

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 and injury patterns.
- Inequities in the distribution of specialists across Australia and changes in the delivery of speciality services including increasing use of specialist outreach and telemedicine programs.
- Much lower proportions of female medical graduates entering most disciplines of specialty practice compared with the proportion entering general practice.
- 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.
- 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; practitioner fatigue from excessively long hours worked; and increased risk of medical misadventure due to fatigue impairing judgement (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 website (<http://amwac.health.nsw.gov.au>).

3.1 Specialists

Geographic distribution

- There were 85.9 medical specialists per 100,000 population in Australia – up from 85.5 the previous year. Across the States and Territories the rates varied from 100.3 per 100,000 in South Australia and 92.8 in Victoria to 75.1 in Queensland, 69.4 in Tasmania and 56.3 in the Northern Territory.
- The main job of 80.3% of specialists was located in a capital city, with a further 7.2% in other metropolitan areas and 12.5% in rural and remote areas. Only 77 specialists had a main job in a remote area and nearly 70% of these were in only seven specialties – 14 in general surgery (18.2%), eight in paediatric medicine (10.4%), seven in psychiatry (9.1%), seven in obstetrics and gynaecology (9.1%), six in general medicine (7.8%), six in diagnostic radiology and five in anaesthesia (6.5%).
- Of the specialties, psychiatry (10.3) and anaesthesia (10.0) had the highest number of specialists practising per 100,000 population.

Proportion of female practitioners

- There were 15,992 specialists, of whom 13,503 (84.4%) were male and 2,490 female (15.6%).
- 54.9% of the female specialists worked in psychiatry (519), anaesthesia (347), paediatric medicine (183), diagnostic radiology (165) and obstetrics and gynaecology (152).

Hours worked

- Male specialists generally worked longer hours than their female counterparts, with 60.4% of males working 50 hours or more per week compared with 32.3% of females. Males worked an average of 51.4 hours per week and females an average of 41.4 hours.
- More than 25% of practitioners in the following specialties reported working more than 65 hours per week: medical oncology, thoracic medicine, intensive care, obstetrics and gynaecology and all of the surgical specialties except for otolaryngology and paediatric surgery.
- The specialties where more than 10% of the practitioners reported working more than 80 hours per week were medical oncology, forensic pathology, cardiothoracic surgery, neurosurgery, paediatric 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

- 55.2% of specialists had their main job in private rooms and 30.7% had their main job in an acute care hospital.

Table 15: Specialists: main specialty of practice, States and Territories, 1997

Main specialty of practice	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
<i>Internal medicine</i>	1,544	1,104	624	415	361	81	29	81	4,238
Cardiology	244	137	74	44	30	14	0	6	548
Clinical genetics	0	0	1	4	4	0	0	0	9
Clinical haematology	58	23	26	15	13	4	0	4	144
Clinical immunology	39	24	8	13	9	0	0	4	97
Clinical pharmacology	9	8	6	4	3	0	0	1	31
Endocrinology	86	68	26	18	13	4	0	3	219
Gastroenterology	139	95	57	46	37	7	1	9	391
General medicine	133	137	118	66	56	13	8	9	540
Geriatrics	70	63	19	13	13	4	0	6	187
Infectious diseases	27	44	18	11	4	1	4	3	112
Medical oncology	59	53	13	15	16	6	0	3	165
Neurology	121	79	27	17	20	6	0	4	274
Nuclear medicine	64	20	13	9	12	1	0	4	124
Paediatric medicine	256	188	138	65	68	10	12	13	750
Renal medicine	59	56	16	13	13	3	3	3	165
Rheumatology	78	58	23	26	23	4	0	3	216
Thoracic medicine	103	50	42	34	27	3	1	4	264
<i>Pathology</i>	274	144	123	70	84	18	5	13	730
General pathology	54	22	21	2	7	1	0	2	109
Anatomical pathology	121	63	68	44	46	8	1	9	361
Clinical chemistry	16	12	13	4	7	1	0	1	55
Cytopathology	13	3	0	0	3	0	0	2	20
Forensic pathology	11	3	1	2	0	1	1	0	20
Haematology	20	20	11	6	7	3	0	0	66
Immunology	9	3	0	0	3	0	0	0	15
Microbiology	29	19	8	13	10	3	2	0	84
<i>Surgery</i>	950	760	509	278	251	56	17	47	2,868
General surgery	351	280	183	86	85	20	12	10	1,026
Cardiothoracic surgery	30	34	17	6	7	0	0	1	95
Neurosurgery	32	30	20	15	10	3	0	4	114
Orthopaedic surgery	238	149	126	85	58	14	2	14	687
Otolaryngology (ENT)	103	87	53	31	34	7	1	6	321
Paediatric surgery	20	17	9	7	7	3	1	1	66
Plastic surgery	66	80	36	17	23	3	0	3	226
Urology	70	50	35	18	19	4	0	3	199
Vascular surgery	41	34	30	15	9	3	0	3	134
<i>Other specialties</i>	2,767	2,289	1,318	724	690	174	55	139	8,156
Anaesthesia	587	507	348	170	158	49	10	32	1,862
Dermatology	118	70	48	19	26	1	0	7	289
Diagnostic radiology	364	245	184	90	122	25	9	22	1,061
Emergency medicine	101	93	42	12	20	11	0	6	285
Intensive care	90	45	33	28	17	3	3	2	220
Medical administration	17	15	5	2	6	0	0	1	46
Obstetrics & gynaecology	318	290	183	103	92	25	5	16	1,032
Occupational medicine	50	41	3	8	4	1	0	4	110
Ophthalmology	225	181	110	78	62	8	4	7	675
Psychiatry	609	621	303	180	130	43	12	23	1,921
Public health medicine	21	11	4	0	6	1	8	1	53
Radiation oncology	46	46	26	6	10	4	1	4	144
Rehabilitation medicine	85	43	8	15	7	0	1	6	166
Other	137	81	21	13	30	1	1	7	292
Total	5,534	4,296	2,573	1,487	1,386	328	106	280	15,992

