

### 3 Specialists and specialists-in-training

There are several major influences on workforce planning for the medical specialties.

- Rapid change in demand for, and utilisation of, particular specialist services is frequently generated by advances in research and technology in the fields of medical equipment, drugs, diagnostic medicine, radiation and other treatments, patient prostheses and evidence-based medicine.
- Such changes may greatly improve labour productivity, but they also increase pressure for specialisation into sub-specialty areas.
- Ageing of the population and changing disease patterns – for example, the declining death rate for coronary heart disease since the 1960s, declining death from injury, and increasing deaths from many cancers and from suicide (AIHW 1998, pp. 75–114).
- There are inequities in the distribution of specialists across Australia. However the effects of these have been reduced by changes in the delivery of speciality services including increasing use of specialist outreach and telemedicine programs.
- There are much lower proportions of female medical graduates entering most disciplines of specialty practice compared with the proportion entering general practice. This means access to female specialists may be difficult for female patients who prefer consultation with and treatment by a female practitioner.
- Lower average hours worked and lower workforce participation by a rising proportion of female specialists increases the overall workforce requirement and therefore the numbers of medical graduates in specialist training. Hours worked and retirement patterns of males are also changing.
- There has been continuing change in the funding and delivery of health services. There has been a major shift during the last 20 years from institutional care to community care. The average stay in hospitals has shortened considerably, and the proportion of same-day separations increased from 30.6% in 1991–92 to 42.4% in 1995–96 (AIHW 1998, pp. 198–205).
- Public health campaigns during the 1990s have heightened population awareness for reducing the risk of mortality from many conditions by lifestyle changes, medical screening and early intervention, particularly for cancers. Thus the numbers of people presenting for specialist treatment earlier in disease onset have increased and significant improvements in survival from some cancers have been recorded in Australia (AIHW 1998, pp. 89–90).
- Shortages of medical specialists in any discipline may lead to the following undesirable outcomes for patients: reduced access to services; excessively long waiting times for consultation and treatment; higher charges for services rendered; and increased risk of medical misadventure if treatment is provided by a doctor whose judgement is impaired by fatigue from excessively long hours worked due to the shortage of practitioners (Olsen & Ambrogetti 1998; Holmes 1998).
- In contrast, too great a supply of specialists in a discipline in a particular geographic area may lead to insufficient patients for practitioners to adequately maintain skills, endangering patient care. Over-servicing of patients may also occur – incurring unwarranted costs to consumers, government and health insurance funds, and, in some circumstances, incurring unnecessary treatment risks to patients.

These influences are complex and, in Australia, workforce planning for the medical specialties has been addressed through a systematic specialty-by-specialty work program of

the Australian Medical Workforce Advisory Committee (AMWAC), assisted by the specialist colleges and the Australian Institute of Health and Welfare. The AMWAC work program and findings of published reports can be found at the AMWAC Internet web-site at <http://amwac.health.nsw.gov.au>.

## **3.1 Specialists**

### **Geographic distribution**

- There were 85.5 medical specialists per 100,000 population in Australia – up from 82.5 the previous year. Across the States and Territories the rates varied from 101.3 per 100,000 in South Australia and 94.2 in the Australian Capital Territory to 72.1 in Queensland and 69.6 in Tasmania.
- The main job of 80.0% of specialists was located in a capital city, with a further 7.4% in other metropolitan areas and 12.7% in rural and remote areas. Only 50 specialists had a main job in a remote area.
- Of the specialties, psychiatry (10.5) and anaesthesia (10.0) had the highest number of specialists practising per 100,000 population.

### **Proportion of female practitioners**

- There were 15,744 specialists, of whom 13,397 (85.1%) were male and 2,347 female (14.9%).
- 48.2% of the female specialists worked in psychiatry (497), anaesthesia (338), paediatric medicine (149) and diagnostic radiology (147).

### **Hours worked**

- Male specialists generally worked longer hours than those of their female counterparts, with 62.0% of males working 50 hours or more per week compared with 33.7% of females.
- More than 25% of practitioners in the following specialties reported working more than 65 hours per week: cardiology, medical oncology, thoracic medicine, intensive care, obstetrics and gynaecology and all of the surgical specialties except for otolaryngology.
- The specialties where more than 10% of the practitioners reported working more than 80 hours per week were paediatric surgery, urology, cardiothoracic surgery, plastic surgery, general surgery and vascular surgery

### **Outreach services**

- 1.7% of metropolitan specialists reported that they practised in a rural or remote area in a second or third job.

