of the medical workforce were born in Australia (75% of the population), 14% of doctors were born in the United Kingdom/Ireland (6% of the population), and 11.3% of doctors were born in an Asian country (4% of the population).

Medical student characteristics: 1989 to 1997

- Between 1989 and 1995, 9,441 students completed a medical course.
- Since 1989, there has been an 11.7% decrease in the number of students enrolling in

DEETYA funded initial degree medical courses, with most of this decrease associated with three universities having reduced intakes in 1994, 1995 and 1996 as they moved from a six year undergraduate entry program to a four year graduate entry program. In order to avoid any doubling up in medical student output, these universities took very few entries for two successive years. However, once all universities have a full intake of students it is expected that there will be little change in overall medical student numbers.

- States/Territories with medical student outputs in 1995 below their regional population share were Queensland, Western Australia and New South Wales/Australian Capital Territory while South Australia/Northern Territory and Tasmania had outputs above their regional population share. However, the appraisal of ratios of student outputs by State/Territory population would appear to be of diminishing relevance as a guide to determining the appropriateness of medical school quotas since the legal ruling that there be no State/Territory boundaries restricting professional opportunity, including access to training.
- The age at which students commence medical studies is increasing with almost 20% of commencing students in 1997 aged 25 years and over compared with 6.9% in 1989 and 6.6% in 1994. This trend is associated with changes in admission policies, most notably the move to graduate entry programs. This trend will influence the age at which completing students commence vocational training and therefore the lifetime contribution they make to the workforce.
- In 1997, 46% of commencing medical students were female and 54% were male. The trend is towards a gender mix among medical students close to that of the Australian community. However, there is wide variation among medical schools in the representation of women and some of this variation appears to be influenced by the ethnic mix of the student population as defined by country of birth.
- Aboriginal and Torres Strait Islander people represented 2.0% of the Australian population at the 1996 population census. Compared with this proportion, they are under-represented among medical students, although the percentage of Aboriginal and Torres Strait Islander medical students is rising. They represented 0.4% of commencing medical students in 1989 and 0.7% in 1997.
- Some progress has been made in increasing the representation of rural background students, with 10.7% rural in 1989 and 17.3% in 1997.
- There is an increasing diversity in the medical student body with regard to culture, country of birth and life experience. This is both a challenge and an opportunity to medical educators to provide an appropriate cultural and practical medical education which respects the diverse needs of students and prepares graduates to serve an increasingly diverse Australian population.

University policies and strategies: 1997 and beyond

- In the main, five criteria are employed to assess applicants to medical schools:
 - performance in Higher School Certificate (or equivalent such as the South Australian Certificate of Education);
 - performance in prior university studies;
 - for graduate entry students only, performance in the Graduate Australian Medical Schools Admissions Test (GAMSAT);
 - ability as indicated by performance in psychometric tests such as the Undergraduate Medical Admissions Test (UMAT);
 - performance in structured interview.

- At both graduate and undergraduate entry levels, the aim of the evolving admissions procedures is to select students who are academically able and who possess other skills and personal qualities appropriate to the study and practice of medicine.

- Changes are expected in both graduate entry and undergraduate entry medical schools. These changes are likely to:
 - alter the mix of students studying medicine to a group more representative of the wider community;
 - increase the number of rural background students entering medical courses; and
 - to a lesser extent, increase the number of Aboriginal and Torres Strait Islander students entering a medical course.

- There is increasing collaboration among medical schools in the selection of medical students.

- There is growing awareness among medical schools of the need to implement and foster strategies which lead to the graduation of more Aboriginal and Torres Strait Islander doctors and graduates who want to work in rural areas.

Issues requiring further attention

- As the AIHW statistical profile concludes (see Appendix), in terms of meeting current and future workforce requirements the data suggests:
 - there are imbalances in the numbers of medical students among the States when medical student distribution is compared to the medical workforce provision per 100,000 population and population distribution among the States and Territories. However, preliminary studies indicate an increase in the movement of commencing medical students between States. For example in 1996, three quarters of commencing medical students at the Flinders University of South Australia were from interstate and in 1997, one third of medical students enrolled at the University of Newcastle were from interstate;

 - the relative and absolute numbers of students training in Queensland and Western

Australia will be inadequate to replace temporary resident overseas trained doctors (TRDs) employed in those States and other strategies may be needed after 1 January 2000 when TRDs will not be deemed as medical practitioners for Medicare purposes; and

- there are considerable differences among universities in the proportions of rural and Aboriginal students.
- The impact on the workforce of changes in the age, gender and ethnic profile (as defined by country of birth) of medical students requires monitoring and further analysis. The introduction of graduate-entry medical degrees at three universities will increase the average age of completing students and, in turn, shorten their lifetime contribution to the workforce.
- The University of Newcastle is providing a powerful lead in the graduation of Aboriginal and Torres Strait Islander doctors. The recruitment, admission and support strategies used by the University are worthy of wider consideration.
- In view of the changes occurring within medical schools and the external environment, it is important that medical schools continue to work with the AMWAC in the establishment of a longitudinal data set to:
 - monitor the characteristics of the future workforce and the effects of any university policy changes on workforce participation and distribution;
 - identify factors in the learning experience which influence career choices;
 - monitor the effects of the movement of students between States on workforce distribution;
 - and
 - evaluate the effectiveness of policy changes implemented by the various medical schools to address workforce issues.

1 INTRODUCTION

This paper examines the characteristics of students entering Australian medical schools and explores potential community health consequences of changes in student characteristics. The objective is to assist in informing governments of any long term implications of these changes for the structure of the Australian medical workforce.

The focus of the paper is medical school intake of DEETYA funded initial degree students. These students are Australian citizens and permanent residents of Australia. The Report does not examine the characteristics of full-fee paying international medical students nor does it address the characteristics of medical students undertaking postgraduate studies.

Issues of particular interest are student demographic characteristics (age, gender and student background, namely, rural/non rural, Indigenous/non-Indigenous, country of birth and socio-economic status) and the likely impact of university admission policies and procedures, including affirmative action strategies, on student recruitment.

Mature age admission policies and graduate medical courses are influencing the age at which students begin to study medicine, as well as the life experiences that they bring to the study and practice of medicine. Community expectations are also influencing the characteristics of medical students. For example, the community expects that women enjoy equity of opportunity in accessing medical courses and that doctors with appropriate expertise are available in areas where they are most needed. It is common knowledge that Australia's population is ageing, that Indigenous Australians experience poor health status and that rural communities lack doctors while urban areas are oversupplied.

Age and gender are known to have a substantial impact on doctor supply and distribution (AMWAC/AIHW, 1996b). Among the factors influenced by age and gender are average hours worked, level of part time work, age of retirement, location of practice, type of practice and type of problems managed. Hence, change in the age and gender of students entering medical schools requires consideration by workforce planners. Less is known about the effects of doctor country of origin on workforce participation and distribution of graduate doctors. Anecdotal evidence suggests that it may be important. Information about trends in the number of students entering medical courses from Aboriginal and rural backgrounds provides insight into the effectiveness of university affirmative action policies.

This paper does not provide a history of the evolution of medical education in Australia, nor the factors that have led to policy changes in the selection of medical students. Nor does it explore the influence of inputs beyond university entrance (such as university experience, hospital intern year, general practice training and specialty training) on the characteristics of medical trainees and the impact they ultimately have on the community. It is anticipated that some of these issues will be addressed in future AMWAC work.

The entering class for each medical school is determined both by the choice of those who apply and also by the selection process of the school. If there is any one recommendation that led to a new direction for medical school selection it is that of the Karmel Committee, 1973, which stated:

“The case was repeatedly put to the Committee that there was a need in Australia for a different kind of medical graduate; one more versed in the ways of people as psychological and sociological beings and not simply as physically malfunctioning organisms. It was argued that a new school could be more innovatory than an existing one. The Committee agrees that both the present methods of selecting students for medical school and the nature of the medical course inhibit the production of doctors who have a holistic approach to humans as social beings.”

The Karmel Report was important because it articulated the need for a review of medical student selection and curriculum and also because it was the basis of the decision to establish a new medical school, at Newcastle, as the means of introducing such new approaches. In the course of time other schools, taking note of local and international experience, have introduced changes in their own policies. The Australian Medical Council has added its support to innovation in medical school selection and evaluation of its impact and there is now across the country a much more diverse system of selection encompassing assessments of both academic and personal qualities of applicants.

Medical student characteristics

Medical student characteristics of interest are:

- age
- gender
- admission status (school leaver, mature age, graduate)
- home location (urban/rural)
- country of birth
- Indigenous/non-Indigenous
- socio-economic status

Definitions

Aboriginal and Torres Strait Islander medical student - a person enrolled as a medical student who self reported he/she was an Aboriginal and Torres Strait Islander.

Commencing medical student - a person enrolled at the reference date (March 31) and has enrolled for the first time in an accredited undergraduate or graduate entry degree in medicine since the last reference date.

Completing medical student - a person who completed all academic requirements for admission to an award marking the completion of undergraduate medical education from the university during the year ended 31 December.

State/Territory and region (rural urban) of origin - the DEETYA data show a student's State and region of origin (ie., capital city, other metropolitan centre, large rural centre, other rural area, remote) based on the postcode of home address reported at time of initial enrolment in the course. There is some evidence that this may not be an entirely accurate measure of a student's State and region of origin. Students who do not enter higher education direct from school or transfer to medicine from another course may be expected to report a home address close to the institution of study. This will be particularly evident for students in graduate entry courses.

Socio-economic status - is based on the postcode of home address reported at time of initial enrolment in the course. As with State/Territory of origin, this may not be an accurate measure of a student's socio-economic status.

Undergraduate medical student- a person enrolled in a medical course classified as undergraduate entry or graduate entry bachelor.

A graduate entry bachelor course is at bachelor level with an entry requirement of a previous relevant bachelor degree. Three medical schools offer graduate entry bachelor courses; the Flinders University of South Australia, Sydney University and the University of Queensland.

Methodology

The approach has been to review the literature, analyse existing data sources, particularly the data held by DEETYA, with the assistance of the AIHW and to survey medical schools. The response rate to the survey of medical schools was 100%.

Structure of the Report

Chapter 2 examines the impact of doctor characteristics on the structure of the workforce and Chapter 3 describes trends in the characteristics of the Australian medical workforce. Chapters 4 and 5 use data from an AMWAC survey of medical schools and from DEETYA and the AIHW to explore trends in the characteristics of students entering Australian medical schools and to report current university admission policies and expected policy changes. The final Chapter offers a short discussion on the possible impact of changes in student characteristics on Australian medical workforce participation and distribution. More detailed work in this area will be presented in the review of Australian medical workforce benchmarks currently being undertaken by AMWAC and the AIHW.

The appendix provides a statistical profile of Australian resident undergraduate medical students using data provided by DEETYA. Review of this data by Medical School Deans revealed some discrepancies between data provided by universities to DEETYA and Medical School records. Where appropriate, changes have been made.

2 THE IMPACT OF DOCTOR CHARACTERISTICS ON MEDICAL WORKFORCE STRUCTURE

Among doctor characteristics known to influence the structure of a medical workforce are age, gender, home-background, socio-economic status and ethnicity as defined by country of birth.

Age

The AMWAC/AIHW (1996a) report *Australian Medical Workforce Benchmarks* found that age has a substantial influence on workforce participation. Table 1 shows that doctors over the age of 60 years, work, on average, less hours per week than younger doctors. Doctors working the longest hours are those aged under 25 years as hospital non specialists, with little difference in the average hours worked by males and females.