Table 16: All medical specialists^(a) practising in each specialty, sex, Australia, 1997

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>									
Cardiology	505	43	49	3	9	0	564	45	609
Clinical genetics	5	5	3	0	0	0	7	5	12
Clinical haematology	117	26	38	8	5	0	160	34	194
Clinical immunology	86	11	23	3	4	0	113	14	127
Clinical pharmacology	25	6	11	4	12	0	48	10	58
Endocrinology	179	40	58	6	7	0	244	46	290
Gastroenterology	357	34	56	5	10	1	423	40	464
General medicine	493	46	353	38	54	3	900	88	987
Geriatrics	139	48	35	1	5	0	178	49	228
Infectious diseases	87	26	29	6	5	2	121	34	155
Medical oncology	134	31	31	7	15	0	180	38	218
Neurology	250	24	13	2	0	0	263	26	289
Nuclear medicine	114	10	56	5	4	0	174	16	189
Paediatric medicine	567	183	41	10	6	1	614	195	809
Renal medicine	134	31	23	1	4	0	161	32	193
Rheumatology	169	47	24	0	1	0	194	47	241
Thoracic medicine	226	38	44	8	6	1	277	47	324
<i>Pathology</i>									
General pathology	96	13	14	3	13	1	123	18	141
Anatomical pathology	245	116	20	5	2	0	267	121	388
Clinical chemistry	51	4	4	0	5	0	60	4	64
Cytopathology	12	8	65	30	4	0	81	38	119
Forensic pathology	19	1	2	0	5	0	26	1	27
Haematology	40	26	50	13	7	3	98	42	140
Immunology	10	5	23	1	7	0	40	6	46
Microbiology	65	18	21	5	1	0	88	23	112
<i>Surgery</i>									
General surgery	992	34	38	4	5	1	1,034	39	1,074
Cardiothoracic surgery	91	4	9	0	1	0	102	4	106
Neurosurgery	109	4	3	0	3	0	115	4	119
Orthopaedic surgery	679	7	15	2	0	0	694	10	704
Otolaryngology (ENT)	312	10	3	0	1	0	315	10	325
Paediatric surgery	59	7	6	0	5	0	71	7	78
Plastic surgery	205	21	20	2	15	1	240	25	265
Urology	198	2	33	0	7	0	237	2	238
Vascular surgery	130	4	14	2	4	0	148	6	153
<i>Other specialties</i>									
Anaesthesia	1,515	347	68	4	1	0	1,585	350	1,935
Dermatology	209	80	1	1	0	0	211	81	291
Diagnostic radiology	896	165	31	6	6	0	933	171	1,104
Emergency medicine	234	51	21	2	6	1	261	54	315
Intensive care	200	20	143	17	14	2	357	39	396
Medical administration	38	8	67	11	24	0	128	19	147
Obstetrics & gynaecology	880	152	16	8	5	0	902	160	1,062
Occupational medicine	98	12	17	1	3	0	118	13	131
Ophthalmology	604	71	0	0	0	0	604	71	675
Psychiatry	1,401	519	11	2	0	0	1,412	521	1,934
Public health medicine	43	10	26	2	11	1	80	14	94
Radiation oncology	113	31	1	1	1	0	115	32	147
Rehabilitation medicine	134	31	32	2	15	0	182	34	215
Other	232	60	109	13	35	6	376	79	455
Total	13,503	2,490	1,768	248	353	25	15,624	2,763	18,387

