

# Surgical Workforce Projection to 2025

## Volume 1

### The Australian Workforce

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Briefing paper for the National Training Plan  
consultation process



*Royal Australasian College  
of Surgeons*

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## Glossary

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AMWAC	Australian Medical Workforce Advisory Committee
AUS	Australian
CAR	Cardiothoracic Surgery
COAG	Council of Australian Governments
CPD	Continuing Professional Development
FRACS	Fellow of the Royal Australasian College of Surgeons
GAC	Governance and Advocacy Committee
GEN	General Surgery
HWA	Health Workforce Australia
IMG	International Medical Graduate
MOPS	Maintenance of Professional Standards
NEU	Neurosurgery
NSW	New South Wales
NT	Northern Territory
NTP	National Training Plan
ORT	Orthopaedic Surgery
OTO	Otolaryngology, Head and Neck Surgery
PAE	Paediatric Surgery
PLA	Plastic and Reconstructive Surgery
QLD	Queensland
RACS	Royal Australasian College of Surgeons
SA	South Australia
SET	Surgical Education and Training
TAS	Tasmania
URO	Urology Surgery
VAS	Vascular Surgery
WA	Western Australia
WHO	World Health Organisation

## Executive Summary

Modelling done by the Royal Australasian College of Surgeons indicates that unless there is a substantial increase in the number of graduating surgeons, Australia faces a surgical workforce crisis within the next fifteen years.

To avoid this crisis, and assuming that the current surgeon per population ratio is adequately and safely servicing the Australian population, it is conservatively estimated that in addition to the 184 new surgeons currently graduating each year, a further 80 will have to graduate alongside them – a total of 264 new surgeons per annum. This increase needs to be initiated now or, with the passing of each year, the number of active surgeons will fall further below the required level, and the number of new surgeons required will steadily rise.

The average cost of training one surgical trainee, if he or she is expected to do 200 operative cases per year, is conservatively estimated to be \$903,000. Further expenditure is required for educational infrastructure and costs incurred by the supervisor. It follows therefore that if Australians are to continue to receive the standard of surgical care they currently receive, additional expenditure of at least \$72 million per annum is needed on surgical training alone.

The College's Department of Workforce Assessment developed workforce models based on the proposed scenarios of Health Workforce Australia's National Training Plan. They are:

- Constructing a baseline including supply modelling;
- Demand modelling;
- Conducting a broad range of sensitivity analysis; and
- Planning scenario modelling.

As at December 2010 there were 4089 active Australian surgeons. In 15 years' time it is reasonable to assume all surgeons aged 54 years or less will still be in practice. Those older than 55 will have retired. Effectively, 1547 Australian surgeons will have retired. It is assumed that the 2542 who are active today will still be active in 15 years. Of those retiring each year an equal number of graduating new Fellows will be needed to replace them. A large number of Fellows are approaching the age of retirement. If surgeons attaining the age of 70 in 2010 were to retire, 335 would have ceased active practice.

While the current surgeon per population ratio is adequately and safely servicing the Australian population, this population is expected to increase and its average age to rise. The active Australian surgeon per total population ratio in 2010 was 1 surgeon per 5000 people. The calculations for the surgeon per population ratios change considerably when the 714 surgeons who are 65 years of age and over are excluded, falling to 1 surgeon per 7000 people. If there is no change in the Total Population ratio (1:7000) and no surgeons retire between now and 2025, 4870 surgeons will be required in 2025 (up from 4089 in 2010) just to cope with the increased population.

The current reported working hours per week is 60 (excluding on-call). This figure, however, could fall over time as a result of concerns regarding safe working hours and the possibility that the next generation of surgeons will seek enhanced work life balance. By 2025, 5313 surgeons would be required to service the Total Population if there was a decrease of 5 working hours per week across the active Fellowship. That is, of the 264 new surgeons required each year, 87 of them can be attributed to this potential decline in working hours.

In 2010 1 in 26 surgeons were International Medical Graduates (IMGs) practicing surgery within Australia. In 2010, 58 IMGs passed the Fellowship exam to become Fellows of the College. If the average yearly increase in IMGs becoming new Fellows is maintained, it is predicted that by 2025,

644 will be practising in Australia. Health Workforce Australia has as one of its objectives a significant decrease in Australia's reliance on IMGs, quoting reductions of 95%. But to reduce Australia's reliance on IMGs by just 50%, 322 new locally trained surgeons will be needed by 2025. That is, 23 additional new surgeons will be required to graduate each year.

In 2010, 184 new surgeons (including IMGs) passed the Fellowship exam.

**To accommodate all of the above projections, it is conservatively estimated that 264 new surgeons will be needed each year between now and 2025. That is, in addition to the 184 new surgeons currently graduating each year, a further 80 will have to graduate alongside them. Given the logistics and expense of such an increase in training, this represents an unprecedented challenge to Australian governments, hospitals and Fellows of the Royal Australasian College of Surgeons.**

## Introduction

In the 1970s and 1980s, the opinion of governments around the globe swung between the views that we had too few medical practitioners and then too many. In the mid-1990s, the Australian government reduced university funded medical training positions, placed restrictions on provider numbers and increased restrictions on the entry of overseas-trained doctors. The resulting deficit in local medical graduates prompted an increased reliance on overseas-trained medical professionals to fill shortages in the health care system. In 1994 the Australian government commissioned the report into the “oversupply” of health workforce. The Australian Medical Workforce Advisory Committee (AMWAC) was established to address the oversupply and provide recommendations regarding the number of government funded training places – including surgical training places.

The need for urgent reforms to the health workforce has been a stated position of the Royal Australasian College of Surgeons for more than a decade. In 2003 the College commissioned a report, “Outlook for Surgical Services in Australasia”, to examine the surgical workforce in Australasia, including both its structure and its distribution of the surgical workforce. The report conservatively estimated that there will be at least a 50% growth in demand for surgical services by 2021. The demand for surgical services seemed to be largely generated by the ageing of the population - but this was not the only factor. It further found that assuming the demand for surgical services in Australia can be met by just increasing the number of Australian trained surgeons is too simplistic. The number of surgeons is only one factor that influences the supply of surgical services. Other factors include the availability of operating theatres, pre and post-operative hospital beds, efficient work practices and the availability of Overseas Trained Doctors to fill gaps.

Since 2004 the Australian government has established six new medical schools, in addition to the 11 existing schools, with a further five in planning. This unprecedented expansion will see the number of medical graduates rise from around 1600 in 2005 to about 3000 in 2012.

By 2006 the critical shortage of health care providers was being reported by the World Health Organisation (WHO) in a report “The World Health Report 2006: Working together for health”. WHO concluded an immediate increase in health workers was necessary.

Established in 2009, HWA replaced the Australian Medical Workforce Advisory Committee (AMWAC). HWA is charged with ensuring the provision of a health workforce that responds to the needs of the Australian community through the development of policies and the delivery of programs across four main areas – workforce planning, policy and research; clinical education; innovation and reform of the health workforce; and the recruitment and retention of international health professionals.

The HWA’s National Training Plan intends to institute reforms in order to provide the numbers of professional entry, postgraduate and specialist trainees that will be required between 2012 and 2025 as well as to achieve self-sufficiency. *Self-sufficiency is defined as a situation in which Australia’s requirements for medical, nursing and midwifery professionals in 2025 can be met from the supply of domestically trained graduates without the need to import overseas trained doctors, nurses and midwives to meet a supply gap.* This does not imply that there will be no international movements of doctors, nurses and midwives.

This report utilises the proposed scenario models forwarded by the NTP and will serve as the basis of the College’s ongoing efforts to inform and influence decision makers in the ten governments with which it has dealings and in health departments across Australia and New Zealand. Only when armed with the most comprehensive and up to date information can the College hope to support the development of a properly resourced and sustainable surgical workforce.

## Methodology

Many factors influence the demand and supply of health services and the health professional workforce that is needed to provide them. These include:

- Changing technology;
- Changing disease profiles;
- Changing population (usually growth);
- Changing age profiles;
- Availability of hospital resources; and
- Private insurance status and policies to encourage insurance uptake.

A simplistic surgeon to population ratio does not reflect this complexity and can never be the complete answer to workforce planning. However, given that health demand is driven by population and its age profile, ratios can provide a guide or parameter to workforce requirements.