Table 1: Average hours worked per week by clinicians on the direct care of patients: job type, by age and sex, 1995

Job type	Age (years)											Total
	<25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 +	
Males												
Primary care practitioner	0.0	42.8	45.1	46.8	47.4	48.4	48.5	45.8	43.3	37.7	31.7	45.4
Hospital non-specialist	54.6	52.4	51.1	45.7	43.6	42.7	44.8	42.2	36.3	37.6	50.0	50.2
Specialist	0.0	80.0	43.0	45.9	47.4	47.8	45.6	44.7	40.6	32.6	24.5	44.2
Specialist-in-training	0.0	53.3	49.6	49.6	47.4	48.2	57.1	0.0	0.0	0.0	0.0	50.7
Total	54.2	50.9	47.1	46.4	47.2	48.0	46.8	45.1	41.6	35.5	28.8	45.7
Females												
Primary care practitioner	0.0	36.1	28.7	28.2	31.5	35.2	34.6	34.6	31.0	26.3	27.9	31.2
Hospital non-specialist	52.4	51.8	43.1	40.6	36.3	37.4	35.8	31.5	30.0	32.5	19.3	47.5
Specialist	0.0	50.0	32.3	33.4	36.5	36.4	38.3	37.3	30.0	23.5	14.8	35.0
Specialist-in-training	0.0	51.5	46.6	43.0	42.4	42.2	35.3	0.0	0.0	0.0	0.0	47.4
Total	52.5	47.4	34.6	31.1	33.3	35.8	36.1	35.7	30.7	25.6	24.0	36.1

Source: AIHW (1997) Medical Labour Force Survey, 1995.

Monk (1973) found that older medical graduates were more likely to enter general practice, suggesting that age has an influence on choice of specialty.

Gender

The AMWAC/AIHW (1996b) report on *Female Participation in the Australian Medical Workforce* observed that women participate in the workforce at a lower rate than men. This report concluded that on average, the female medical practitioner makes a significantly smaller lifetime hours worked contribution when compared with the average male medical practitioner. The average female hours worked contribution is estimated to be 68% of the average male contribution. For vocationally registered general practitioners (GPs), this proportion is estimated to be 63%, and for specialists is 75%. However, this latter figure varies among specialties (AMWAC/AIHW, 1996b).

The average hours worked by full time female clinicians is very similar to that of full time male clinicians, as are the average hours worked by male and female registered medical officers (RMOs) and interns, and male and female specialists in training. The difference that occurs between male and female clinicians in total hours worked is largely due to the number of female clinicians who prefer to work part time (ie., less than 40 hours per week) and to the fact that female doctors retire, on average, at least five years earlier than male doctors. In 1995, 53% of female vocationally registered primary care practitioners were working part time compared with 11% of males. Among other workforce subgroups, 31.4% of female specialists were working part time compared with 11.9% of males, 39% of female career medical officers were working part time (8.9% of males) and 5% of female interns and RMOs were working part time (3.1% of males) (AIHW, 1997).

There is evidence that male practitioners are choosing to work fewer hours than in the past. This is consistent with general social trends. For example, Conn (AIHW, 1995) observed that population census data from 1981, 1986 and 1991 indicate that average hours worked by males has fallen, with a small increase in the proportion of males working part time. Furthermore, Conn noted that a fall in average hours worked and earlier retirement need to be considered in supply modelling of medical workforce over the next 20 years, with attention to such possibilities as job sharing and permanent part time work.

Gender also appears to influence type of practice. For example, AMWAC/AIHW (1996b) found that 54.4% of female medical graduates were working as general practitioners compared with 41.9% of males, while 14.4% of all specialists were female. Surgery had the lowest representation of women (3%) and psychiatry and dermatology had the highest, with approximately one fifth of specialists being female. A higher proportion of young specialists were women, namely, 28.4% of all specialists aged 30 to 34 years and 21.2% of those aged 35 to 39 years. This change reflects the changing profile of graduating classes over the past decade.

Similarly, the recently completed first report of the Medical Training Review Panel found that in terms of vocational training, 42% of trainees are female, ranging from 62% of paediatric

medicine trainees to 17.2% of surgery trainees. In addition to paediatric medicine, other specialist training programs which currently have a high level of female participation are general practice (56.6%), public health medicine (50.7%), obstetrics and gynaecology (48.9%), pathology (46%), psychiatry (44.6%) and dermatology (38%) (MTRP, 1997).

The AMWAC/AIHW report (1996b) also found that 17% of female GPs were located in rural or remote areas compared with 22.5% of male GPs. Similarly, 7% of female specialists were located in rural and remote areas compared with 12.7% of male specialists.

Britt et al., (1996) found that gender influences the type of problems managed by doctors. For example, 70% of encounters with female general practitioners were with female patients compared with 55.8% for male GPs. Furthermore, female practitioners reported more problems on average per encounter and consultations with them were almost twice as frequently billed as long consultations (AMWAC/AIHW, 1996b). These researchers concluded that male and female GPs manage very different types of morbidity, and that, in the future, female GPs and male GPs may become semi-specialised in respect of the sub-populations each serve.

Home background

Australian and overseas research has suggested that growing up in a rural area has an influence on doctors choosing to practise in a rural area (Collinson, Reid and Colwill, 1976; Carter, 1987; McDonald, 1990; Rourke, 1993; Rabinowitz, 1993; Rolfe, Pearson, et al., 1995). Recently, the Rural Doctors Resource Network of New South Wales found that 35.5% of participants in their survey of rural New South Wales specialists grew up in rural areas (RDRN, 1997). Similarly, AMWAC found that 32% of rural general surgeons grew up in the country (AMWAC, 1997). This issue requires further research in Australia.

In the United States (US), researchers have found a strong relationship between medical school orientation and location and propensity for graduates to work in a rural area (Rosenblatt, Whitcomb et al., 1992). Notably, universities located in rural states, publicly funded to produce doctors to work locally and with a strong orientation towards family medicine, succeeded in producing more graduates who were working in rural areas ten years post-graduation. Conversely, universities with large research subsidies from the National Institute of Health and with an orientation toward hospital-based specialist practice produced significantly fewer graduates who chose to work in rural areas. Similarly in Norway, Magnus and Tollan (1993) found a strong association between student background, location of training and propensity to work in a rural area.

In Australia, Rolfe, Pearson et al. (1995) concluded that location of medical training (in a rural area) and medical school strategies (such as emphasis on rural medicine) had a positive influence on location decisions of graduates. Consistent with these findings, the New South Wales Central West Division of General Practice (1997) proposes the preferential selection into specialist training positions for students who do rural undergraduate terms, internships and RMO years. The influence of university location and curriculum on practice location requires

further research in Australia.

Socio-economic status

At the University of Auckland, Collins and White (1993) found that level of affluence influenced the academic course which students entered, with 69% of medical students being from high socio-economic backgrounds, compared with 55% of non-medical students and 18.5% of the New Zealand male workforce. Similar findings have been reported among students in the United Kingdom (UK) and North America (McManus and Richards, 1984; Gough and Ducker, 1977). There is some evidence that socio-economic background influences choice of specialty with graduates from less affluent backgrounds more likely to enter general practice (Gough and Ducker, 1977; Ernest and Yett, 1984).

In the US, Colquitt, Zeh et al., (1996) found that debt accrued during medical training influences choice of specialty and that student decision-making varies significantly by level of expected income, type of loan and region of anticipated practice.

Country of birth

Of Australian undergraduate medical students with permanent resident status, 40% are born overseas (Dobson, 1997). The AMWAC/AIHW (1996b) *Female Participation in the Medical Workforce* working party concluded that further research was required to determine the effects of country of origin or culture on career choice.

Personal preferences

In the US, Martini et al., (1994) found that the most influential factors under the control of medical schools were the criteria used to admit students, the design of the curriculum and faculty role models. Personal social values were the characteristics of the individual student most influential in graduates' career choice. Medical schools which gave preference to applicants who had decided to be generalists before entering medical school produced significantly greater numbers of generalists.

3 CHARACTERISTICS OF THE AUSTRALIAN MEDICAL WORKFORCE

The following text briefly outlines the profile of Australia's medical workforce by age, gender, home background (ie., rural/non-rural), Aboriginal and Torres Strait Islander/non-Aboriginal, and country of birth. It should be noted that in order to make the comparisons it has been necessary to compare different data collections. Furthermore, comparisons are only possible on broad indicators as it is only in recent years that detailed medical workforce data have been collected.

Number of medical practitioners

Between 1984-85 and 1995-96 the number of medical practitioners providing Medicare services increased by 47.7% from 27,327 to 40,428 (AIHW 1997). Per 100,000 population there were 174 Medicare providers in 1984-85 and 224 in 1995-96. Groups in which below average increases occurred were pathologists, obstetricians/gynaecologists, dermatologists and primary care practitioners (Table 2).

Table 2: Medicare providers, by peer group and specialty, 1984-85 to 1995-96

Peer group/specialty ^a	1984-85	1989-90	1991-92	1993-94	1995-96	% change 1984-85 to 1995-96
Primary care practitioner	16,951	21,647	22,746	23,587	24,376	43.8
Anaesthetist	1,264	1,618	1,764	1,892	2,022	60.0
Dermatologist	204	237	242	260	275	34.8
Diagnostic imagist	853	1,040	1,159	1,247	1,436	68.3
Obstetrician/gynaecologist ^b	833	899	923	930	968	16.2
Pathologist	545	644	670	616	586	7.5
Physician	2,233	2,854	3,143	3,477	3,868	73.2
Psychiatrist	1,028	1,331	1,437	1,555	1,615	57.1
Radiation oncologist	57	102	106	113	130	128.1
Surgeon	3,188	3,884	4,140	4,418	4,714	47.9
Other medical	216	246	271	356	438	102.7
Total	27,372	34,502	36,601	38,451	40,428	47.7

a - the figures for each specialty group include specialists and non-specialists whose Medicare activity is predominantly provision of specialist services

b - figures for this specialty include in-vitro fertilisation specialists

Source: Medical Labour Force, 1995, AIHW (1997)

Age

Figure 1 indicates that between 1981 and 1995 the medical workforce in Australia has aged. In 1981, 35.5% of the clinical workforce was aged over 45 years while in 1995, 42.5% was in this age group and 20% were aged 55 years or over (Wong and King 1994; AMWAC/AIHW, 1996a; AIHW, 1997).

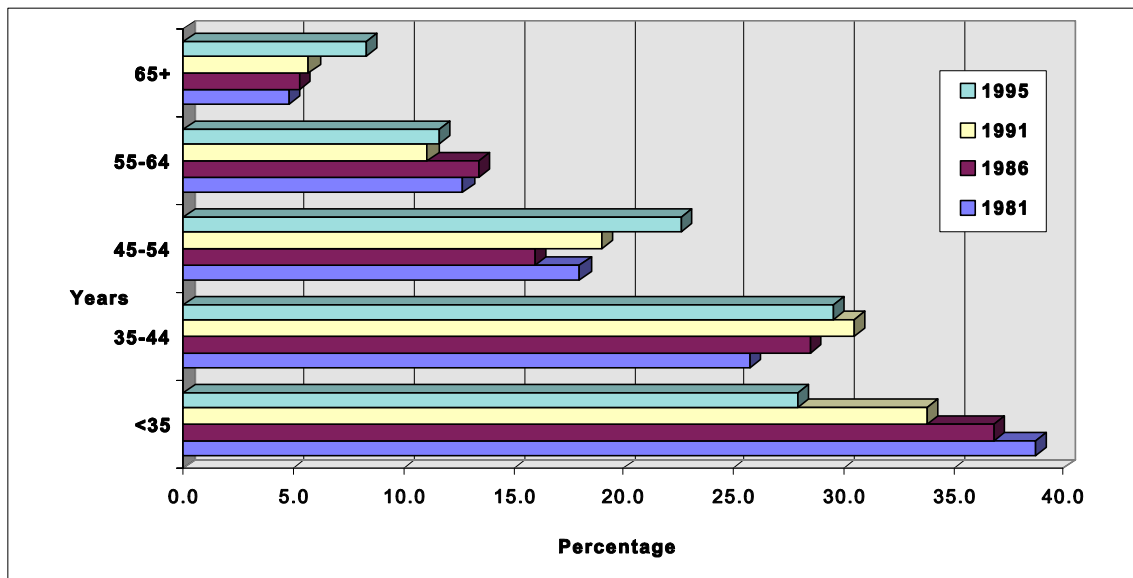


Figure 1: Trends in the age profile of the Australian medical workforce, 1981 to 1995

Sources: Wong, S. and King, B. (1994), Medical Workforce Australia, 1991 Census, AIHW and Medical Labour Force, 1995, AIHW (1997)

Gender

In 1981, 19% of the workforce was female. By 1986, female doctors had increased to 22.7% and in 1995 to 27%. This trend is expected to increase due to the increasing number of female medical students and the comparatively large number of male clinicians aged 55 years and over (24% in 1995 compared with 8.0% of female clinicians) (AIHW, 1997).