(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 17: Specialists: total hours worked per week, age and sex, Australia, 1997

Hours worked	Age (years)						Total	%
	<35	35-44	45-54	55-64	65-74	75+		
Males								
1-19	17	42	58	128	346	124	714	5.3
20-34	25	147	146	291	365	80	1,054	7.8
35-49	163	1,079	1,134	867	307	29	3,579	26.5
50-64	181	1,917	2,200	1,137	197	26	5,657	41.9
65-79	43	643	704	348	48	2	1,787	13.2
80+	14	251	284	136	27	0	712	5.3
Total	443	4,078	4,525	2,906	1,290	260	13,503	100.0
Average hours	50.2	55.1	55.4	50.3	32.9	22.3	51.4	..
Females								
1-19	29	96	37	31	35	14	242	9.7
20-34	54	287	140	57	26	5	570	22.9
35-49	107	393	253	103	10	7	873	35.1
50-64	54	278	195	80	9	0	615	24.7
65-79	9	72	32	16	2	0	132	5.3
80+	5	29	20	4	0	0	58	2.3
Total	258	1,156	677	292	81	26	2,490	100.0
Average hours	39.5	41.9	43.4	41.9	23.8	19.8	41.4	..
Persons								
1-19	46	138	95	158	381	137	956	6.0
20-34	80	434	286	347	391	86	1,623	10.2
35-49	270	1,472	1,387	970	317	36	4,452	27.8
50-64	235	2,195	2,395	1,217	206	26	6,272	39.2
65-79	52	716	736	364	49	2	1,919	12.0
80+	19	280	304	140	27	0	769	4.8
Total	702	5,234	5,202	3,197	1,371	287	15,992	100.0
Average hours	46.4	52.2	53.8	49.5	32.4	22.1	49.8	..

3.2 Specialists-in-training

There were an estimated 4,617 specialists-in-training enumerated in the AIHW medical labour force survey in 1997. In the labour force survey specialists-in-training are self-identified.

The Commonwealth Government's Medical Training Review Panel collects data from the specialist medical colleges on the numbers of training positions and trainees. In 1998 it reported that there were 4,120 clinician specialists-in-training in Australia – 3,307 in advanced training positions and 813 in basic training positions (Department of Health and Aged Care 1998). These data exclude general practice trainees, Australians in overseas training positions and the majority of adult medicine and paediatric medicine basic trainees.

The AIHW survey showed that:

- the specialties with the highest numbers were anaesthesia (597), psychiatry (568), emergency medicine (441), paediatric medicine (388) and general medicine (320). The 441 trainees in emergency medicine exceeded the 285 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 (7.0%), cytopathology (0), clinical chemistry (12.7%) and clinical immunology (10.3%). 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).
- 80.2% of specialists-in-training were younger than 35 years, with a further 17.5% aged 35–44 years.
- 34.6% of specialists-in-training younger than 35 years were female. This proportion was considerably less than the 42.8% of total medical practitioners in the same age group who were female.
- 26.7% of the specialists-in-training in 1997 expected to complete training in that year or in 1998, and a further 22.6% expected to finish in 1999.