### **Work setting of employment**

- 56.3% of specialists had their main job in private rooms and 34.6% had their main job in an acute care hospital.

**Table 12: Specialists: main specialty of practice, States and Territories, 1996**

Main specialty of practice	NSW	Vic	Qlc	WA	SA	Tas	ACT	NT	Australia
<i>Internal medicine</i>	1,453	1,092	594	374	445	82	76	36	4,151
Cardiology	219	126	76	28	57	11	11	1	531
Clinical genetics	0	3	0	6	0	0	0	0	9
Clinical haematology	56	28	27	8	19	2	4	0	145
Clinical immunology	51	20	8	8	12	1	3	0	104
Clinical pharmacology	6	3	0	2	7	0	0	0	18
Endocrinology	75	72	22	18	25	7	4	0	224
Gastroenterology	132	96	54	36	48	5	10	0	381
General medicine	135	146	111	47	61	19	12	10	542
Geriatrics	74	56	19	19	20	1	3	2	194
Infectious diseases	23	45	12	8	10	1	0	4	103
Medical oncology	45	48	11	18	9	3	4	0	133
Neurology	108	76	31	31	22	5	3	0	275
Nuclear medicine	58	26	14	14	8	4	4	0	128
Paediatric medicine	242	182	132	63	67	17	11	16	725
Renal medicine	63	43	20	12	23	1	1	2	166
Rheumatology	70	63	20	22	28	1	3	0	206
Thoracic medicine	95	58	36	33	28	3	4	0	256
<i>Pathology</i>	220	155	117	104	88	15	18	9	725
General pathology	42	20	18	10	8	3	5	3	109
Anatomical pathology	96	75	64	59	58	6	7	3	367
Clinical chemistry	13	16	12	11	10	0	1	0	63
Cytopathology	14	15	0	2	0	0	2	0	32
Forensic pathology	12	5	1	4	2	0	0	0	24
Haematology	16	8	11	8	8	4	0	0	55
Immunology	6	1	1	2	0	0	0	0	10
Microbiology	22	19	9	8	2	2	3	2	67
<i>Surgery</i>	789	782	498	251	254	65	49	18	2,708
General surgery	256	273	178	71	88	22	12	9	911
Cardiothoracic surgery	22	39	19	6	4	3	5	0	97
Neurosurgery	34	27	15	8	10	4	4	0	102
Orthopaedic surgery	188	159	121	79	78	14	13	3	655
Otolaryngology (ENT)	109	90	51	34	14	6	6	7	317
Paediatric surgery	16	25	12	6	8	1	1	0	70
Plastic surgery	62	77	33	24	16	4	4	0	220
Urology	60	54	41	12	26	7	4	0	204
Vascular surgery	41	37	27	10	12	5	0	0	133
<i>Other specialties</i>	2,918	2,208	1,223	731	709	168	148	55	8,157
Anaesthesia	588	483	307	184	170	48	29	18	1,827
Dermatology	112	60	44	23	18	4	3	1	265
Diagnostic radiology	358	257	169	119	96	28	27	4	1,058
Emergency medicine	98	67	36	26	10	4	3	0	244
Intensive care	115	49	28	30	29	1	5	1	260
Medical administration	22	15	14	6	0	0	2	0	58
Obstetrics & gynaecology	312	264	173	92	82	20	22	9	974
Occupational medicine	141	38	5	6	10	1	1	0	203
Ophthalmology	222	197	120	64	67	13	7	3	693
Psychiatry	647	572	274	153	199	44	29	10	1,928
Public health medicine	23	9	4	0	4	2	1	6	49
Radiation oncology	40	47	25	10	9	3	4	0	138
Rehabilitation medicine	89	45	9	10	14	0	5	1	175
Other	150	102	16	8	0	1	10	0	287
<b>Total</b>	<b>5,381</b>	<b>4,238</b>	<b>2,431</b>	<b>1,461</b>	<b>1,495</b>	<b>330</b>	<b>291</b>	<b>117</b>	<b>15,744</b>