There is substantial variation in the representation of female doctors according to type of practice (Table 3). For example, in 1995, 31.6% of primary care doctors were women, while 14% of specialists and 31.6% of specialists-in-training were women (AIHW, 1997).

Table 3: Trends in the gender profile of the Australian medical workforce, 1981 to 1995

Type of practitioner	1981 ^a		1986 ^a		1995 ^b	
	Male	Female	Male	Female	Male	Female
Primary care practitioner					14,379	6,658
Hospital non specialist					3,067	2,221
Specialist					13,175	2,143
Specialists in training					3,056	1,412
Total	21,976	5,141	25,335	7,448	33,678	12,433
%	81.0	19.0	77.3	22.7	73.0	27.0

a - ABS Census data

b - Medical Labour Force, 1995, AIHW (1997)

Between 1981 and 1991, the percentage of females with medical qualifications under 30 years of age who were not practising declined from 29.5% to 16.8%, a percentage similar to that of males. Female non-participation in the workforce was at its highest in the 30 to 34 year age group at around 25-28% declining to 16-18% in the 45 to 49 year age group (AMWAC/AIHW, 1996b).

Home background: rural

In Australia, the need exists for recent graduates in medicine to locate and practise in rural areas, including remote Aboriginal and Torres Strait Islander communities. Approximately, 29% of Australians live in rural and remote areas (DHFS, 1997).

In 1995, 16.3% of employed medical practitioners practised in a rural area. Of these doctors, 94.6% worked in a rural or remote area in their main job and 5.4% (428) worked in a metropolitan area in their main job and a rural or remote area in their second or third job. Per 100,000 people there were 87.5 primary care practitioners in rural and remote areas, compared with 128.6 per 100,000 in metropolitan areas (AIHW, 1997).

In 1995, 22% of primary care practitioners and 14% of specialists were located in a rural or remote area (AIHW 1997). There is a comparatively high annual turnover (30%) of doctors in remote areas and a heavy reliance on temporary resident doctors in rural and remote areas of Queensland and Western Australia (AMWAC, 1996).

Home background: Aboriginal and Torres Strait Islander

Aboriginal and Torres Strait Islander people constitute 2% of the total Australian population, namely 352,970 people in 1996 (ABS, 1997). In 1996, there were 26 Aboriginal and Torres Strait Islander medical graduates, representing 0.05% of the medical workforce based on

practitioners employed in medicine (Garvey, 1997; ABS/AIHW, 1997; AIHW, 1997).

The representation of Aboriginal and Torres Strait Islander people varies substantially by State/Territory, with over half of Indigenous people in two States; New South Wales (28.8%) and Queensland (27%). A further 14.4% reside in Western Australia (50,793) and 13.1% in the Northern Territory (46,277). In each of these States/Territories Aboriginal and Torres Strait Islander people represent 3% or less of the total population, except in the Northern Territory where they constitute 23.7% of the population (ABS, 1997).

There were 512 medical practitioners who worked in an Aboriginal health service in 1995, with 148 clinicians per 100,000 persons of the Aboriginal and Torres Strait Islander population. Of these medical practitioners, 57.5% were employed in a metropolitan area (AIHW, 1997).

Country of birth

In 1991, 39% of employed persons in Australia with a highest qualification in medicine were born overseas. Of these medically qualified people who were born in the UK, Ireland and Europe, 90% were employed as a medical practitioner, while 73% of medically qualified people from North America and 78% of doctors from Asian countries were so employed (Wong and King, 1994).

Table 4 indicates that in 1991, the largest group of overseas born medical practitioners was from Asia and the next largest from the UK and Ireland. The 1994 data indicate an increase in the number of doctors from the UK/Ireland (from 11% in 1991, to 14% in 1994), a decrease in the number of doctors from other countries (eg., North America), while there has been little change in the number of Asian-born doctors. The increase in the number of doctors in the workforce from the UK and Ireland was caused by a rapid increase during the 1990s in the employment of TRDs, most of whom were recruited from the UK and Ireland. In 1994-95, 882 TRDs from the UK and Ireland entered Australia for employment, out of the total TRD intake of 1,171 (AIHW, 1997).

Table 4: Australian medical practitioners, by country of birth, 1991 and 1994

Country of birth	1991 census		1994 AIHW survey	
		%		%
Australia	24,340	58.2	26,312	61.1
New Zealand	696	1.7	1,324	3.1
UK/Ireland	4,657	11.1	6,080	14.1
Africa	1,211	2.9	1,046	2.4
Asia	4,969	11.9	4,855	11.3
Other countries	5,948	14.2	3,394	7.9
Total	41,821	100.0	43,010	100.0

Sources: Wong, S. and King, B. (1994) Medical Workforce Australia, 1991 Census, AIHW, Canberra and

Medical Labour Force, 1994, AIHW (1996)

Table 5 examines region of main job by country of birth of Australian medical practitioners and shows a higher proportion (21.7%) of doctors from the UK and Ireland located in a rural area. This may reflect TRD recruitment practices during the early 1990s. Only 13.9% of Australian born doctors and 12.5% of Asian born doctors were located in a rural area (AIHW, 1996). Further evidence involving longitudinal observations is required before conclusions can be drawn about medical practitioner country of birth and location of practice.

Table 5: Australian medical practitioners country of birth, by medical practitioner region of main job, 1994

Country of birth	Capital city	Other major urban	Major rural	Rural other	Remote major	Remote other	Total
<i>Per Cent</i>							
Australia	75.8	10.3	8.7	4.2	0.5	0.4	26,313
New Zealand	69.0	17.8	9.4	2.6	0.4	0.7	1,324
UK/Ireland	63.1	15.6	14.6	5.3	0.4	0.9	6,080
South Africa	73.7	9.6	13.2	3.2	0.4	0.0	1,045
Asia	82.4	5.1	8.5	3.0	0.9	0.0	4,856
Other countries	78.5	8.0	8.1	4.1	0.9	0.4	3,392
<i>Number</i>							
Total	32,147	4,511	4,135	1,788	250	179	43,010
%	74.7	10.5	9.6	4.2	0.6	0.4	100.0

Source: Medical Labour Force, 1994, AIHW 1996

Summary of the characteristics of the Australian medical workforce

The current medical workforce is characterised by an oversupply of general practitioners in urban areas, a shortage in some specialties and an undersupply of doctors in many rural and remote areas.

The medical workforce is ageing, with 35% of the workforce aged 45 years and over in 1981 and 42.5% in 1995. Furthermore, 20% of clinicians in 1995 were aged 55 years or over.

In 1981, women represented 19% of the medical workforce. In 1995, 27.2% of employed medical practitioners were female. This trend is expected to increase because of the comparatively large number of male clinicians aged 55 years; 24.0% in 1995 compared with 8.0% of female clinicians.

There is substantial variation in the representation of female doctors according to type of practice (Table 3). In 1995, 31.6% of primary care doctors were women, while 14% of specialists and 31.6% of specialists-in-training were women (AIHW, 1997).

The workforce is more urbanised than the Australian population. In 1995, 22% of primary care practitioners and 14% of specialists were located in a rural area compared with 29% of the population. Furthermore, there is a high turnover of doctors working in remote areas.

In 1996, Aboriginal and Torres Strait Islander people accounted for 2% of the Australian population and 0.05% of the medical workforce.

Between 1991 and 1994, little change occurred in the ethnic profile of the workforce as defined by country of birth. In 1994, Australian born doctors accounted for 61% of the workforce while UK/Ireland born doctors and Asian-born doctors represented 14% and 11.3% of the workforce respectively.

4 MEDICAL STUDENT CHARACTERISTICS: 1989 to 1997

This chapter draws on data from a 1997 AMWAC survey of medical schools, the AIHW analysis of DEETYA data (see Appendix), and the literature to describe changes in the characteristics of DEETYA funded initial degree medical students between 1988 and 1997. During this period, three universities were in transition from a six year undergraduate degree to a four year graduate-entry degree. Each university had a two year transition period, during which only a small number of students were admitted. The first intake to the course at the Flinders University of South Australia was in 1996 and the first intakes to the courses at the University of Queensland and the University of Sydney occurred in 1997.

Course commencements and completions

Between 1989 and 1996, there were 9,765 initial degree students who commenced the medical course and between 1988 and 1995, 9,441 students completed the course (Table 6 and Appendix).

In 1989, there were 1,371 students who commenced the undergraduate medical degree, and six years later 1,235 completed the degree. Although this suggests an attrition rate of 10%, the true attrition rate is much higher and cannot be accurately determined, as losses are offset to some extent by transfers in by students and graduates from other courses, and some students extend the training period after taking leave of absence for illness, child birth and other reasons.

Table 6: Commencing and completing initial medical degree students, 1988 to 1997

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Commencing students	-	1,371	1,405	1,384	1,323	1,293	1,205	856	928	1,211
Completing students	1,305	1,187	1,014	1,144	1,081	1,234	1,235	1,241	-	-

Source: For the years 1988 to 1996, Appendix: Tables 1 and 5, and for 1997, AMWAC 1997 Survey of Medical Schools.

Table 7 examines course commencements by State/Territory. Between 1989 and 1997 the number of students enrolling in the first year of a medical course declined by 11.7% with the largest decrease in New South Wales (29.9%) and smaller decreases in South Australia (9.8%), Tasmania (4.1%) and Victoria (3.0%). It should be noted that the observed decrease in New South Wales is associated with the University of Sydney being in transition from an undergraduate entry program to a graduate entry program.

Table 7: Commencing initial medical degree students, by State/Territory, 1989 to 1997

State	1989	1990	1991	1992	1993	1994 ^a	1995 ^a	1996 ^a	1997	% change 1989-1997
<i>Number</i>										
NSW	481	467	454	444	423	375	243	259	337	-29.9
Vic	335	348	346	322	318	328	329	337	325	-3.0
Qld	223	238	229	223	215	222	6	2	230	3.1
SA	164	183	181	168	162	109	103	154	148	-9.8
WA	119	121	125	118	125	122	122	123	120	0.8
Tas	49	48	49	48	50	49	53	54	51	-4.1
Total	1,371	1,405	1,384	1,323	1,293	1,205	856	929	1,211	-11.7
<i>Percent</i>										% of 1997 pop.
NSW	35.1	33.2	32.8	33.6	32.7	31.1	28.4	27.9	27.8	35.6
Vic	24.4	24.8	25.0	24.3	24.6	27.2	38.4	36.3	26.8	24.8
Qld	16.3	16.9	16.5	16.9	16.6	18.4	0.7	0.2	19.0	18.3
SA	11.9	13.0	13.1	12.7	12.5	9.1	12.0	16.6	12.2	9.1
WA	8.7	8.6	9.0	8.9	9.7	10.1	14.3	13.2	9.9	9.7
Tas	3.6	3.4	3.5	3.6	3.9	4.1	6.2	5.8	4.2	2.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a - These data are biased for South Australia in 1994 and 1995, and for New South Wales and Queensland in 1995 and 1996 due to the transition from a six year undergraduate entry course to a four year graduate entry course at the Flinders University, the University of Sydney and the University of Queensland.

Source: For the years 1989 to 1996, Appendix: Section 4.2, and for 1997, AMWAC 1997 Survey of Medical Schools.

Table 8 outlines trends in the number of people completing the initial medical degree by State/Territory in which they studied medicine and compares the proportion completing in each State/Territory in 1995 with the distribution of the Australian population. States/Territories with student outputs below their State/Territory share of the population are Queensland, Western Australia and New South Wales. States/Territories with outputs above their share of the population are South Australia/Northern Territory and Tasmania.