Data analysed in this report is derived from previously published College surgical workforce reports. These reports include the Annual Activities Report (2005 to 2010) and Surgical Workforce Census (2009 and 2005). The reports are based on the College database, activities facilitated by the College and information supplied by its members. Australian Bureau of Statistics (ABS) data cubes, Australian Demographic Statistics (cat. no. 3101.0) and Population Projections, Australia, 2006 to 2101 (cat. no. 3222.0) were also used in the development of this report. ABS Series B data was used in both instances which reflects current population trends in fertility, life expectancy at birth, net overseas migration and net interstate migration. Data inputs to build the baseline include active and retired surgeons who are members of the College, specialty and jurisdictional location, gender, age and hours worked.

The Royal Australasian College of Surgeons is a Fellowship based organisation serving nine surgical specialties. These are Cardiothoracic Surgery, General Surgery, Neurosurgery, Orthopaedic Surgery, Otolaryngology, Head and Neck Surgery, Plastic and Reconstructive Surgery, Paediatric Surgery, Urology Surgery and Vascular Surgery. The College currently has members from the professions of Ophthalmology and Obstetrics and Gynaecology. These specialties are not analysed in this report.

The 2010 Annual Activities Report was used as the current data set. This allows consistency in comparing annual values provided in previous published reports. Further, because Annual Reports have greater detail and data than Interim Activities Reports, we have not used the recently finalised Jan-April 2011 Interim Activities Report.

The NTP background paper described the intended use of the standard Markov chain analysis. This tool will establish supply transition matrices based on workforce characteristics such as participation rates in age and gender cohorts, and calculate change rates by cohort year for each of the input/output factors. This is not employed in this report.

This report utilises trends analysis over the period 2005 to 2010 and is devoid of linear regression analysis which has the tendency of providing unsound results. The planning scenario models in this report utilise the current supply ratios of surgeon per population. These ratios are extrapolated to ABS projected growth as demand maintaining the determined supply ratio. This applies to the population demographics for total population and age clusters.

Construction of mathematical models for analysis, projection modelling and scenario modelling require assumptions. These are outlined in the following section.

## Assumptions

The Medical Board of Australia states:

“Medical practitioners who are engaged in any form of medical practice are required to participate regularly in continuing professional development (CPD) that is relevant to their scope of practice in order to maintain, develop, update and enhance their knowledge, skills and performance to ensure that they deliver appropriate and safe care.”

The College uses this requirement as one factor in the categorization of a Fellow as active. An active status extends to participation in medico-legal services, and other specialist non-procedural and non-clinical work such as surgical administration and academia where surgical knowledge is engaged.

The retirement age of the Australian population is on average 65. While a percentage of surgeons continue to practice into their 70s and 80s, surgeons typically retire before 70 years of age. Surgical practice, as defined previously, extends beyond procedural work and encompasses medico-legal, research and consulting. Where indicated, tables in this report detail Fellows of the College who are active, active and under the age of 65, and active under the age of 70.

Due to the nature of surgical practice and the demand for continuous professional practice, maternity leave is uncommon. In this report work-life balance calculations and projections incorporate the desire for parental leave experienced by both genders as means of addressing maternity leave.

Population growth was determined by data available through the ABS as at June 2011. ABS will be undertaking a census of the Australian population in 2011 and as such the data is subject to revision.

During surgical training jurisdictional drift occurs, due to the nature of specialty training and rotations through different posts. Admission to Fellowship and establishment of practice decreases the flow between jurisdictions. Flow between local regions is common as with the case of Visiting Medical Officers (VMOs). Flow between state and territory jurisdictions is low.

## Chapter One: Baseline of characteristics and demographics

### Current surgical characteristics

*Table 1. Characteristics of the active Australian surgeon*

	No	% Female	#Average Age	% under 65	*Average Hours Worked
<b>Total</b>	4089	8.5%	52	82.5%	59.8

Source: RACS 2010 Annual Activities Reports; \*2009 RACS Surgical Workforce Census results (excludes on-call); # Ad hoc IMIS report

The current active surgical workforce has 4089 surgeons practising throughout Australia in each of the nine specialties as detailed in Table 2. Of the 4089 surgeons 82.5% are under the age 65, that is 3,375 surgeons.

*Table 2. Characteristics of the active Australian surgeon by specialty*

Specialty	No	% Female	#Average Age	% under 55	% under 65
CAR	160	5.6%	52	62%	89.5%
GEN	1423	11.6%	53	56%	78.9%
NEU	201	10.9%	51	69%	85.8%
ORT	1116	3.0%	51	64%	84.8%
OTO	398	9.0%	52	61%	81.2%
PAE	85	20.0%	56	51%	80.7%
PLA	356	12.1%	52	65%	81.9%
URO	332	6.9%	50	67%	87.7%
VAS	165	7.3%	52	60%	82.7%

Source: RACS 2010 Annual Activities Reports; # Ad hoc IMIS report

The 5 year cohort age profile provided in Tables 3 and 4 has been modified from the RACS 2010 Annual Activities Report.

*Table 3. Characteristics of the active Australian surgeon by jurisdiction and age cohort*

Active surgeons by jurisdiction & age	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
<35	0	70	1	39	15	3	66	17	211
35-39	8	168	0	97	32	7	128	44	484
40-44	19	225	3	139	54	16	170	72	698
45-49	8	212	3	130	54	11	148	53	619
50-54	16	159	2	104	54	14	125	56	530
55-59	6	128	4	81	37	13	100	42	411
60-64	7	142	3	68	39	9	132	22	422
65-69	6	141	1	58	34	8	109	22	379
70+	1	132	1	44	29	2	101	24	334
Other	0	0	0	0	0	0	1	0	1
<b>Total</b>	<b>71</b>	<b>1377</b>	<b>18</b>	<b>760</b>	<b>348</b>	<b>83</b>	<b>1080</b>	<b>352</b>	<b>4089</b>

Source: RACS 2010 RACS Annual Activities Report (Modified from ITEM WD.3 Active Fellows by Location and Age)

**Table 4. Characteristics of the active Australian surgeon by specialty and age cohort**

Active surgeons by specialty & age	CAR	GEN	NEU	ORT	OTO	PAE	PLA	URO	VAS	TOTAL 2010
<35	2	91	4	55	22	0	12	17	8	211
35-39	12	153	32	125	53	6	41	44	18	484
40-44	30	193	43	191	71	8	67	70	25	698
45-49	28	192	36	174	42	20	58	49	20	619
50-54	29	154	21	155	46	9	50	44	22	530
55-59	20	146	19	106	35	12	24	35	14	411
60-64	16	161	14	101	42	12	29	25	22	422
65-69	11	164	10	72	43	3	35	22	19	379
70+	5	126	18	90	29	13	27	18	8	334
Other	0	1	0	0	0	0	0	0	0	1
Total	153	1381	197	1069	383	83	343	324	156	4089

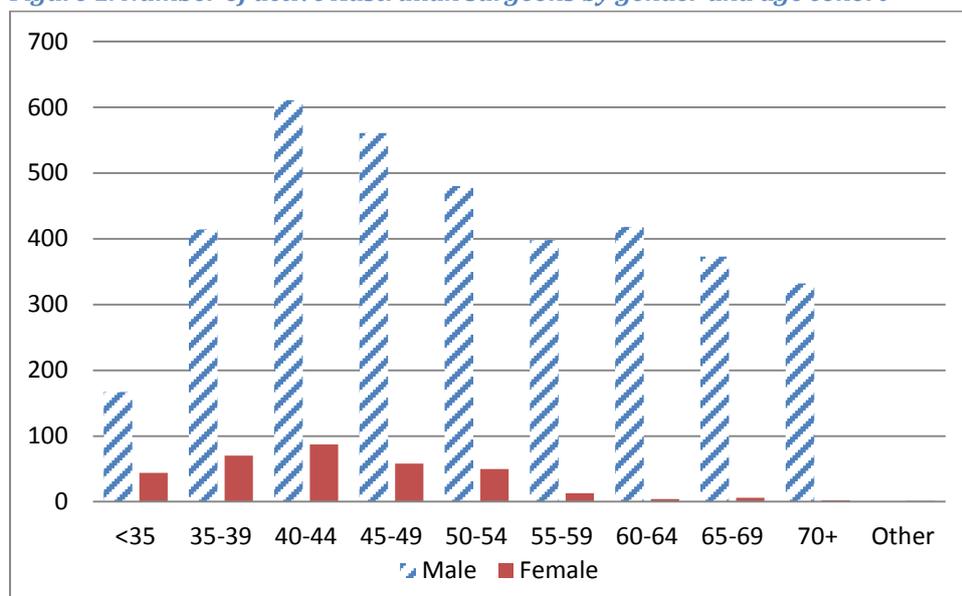
Source: RACS 2010 RACS Annual Activities Report (Modified from ITEM WD.4 Active Fellows by Specialty and Age)

It is difficult to model the amount of work undertaken by the group of Fellows aged over 70 years who are still self-determined to be “active”. Effectively this “broad” group is almost equivalent to another five year cohort.