Table 18: Specialists-in-training: total hours worked per week, age and sex, Australia, 1997

Total hours worked per week	Age (years)			Total	% of sex	% of persons
	Under 35	35–44	45 and over			
Males						
1–19	11	3	0	14	0.5	46.4
20–34	28	18	3	49	1.6	29.2
40–49	619	200	23	842	27.5	60.5
50–64	1,209	273	26	1,509	49.3	69.3
65–79	395	65	6	466	15.2	75.5
80 and over	159	17	1	178	5.8	76.1
<i>Total</i>	<i>2,421</i>	<i>577</i>	<i>59</i>	<i>3,057</i>	<i>100.0</i>	<i>66.2</i>
Females						
1–19	4	8	4	16	1.0	53.6
20–34	72	39	7	118	7.6	70.8
40–49	428	100	21	549	35.2	39.5
50–64	588	66	14	669	42.9	30.7
65–79	138	13	1	151	9.7	24.5
80 and over	48	7	1	56	3.6	23.9
<i>Total</i>	<i>1,279</i>	<i>231</i>	<i>49</i>	<i>1,559</i>	<i>100.0</i>	<i>33.8</i>
Persons						
1–19	15	11	4	30	0.7	100.0
20–34	100	57	9	166	3.6	100.0
40–49	1,048	300	44	1,391	30.1	100.0
50–64	1,798	339	40	2,177	47.2	100.0
65–79	533	78	7	617	13.4	100.0
80 and over	207	24	3	234	5.1	100.0
Total	3,700	808	108	4,617	100.0	100.0

Table 19: Specialists-in-training: specialty of training, States and Territories, 1997

Specialty of training	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
<i>Internal medicine</i>	445	332	225	139	112	28	13	19	1,314
Cardiology	45	27	12	11	8	2	0	1	106
Clinical haematology	11	11	8	0	1	2	0	0	33
Clinical immunology	7	0	0	0	3	0	0	0	10
Clinical pharmacology	0	2	3	2	0	0	0	0	6
Endocrinology	16	7	12	4	3	1	0	0	42
Gastroenterology	23	23	4	4	4	0	0	3	62
General medicine	82	65	81	41	22	16	6	9	320
Geriatrics	18	16	3	8	7	2	0	0	54
Infectious diseases	11	14	7	0	3	0	4	0	39
Medical oncology	13	21	8	2	3	4	0	0	51
Neurology	21	11	3	4	5	2	0	0	45
Nuclear medicine	12	5	3	0	1	0	0	0	21
Paediatric medicine	144	91	66	43	38	0	2	4	388
Renal medicine	13	11	3	4	3	0	1	0	36
Rheumatology	8	10	1	8	4	0	0	1	33
Thoracic medicine	22	18	12	6	6	0	0	0	65
<i>Pathology</i>	45	33	17	12	17	4	2	6	136
General pathology	5	7	0	0	0	0	0	3	15
Anatomical pathology	23	21	12	8	9	4	2	3	82
Clinical chemistry	2	0	3	0	1	0	0	0	7
Cytopathology	0	0	0	0	0	0	0	0	0
Haematology	8	4	1	2	3	0	0	0	19
Immunology	2	0	0	0	0	0	0	0	2
Microbiology	4	0	0	2	4	0	0	0	10
<i>Surgery</i>	233	134	107	67	59	9	0	6	614
General surgery	86	63	48	23	17	9	0	3	251
Cardiothoracic surgery	12	3	4	8	3	0	0	0	30
Neurosurgery	13	3	3	2	4	0	0	0	26
Orthopaedic surgery	71	37	36	10	17	0	0	1	173
Otolaryngology (ENT)	21	8	7	11	7	0	0	0	53
Paediatric surgery	4	5	0	4	2	0	0	0	14
Plastic surgery	8	6	4	4	3	0	0	1	27
Urology	13	7	4	2	4	0	0	0	31
Vascular surgery	4	1	1	2	1	0	0	0	9
<i>Other specialties</i>	922	706	409	212	201	45	23	35	2,552
Anaesthesia	212	168	100	56	45	12	0	4	597
Dermatology	24	19	11	5	1	0	0	0	60
Diagnostic radiology	59	67	27	13	13	4	0	4	187
Emergency medicine	137	137	85	31	31	9	4	7	441
Intensive care	26	14	19	2	9	4	2	6	82
Medical administration	5	0	5	7	0	0	1	0	18
Obstetrics & gynaecology	91	69	52	23	24	4	11	3	277
Occupational medicine	30	16	0	0	6	0	0	0	52
Ophthalmology	41	28	11	8	10	0	0	0	99
Psychiatry	205	152	90	50	56	6	3	6	568
Public health medicine	4	5	0	5	0	0	0	1	16
Radiation oncology	25	13	5	6	1	0	0	1	52
Rehabilitation medicine	32	9	3	2	0	1	0	0	47
Other	30	9	1	5	6	3	2	2	58
Total	1,644	1,205	758	430	389	86	39	66	4,617