Table 8: Completing initial medical degree students, by State/Territory, 1989 to 1995

State/Terr.	1989	1990	1991	1992	1993	1994	1995	% change 1989-1995
<i>Number</i>								
NSW/ACT	433	264	379	263	407	427	429	- 0.9
Vic	309	280	285	290	330	294	308	-0.3
Qld	166	191	183	196	203	197	216	30.1
SA/NT	143	137	162	182	144	159	148	3.5
WA	86	103	102	109	104	109	97	12.8
Tas	50	39	33	41	46	49	43	-12.0
Total	1,187	1,014	1,144	1,081	1,234	1,235	1,241	4.5
<i>Percent</i>								
% 1995								
pop.								
NSW/ACT	36.5	26.1	33.1	24.3	33.0	34.6	34.6	35.6
Vic	26.0	27.6	24.9	26.8	26.7	23.8	24.8	24.8
Qld	14.0	18.8	16.0	18.1	16.5	16.0	17.4	18.3
SA/NT	12.0	13.5	14.2	16.8	11.7	12.9	11.9	9.1
WA	7.2	10.2	8.9	10.1	8.4	8.8	7.8	9.7
Tas	4.2	3.8	2.9	3.8	3.7	3.9	3.5	2.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Appendix: Section 4.2

Table 9 and Appendix (Tables 9 and 10) indicate that the majority of medical students choose to study in their home State. However, some universities attract a substantial and growing number of interstate students. Universities attracting the highest proportion of interstate students in 1996 were the Flinders University of South Australia (75.4% of commencing students), University of Newcastle (30%), University of Tasmania (26%) and the University of New South Wales (12%).

The movement of medical students across State/Territory boundaries has increased since the legal ruling that there be no State/Territory boundaries to restrict professional opportunity, including access to training. Furthermore, there is some evidence that the postcode of home residence may not be an entirely accurate measure of a student's State/Territory of origin. For example, students who do not enter higher education direct from school or transfer to medicine from another course may be expected to report a home address close to the institution of study. Hence, the appraisal of ratios of student places to State/Territory population may be less relevant as a guide to determining an appropriate number of medical students for each State/Territory.

Table 9: Commencing students, by university and State/Territory of home residence, 1996

University	NSW ^a	Vic	Qld ^a	SA	WA	Tas	ACT	NT	interstate	%
NSW/ACT										
- UNSW	148	1	16	0	2	0	6	0	12.0	
- USyd	20	0	0	0	0	0	0	0	0.0	
- UNC	44	4	5	1	1	0	7	1	30.1	
Vic										
- Monash	0	134	5	0	0	0	0	0	3.6	
- UMelb	1	183	9	1	0	0	3	0	7.1	
Qld										
- UQld	0	0	2	0	0	0	0	0	0.0	
SA/NT										
- UAd	3	0	0	86	2	0	1	0	6.5	
- FUSA ^b	8	15	5	15	10	1	5	2	75.4	
WA										
- UWA	2	1	1	0	119	0	0	0	3.2	
Tas										
- UTas	3	7	3	0	0	40	0	1	25.9	
Total	226	337	45	121	129	41	20	3	928^c	

a - the data are biased for New South Wales and Queensland due to the University of Sydney and the University of Queensland being in transition from a six-year undergraduate medicine course to a four-year graduate entry course.

b - this data differ from that provided in Appendix: Table 10, following revision by the School of Medicine, Flinders University of South Australia.

c - this figure includes six students whose State of home residence was unknown.

Source: Appendix: Table 10

Admission status, 1997

In 1997, 57.6% of commencing medical students were school leavers, 37.9% had a university degree and 4.5% had undertaken prior university studies but had not completed a degree (Table 10).

States with above average numbers of students with prior university experience are New South Wales, Queensland and South Australia, namely, states in which universities are employing graduate-entry admission policies. Queensland, whose only school is graduate entry, has the highest proportion of students with prior university experience and Victoria, with no graduate entry program, has the lowest proportion.

Table 10: Academic admission status of commencing medical students, 1997

State/University	School leavers	Completed degrees	Partially completed degrees	Total
NSW				
- University of NSW	135	1	9	145
- University of Newcastle	24	26	17	67
- University of Sydney	0	125	0	125
<i>Total</i>	<i>159</i>	<i>152</i>	<i>26</i>	<i>337</i>
Victoria				
- Monash University	135	1	9	145
- University of Melbourne	174	0	6	180
<i>Total</i>	<i>309</i>	<i>1</i>	<i>15</i>	<i>325</i>
Queensland				
- University of Queensland	0	230	-	230
South Australia				
- University of Adelaide	89	0	1	90
- Flinders University	0	58	0	58
<i>Total</i>	<i>89</i>	<i>58</i>	<i>1</i>	<i>148</i>
Western Australia				
- University of WA	101	11	8	120
Tasmania				
- University of Tasmania	40	7	4	51
Total	697	459	54	1,211

Source: AMWAC 1997 Survey of Medical Schools.

Age

There was little change in the age distribution of commencing medical students between 1989 and 1994, with 6.9% of students 25 years of age and over in 1989 and 6.6% in 1994 (Table 11). However, there was a substantial change in the age distribution of commencing students between 1994 and 1997, with 18.5% of commencing students in 1997 being 25 years of age and over, representing an average annual increase of 4%. This finding reflects the influence of the intake of the three graduate entry universities, two of which had a full intake of students in 1997, while the University of Sydney expects to be enrolling an additional 61 commencing students by 1999. States/Territories most affected by the transition to graduate entry are New South Wales, Queensland and South Australia. This trend is likely to stabilise by 1999 unless other medical schools adopt a graduate entry policy. However, it may have implications for the lifetime workforce contribution of students from graduate entry schools.

Table 11: Age distribution of commencing medical students, 1989 to 1997

Age	1989	1990	1991	1992	1993	1994	1995	1996	1997	% change 1989-97
<20 years	1,121	1,154	1,119	1,083	1,080	1,004	717	741	704	-37.2
20-24 years	156	137	165	155	133	122	77	109	283	81.4
25+ years	94	115	100	85	80	79	62	77	224	138.2
Total	1,371	1,406	1,384	1,323	1,293	1,205	856	927	1,211	-11.7
% 25+ years	6.9	8.2	7.2	6.4	6.2	6.6	7.2	8.3	18.5	-

Source: For the years 1989 to 1996, Appendix: Table 5, and for 1997, AMWAC 1997 Survey of Medical Schools.

There was little change in the percentage of completing students aged under 23 years between 1988 and 1995 (36.7% in 1988 and 36.3% in 1995). In 1989, 29.3% of completing students were aged between 23 and 24 years and in 1995 this group accounted for 46.2% of completing students (an increase of 17%). This change corresponded with a reduction in the number of students aged 25 years and over (34% in 1988; 17.5% in 1995) (Table 12 and Appendix: Table 3). States with higher numbers of completing students 23 years of age and over in 1995 were New South Wales (78.3% of students) and Victoria (70.2% of students) (Appendix: Section 4.2).

Table 12: Age distribution of completing medical students, 1988 to 1995

Years	1988	1989	1990	1991	1992	1993	1994	1995	% of students 1988 1995	
<23 years	655	535	307	251	448	560	457	452	36.7	36.3
23-24 years	524	422	245	218	468	493	550	576	29.3	46.2
25-29 years	300	270	84	68	111	124	144	155	16.8	12.4
30+ years	308	323	75	65	54	67	84	63	17.2	5.1
%>22 years	63.3	65.5	56.8	58.3	58.6	55.0	63.0	63.7	-	-

Source: Appendix: Table 3

Gender

Of people commencing the medical degree in 1989, 43.4% were female entrants and of people completing the degree six years later in 1994, 46.6% were female graduates. Although this, superficially, may suggest a difference in attrition rates among male and female students there is insufficient reliable evidence to draw this conclusion (Table 13).

In 1990, 44.9% of students were female entrants and 55.1% were male entrants. The data suggest an attrition rate for this cohort of students of 12% for both male and female students (Table 13). However, as previously indicated, it is impossible to gain an accurate estimate of student attrition using DEETYA data.

Table 13: Medical course commencements and completions, by gender, 1988 to 1997^a

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Commencing students										
- Males		776	774	715	732	682	623	450	491	651
- Females		596	631	669	591	611	582	406	437	560
% female		43.4	44.9	48.3	44.7	47.3	48.3	47.4	47.1	46.2
Completing students										
- Males	786	700	572	677	628	723	659	683		
- Females	519	487	442	467	453	513	576	558		
% female	39.8	41.0	43.6	40.8	41.9	41.5	46.6	45.0		

a - data was not available for all years

Source: For the years 1988 to 1996, Appendix: Tables 3 and 5, and for 1997, AMWAC 1997 Survey of Medical Schools.

In 1989, the overall representation of female commencing students was 43.4%. By 1990, this figure had increased to 44.9% and by 1997 to 46.2%. Universities with below average representation of female students in 1997 are University of Queensland (34.3%), University of Melbourne (41%), the Flinders University of South Australia (41.4%), University of Sydney (43.2%) and University of Western Australia (43.3%) (Table 16). Universities with above average representation of female students are Monash University, University of Newcastle, University of Adelaide, University of Tasmania and University of New South Wales.

Of people completing the medical degree, 39% in 1988 were female. In 1995, this had increased to 45%, an average annual increase of 0.8% (Table 13).

Universities in 1995 with proportions of female completing students below the average were University of Sydney (36%), University of Adelaide (40.2%), University of Queensland (42.2%), University of New South Wales (42.1%) and Monash University (42.5%). Universities with above average proportions of female completing students were the Flinders University of South Australia, The University of Newcastle, the University of Tasmania and the University of Western Australia (Table 14 and Appendix: Section 4.2).

Table 14 profiles the gender distribution of 1997 commencing students by State. States with below average representation of female commencing students in 1997 are Queensland and Western Australia. All other States have a gender distribution close to 50% males, 50% females.

Table 14: Commencing and completing students, by gender and university, for selected years, 1989 to 1997

State/University	Commencing							Completing				
	1989		1990		1997		% female 1997	1994		1995		% female 1995
	M	F	M	F	M	F		M	F	M	F	
NSW/ACT												
- University of NSW	88	64	81	60	73	72	49.7	72	60	77	59	43.4
- University of Newcastle	22	43	20	55	28	39	58.2	34	19	21	40	65.6
- University of Sydney	16	95	16	89	71	54	43.2	13	90	14	90	38.8
<i>State Total</i>	9		6					0		0		
Victoria												
- Monash University	88	65	90	61	54	91	62.8	67	56	79	58	42.3
- University of Melbourne	10	81	11	85	10	74	41.1	88	83	96	75	43.9
<i>State Total</i>	1	14	2	14	6	16	50.8	15	13	17	13	43.2
	18	6	20	6	16	5		5	9	5	3	
	9		2		0							
Queensland												
- University of Queensland	12	94	12	11	15	79	34.3	10	91	12	95	44.0
	9		2	6	1			6		1		
S/ANT												
- University of Adelaide	64	43	55	52	41	49	54.4	52	41	53	41	43.6
- Flinders University	33	24	43	33	34	24	41.4	40	26	26	28	51.9
<i>State Total</i>	97	67	98	85	75	73	49.3	92	67	79	69	46.6
Western Australia												
- University of WA	62	57	70	51	68	52	43.3	56	53	53	44	45.4
Tasmania												
- University of Tasmania*	20	29	19	20	25	26	51.0	25	24	15	28	65.1
Total	77	59	77	63	65	56	46.2	65	65	68	55	45.0
	6	5	4	1	3	0		9	7	3	8	

Sources: For the years 1989 to 1995, Appendix: Section 4.2, and for 1997, AMWAC 1997 Survey of Medical Schools.

Gender and country of birth

Using DEETYA data, Dobson (1997) observed variation in the number of female students undertaking medical studies based on country of birth. Among Australian born students, 49% were female while among European born students, 52% were female and among Asian born students, 40% were female (Table 15).

Table 15: Medical course enrolments, by gender and country of birth (Australian citizens and permanent residents), 1996

Country of birth	Female	Male	Total	% female
Australia	1,980	2,055	4,035 (60.0%)	49.1
Asia	746	1,100	1,846 (27.5%)	40.4
UK and Europe	223	208	431 (6.4%)	51.7
Other	200	209	409 (6.1%)	48.9
Total	3,149	3,572	6,721 (100%)	46.8

Source: Dobson, IR. (1997) Women=s Access to Medical Training in Australia-An Equity Issue? Internet.

Dobson pointed to country of birth as a possible influence upon the gender mix of students at each university. For example, he observed that medical schools such as New South Wales, Sydney and Melbourne, with comparatively high numbers of Asian born students had fewer women students, while overseas born students at the University of Western Australia were largely drawn from Europe and South Africa and the representation of women was higher (Table 16). Currently, there is little evidence to support predictions based on these fields of relationships and further studies of a longitudinal nature are clearly required.