For the sake of this “rough” workforce assessment, it is appropriate to say that in 15 years all surgeons aged 54 years or less will still be in practice. Those older than 55 will be retired. Effectively 2542 Australian surgeons who are currently active today will still be active in 15 years. However this assumes that surgeons will remain variably active over the age of 70 but are part of the workforce projections.

Figure 1 represents the age and gender distribution of the active Australian surgical workforce. This figure illustrates surgeons continuing to practicing beyond 70 years of age.

**Figure 1. Number of active Australian surgeons by gender and age cohort**



Source: RACS 2010 RACS Annual Activities Report (Modified from ITEM WD.4 Active Fellows by Specialty and Age)

Over the 2005 to 2010 period the number of active Australian surgeons has fluctuated. This could be a consequence of the successive government policies restricting undergraduate medical school intake. To complete training to become a surgeon takes approximately 14 years from leaving school through to postgraduate surgical training, a factor over looked in government policy and expected population aging and growth.

**Table 5. Active Australian surgeons by jurisdiction and year**

Location & Year	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
2010	71	1377	18	760	348	83	1080	352	4089
2009	65	1317	19	724	343	80	1030	334	3912
2008	64	1303	19	701	340	79	1002	333	3841
2007	61	1239	17	667	328	81	950	309	3652
2006	57	1209	18	621	316	70	926	305	3522
2005	53	1162	21	587	299	62	901	277	3362

Source: RACS Annual Activities Reports

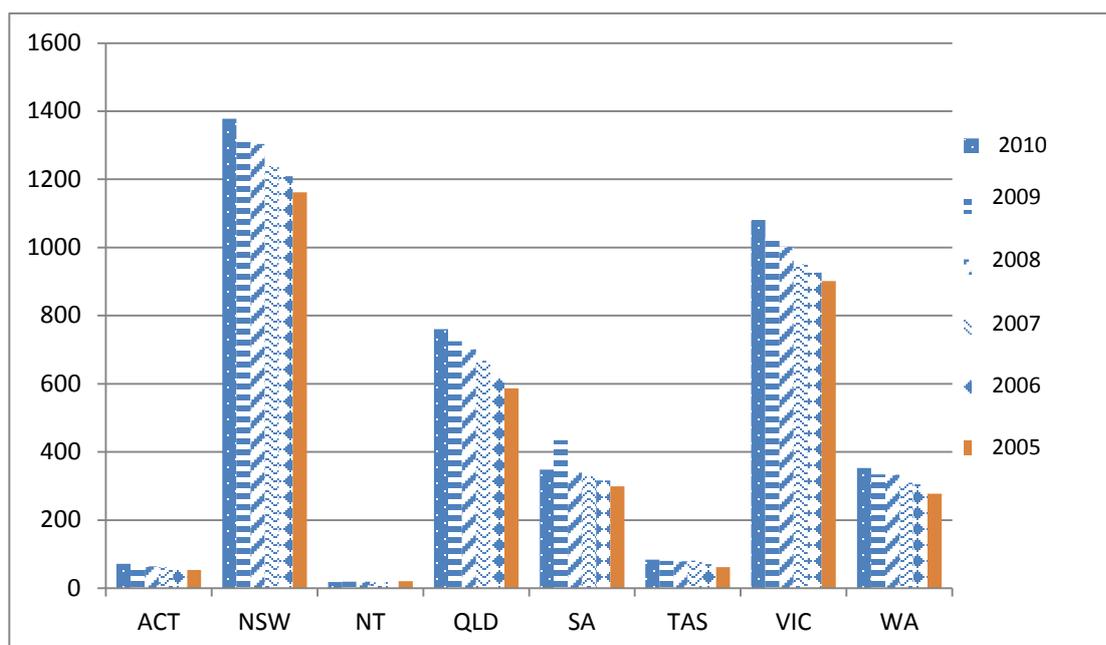
**Table 6. Active Australian surgeons by specialty and year**

Specialty & Year	CAR	GEN	NEU	ORT	OTO	PAE	PLA	URO	VAS	Total
2010	153	1381	197	1069	383	83	343	324	156	4089
2009	149	1323	186	1021	358	81	332	311	151	3912
2008	145	1287	180	1013	356	79	335	303	143	3841
2007	138	1234	166	957	338	77	316	288	138	3652
2006	139	1217	152	926	321	78	294	273	122	3522
2005	130	1170	142	874	305	77	286	266	112	3362

Source: RACS Annual Activities Reports

Figure 2 illustrates the steady increase in active surgeons in Australia, with the exception of South Australia, which experienced a surge in 2009.

**Figure 2. Total number of active Australian surgeons by jurisdiction over time**



Source: RACS Annual Activities Reports

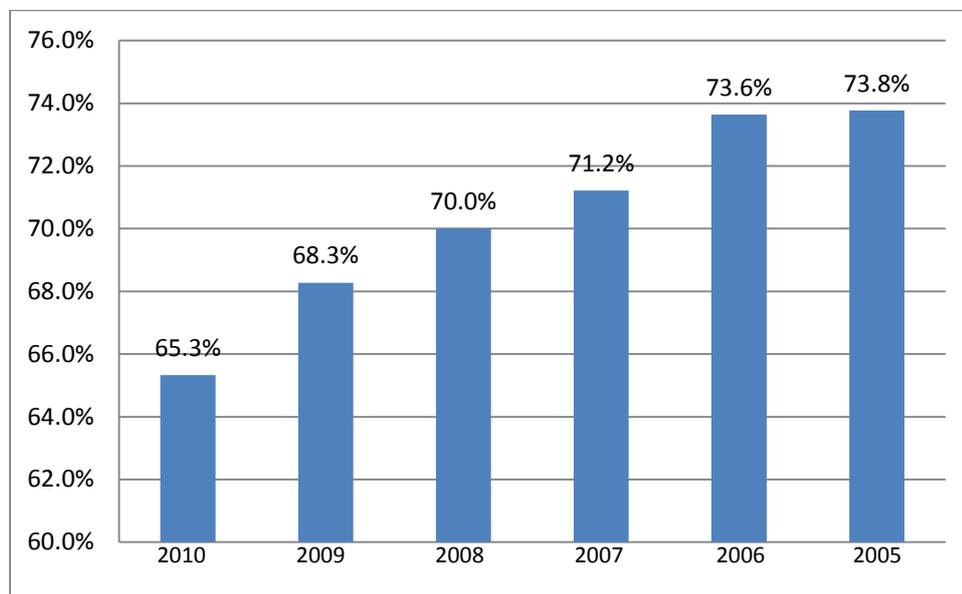
The average age of active Australian surgeons has decreased from 56 in 2005 to 53 in 2010 (Table 7). The percentage of active surgeons over the age of 55 decreased by 8.5% between 2005 and 2010 (Figure 3).

*Table 7. Average age of active Australian surgeons by specialty and year*

Specialty & Year	CAR	GEN	NEU	ORT	OTO	PAE	PLA	URO	VAS	Total
2010	52	54	51	52	53	57	52	51	53	53
2009	53	55	52	53	54	57	53	52	54	53
2008	53	55	53	54	54	58	53	52	55	54
2007	54	56	54	54	55	58	54	53	55	55
2006	54	57	55	55	56	59	55	54	56	56
2005	55	58	56	56	56	59	56	54	57	56

Source: RACS Ad hoc IMIS reports

*Figure 3. Change in total number of active Australian surgeons under the age of 55 over time*



Source: RACS Ad hoc IMIS reports

## Current retirement

The average number of surgeons retiring between 2005 and 2010 was 37 per annum. The average rate of retirement is 3.9%. In 2009, however, 23 Australian surgeons returned to active surgical practice (Table 8 and 9, Figure 4).