**Table 13: All medical specialists<sup>(a)</sup> practising in each specialty: sex, Australia, 1996**

Specialty of practice	Main field of practice		Second field of practice		Third field of practice		Total		Persons
	Males	Females	Males	Females	Males	Females	Males	Females	
<i>Internal medicine</i>	3,577	574	973	122	166	12	4,715	707	5,422
Cardiology	498	34	61	1	14	2	573	37	609
Clinical genetics	9	0	3	..	..	..	12	0	12
Clinical haematology	118	27	50	6	6	..	174	33	207
Clinical immunology	92	12	21	6	7	..	120	17	138
Clinical pharmacology	13	5	21	1	10	..	44	6	50
Endocrinology	183	41	59	7	10	..	252	48	300
Gastroenterology	351	30	55	1	10	..	417	31	448
General medicine	496	47	394	50	58	5	948	102	1,050
Geriatrics	146	48	31	5	5	..	181	53	234
Infectious diseases	79	26	29	2	5	1	112	29	141
Medical oncology	121	17	45	5	15	2	181	25	206
Neurology	250	25	17	1	6	..	273	26	299
Nuclear medicine	118	11	56	6	1	1	175	18	193
Paediatric medicine	581	149	46	13	2	..	628	162	790
Renal medicine	136	31	29	6	7	..	172	37	209
Rheumatology	166	40	20	6	4	..	190	46	236
Thoracic medicine	223	33	36	4	5	..	264	37	301
<i>Pathology</i>	544	185	237	88	52	8	834	281	1,115
General pathology	95	15	9	2	13	3	118	21	138
Anatomical pathology	255	112	22	8	1	..	278	120	398
Clinical chemistry	59	4	8	2	4	..	71	6	77
Cytopathology	20	12	90	50	..	..	110	62	172
Forensic pathology	20	4	6	..	3	..	28	4	33
Haematology	43	12	59	16	20	4	122	33	155
Immunology	7	3	18	4	5	1	31	8	39
Microbiology	46	21	24	6	5	..	75	27	102
<i>Surgery</i>	2,613	95	173	8	42	2	2,827	106	2,933
General surgery	880	31	63	4	11	1	955	36	990
Cardiothoracic surgery	93	4	9	..	2	..	104	4	108
Neurosurgery	98	4	3	..	..	..	101	4	106
Orthopaedic surgery	645	10	16	..	2	1	663	11	674
Otolaryngology (ENT)	307	10	5	..	3	..	316	10	326
Paediatric surgery	62	9	12	..	4	..	78	9	86
Plastic surgery	201	19	25	1	5	..	231	20	251
Urology	198	6	22	..	9	..	229	6	234
Vascular surgery	129	4	17	3	5	..	152	7	159
<i>Other specialties</i>	6,663	1,494	565	80	106	14	7,336	1,587	8,923
Anaesthesia	1,489	338	63	5	4	1	1,555	344	1,900
Dermatology	186	79	4	..	1	..	191	79	269
Diagnostic radiology	911	147	37	3	3	..	951	151	1,102
Emergency medicine	198	46	20	..	2	3	220	49	269
Intensive care	228	31	152	12	14	..	394	44	438
Medical administration	50	8	64	9	22	1	136	18	154
Obstetrics & gynaecology	846	128	20	7	2	1	868	137	1,005
Occupational medicine	189	13	20	1	1	..	210	15	225
Ophthalmology	621	72	1	1	..	..	622	73	695
Psychiatry	1,431	497	13	1	..	1	1,444	500	1,943
Public health medicine	36	13	25	8	12	2	73	23	96
Radiation oncology	111	27	2	..	..	..	112	27	140
Rehabilitation medicine	146	29	37	11	14	1	197	42	239
Other	222	65	108	19	32	3	362	86	448
<b>Total</b>	<b>13,397</b>	<b>2,347</b>	<b>1,947</b>	<b>298</b>	<b>367</b>	<b>36</b>	<b>15,712</b>	<b>2,681</b>	<b>18,393</b>

(a) Includes all specialists practising in each specialty as their main field of practice, those for whom the specialty is their second field of practice, and those for whom the specialty is a third field of practice only.