Table 16: Medical course enrolments, by gender and university, 1996

State/University	Female	Male	Total	% Female	% Aust. born
NSW					
- University of NSW	374	520	894	42	42
- University of Newcastle	200	134	334	60	82
- University of Sydney	363	497	860	42	42
Victoria					
- Monash University	445	397	842	53	70
- University of Melbourne	455	638	1,093	42	58
Queensland					
- University of Queensland	422	438	860	49	72
South Australia					
- University of Adelaide	264	342	606	44	57
- Flinders University	127	121	248	51	71
Western Australia					
- University of WA	341	352	693	49	51
Tasmania					
- University of Tasmania	158	133	291	54	79

Total	3,149	3,572	6,721	47	60
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Source: Dobson, IR. (1997) Women=s Access to Medical Training in Australia-An Equity Issue?Internet

Rural background

In 1989, 10.7% of commencing medical students were from a rural area. In 1993, the comparative figure was 13.2%, in 1995 it was 10.9%, in 1996 it was 11.9% and in 1997 it was 17.3% (Table 17). These numbers highlight a fluctuating trend, albeit in an upwards direction. The 1997 total number of 210 students represents a dramatic increase on earlier years where the figures fluctuated from 132 (in 1989) to 153 (in 1992).

Table 17: Medical course commencements; by region of home residence, 1989 to 1997

Region	1989	1990	1991	1992	1993	1994	1995	1996	1997
Capital city	1,166	1,172	1,169	1,094	1,082	1,010	729	785	na
Other metropolitan	62	65	69	62	51	58	40	39	na
Large rural centre	32	42	38	48	49	36	26	26	na
Other rural area	100	105	97	105	100	100	58	72	na
Total rural	132	147	135	153	149	136	84	98	180
% rural	10.7	11.9	10.9	13.2	13.2	12.7	10.9	11.9	17.3
Not known	11	21	11	14	11	1	3	6	-
Total commencements	1,371	1,405	1,384	1,323	1,293	1,205^a	856^a	928^a	1,211

na - information not available

a - Flinders University, University of Queensland and University of Sydney have introduced a four-year graduate entry degree medical course in place of the previous six year undergraduate entry course. Each university had a two year transition period during which only a small number of students with the necessary qualifications were admitted. The first intake to the new course at Flinders University was in 1996 and the first intakes to the new courses at the University of Queensland and the University of Sydney were in 1997.

Source: For the years 1989 to 1996, Appendix: Table 7, and for 1997, AMWAC (1997) Survey of Medical Schools.

The appendix (Table 7) indicates that there is wide variation among States in the representation of rural background students commencing a medical course. Over the 1989 to 1996 period, 89.4% of all commencing students originated from a capital city or other metropolitan area, 10.1% from a rural area and 0.5% from a remote area. In 1996, approximately 71% of the

population were living in metropolitan areas, 26% in rural areas and 3% in remote areas. Universities with the highest representation of rural students in commencing medical classes between 1989-96 were the University of Queensland and the University of Tasmania, although the Tasmanian numbers are affected by the classification of Launceston as rural.

Table 18 outlines the representation of rural students commencing a medical course in 1997 by university and State/Territory in which they are enrolled. States/Territories with a particularly low representation of first year medical students with a rural background when compared with the relevant regional population are New South Wales (7.4%) and Western Australia (7.5%).

Table 18: Rural background students commencing a medical course in 1997, by university and State

State	Rural students	All students	% rural students	% population rural ^a
NSW/ACT				
- University of NSW	6	145	4.1	
- University of Newcastle	9	67	13.4	
- University of Sydney	10	125	8.0	
<i>State/Territory Total</i>	25	337	7.4	24.8
Victoria				
- Monash University	27	145	18.6	
- University of Melbourne	24	180	13.3	
<i>State Total</i>	51	325	15.7	24.7
Queensland				
- University of Queensland	69	230	30.0	41.4
SA/NT				
- University of Adelaide	19	90	21.1	
- Flinders University	17	58	29.3	
<i>State/Territory Total</i>	36	148	24.3	29.9
Western Australia				
- University of WA	9	120	7.5	26.7
Tasmania				
- University of Tasmania	20	51	39.2	58.8
Total	210	1,211	17.3	28.9

a - DHFS (1997)

Source: AMWAC 1997 Survey of Medical Schools.

Aboriginal and Torres Strait Islander background

The number of Aboriginal and Torres Strait Islander students commencing a medical course increased by three, from six in 1989 to nine in 1997. In 1997, five of the nine commencing students were enrolled at the University of Newcastle (Table 19).

Aboriginal and Torres Strait Islander students comprised 0.5% of completing students in 1995 and 0.7% of commencing students in 1997.

Between 1989 and 1995, 26 Indigenous students completed a medical degree and of these 11 graduated from the University of Newcastle (Appendix: Section 4.2).

Table 19: Medical course commencements and completions, by Aboriginal and Torres Strait Islander background, 1989 to 1997

	1989	1990	1991	1992	1993	1994	1995	1996	1997
Commencing students									
- Males	3	4	4	4	2	5	1	2	-
- Females	3	4	6	7	5	3	5	6	-
<i>Total</i>	6	8	10	11	7	8	6	8	9
% Indigenous	0.4	0.6	0.7	0.8	0.5	0.7	0.7	0.8	0.7
Completing students									
- Males	2	3	0	1	3	2	4	-	-
- Females	4	2	2	0	0	1	2	-	-
<i>Total</i>	6	5	2	1	3	3	6	-	-
% Indigenous	0.5	0.5	0.2	0.1	0.2	0.2	0.5		

Source: For the years 1989 to 1996, Appendix: Table 4, and for 1997, AMWAC 1997 Survey of Medical Schools.

Table 20 displays Aboriginal and Torres Strait Islander students commencing a medical degree in 1997 by State/Territory. States/Territories with a low representation of Aboriginal students when compared with the relevant regional population are Victoria, Queensland, South Australia/Northern Territory and Western Australia (Table 20).

Table 20: Aboriginal and Torres Strait Islander students commencing a medical course in 1997, by State/Territory

State/Terr.	Aboriginal ^a	All students ^a	Aboriginal students %	% Australian population Aboriginal ^b
NSW/ACT ^c	6	337	1.8	1.3
Victoria	0	325	0.0	0.4
Queensland	0	230	0.0	2.4
SA/NT	1	148	0.7	3.8
West. Aust.	1	120	0.8	2.7
Tasmania	1	51	2.0	2.1
Total	9	1,211	0.7	1.7

a - AMWAC 1997 Survey of Medical Schools.

b - Population estimates are based on ABS/ AIHW (1997) The Health and Welfare of Australia=s Aboriginal and Torres Strait Islander Peoples, Canberra and ABS (1994), Projections of the Populations of Australia, States and Territories: 1993 to 2041, 3222.0, Canberra.

c - The University of Newcastle in New South Wales accepts Aboriginal and Torres Strait Islander students from all States/Territories.

Socio-economic background

Dobson examined commencing medical student enrolments by socio-economic status (SES) based on postcodes. In 1996, 57% of students were from high SES postcodes, 10% were from low SES postcodes with the remaining 28% from middle SES postcodes (Table 21). Among all higher education enrolments, 34% of students were from high SES postcodes, while the representation of students from low SES areas was 14%. In 1996, the ABS indicated that 25% of the Australian population lived in low SES areas and 25% lived in high SES areas.

Table 21: Commencing medical students, by socio-economic status and State/Territory, 1996*

State/Terr.	High	Middle	Low	Not known	Total	% low
NSW/ACT	120	82	34	18	254	13.4
Vic	210	91	32	4	337	9.5
SA/NT	80	42	16	7	153	10.5
WA	80	29	10	4	123	8.1
Tas	27	4	13	10	54	7.4
Total	527	257	96	43	923	10.4
%	57.1	27.8	10.4	4.7	100.0	-

* The Universities of Sydney and Queensland did not have a full intake of students in 1996.

Source: Dobson, (1997) Unpublished data from DEETYA.

Country of birth

Because there was a large group of students for the years 1989 through 1992 of unknown birthplace, changes in the percentage of students from various countries completing the medical degree have been calculated based on 1993 to 1996 data (Table 22 and Appendix: Tables 2 and 6). In 1993, 52.3% of commencing medical students were born in Australia and 26.5% were born in an Asian country. In 1996, the percentage of commencing students born in Australia had increased to 61% and the percentage of Asian students had declined marginally to 25.7%. However, it should be noted that these figures are biased due to the Flinders University having no intake in 1994 and 1995 and the universities of Sydney and Queensland not having a full intake of students in 1995 and 1996.

Between 1993 and 1995, there was little change in the total number of completing students. During this same time period, the percentage of completing students who were born in Australia decreased by 5.6% (from 822 students to 776), the percentage who were born in Asia increased by 25.5% (from 239 students to 300), there was very little change in the percentage of completing students who were born in the UK/Ireland and Europe, or the number of students from other countries. These two latter groups represented 13.3% of completing medical students in 1995 (Table 22).

Table 22: Medical course commencements and completions, by country of birth, 1988 to 1996

	Year								% of	
	1989	1990	1991	1992	1993	1994 ^b	1995 ^b	1996 ^b	students: 1989	1996
Commencing students										
- Australia	902	793	791	757	677	752	525	566	65.8	61.0
- Asia	247	304	349	319	343	276	189	239	18.0	25.7
- UK & Europe	114	110	107	77	81	81	57	58	8.3	6.3
- Other	108	198	137	170	192	96	85	65	7.9	7.0
Total	1,371	1,405	1,384	1,323	1,293	1,205	856	928	100.0	100.0
Completing students									% students 1993 1995	
- Australia	565	517	550	551	822	775	776	-	66.6	62.5
- Asia	58	127	132	157	239	260	300	-	19.4	24.2
- UK & Europe	61	66	72	86	89	112	84	-	7.2	6.8
- Other ^a	503	304	390	287	84	88	81	-	6.8	6.5
Total	1,187	1,014	1,144	1,081	1,234	1,235	1,241	-	100.0	100.0

a - for the years 1989 through 1992 there was a large number of students whose country of birth was not known.

b - these figures are biased due to the Flinders University having no intake in 1994 and 1995 and the universities of Sydney and Queensland not having a full intake of students in 1995 and 1996.

Source: Appendix: Tables 2 and 6

Summary of medical student characteristics and trends

Between 1989 and 1995, a total of 9,441 Australian citizen or permanent resident students completed undergraduate medical degrees. The attrition rate of commencing students cannot be determined.

There were 1,305 completions in 1988 and 1,241 in 1995, a decrease of 4.9%. States/Territories with medical student outputs in 1995 below their regional population share were Queensland, Western Australia and New South Wales/Australian Capital Territory while South Australia/Northern Territory and Tasmania had outputs above their regional population share. However, the appraisal of ratios of student outputs by State/Territory population may have little relevance as a guide to determining the appropriateness of medical school quotas given the considerable movement of students across State/Territory boundaries.

Between 1989 and 1997, there has been a 11.7% decrease in the number of students enrolling in DEETYA funded initial degree medical courses. Most of this decrease is associated with the University of Sydney which did not have a full intake of students in 1997 while it is in transition from an undergraduate entry course to a graduate entry course. As with the University of Queensland and the Flinders University of South Australia, during the time of transition the University of Sydney had a two year period during which only a small number of students with

the necessary qualifications were admitted. This reduction in admissions ensured that there would be no doubling up in student outputs as a result of the change. In South Australia, student commencements were reduced in 1994 and 1995, and in Queensland in 1995 and 1996, and in New South Wales in 1996 and 1997. Once all universities have a full intake of students it is expected that there will be little change in overall medical student numbers.

The age at which students commence their medical studies is increasing, with almost 20% of commencing students in 1997 aged 25 years and over compared with 6.9% in 1989 and 6.6% in 1994. This trend will influence the age at which students commence general practice training and specialist training and the lifetime hours worked contribution they make to the workforce.

During the last decade the representation of female students increased from 43% of commencing students in 1987 to 46% of commencing students in 1997. The trend is towards a gender mix among medical students close to that of the Australian community. However, there is wide variation among medical schools in the representation of women and some of this variation appears to be influenced by the ethnic mix of the student population as defined by country of birth.

Aboriginal and Torres Strait Islander people represented 2.0% of the Australian population at the 1996 population census. Compared with this proportion, they are under-represented among medical students, although the percentage of Aboriginal and Torres Strait Islander medical students is rising. They represented 0.4% of commencing medical students in 1989 and 0.7% in 1997.