This may have been in response to the global economic crisis which occurred around this time and which negatively impacted on the performance of superannuation funds and the income of retirees.

**Table 8. Total number of Australian surgeons retiring by jurisdiction and year**

Location & Year	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
2010	-2	8	1	8	5	0	13	1	34
2009	3	-6	0	-6	1	-1	-16	2	-23
2008	1	7	0	10	3	3	17	8	49
2007	-2	11	0	-3	0	-3	3	-2	4
2006	1	13	-1	8	6	2	20	13	62

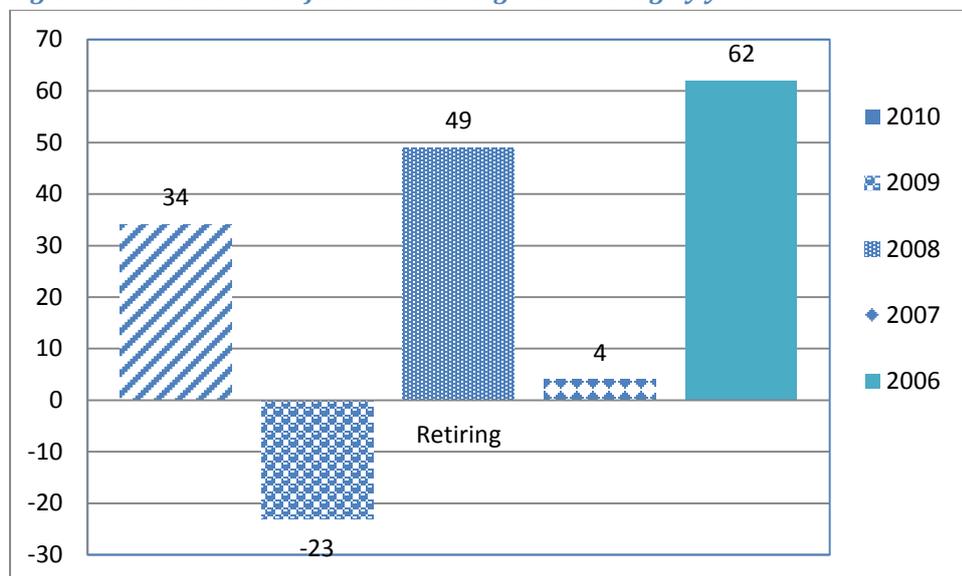
Source: RACS Annual Activities Report

**Table 9. Total number of Australian surgeons retiring by specialty and year**

Specialty & Year	CAR	GEN	NEU	ORT	OTO	PAE	PLA	URO	VAS	Total
2010	3	19	-1	7	2	-1	2	1	2	34
2009	-2	-17	-1	0	0	-3	-2	2	0	-23
2008	3	16	6	10	1	-1	8	3	3	49
2007	0	-5	2	5	2	-2	-1	4	-1	4
2006	2	38	1	6	1	3	4	4	3	62

Source: RACS Annual Activities Report

**Figure 4. Total number of Australian surgeons retiring by year**



Source: RACS Annual Activities Report

Tables 10 and 11 use the age profile of active surgeons with an expected retirement age of 65, to anticipate the number of surgeons retiring into 2025. Of those retiring each year an equal number of graduating new Fellows is needed to replace these surgeons.

**Table 10. If Australian surgeons retired at 65 by jurisdiction and year based on age profile**

Year & Jurisdiction	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
Retirement at 65 (2010)	7	273	2	102	63	10	211	46	714
Retiring in 5 years (2015)	7	142	3	68	39	9	132	22	422
Retiring in 10 years (2020)	6	128	4	81	37	13	100	42	411
Retiring in 15 years (2025)	16	159	2	104	54	14	125	56	530

Source: RACS 2010 Annual Activities Report (adapted from ITEM: WFD.3 – Active Fellows by Location and Age)

**Table 11. If Australian surgeons retired at 65 by specialty and year based on age profile**

Year & Specialty	CAR	GEN	NEU	ORT	OTO	PAE	PLA	URO	VAS	TOTAL
Retirement at 65 (2010)	16	291	28	162	72	16	62	40	27	714
Retiring in 5 years (2015)	16	161	14	101	42	12	29	25	22	422
Retiring in 10 years (2020)	20	146	19	106	35	12	24	35	14	411
Retiring in 15 years (2025)	29	154	21	155	46	9	50	44	22	530

Source: RACS 2010 Annual Activities Report (adapted from ITEM: WFD.3 – Active Fellows by Location and Age)

Tables 12 and 13 use the age profile of active surgeons. If surgeons retire at 70 years of age the expected number to 2025 is shown. Of those retiring each year an equal number of graduating new Fellows is needed to replace these surgeons.

**Table 12. If Australian surgeons retired at 70 by jurisdiction and year based on age profile**

Year & Jurisdiction	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
Retirement at 70 (2010)	1	132	1	44	29	2	102	24	335
Retiring in 5 years (2015)	6	141	1	58	34	8	109	22	379
Retiring in 10 years (2020)	7	142	3	68	39	9	132	22	422
Retiring in 15 years (2025)	6	128	4	81	37	13	100	42	411

Source: RACS 2010 Annual Activities Report (adapted from ITEM: WFD.3 – Active Fellows by Location and Age)

**Table 13. If Australian surgeons retired at 70 by specialty and year based on age profile**

Year & Specialty	CAR	GEN	NEU	ORT	OTO	PAE	PLA	URO	VAS	TOTAL
Retirement at 70 (2010)	5	127	18	90	29	13	27	18	8	335
Retiring in 5 years (2015)	11	164	10	72	43	3	35	22	19	379
Retiring in 10 years (2020)	16	161	14	101	42	12	29	25	22	422
Retiring in 15 years (2025)	20	146	19	106	35	12	24	35	14	411

Source: RACS 2010 Annual Activities Report (adapted from ITEM: WFD.3 – Active Fellows by Location and Age)

Currently 3.9% the Australian surgeons retire on average each year. The average increase in new surgeons is 4.9% per annum.

An average of 37 active Australian surgeons have retired from active status each year between 2005 and 2010 (Tables 8 and Table 9). To continue providing safe surgical services to the Australian community, a greater number of new surgeons will be needed to replace those who retired at 65 and 70 years of age respectively (Table 10 and Table 14).

As shown in the next section an average of 175 new surgeons become active each year in Australia (includes SET and IMG pathway surgeons) (Table 16).

Demand and projection modelling are considered in Chapter Two.

## New surgeons

The Annual Activities Reports for 2005 to 2009 provide details on new Fellows which do not differentiate those that enter through the Surgical, Education and Training (SET) program or the International Medical Graduate (IMG) pathway. The total number of new Australian surgeons includes both SET and IMG surgeons as seen in Tables 14 and 15.

**Table 14. Total number of new Australian surgeons by jurisdiction and year (includes International Medical Graduates)**

Jurisdiction & Year	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
2010	6	62	2	34	12	3	45	20	184
2009	1	61	2	34	17	0	45	14	174
2008	2	55	1	23	16	2	53	19	171
2007	4	71	1	44	18	6	52	15	211
2006	2	60	1	23	16	5	28	20	155
2005	3	56	1	33	12	3	31	16	155