**Table 14: Specialists: total hours worked per week, age and sex, Australia, 1996**

Hours worked	Age (years)						Total	%
	< 35	35-44	45-54	55-64	65-74	75+		
	<b>Males</b>							
1-19	6	34	46	107	331	117	641	4.8
20-34	20	139	143	234	346	83	964	7.2
35-49	156	1,033	1,099	797	363	32	3,481	26.0
50-64	222	1,964	2,241	1,166	190	15	5,798	43.3
65-79	58	649	725	292	38	4	1,766	13.2
80+	19	291	283	134	20	0	747	5.6
<b>Total</b>	<b>482</b>	<b>4,110</b>	<b>4,536</b>	<b>2,729</b>	<b>1,288</b>	<b>251</b>	<b>13,397</b>	<b>100.0</b>
	<b>Females</b>							
1-19	18	92	37	29	45	10	230	9.8
20-34	50	278	114	46	27	6	521	22.2
35-49	83	344	245	102	26	4	805	34.3
50-64	54	273	197	82	6	0	612	26.1
65-79	4	55	28	17	2	2	108	4.6
80+	10	39	20	3	0	0	72	3.1
<b>Total</b>	<b>219</b>	<b>1,080</b>	<b>641</b>	<b>279</b>	<b>106</b>	<b>22</b>	<b>2,347</b>	<b>100.0</b>
	<b>Persons</b>							
1-19	23	126	82	135	376	127	870	5.5
20-34	70	417	257	280	373	89	1,485	9.4
35-49	240	1,378	1,344	899	389	36	4,285	27.2
50-64	276	2,236	2,438	1,248	197	15	6,410	40.7
65-79	63	704	753	309	39	6	1,874	11.9
80+	29	329	303	137	20	0	819	5.2
<b>Total</b>	<b>701</b>	<b>5,190</b>	<b>5,177</b>	<b>3,008</b>	<b>1,394</b>	<b>274</b>	<b>15,744</b>	<b>100.0</b>

## 3.2 Specialists-in-training

There were an estimated 4,451 specialists-in-training enumerated in the AIHW medical labour force survey in 1996. However low response to the survey by these doctors creates significant error in producing this estimate.

The Commonwealth Government's Medical Training Review Panel collects data from the specialist medical colleges on the numbers of training positions and trainees. In 1997 it reported that there were 3,995 clinician specialists-in-training in advanced training positions and 757 in basic training positions (Department of Health and Family Services 1997). These are the official figures on the 'true' numbers of specialists-in-training.

The AIHW survey showed that:

- the specialties with the highest numbers were psychiatry (552), anaesthesia (552), paediatric medicine (402), emergency medicine (365) and general medicine (333). The 365 trainees in emergency medicine exceeded the 269 specialists who reported that they practised emergency medicine, while at the other end of the scale some specialties had very low percentages of trainees to specialists – particularly vascular surgery (4.5%), cytopathology (6.3%), clinical chemistry (6.3%) and clinical immunology (8.7%). The relatively high number of emergency medicine trainees reflects emergency medicine being a relatively new and rapidly growing specialty; the numbers of trainees are expected to reduce from 668 in 2000 to 177 in 2010 (AMWAC 1997).
- 80.3% of specialists-in-training were younger than 35 years, with a further 17.4% aged 35–44 years.
- 32.8% of specialists-in-training younger than 35 years were female. This proportion was considerably less than the 42.1% of total medical practitioners in the same age group who were female.
- 28% of the specialists-in-training in 1996 expected to complete training in that year or in 1997, and a further 22% expected to finish in 1998.

Table 15: Specialists-in-training: total hours worked per week, age and sex, Australia, 1996

Total hours worked per week	Age (years)			Total	% of sex	% of persons
	Under 35	35-44	45 and over			
<b>Males</b>						
1-19	10	4	0	14	0.5	32.4
20-34	25	9	5	39	1.3	29.2
40-49	552	169	17	738	24.6	62.8
50-64	1,208	261	33	1,503	50.1	68.8
65-79	422	65	8	494	16.5	79.4
80 and over	181	29	0	210	7.0	71.8
<b>Total</b>	<b>2,395</b>	<b>536</b>	<b>63</b>	<b>2,998</b>	<b>100.0</b>	<b>67.4</b>
<b>Females</b>						
1-19	19	9	1	29	2.0	67.6
20-34	50	38	6	93	6.4	70.8
40-49	336	84	18	437	30.1	37.2
50-64	597	71	14	682	47.0	31.2
65-79	105	20	3	128	8.8	20.6
80 and over	67	15	1	83	5.7	28.2
<b>Total</b>	<b>1,173</b>	<b>237</b>	<b>43</b>	<b>1,453</b>	<b>100.0</b>	<b>32.6</b>
<b>Persons</b>						
1-19	29	13	1	43	1.0	100.0
20-34	74	47	11	132	3.0	100.0
40-49	888	253	34	1,175	26.4	100.0
50-64	1,805	333	48	2,185	49.1	100.0
65-79	527	85	10	623	14.0	100.0
80 and over	248	43	1	293	6.6	100.0
<b>Total</b>	<b>3,572</b>	<b>774</b>	<b>106</b>	<b>4,451</b>	<b>100.0</b>	<b>100.0</b>