Some progress appears to have been made in increasing the representation of rural background students, with 10.7% of commencing students from rural backgrounds in 1989, 10.9% in 1995 and 17.3% in 1997.

There is increasing diversity in the student body with regard to culture, country of birth and life experience. This presents medical schools with both a challenge and an opportunity to provide an appropriate cultural and practical medical education experience which respects the diverse needs of students and at the same time prepares graduates to serve an increasingly diverse Australian population.

5 UNIVERSITY MEDICAL SCHOOL POLICIES AND STRATEGIES: 1997 AND BEYOND

This chapter reports data from the 1997 AMWAC survey of medical schools about university admission policies, including expected policy changes and strategies, including strategies to increase the number of rural and Aboriginal and Torres Strait Islander students graduating from medical courses.

These qualitative data are presented within tables with graduate entry medical schools grouped together and undergraduate entry medical schools grouped together.

Admission policies and criteria - graduate entry medical schools

Table 23 displays the admission policy statements for the three graduate entry medical schools and summarises the criteria used to assess suitability for admission to a graduate program. All graduate entry programs employ three criteria in assessing a candidates suitability, namely:

- 1) achievement in the Graduate Australian Medical School Admissions Test (GAMSAT);
- 2) performance in structured interview; and
- 3) achievement in prior university studies.

As indicated by the University of Sydney, the purpose of the criteria is to ensure that applicants have demonstrated a capacity for tertiary studies, sustained for the duration of an undergraduate degree program; that they have the understanding and skills necessary for entering the program, and that they have personal qualities appropriate for success in the medicine program and in subsequent medical practice.

According to the Australian Council for Educational Research (1996-97), the purpose of the GAMSAT is to assess the candidate's ability to understand and analyse material, to think critically about issues and, to organise and express their thoughts in written communications in a logical and effective way. A major focus of the GAMSAT is assessment of problem solving abilities and it is composed of three main subject areas, namely, reasoning in humanities and social sciences, written communication, and reasoning in biological and physical sciences.

Table 23: Admission policies for the three graduate entry medical schools

1. University of Sydney

The Graduate Medical Program (GMP) aims to produce medical graduates who are committed to rational, compassionate health care and medical research of the highest quality. The program encourages the enrolment of students from diverse backgrounds and aims to help them to become graduates responsive to health needs of individuals, families and communities and committed to improving the health care system at all levels.

As in the past, the Faculty aims always to attract students of the highest academic calibre. Applicants are sought who have the following additional qualities:

- a concern for the welfare of others in the community;
- an enthusiasm and capacity for the study of medicine;
- the capacity to develop excellent skills in communication, self-management and understanding of ethical and legal issues in medicine;
- the ability to reason scientifically;
- the potential to benefit from self-directed and interactive learning.

In selecting applicants, the Faculty hopes to include students having a variety of different interests and backgrounds which will enable them to achieve outstandingly well in their medical careers.

2. University of Queensland

To ensure that the admissions process results in students entering the Graduate Medical Course (GMC) having the qualities identified as necessary by the Faculty, specifically students are mature with a broad educational background, appropriate communication skills and suited to a medical career; and that the selection criteria are fair and equitable, objective, easily understood by students, the University and the public, and administratively efficient. In 1997, the major subject area in their first degree for 48.7% of entrants was in biological/health sciences. Other subject areas included physical sciences, pharmacy, engineering, arts, nursing and mathematics.

3. Flinders University of South Australia

The aims of the graduate entry medical program at Flinders are to attract talented individuals from diverse backgrounds and to graduate doctors who are caring, competent and informed. Throughout the course the students will be encouraged in their lifelong professional development.

Those students selected for the course at Flinders have the pre-requisite knowledge necessary to commence the course, the intellectual abilities to complete the course, and the personal characteristics associated with an effective professional career. These criteria are assessed by GAMSAT, Grade Point Average (GPA) and interview respectively.

Applicants are ranked according to an Aentry score \cong which is calculated by the addition of:

- GPA score;
- Tertiary Performance Score (TPS)/GPA (weighted, calculated from undergraduate degree):
- score from structured interview (candidates are selected for interview on the basis of their overall GAMSAT score).

Table 24: Criteria used by graduate entry medical schools to assess applicants

Criteria used to assess applicants	Graduate entry	
	Yes	No
Achievement in high school certificate	0	3
Achievement in prior university studies	3	0
Achievement in the GAMSAT	3	0
Achievement in other psychometric tests	0	3
Performance in structured interview	3	0
Prior occupation/work experience	0	3
Other criteria	0	3

Admission policies and criteria - undergraduate entry medical schools

In the main, undergraduate entry medical schools are using three criteria to assess the suitability of applicants, namely:

- 1) achievement in the Higher School Certificate (HSC) or State equivalents like the South Australian Certificate of Education (SACE);
- 2) performance in structured interview; and
- 3) achievement in prior university studies (Tables 25 and 26).

Four undergraduate entry medical schools take into account prior occupation/work experience. Two schools employ a written assessment which involves psychometric tests.

As indicated by the University of Newcastle, the objective of these admission policies is to select as medical students those individuals who besides being qualified academically also possess a range of (cognitive and non-cognitive) personal qualities that are desirable and necessary in a potential doctor.

Table 25: Admission policies for the seven undergraduate entry medical schools

<p>1. University of New South Wales</p> <p>With the exception of rural, refugee doctor or Aboriginal and Torres Strait Islander applicants, all students are admitted solely on the basis of academic merit. 90% of students gain entry on the basis of their HSC Tertiary Entrance Rank (TER) or equivalent. 10% gain entry on the basis of results in tertiary studies together with their HSC TER or equivalent. Students are ranked and selected in strict academic order. All students are required to meet pre-requisites in english, mathematics and chemistry.</p>
<p>2. University of Newcastle</p> <p>The objective of the UNC admission policy is to select as medical students those individuals who besides</p>

being appropriately qualified academically also possess a range of (cognitive and non-cognitive) personal qualities that are desirable and necessary in a potential doctor.

Approximately equal numbers of students have been selected on the basis of >marks alone= (eg., top 1% of HSC achievers or a >distinction= average in a completed tertiary degree or diploma) or on a >composite entry= basis which involves assessment of academic ability (eg., top 10% of achievers) followed by assessment on the basis of performance in a series of psychometric tests (UMAT)* and from scores obtained at interview with both instruments designed to assess and quantify certain desirable personal qualities.

3. University of Melbourne

In 1997, there was a target of 169 places, for Australian citizens/residents and up to 20 places under the Targeted Access Program (TAP). The TER required for entry in 1997 to the MBBS was 99.65. The TER is not set in advance, but is a result of the selection process and may go up or down each year. Prerequisites include satisfactory completion of the Victorian Certificate of Education (or equivalent from another State/Territory) and also a grade average of at least B+ in two English units (or ESL), chemistry, mathematical methods (or specialist mathematics) and in one of biology, physics, or one additional mathematics.

4. Monash University

Admission into the medical course is based primarily on Year 12 academic performance for school leaver entry (130: the majority of places). Approximately 450 school leavers are granted interview (TER 99.95 to approximately 96.50) based on academic performance with a further 70 approximately, granted an interview for equity reasons (rural, special circumstances etc. - usually with a TER above 90. Non school leavers (up to 10% of places) are short-listed for interview based on school performance, subsequent academic record and relevant work/life experiences: about 50 are called for interview of whom up to 15 will be offered places. Final places are offered on the basis of academic achievement and performance at interview.

5. University of Adelaide

The Faculty accepts Australian citizens and permanent residents who are school leavers. The course quota for 1997 was 90 places. Currently, the Faculty's intake of applicants with tertiary backgrounds is in abeyance. Selection is based upon:

- 1) performance in the UMAT;
- 2) performance in structured oral assessment for the top performers in the UMAT;
- 3) qualifying for the SACE, International Baccalaureate or Interstate and Overseas equivalent examinations with a program of studies which meets the University's prerequisite subject requirements and achieving a Year 12 performance which the University evaluates as being a top decile performance. The Faculty has a Special Entry Scheme for applicants who are aged over 21 years and who have not qualified for matriculation or the SACE in the three year period prior to their application and who do not have a tertiary background.

The Faculty also has an Aboriginal and Torres Strait Islander Access Scheme and a Fairway Scheme which provides additional points for students coming from rural schools and from metropolitan schools that are under represented at South Australian universities.

* The UMAT is a psychometric test developed by the University of Newcastle and used by other Medical Schools.

6. University of Western Australia

For Australian citizens, or persons with permanent resident status in Australia, the University admits 120 students in the first year of the MB BS course. Students are admitted by two pathways:

- 1) Standard Group (93 places) - completed Western Australian Tertiary Entrance Examination or interstate or New Zealand equivalent in previous two years with no tertiary record- selected strictly on the basis of academic merit;
- 2) Non-standard (up to 17 places) - all other applicants are selected on the basis of academic merit; taking into account other factors such as evidence of active involvement in community activities, work record, motivation to study medicine and communication skills. These attributes are assessed by written application and interview.

7. University of Tasmania

There are 65 places for students entering the undergraduate medical course (15 for overseas applicants). Prerequisites are biology, chemistry, mathematics and physics. The Faculty has two main categories of entrants:

- 1) school leavers (40 places)
- 2) alternative entry (10 places) which applies to applicants with previous post-secondary study (includes tertiary and TAFE), mature age applicants, special entry applicants or those with work experience or professional qualifications. Applicants are assessed according to five criteria, namely academic background; employment background; skills gained from employment and other relevant activities; demonstrated interest in the course; and equity or special considerations.

Table 26: Admission criteria employed by undergraduate entry medical schools

Criteria	Undergraduate entry	
	Yes	No
Achievement in high school certificate	7	0
Achievement in prior university studies	6	1
Achievement in the GAMSAT	0	7
Achievement in other psychometric tests	2	5
Performance in structured interview	6 ^a	1
Prior occupation/work experience	4	3
Other criteria	1 ^b	6

a - UNSW uses the structured interview for rural, refugee doctors and Aboriginal and Torres Strait Islander applicants only.

b - other criteria included an assessment of the adequacy of the candidate's mental and physical health to cope with the demands of medical studies.

Expected policy changes - graduate entry medical schools

Two graduate entry medical schools expect their annual intake to increase. In particular, the University of Sydney expects an increase in numbers following its transition from an undergraduate entry program to a graduate entry program. The number of commencing students at this university is expected to stabilise at 186 (Table 27).

Two graduate entry medical schools expect an increase in the number of Aboriginal and Torres Strait Islander students and in the number of rural students (Table 28).

The University of Queensland is considering offering all four years of the Graduate Medical Course at the North Queensland Clinical School, Townsville (Table 27). This may have a positive influence on rural student participation.

The Flinders University of South Australia is proposing to establish a separate quota for Aboriginal and Torres Strait Islander students and collaborating with Northern Territory Health in the training of students from the Northern Territory (Table 27).

Table 27: Expected policy changes of the three graduate entry medical schools

<p>1. University of Sydney With the agreement of DEETYA, the quota for 1998 will increase to 136, and will then increase to 186 for 1999 and beyond. This increase in intake will produce increases in absolute numbers. The proportions in each subgroup are unlikely to change appreciably, except for female students and students with a rural background. The Admissions Committee is committed to pursuing strategies aimed at increasing the proportion of both of these subgroups.</p>
<p>2. University of Queensland Consideration is being given to offering all four years of the GMC at the North Queensland Clinical School.</p>
<p>3. Flinders University of South Australia The Faculty has established a sub-quota for Aboriginal and Torres Strait Islander students and for residents of the Northern Territory; both are expected to attract more students from these backgrounds.</p>

Table 28: Likely effects of graduate entry medical school policy changes on the characteristics of medical students

Expected change	Increase	Decrease	No change
- Annual intake	2	0	1
- Mature-age entrant	0	0	3
- Lateral-entry students	0	0	2
- Previous degree*	1	0	2
- Female	1	0	2
- Aboriginal	2	0	1
- Rural background	2	0	1
- Overseas	1	0	2

* As graduate entry cohorts progress through their training the overall proportion of medical students with previous degrees will inevitably increase.