Source: RACS Annual Activities Reports

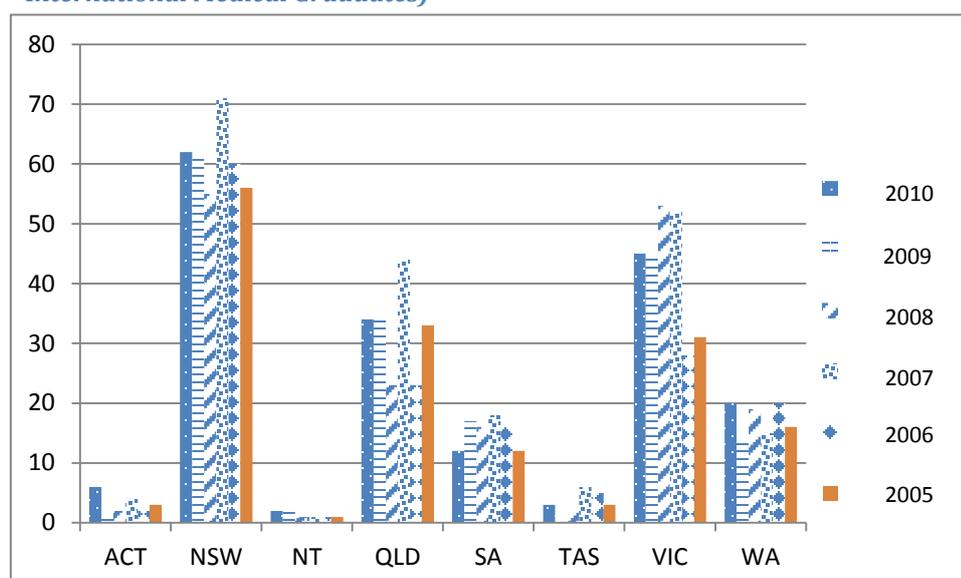
**Table 15. Total number of new Australian surgeons by specialty and year (includes International Medical Graduates)**

Specialty & Year	CAR	GEN	NEU	ORT	OTO	PAE	PLA	URO	VAS	Total
2010	4	68	12	47	21	3	9	15	5	184
2009	5	60	8	52	13	3	9	15	9	174
2008	7	58	16	37	12	2	18	16	5	171
2007	2	72	13	51	22	2	19	19	11	211
2006	7	56	9	41	13	2	11	11	5	155
2005	6	53	6	45	13	1	15	8	8	155

Source: RACS Annual Activities Reports

Figure 5 illustrates the year-to-year changes in new surgeons in each of the Australian jurisdictions. There was an overall increase in new surgeons between 2005 and 2010. The year 2007 saw a surge in the number of new surgeons.

**Figure 5. Change in total number of new Australian surgeons by jurisdiction over time (includes International Medical Graduates)**



Source: RACS Annual Activities Reports

The 2010 Annual Activities Report differentiates between new surgeons gaining Fellowship through the SET program and IMG pathway as detailed in Table 16.

**Table 16. Total and average number of new Australian surgeons by specialty and pathway in 2010**

2010	CAR	GEN	NEU	ORT	OTO	PAE	PLA	URO	VAS	Total
SET program	0	41	8	39	14	2	6	10	2	122
IMG pathway	4	27	4	8	7	1	3	5	3	62
Total	4	68	12	47	21	3	9	15	5	184
Average from 2005 to 2010 (SET & IMG)	5	61	11	46	16	2	14	14	7	175

Source: RACS Annual Activities Reports; RACS 2010 Annual Activities Report (adapted from ITEM: WFD.9 Active Australian and New Zealand Trainees obtaining Fellowship in 2010 by Location and Specialty).

## Current trainee intake

Trainees undertake specialty surgical training through the Surgical Education and Training (SET) program. Trainees require an accredited training post within a hospital (public or private). Training posts are funded by the State governments and as such are limited by budget provisions. Training posts need to meet the accreditation guidelines contained in the Accreditation of Hospitals and Posts for Surgical Education and Training (RACS 2008). Accreditation of a hospital's surgical training posts is undertaken by the College.

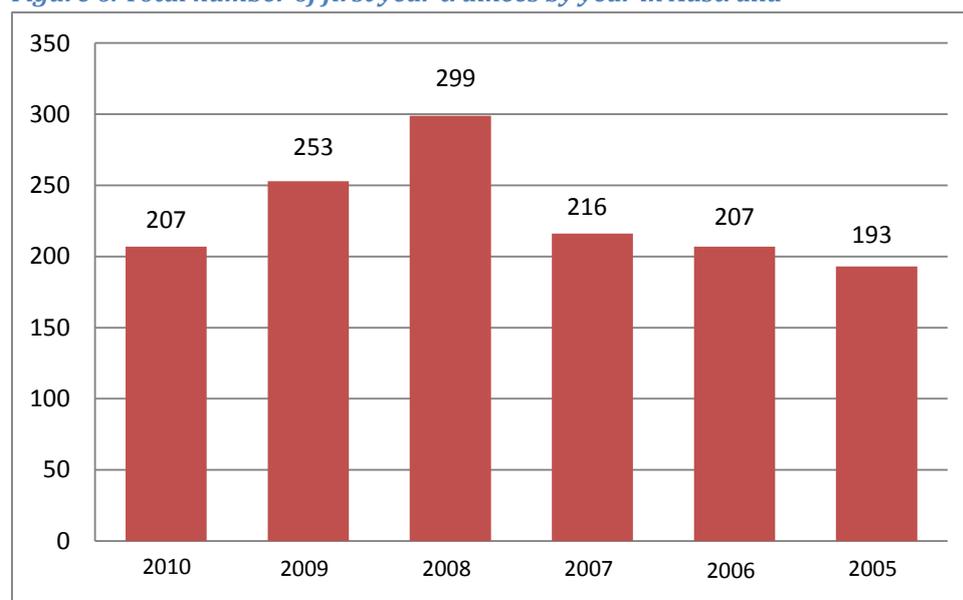
The cost of providing care in hospitals is a complex issue to track and to allocate for appropriately. However the average cost per case-mix-adjusted separation is \$4471 (Appendix 7- Table 3.12, Figure A 1.1). The average cost weight of separations overall in the public sector is 1.01. This means that the average cost of separations is \$4515 in the public sector (Appendix 8 - Table 7.18). If a trainee is expected to do 200 operative cases in a year, and this clinical case load is required to be additional surgical activity, then each training post requires additional surgical services budgeted at \$903,000. Beyond surgical activity, the educational infrastructure and supervision is an additional cost.

**Table 17. Total number of first year trainees by specialty and year in Australia**

Specialty & Year	CAR	GEN	NEU	ORT	OTO	PAE	PLA	URO	VAS	Total
2010	3	84	11	49	15	4	17	17	7	207
2009	9	96	9	63	25	7	10	25	9	253
2008	6	104	8	61	30	2	30	44	14	299
2007	3	95	1	46	18	3	21	21	8	216
2006	7	93	4	44	22	1	13	19	4	207
2005	4	94	7	45	15	1	10	17	2	193

Source: RACS Annual Activities Reports

**Figure 6. Total number of first year trainees by year in Australia**



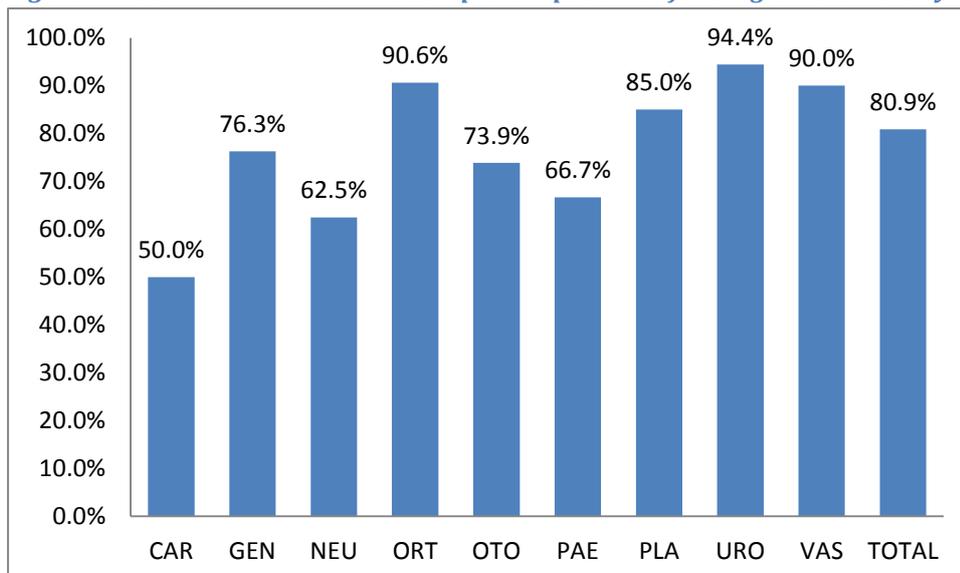
Source: RACS Annual Activities Reports

**Table 18. 2010 annual Fellowship exam pass rate for surgical trainees by jurisdiction and specialty**

Jurisdiction & Specialty	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
CAR	100%	50.0%	~	50.0%	0.0%	~	50.0%	~
GEN	100%	76.5%	~	57.1%	100%	~	90.0%	37.5%
NEU	~	66.7%	~	0.00%	~	~	~	100%
ORT	100%	93.8%	~	88.9%	80.0%	~	88.9%	100%
OTO	~	87.5%	~	100%	50.0%	0.0%	80.0%	66.7%
PAE	~	100%	~	100%	~	~	0.00%	~
PLA	~	71.4%	~	100%	100%	~	83.3%	100%
URO	~	100%	~	80.0%	100.00%	~	100%	100%
VAS	~	100%	~	100%	~	~	100%	0.0%
<b>Total</b>	<b>100%</b>	<b>81.5%</b>	<b>~</b>	<b>78.8%</b>	<b>81.0%</b>	<b>0.0%</b>	<b>86.9%</b>	<b>65.0%</b>