**Table 16: Specialists-in-training: speciality of training, States and Territories, 1996**

Specialty of training	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
<i>Internal medicine</i>	449	396	219	100	117	26	18	8	1,332
Cardiology	38	30	15	4	11	4	1	0	103
Clinical haematology	12	11	7	6	1	0	1	0	38
Clinical immunology	5	0	1	0	2	0	1	0	9
Clinical pharmacology	3	2	1	0	2	0	0	0	7
Endocrinology	15	9	7	0	4	3	1	0	39
Gastroenterology	31	18	7	8	6	0	1	0	70
General medicine	75	109	88	20	25	16	0	0	333
Geriatrics	18	12	3	2	4	2	1	0	42
Infectious diseases	13	18	3	2	0	0	0	0	36
Medical oncology	22	22	8	4	4	2	0	0	61
Neurology	15	12	0	2	0	0	0	0	29
Nuclear medicine	12	7	3	2	2	0	0	0	26
Paediatric medicine	148	96	67	37	41	0	7	7	402
Renal medicine	15	22	1	6	4	0	0	1	49
Rheumatology	7	10	0	2	5	0	1	0	27
Thoracic medicine	20	18	10	4	7	0	1	0	60
<i>Pathology</i>	40	38	19	14	13	8	1	0	133
General pathology	6	6	0	0	0	1	0	0	13
Anatomical pathology	22	19	13	10	8	5	1	0	80
Clinical chemistry	1	0	3	0	0	0	0	0	4
Cytopathology	0	0	0	0	2	0	0	0	2
Haematology	5	9	0	0	0	1	0	0	15
Immunology	1	1	0	0	0	0	0	0	3
Microbiology	4	3	3	4	3	0	0	0	16
<i>Surgery</i>	160	188	119	55	57	14	7	1	601
General surgery	56	90	50	18	22	8	1	1	248
Cardiothoracic surgery	12	11	4	2	2	1	0	0	32
Neurosurgery	12	9	4	4	4	0	1	0	35
Orthopaedic surgery	43	37	34	12	12	2	3	0	142
Otolaryngology (ENT)	11	14	8	2	8	0	0	0	43
Paediatric surgery	5	6	1	0	4	0	0	0	16
Plastic surgery	8	11	9	8	2	2	0	0	41
Urology	10	9	8	8	2	0	1	0	38
Vascular surgery	2	2	0	0	2	0	0	0	6
<i>Other specialties</i>	872	671	389	178	192	41	27	16	2,385
Anaesthesia	181	164	102	36	49	11	5	1	552
Dermatology	24	15	11	4	5	0	0	0	60
Diagnostic radiology	49	57	31	8	17	4	7	0	173
Emergency medicine	110	116	70	40	16	5	7	0	365
Intensive care	22	16	15	4	7	2	3	0	69
Medical administration	6	0	3	0	0	1	0	0	10
Obstetrics & gynaecology	83	57	46	24	31	6	1	5	254
Occupational medicine	52	5	3	8	3	0	0	0	71
Ophthalmology	48	32	7	8	5	0	0	0	100
Psychiatry	204	156	91	38	46	9	4	3	552
Public health medicine	5	3	3	0	1	0	0	3	15
Radiation oncology	29	15	3	4	3	0	0	0	54
Rehabilitation medicine	32	17	0	0	5	1	0	0	56
Other	26	16	5	2	2	0	0	4	55
<b>Total</b>	<b>1,521</b>	<b>1,294</b>	<b>746</b>	<b>346</b>	<b>378</b>	<b>88</b>	<b>53</b>	<b>25</b>	<b>4,451</b>