Expected policy changes - undergraduate entry medical schools

Substantial change is evident among undergraduate entry medical schools in their approach to assessing the suitability of applicants to study medicine. In the main, these changes are designed to:

- 1) achieve a mix of students more representative of the wider community; and
- 2) improve the communication skills and other relevant personal qualities of students entering medicine.

Broader assessment criteria to HSC (or equivalent such as the SACE) performance are to be used in the future (eg., structured interviews, UMAT and other written tests) with a degree of collaboration between medical schools in their application (Table 29).

Table 29: Expected policy changes of the seven undergraduate entry medical schools

<p>1. University of New South Wales</p> <p>It is anticipated that a recent change by the Faculty in the English pre-requisites, and a change in the HSC with the compulsory counting of one unit of english in the TER, will result in a greater number of female students entering than in previous years. It is also anticipated that these changes will result in an improvement in the communication skills of students entering the course. If the Faculty is successful in its proposal for the rural access scheme, an additional six students from genuinely rural locations will gain admission.</p>
<p>2. University of Newcastle</p> <p>The current two pathway entry procedures will not be used after entry 1998. A single Composite Entry pathway will be substituted. In addition, the Medical School may consider introducing a quota for rural background students to increase numbers entering the school.</p>
<p>3. University of Melbourne</p>

A new Bachelor of Medicine course to be introduced in 1999 with a two thirds school leaver intake and from July 2000 one third graduate intake. Selection mode from 1999 for school leavers to include TER and two stage process with a middle-band of the order of 20% and an undergraduate admissions aptitude test. Graduate selection to based on GPA from a completed three (or more) year degree, GAMSAT or the North American Medical College Admission Test (MCAT) and structured interview (with recognition of scores from structured interview at one of the other graduate Australian Medical Schools if interviewed elsewhere).

4. Monash University

At present there are no plans to change the admission policies or procedures. However, the results of the Newcastle aptitude test taken by students applying to Melbourne University may be taken into consideration. It is not intended to introduce a separate aptitude test for Monash entry.

5. University of Adelaide

The introduction of a new selection process for 1997 brought about a fundamental change in the nature of the intake. There has been a significant increase in the number of South Australia/Northern Territory schools represented and in the number of rural students and interstate students in this year=s intake. The current restriction on students with tertiary backgrounds is being reviewed as are strategies for increasing the number of rural and Aboriginal and Torres Strait Islander students.

6. University of Western Australia

The University has approved a new policy which will allow selection based on UMAT score, structured interview and TER score above cut-off threshold (top 10%). Effective for students entering in 1999.

7. University of Tasmania

There will be no policy changes in the immediate future, but the Admissions Policy and Procedures are undergoing a review with changes likely in 1999.

The structural outcomes of the changes occurring in the assessment of medical school applicants are marginal in most respects apart for an expected increase by six medical schools in the number of rural students. However, only one undergraduate entry university indicated an expected increase in the number of Aboriginal and Torres Strait Islander students (Table 30).

Of likely greater significance are the qualitative changes that are occurring as a result of changes in admission policies. The long term impact on the quality of patient care and the career choices of graduates is unknown and requires examination. A long range cohort study is required. However, while this type of study has been used in the UK for the last 20 years to examine the effects of medical workforce policy changes, it is relatively unused in Australia.

Table 30: Likely effects of expected undergraduate entry medical school policy changes on the characteristics of medical students

Expected change	Increase	Decrease	No change
- Annual intake	0	1	6
- School leavers	1	2	3
- Mature-age entrant	1	1	5
- Lateral-entry students	0	1	4
- Previous degree	1	1	4
- Female	1	0	5
- Aboriginal	1	0	4
- Rural background	6	0	0
- Overseas	1	1	2

Strategies to improve Aboriginal and Torres Strait Islander student participation in medical courses - graduate entry medical schools

The University of Sydney has five places in its annual intake reserved for Aboriginal and Torres Strait Islander students who have achieved satisfactory performance at pass level in an undergraduate degree with wide publicity through universities with high numbers of Aboriginal and Torres Strait Islander undergraduate students (Table 31).

Flinders University has established two separate sub-quotas within its annual quota of 58 places for Australian residents. The sub-quotas are for Aboriginal and Torres Strait Islander students (five) and Northern Territory residents (Table 31).

Table 31: Strategies to improve Aboriginal and Torres Strait Islander student participation, by medical schools with graduate entry programs

<p>1. University of Sydney</p> <p>The Faculty has developed a policy for the admission of Aboriginal and Torres Strait Islander people to the GMP. This policy will be published widely through universities, particularly those with high numbers of rural undergraduate students.</p> <ol style="list-style-type: none"> 1) In addition to those Aboriginal and Torres Strait Islander applicants who are eligible under standard admissions procedures, up to five places in the GMP will be reserved for Aboriginal and Torres Strait Islander students who have achieved satisfactory performance at Pass level in their undergraduate degree; 2) The Faculty will accept for interview Aboriginal and Torres Strait Islander applicants who have achieved better than a minimum score (as determined by the Admissions Committee) in the GAMSAT; 3) A representative from the Koori Centre (a support centre of the US) will be invited to join the interview panel as a member whenever Aboriginal and Torres Strait Islander applicants are to be interviewed; 4) The Admissions Committee will make offers to applicants who have achieved an acceptable level of performance at interview, ie., to applicants who have attained, as a minimum, an interview score in the category within which the last standard offer of admission is made. <p>In addition, the university proposes to work with the Koori Centre to assist Aboriginal and Torres Strait Islander people to apply for admission into medicine and to prepare for the interview process. Once admitted, students will be supported throughout the course by means of student role models and through a</p>

mentor system.

2. University of Queensland

The university's information booklet reaffirms the Medical School's commitment to assist graduates of Aboriginal and Torres Strait Islander descent to pursue a medical career. Such graduates are advised to contact the Graduate School of Medicine (GSM) if they believe that their circumstances require special consideration. The Faculty also provides a Bachelor of Applied Health Science (Indigenous Primary Health Care) and encourages graduates to consider medicine.

3. Flinders University of South Australia

A sub-quota of up to five places is available for Aboriginal and Torres Strait Islander students. Applicants are ranked within the quota using the same criteria as for all other Australian resident applicants. All Aboriginal and Torres Strait Islander students are interviewed by panels that contain at least one indigenous person. The school is undertaking initiatives to recruit and retain Aboriginal and Torres Strait Islander students through collaboration with the Senior Lecturer in Aboriginal and Torres Strait Islander Health, the Yunggorendi First Nations Higher Education and Research Centre at Flinders University and the Northern Territory Clinical School. Potential applicants enrolled as undergraduate students in Australian universities are identified and advised on application and interview procedures. Provisions are also being established for support of Aboriginal and Torres Strait Islander students once they commence the course.

Strategies to improve Aboriginal and Torres Strait Islander student participation in medical courses - undergraduate entry medical schools

All undergraduate entry medical schools indicate that they offer places to Aboriginal and Torres Strait applicants with the number of places available varying from one to six (Table 32).

Of all medical schools, the University of Newcastle has the most comprehensive approach to recruiting, selecting, training and graduating Aboriginal and Torres Strait Islander students. This approach includes:

1) Course promotion activities

- X promotion of courses by academic staff, Aboriginal and Torres Strait Islander students and graduates to Aboriginal communities, at schools and to Aboriginal community health organisations;
- X advertising of courses nationally through relevant media, including Koori mail and radio programs;
- X provision of career development days with Aboriginal and Torres Strait Islander students and graduates participating;
- X documentation about admission procedures and the Aboriginal Liaison Office in Faculty promotion material and the University Admission Centre (UAC) guide;

2) *Culturally appropriate admission procedures*

- X admission processes that are consultative to ensure students= family and community support as well as the local Aboriginal communities= support;

- X broadly defined eligibility criteria which takes into account prior disadvantage;
- X rigorous application of the final selection criteria, conducted over three days and based on:
 - 1) a briefing session followed by the UMAT;
 - 2) a community based Interview; and
 - 3) a structured interview and assessment.

3) *Supportive learning environment*

- X A learning environment which provides teaching and research about Aboriginal and Torres Strait Islander health issues.

Table 32: Strategies to improve Aboriginal and Torres Strait Islander student participation, by medical schools with undergraduate entry programs

<p>1. University of New South Wales</p> <p>The Faculty has an advertised policy of offering places to Aboriginal and Torres Strait Islander applicants. Applicants are assessed on the basis of their academic record, including either or both their HSC and tertiary studies, and on an interview. Students can gain entry with a TER below the course cut-off. Although there is no cut-off, offers have only been made to students with TERs of greater than 80.</p>
<p>2. University of Newcastle</p> <p>In 1984 the UNC established procedures for admitting four to six students of Aboriginal and Torres Strait Islander descent in addition to the 64 places originally provided. The first intake of Aboriginal and Torres Strait Islander students was in 1985.</p> <p>The Faculty encourages Aboriginal and Torres Strait Islander students to enrol through:</p> <ul style="list-style-type: none">- staff promoting courses in Aboriginal communities;- advertising courses nationally in a variety of formats, including the distribution of purpose specific booklets, media releases, media advertising (eg., radio programs and the Koori Mail);- students and staff visit schools and Aboriginal community health organisations;- attendance of Aboriginal and Torres Strait Islander students and graduates at career development days;- the use of culturally appropriate admission procedures;- documentation in Faculty promotion material, and inclusion in the UAC guide. <p>Selection processes are consultative to ensure students= family and community support as well as the local Aboriginal community=s support. Criteria for eligibility are broadly defined to ensure prior disadvantage is taken into account. Final selection criteria are rigorously applied to ensure confidence in a candidate=s potential. The aim of the admission process is to offer places to those applicants most likely to survive and succeed. The selection process occurs in three stages. The first stage is a briefing session followed by the UMAT. The second stage is a Community Based Interview and the third stage involves a Structured Interview and Assessment Tasks over a three day period.</p>
<p>3. University of Melbourne</p>

In 1998, the Bachelor of Medicine and the Bachelor of Surgery course will have up to 25 places available for Targeted Access Program (TAP) applicants. While more than half of these places are reserved for students from a rural background, Aboriginal and Torres Strait Islanders are also among the groups targeted.

4. Monash University

The University's Monash Orientation Scheme for Aborigines (MOSA) has a program which prepares Aboriginal and Torres Strait Islander students for University courses. The Faculty works with MOSA and both through this scheme and the admissions policies for rural and special consideration students, the opportunity is provided for admissions of Aboriginal and Torres Strait Islander students.

5. University of Adelaide

The University has an Aboriginal and Torres Strait Islander Access Scheme with a quota of two places which is integrated into the University's Wilto Yerlo program involving the recruitment of Aboriginal and Torres Strait Islander students for direct entry to the University's courses or for initial entry into foundation studies programs. Wilto Yerlo also provides additional academic and personnel support for Aboriginal and Torres Strait Islander students who enrol in the University's courses.

6. University of Western Australia

- 1) Three places over quota for Aboriginal or Torres Strait Islander students in either the standard or non standard groups;
- 2) Pre-medicine course conducted by Faculty of the Centre for Aboriginal Medical and Dental Health. The Director acts as mentor to students in the course.

The pre-medicine course is promoted through pamphlets, posters at Aboriginal organisations, personal contacts from the Director and staff of the Centre and advertising through Koori Mail. In 1997, a significant number of enquiries were received from other States as well as from local Aboriginal people, however the number of actual enrolments was relatively small, due to the preference for students with some scientific background. Five students commenced the pre-medicine course in 1997. The course consists of three units: Introduction to Aboriginal Health; Introduction to Medical Physics; Introduction to Medical Chemistry. The Faculty has recommended that the course be held in 1998 and has applied for DEETYA funds.

7. University of Tasmania

A maximum of one place is reserved for a refugee or Aboriginal candidate able to demonstrate a disadvantaged background. These candidates may have completed bridging programs deemed suitable by the Admissions Committee provided they have fulfilled the minimum requirements.

Strategies to improve rural student participation - graduate entry medical schools

All three graduate entry medical schools plan to actively promote the admission of rural students. The University of Queensland is cooperating with Queensland Health to award 30 rural scholarships and the Flinders University of South Australia is collaborating with Northern Territory Health in the provision of a quota of ten places for Northern Territory residents. Flinders' agreement with Northern Territory Health involves Northern Territory students undertaking two years of study in Adelaide and the final two years in the Northern Territory

(Table 33).