Source: RACS 2010 Annual Activities Reports (taken from ITEM: EXAMS.6 – Annual Fellowship Pass Rate by Location and Specialty – Surgical Trainees)

**Figure 7. Total 2010 annual Fellowship exam pass rate for surgical trainees by specialty**



Source: RACS 2010 Annual Activities Reports (taken from ITEM: EXAMS.6 – Annual Fellowship Pass Rate by Location and Specialty – Surgical Trainees)

**Table 19. Fellowship exam pass rate for SET trainees by specialty for Australia and New Zealand– 5 year cohort analysis**

Specialty	Initially Sat (2005)	Eventual Pass (2010)	% Pass (2005/2010)
CAR	10	10	100%
GEN	61	56	91.8%
NEU	11	11	100%
ORT	41	41	100%
OTO	18	18	100%
PAE	2	1	50.0%
PLA	14	14	100%
URO	14	14	100%
VAS	7	7	100%
<b>Total</b>	<b>178</b>	<b>172</b>	<b>96.6%</b>

Source: RACS 2010 Annual Activities Reports (modified from ITEM: EXAMS.5 – Eventual Fellowship Pass Rate by Specialty)

## Population Characteristics and Demographics

The demand for hospital separations is strongly driven by the population over the age of 50. The growth in demand is also particularly strong for the age group over the age of 50 (Appendix 1 - Figure 7.2; Appendix 2 - 7.3; and Appendix 3 - 7.4 of Australian Hospital Statistics 2008 – 2009). People over the age of 55 account for 52.9% of hospital separations (Appendix 4 - Table S7.10 and Appendix 5 - S7.11).

Consequently, the number of surgeons who need to be trained will depend on whether we are providing a workforce for the total age profile ratios, for the greater than 50 age profile or for the greater than 65 age profile.

**Table 20. Australian population age profile over time**

Age Profile & Year	2006	2007	2008	2009	2010
Pop ≤ 14	4,050,445	4,083,588	4,130,504	4,186,021	4,230,613
Pop ≥ 50	6,315,798	6,485,679	6,654,258	6,831,083	7,018,040
Pop ≥ 65	2,692,659	2,764,262	2,830,854	2,914,336	3,009,114
Total Pop	20,697,880	21,072,452	21,498,540	21,965,287	22,342,398

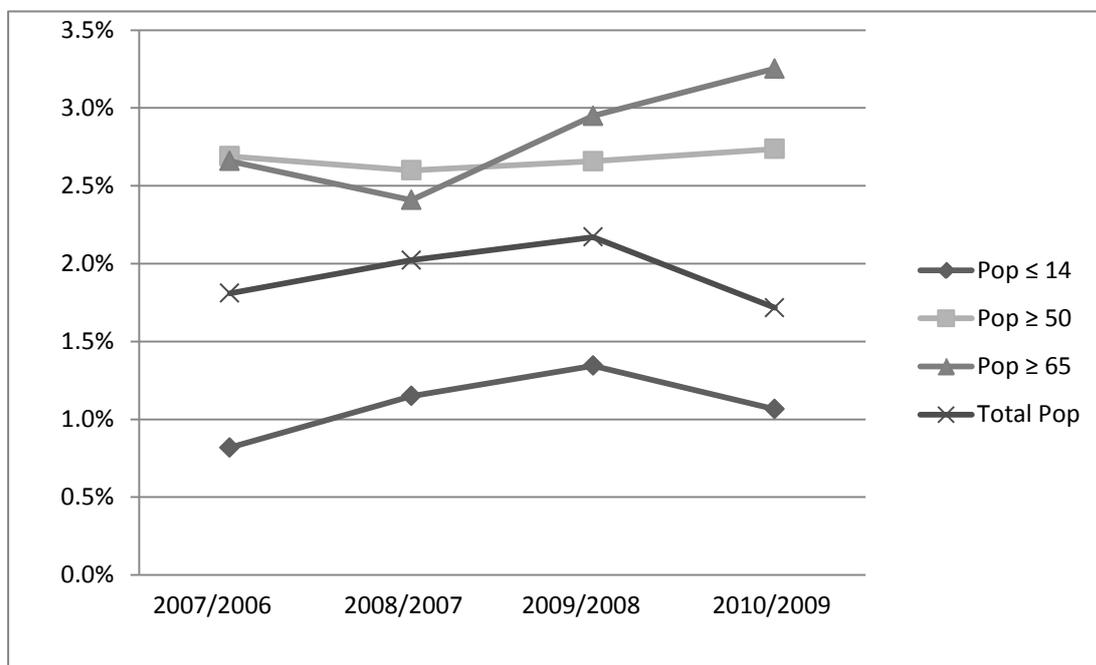
Source: Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Table 21. Percentage of Australian population age profile by year**

Age Profile & Year	2006	2007	2008	2009	2010
Pop ≤ 14	19.6%	19.4%	19.2%	19.1%	19.0%
Pop ≥ 50	30.5%	30.8%	30.9%	31.1%	31.4%
Pop ≥ 65	13.0%	13.1%	13.2%	13.3%	13.5%
Total Pop	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Figure 8. Australian population growth over time**



Source: Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

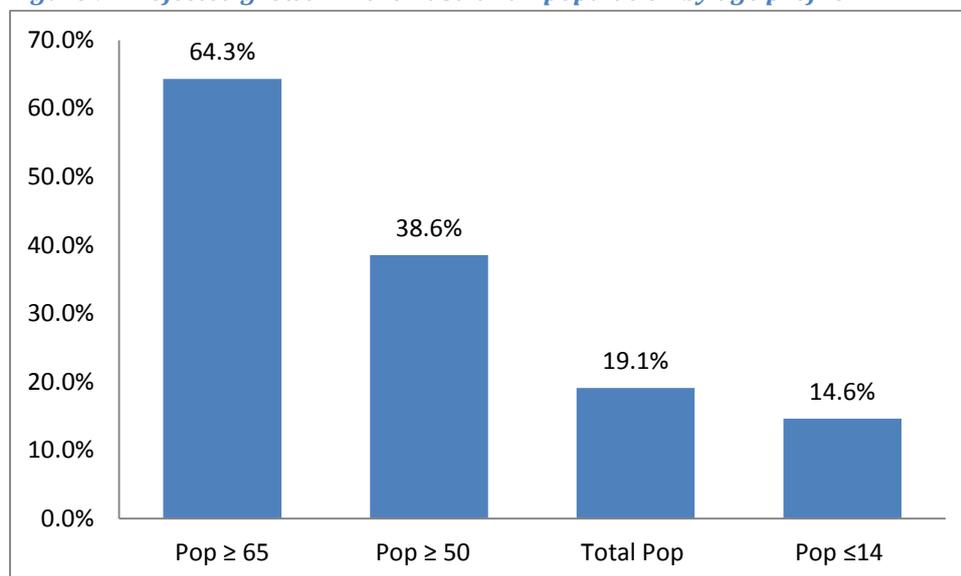
The Australian population is expected to increase between now and 2025. The greatest percentage increase is expected in the over 65 age group with a 64.3% growth is projected. The total population is expected to grow by 19.1% in 2025.

**Table 22. Current and projected Australian population by age profile**

Current and Projected Age Profile	Current 2010	Projected to 2025	Projected Pop Increase	Projected % Growth
Pop ≥ 65	3,008,067	4,942,425	1,934,358	64.3%
Pop ≥ 50	7,014,193	9,718,440	2,704,247	38.6%
Total Pop	22,328,847	26,593,902	4,265,055	19.1%
Pop ≤14	4,230,205	4,848,510	618,305	14.6%

Source: Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010; 3222.0 - Population Projections, Australia, 2006 to 2101) at 3 June 2011

**Figure 9. Projected growth in the Australian population by age profile**



Source: Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010; 3222.0 - Population Projections, Australia, 2006 to 2101) at 3 June 2011

## Chapter Two: Current demand modelling

### Population ratio and increased demand on surgical services

Table 23. Current active Australian surgeons by specialty and population (by age cluster)

2010 Specialty	High Demand			Moderate Demand			Conservative Demand					
	*No Surgeons	*Ratio 1 Surgeon per pop ≥ 65 ('000)	Pop ≥ 65	*No Surgeons	*Ratio 1 Surgeon per pop ≥ 50 ('000)	Pop ≥ 50	No Surgeons	Ratio 1 Surgeon per Total Pop ('000)	Total Pop	No Surgeons	Ratio 1 Surgeon per pop ≤ 14 ('000)	Pop ≤ 14
CAR	153	20	3,008,067	153	46	7,014,193	153	146	22,328,847	153	28	4,230,205
GEN	1,381	2	3,008,067	1,381	5	7,014,193	1,381	16	22,328,847	1,381	3	4,230,205
NEU	197	15	3,008,067	197	36	7,014,193	197	113	22,328,847	197	21	4,230,205
ORT	1,069	3	3,008,067	1,069	7	7,014,193	1,069	21	22,328,847	1,069	4	4,230,205
OTO	383	8	3,008,067	383	18	7,014,193	383	58	22,328,847	383	11	4,230,205
PAE	~	~	3,008,067	~	~	7,014,193	~	~	22,328,847	83	51	4,230,205
PLA	343	9	3,008,067	343	20	7,014,193	343	65	22,328,847	343	12	4,230,205
URO	324	9	3,008,067	324	22	7,014,193	324	69	22,328,847	324	13	4,230,205
VAS	156	19	3,008,067	156	45	7,014,193	156	143	22,328,847	156	27	4,230,205
<b>Total</b>	<b>*4006</b>	<b>1</b>	<b>3,008,067</b>	<b>*4006</b>	<b>2</b>	<b>7,014,193</b>	<b>4,089</b>	<b>5</b>	<b>22,328,847</b>	<b>4,089</b>	<b>1</b>	<b>4,230,205</b>

\*Excludes Paediatric Surgeons

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

Table 24 is the projected number of Surgeons required in Australia in 2025 given the projected population by Total, greater than 50 years, greater than 65 years and less than 15 years of age group.

It will be an issue of policy as to whether the current ratio of surgeons is felt as the “appropriate number” and whether projections in the future should be focused at the total population or the population age groups where the majority of health service demand (measured as separations) and growth in demand is occurring (age group ratios of above age of 50 or above age of 65).

In brief, if there is no change in the Total Population ratio, 4870 surgeons will be required in 2025 (from 4089 in 2010). To match the population ratio over 50 it will be 5547 in 2025 (from 4006 in 2010 excluding Paediatric surgeons). To maintain the population ratio for above 65 years of age population it will be 6582 in 2025 (from 4006 in 2010). For Paediatric surgeons the change in the less than 15 years of age group requires an increase to 95 surgeons in 2025 (from 83 currently active in 2010).

The number of new Fellows per annum (excluding IMGS) will need to increase from 120 to 184 (excluding Paediatric) if the demand of the greater than 65 year old age group is to be met. Based on current ratios, the training programs would need to be substantially increased to 184 new Fellows each year if the surgical population needed for the greater than 65 age group is to be met (excluding Paediatric).

If no surgeon was to retire between now and 2025, on the population ratios for the greater than 65 years of age, 6582 active surgeons would be required, equating to 2576 additional surgeons (excluding Paediatric). That is, 184 Australian Surgical Fellows will need to be trained each year from now until 2025 (Table 25).

On the population ratios for the greater than 50 years of age, if no Australian surgeon was to retire between now and 2025, 3329 active surgeons would be required, equating to 1541 additional surgeons (excluding Paediatric). That is, 110 Australian Surgical Fellows will need to be trained each year from now until 2025 (Table 25).

If no surgeon was to retire between now and 2025, based on the Australian population total age profile ratios, 4870 active surgeons would be required equating to 781 additional surgeons. That is, 56 Australian Surgical Fellows will need to be trained each year from now until 2025 (Table 25).

**Table 24. Projected number of Australian surgeons against the projected Australian population by 2025 (by age cluster)**

To maintain the same ratio as above (Table 23) the following are the number of surgeons needed for the projected population.

2025 Specialty	High Demand			Moderate Demand			Conservative Demand			Projected No Surgeons Required	Projected Ratio 1 Surgeon per pop ≤14 ('000)	Projected pop ≤14
	*Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 65 ('000)	Projected Pop ≥ 65	*Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 50 ('000)	Projected Pop ≥ 50	Projected No Surgeons Required	Projected Ratio 1 Surgeon per Total Pop ('000)	Projected Total Pop			
CAR	251	20	4,942,425	212	46	9,718,440	182	146	26,593,902	175	28	4,848,510
GEN	2,269	2	4,942,425	1,913	5	9,718,440	1,645	16	26,593,902	1,583	3	4,848,510
NEU	324	15	4,942,425	273	36	9,718,440	235	113	26,593,902	226	21	4,848,510
ORT	1,756	3	4,942,425	1,481	7	9,718,440	1,273	21	26,593,902	1,225	4	4,848,510
OTO	629	8	4,942,425	531	18	9,718,440	456	58	26,593,902	439	11	4,848,510
PAE	~	~	4,942,425	~	~	9,718,440	~	~	26,593,902	95	51	4,848,510
PLA	564	9	4,942,425	475	20	9,718,440	409	65	26,593,902	393	12	4,848,510
URO	532	9	4,942,425	449	22	9,718,440	386	69	26,593,902	371	13	4,848,510
VAS	256	19	4,942,425	216	45	9,718,440	186	143	26,593,902	179	27	4,848,510
<b>Total</b>	<b>*6582</b>	<b>1</b>	<b>4,942,425</b>	<b>*5547</b>	<b>2</b>	<b>9,718,440</b>	<b>4870</b>	<b>5</b>	<b>26,593,902</b>	<b>4687</b>	<b>1</b>	<b>4,848,510</b>

\*Excludes Paediatric Surgeons

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table 25. Annual number of new Australian surgeons needed to be trained each year to service projected population from now until 2025.**

	<i>High Demand</i>	<i>Moderate Demand</i>	<i>Conservative Demand</i>	
	<b>*Projected Pop ≥ 65</b>	<b>*Projected Pop ≥ 50</b>	<b>Projected Total Pop</b>	<b>Projected Pop ≤14</b>
Total No of new Fellows to 2025	*2,576	*1,541	781	598
Yearly Increase in New Fellows	*184	*110	56	43

\*Excludes Paediatric Surgeons

## Planning scenario modelling

Currently, an active surgeon is one who undertakes work utilising their skill, knowledge and training as a surgeon in any capacity. The Australian Medical Council, the Medical Board of Australia and the College require surgeons to declare annually that they have met the continuing professional development (CPD) standards set to maintain registration. CPD is required of surgeons who may no longer be operating and performing clinical activities yet may still practice in a medico-legal capacity.

There is no current differentiation between the different levels of activity undertaken by a surgeon. To provide a means of calculating a more reflective surgeon per population ratio and projected number of surgeons into 2025, two age scenarios are developed. The first scenario excludes surgeons beyond 65 years of age from sections calculations. The second scenario excludes surgeons beyond 70 years of age from sections calculations. The tables indicate which age cluster is excluded where applicable.