The University of Queensland requires all MBBS students to sign a statement indicating their willingness to undertake years 3 and 4 in North Queensland. It is also considering offering all four years of the course at the Northern Clinical School (Townsville) (Table 33).

Table 33: Strategies to improve rural student participation, by medical schools with graduate entry programs

<p>1. University of Sydney</p> <p>The change to graduate entry and the specific criteria for admission are designed to increase diversity within the intake in general, thus opportunities for rural students have improved. The Admissions Committee is committed to maximising these opportunities through specific publicity, information and advice targeted at students in New South Wales high schools and universities outside the major metropolitan areas of Sydney, Newcastle and Wollongong.</p>
<p>2. University of Queensland</p> <ol style="list-style-type: none">1) For rural applicants, the University excludes the first two full-time semesters of the degree GPA calculations to allow for possible adjustment period;2) The University does not differentiate between universities when considering primary degree;3) Students enrolling in the MBBS are required to sign a statement indicating willingness to undertake years 3 and 4 in North Queensland if required;4) The Faculty is cooperating with Queensland Health to award 30 Rural Scholarships to students in Year 1 of the GMC.
<p>3. Flinders University of South Australia</p> <p>The Faculty has a special entry scheme for residents of the Northern Territory (a quota of ten places). Successful applicants undertake the first two years of the degree in Adelaide and the second two years at the Royal Darwin Hospital. These applicants have a separate interview in Darwin which includes assessment of commitment to working in the Northern Territory.</p> <p>In addition, extended rural general practice terms in rural and remote communities have been developed. A new initiative, the Parallel Rural Community Curriculum will allow eight to ten volunteer students in Year 3 to undertake their entire studies in a rural setting. Students with a special interest in rural health can follow an identified rural stream within the course. This will link with the proposed future development of postgraduate studies in rural health.</p>

Strategies to improve rural student participation - undergraduate entry medical schools

All seven undergraduate entry medical schools indicate that rural students are given special consideration. For example, the University of New South Wales has set aside up to six places for rural applicants with a minimum TER of 85.00 and appointed a part time lecturer to promote the course to rural communities. The University of Newcastle has a Rural/Remote Entry Scheme which grants special consideration to rural students with a minimum TER of 85.00.

Under the TAP scheme the University of Melbourne will have approximately 12-15 places available for rural students. The University of Western Australia has up to 14 places available for rural students and the University of Tasmania is planning to increase the proportion of rural students to 30% of admissions (Table 34).

It is noteworthy that the Commonwealth Government has taken action to address needs in rural areas through the Rural Undergraduate Steering Committee, one component of which has been the Rural Incentives Program.

In 1997, 27 rural applicants gained entry to the Monash program (19% of all entrants). This medical school is cooperating with the Victoria Coordinating Unit for Rural Health Education and other universities in Victoria to increase the participation of rural students in tertiary studies with a target of 20% rural representation (Table 34).

Table 34: Strategies to improve rural student participation, by medical schools with undergraduate entry programs

<p>1. University of New South Wales</p> <p>In 1996 the Faculty appointed a part-time lecturer to promote the course to rural communities. In addition, the Faculty is supporting an entry scheme for rural students. It involves setting aside up to six places for rural applicants who attain a minimum TER of 85 and who are able to demonstrate to the Faculty that they meet other stated selection criteria.</p>
<p>2. University of Newcastle</p> <p>The Faculty at the UNC has implemented a number of strategies aimed at increasing the number of rural students in the Bachelor of Medicine course. These strategies include:</p> <ul style="list-style-type: none"> - providing better information to potential applicants, including having medical students visit rural areas to talk with local high school students about careers in medicine and health sciences; - applied for a grant from the NSW RDRN to develop an information kit to be used in conducting workshops for rural high school students about career options in the health professions; - the introduction of a Rural/Remote Entry Scheme. Under this scheme applicants who attend a high school in a designated rural or remote location are eligible for consideration for admission with a lower minimum academic requirement (ie., a TER of 85.00 (the minimum academic requirement for secondary applicants from non-rural high schools is 90.00). High schools are classified by postcode according to the RRMAC. - commenced an evaluation of the outcomes of the above strategies.
<p>3. University of Melbourne</p> <p>In 1998, the Bachelor of Medicine and the Bachelor of surgery course will have up to 25 places available for TAP applicants, with more than half of these places reserved for students from a rural background.</p>
<p>4. Monash University</p> <p>Applicants from rural schools are given special consideration and may be elevated into the interview group. For this purpose Arural is defined as outside metropolitan Melbourne and Geelong. By this definition approximately 25% of Victoria's population is rural. In 1997, 45 applicants were elevated into the interview group and 27 gained admission (19% of entrants).</p>

Monash is actively seeking to encourage more rural origin students to apply for its medical course through a careers programs run in cooperation with the Coordinating Unit for Rural Health Education in Victoria, a rural students club, rural forum days for Year 11 and 12 students and health careers nights. In addition, Monash University is collaborating with the University of Melbourne, Latrobe University and Deakin University to run two separate Health Careers Residential Workshops for rural students in Year 11 and 12 in 1997. The recommended target for students with a rural background is 20%.

5. University of Adelaide

The introduction of the new selection strategy widened the window of opportunity for rural school students because the Year 12 achievement threshold was reduced from a top percentile to a top decile level with an outcome of a significant increase in rural student enrolments. The University's Fairway Scheme continued to underpin medical selection and was important for rural South Australian applicants.

6. University of Western Australia

Ten places are provided within normal quotas to rural applicants. Within the Non Standard Group of places, four may be allocated in the first year to applicants who have lived in a rural area of Western Australia (outside a radius of 75 kilometres from the Perth city centre) for a minimum period of two years and who, during that period, completed Years 11 and 12 at a secondary school in the rural area. Other such residents of the rural area who completed TEE studies through a local TAFE or Technical College and/or by distance education while residing in the rural area are also considered. Any places not filled revert to normal Non-Standard Entry.

7. University of Tasmania

A maximum of two places is reserved for rural candidates able to demonstrate disadvantaged backgrounds and who meet the necessary pre-requisites. In addition, the School of Medicine has set a target to increase the proportion of rural undergraduate students to at least 30% of admissions. It is also implementing processes for monitoring the number of students admitted with a rural background.

Summary of medical school policies and strategies: 1997 and beyond

In the main, five criteria are being employed to assess applicants to medical schools:

- X performance in Higher School Certificate (or equivalent such as the South Australian Certificate of Education);
- X performance in prior university studies;
- X for graduate entry students - performance in the Graduate Australian Medical Schools Admissions Test which has a major focus on assessment of problem solving abilities across a wide range of subject areas;
- X ability as indicated by performance in psychometric tests, such as the Undergraduate Medical Admissions Test; and
- X performance in structured interview.

At both graduate and undergraduate entry levels, the aim of the new and evolving admissions

procedures are to select students who are academically able and who possess other skills and personal qualities appropriate to the study and practice of medicine.

Substantial changes are expected in the future by both graduate and undergraduate medical schools. These changes are likely to alter the mix of students studying medicine to a group more representative of the wider community, increase the number of rural background students participating in medical courses and, to a lesser extent, increase the number of Aboriginal and Torres Strait Islander students entering a medical course.

There is increasing collaboration among medical schools in the selection of medical students.

There is growing awareness among medical schools of the need to implement and foster strategies which lead to the graduation of more Aboriginal and Torres Strait Islander doctors and doctors who want to work in rural areas.

6 THE LIKELY IMPACT OF TRENDS IN STUDENT CHARACTERISTICS ON THE AUSTRALIAN MEDICAL WORKFORCE

This chapter examines the likely profile of the future workforce with reference to the commencing classes of 1996 and 1997 and the data provided by the medical schools about their future plans. The chapter is intended as a short summary, which will inform the review of Australian medical workforce benchmarks currently in progress.

Table 35 compares the Australian population, the current medical workforce and the 1997 cohort of commencing students with respect to a number of socio-demographic indicators. The trend is towards a medical workforce with a gender profile close to that of the Australian population with 54% of commencing students male and 46% female. However, this trend does not hold with respect to the representation of rural background students and Aboriginal and Torres Strait Islander students. While 29% of Australians reside in a rural area, only 17% of commencing medical students in 1997 have a rural background. A similar anomaly exists in terms of Aboriginal and Torres Strait Islander people in the medical workforce and in the future workforce as defined by the 1997 cohort of commencing students. Furthermore, a greater proportion of the 1997 commencing students were born in a country other than Australia than is the case in the Australian population.

Table 35: Characteristics of the 1997 commencing cohort of medical students compared with the Australian population at large and the current medical workforce

Workforce characteristics	Australian population ^a	Current medical workforce ^b	1997 commencing cohort ^c
Gender			
- Male	49.5%	73.0%	54%
- Female	50.5%	27.0%	46%
- Total number	18,396,000	48,941	1,211
Rural residence			
- Metropolitan	71.7%	84.0%	85.0%
- Rural	29.3%	16.0%	17.0%
Indigenous	2.0%	0.05%	0.7%
Country of birth			
- Australia	75.0%	61.1%	61.0%
- UK/Ireland	6.0%	14.1%	6.3%
- Africa	0.3%	2.4%	2.0%
- Asia	4.0%	11.3%	25.7%
- Other countries	15.0%	11.1%	7.0%

a - ABS (1997)

b - Medical Labour Force, 1994, AIHW (1996) and Medical Labour Force Survey, 1995, AIHW (1997)

c - AMWAC Survey of Medical Schools (1997) and for country of birth, DEETYA data (1996)

Age and gender

Commencing medical students are older than they were a decade ago and more women are graduating. Both trends were evident prior to the change to graduate entry programs and will be accelerated by these initiatives.

Almost 20% of graduates will be over the age of 29 years from the year 2001. This fact will need to be considered in all medical workforce planning decisions. The forthcoming AMWAC/AIHW report updating the Australian Medical Workforce Benchmarks will clarify the extent to which this demographic change is likely to influence future workforce requirements.

During the last eight years the number of women among commencing medical students has increased by 3%, from 43% in 1989 to 46% in 1997. During this same period of time women in the medical workforce have increased by a similar amount, from 23% in 1986 to 27% in 1995. This workforce trend is expected to accelerate because of the comparatively large number of male clinicians who are aged 55 years and over (24% in 1995) compared with 8.5% of female clinicians. Workforce planners will need to consider the effects of this trend given the evidence that female doctors tend to work less hours per week than do male doctors (largely due to their other social and family commitments) and retire at an earlier age.

Aboriginal and Torres Strait Islander participation

The report has identified that some progress has been made in increasing the number of Aboriginal and Torres Strait Islander people undertaking a medical degree, but they are still significantly under-represented in medical training compared with their 2.0% share of the Australian population in 1996. In 1997, three universities indicated that they expect the number of Aboriginal and Torres Strait Islander students admitted to their medical degree to increase. The challenge for universities is the provision of a learning environment conducive to recruiting and retaining suitable candidates. It is recognised that strategies are generally in place to achieve this, but these important workforce initiatives will require monitoring and evaluating.

Rural background student participation

Recent gains appear to have been made in the recruitment of students from rural areas. In 1997, 17% of commencing students had a rural background. This is a substantial increase over earlier years (eg., 10.7% in 1989 and 10.9% in 1995). Furthermore, all medical schools now have policies which support an increase in the participation of rural students. The effectiveness of these initiatives will require monitoring.

Country of birth

In 1995 and 1996, 61.1% of the current medical workforce and 61% of commencing medical students were born in Australia compared with 75% of the Australian population at large. Little is known about the unique contribution made by the overseas-born segment of the workforce or about the effects of culture (as defined by country of birth) on career decisions and workforce

participation and distribution. This issue requires further investigation.

Conclusions

Many of the changes in medical education and in the characteristics of medical students are to do with qualitative aspects, specifically, personal characteristics of students, tested in interview and including characteristics directly relevant to quality of care, namely, ability to communicate, tolerance and insight into other peoples= point of view, ability to analyse and solve problems and a priority of commitment to patients and their interests. Most methods currently used to analyse health services, including the medical workforce, are quantitative and variance oriented. It is likely that qualitative, longitudinal process evaluation will best describe the impact of selecting students with these characteristics. Development of reliable techniques presents a challenge.

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