**Table 26. Number of active Australian surgeons by age cluster**

<b>Status &amp; Jurisdiction</b>	<b>ACT</b>	<b>NSW</b>	<b>NT</b>	<b>QLD</b>	<b>SA</b>	<b>TAS</b>	<b>VIC</b>	<b>WA</b>	<b>AUS</b>
Total Active Surgeons (2010)	71	1377	18	760	348	83	1080	352	4089
Active surgeons ≥ 65 (2010)	7	273	2	102	63	10	211	46	714
Active surgeons ≥ 70 (2010)	1	132	1	44	29	2	101	24	334
Surgeons Under ≤64 (2010)	64	1104	16	658	285	73	869	306	3375
Surgeons Under ≤69 (2010)	70	1245	17	716	319	81	979	328	3755

Source: RACS 2010 Annual Activities Report (adapted from ITEM: WFD.3 – Active Fellows by Location and Age)

**Table 27. Number of active Australian surgeons by age cluster**

<b>Status &amp; Specialty</b>	<b>CAR</b>	<b>GEN</b>	<b>NEU</b>	<b>ORT</b>	<b>OTO</b>	<b>PAE</b>	<b>PLA</b>	<b>URO</b>	<b>VAS</b>	<b>TOTAL 2010</b>
Total Active Surgeons (2010)	153	1381	197	1069	383	83	343	324	156	4089
Active surgeons ≥ 65 (2010)	16	291	28	162	72	16	62	40	27	714
Active surgeons ≥ 70 (2010)	5	126	18	90	29	13	27	18	8	334
Surgeons Under ≤64 (2010)	137	1090	169	907	311	67	281	284	129	3375
Surgeons Under ≤69 (2010)	148	1255	179	979	354	70	316	306	148	3755

Source: RACS 2010 Annual Activities Report (adapted from ITEM: WFD.3 – Active Fellows by Location and Age)

## Planning scenario model 1: surgeons over the age of 65 retiring from active status.

### Population ratio and increase demand on surgical services

The calculations for the surgeon per population ratios change considerably when surgeons 65 years of age and over are excluded. For example, the surgeon per total population ratio seen in Table 23 was 1 surgeon per 5000 people. Table 28 shows 1 surgeon per 7000 people, a difference of 714 surgeons. This population ratio is maintained in the surgeons projection for Table 28.

**Table 28. Current active Australian surgeons (under the age of 65) by specialty and population (by age cluster)**

2010 Specialty	High Demand			Moderate Demand			Conservative Demand					
	*No Surgeons	*Ratio 1 Surgeon per Pop ≥65 ('000)	Pop ≥65	*No Surgeons	*Ratio 1 Surgeon per ≥50 ('000)	Pop ≥50	No Surgeons	Ratio 1 Surgeon per Total Pop ( '000)	Total Pop	No Surgeons	Ratio 1 Surgeon per ≤ 14 ('000)	Pop ≤ 14
CAR	137	22	3,008,067	137	51	7,014,193	137	163	22,328,847	137	31	4,230,205
GEN	1,090	3	3,008,067	1,090	6	7,014,193	1,090	20	22,328,847	1,090	4	4,230,205
NEU	169	18	3,008,067	169	42	7,014,193	169	132	22,328,847	169	25	4,230,205
ORT	907	3	3,008,067	907	8	7,014,193	907	25	22,328,847	907	5	4,230,205
OTO	311	10	3,008,067	311	23	7,014,193	311	72	22,328,847	311	14	4,230,205
PAE	~	~	3,008,067	~	~	7,014,193	~	~	22,328,847	67	63	4,230,205
PLA	281	11	3,008,067	281	25	7,014,193	281	79	22,328,847	281	15	4,230,205
URO	284	11	3,008,067	284	25	7,014,193	284	79	22,328,847	284	15	4,230,205
VAS	129	23	3,008,067	129	54	7,014,193	129	173	22,328,847	129	33	4,230,205
<b>Total</b>	<b>*3,308</b>	<b>1</b>	3,008,067	<b>*3,308</b>	<b>2</b>	7,014,193	<b>3,375</b>	<b>7</b>	<b>22,328,847</b>	<b>3,375</b>	<b>1</b>	4,230,205

\*Excludes Paediatric Surgeons

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Table 29. Projected number of Australian surgeons (under the age of 65) against the projected Australian population (by age cluster)**

To maintain the same ratio as above (Table 28) the following are the number of surgeons needed for the projected population.

2025 Specialty	High Demand			Moderate Demand			Conservative Demand					
	*No Surgeons Required	*Ratio 1 Surgeon per Pop ≥65 ('000)	Projected Pop ≥65	*No Surgeons Required	*Ratio 1 Surgeon per ≥50 ('000)	Projected Pop ≥50	No Surgeons Required	Ratio 1 Surgeon per Total Pop ('000)	Total Pop	No Surgeons Required	Ratio 1 Surgeon per ≤ 14 ('000)	Projected Pop ≤ 14
CAR	225	22	4,942,425	190	51	9,718,440	163	163	26,593,902	157	31	4,848,510
GEN	1,790	3	4,942,425	1,509	6	9,718,440	1,297	20	26,593,902	1,249	4	4,848,510
NEU	278	18	4,942,425	234	42	9,718,440	201	132	26,593,902	194	25	4,848,510
ORT	1,490	3	4,942,425	1,256	8	9,718,440	1,080	25	26,593,902	1,039	5	4,848,510
OTO	511	10	4,942,425	431	23	9,718,440	370	72	26,593,902	356	14	4,848,510
PAE	~	~	4,942,425	~	~	9,718,440	~	~	26,593,902	77	63	4,848,510
PLA	462	11	4,942,425	389	25	9,718,440	335	79	26,593,902	322	15	4,848,510
URO	466	11	4,942,425	393	25	9,718,440	338	79	26,593,902	325	15	4,848,510
VAS	212	23	4,942,425	179	54	9,718,440	154	173	26,593,902	148	33	4,848,510
<b>Total</b>	<b>*5,433</b>	<b>1</b>	<b>4,942,425</b>	<b>*4,581</b>	<b>2</b>	<b>9,718,440</b>	<b>4,020</b>	<b>7</b>	<b>26,593,902</b>	<b>3,868</b>	<b>1</b>	<b>4,848,510</b>

\*Excludes Paediatric Surgeons

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table 30. Annual number of new Australian surgeons needed to be trained each year to service projected population from now until 2025.**

	High Demand	Moderate Demand	Conservative Demand	
	*Projected Pop ≥ 65	*Projected Pop ≥ 50	Projected Total Pop	Projected Pop ≤14
Total No of new Fellows to 2025 (Table 27 projection)	*1,634	*1,551	1,944	1,474
Yearly Increase in New Fellows (Table 27 projection)	*117	*111	139	105

\*Excludes Paediatric Surgeons

## Planning scenario model 2: surgeons over the age of 70 retiring from active status.

The calculations for the surgeon per population ratios change considerably when surgeons in the 65 to 70 age bracket is included. For example, the surgeon per total population ratio seen in Table 31 was 1 surgeon per 7000 people (Table excludes surgeons over 65). Table 31 shows 1 surgeon per 6000 people (Table includes surgeons between 65 and 70 years of age). This population ratio is maintained in the surgeons projection for Table 32.

**Table 31. Current active Australian surgeons (under the age of 70) by specialty and population (by age cluster)**

2010 Specialty	High Demand			Moderate Demand			Conservative Demand					
	*No Surgeons	*Ratio 1 Surgeon per Pop ≥65 ('000)	Pop ≥65	*No Surgeons	*Ratio 1 Surgeon per ≥50 ('000)	Pop ≥50	No Surgeons	Ratio 1 Surgeon per Total Pop ( '000)	Total Pop	No Surgeons	Ratio 1 Surgeon per ≤ 14 ('000)	Pop ≤ 14
CAR	148	20	3,008,067	148	47	7,014,193	148	151	22,328,847	148	29	4,230,205
GEN	1,255	2	3,008,067	1,255	6	7,014,193	1,255	18	22,328,847	1,255	3	4,230,205
NEU	179	17	3,008,067	179	39	7,014,193	179	125	22,328,847	179	24	4,230,205
ORT	979	3	3,008,067	979	7	7,014,193	979	23	22,328,847	979	4	4,230,205
OTO	354	8	3,008,067	354	20	7,014,193	354	63	22,328,847	354	12	4,230,205
PAE	~	~	3,008,067	~	~	7,014,193	~	~	22,328,847	70	60	4,230,205
PLA	316	10	3,008,067	316	22	7,014,193	316	71	22,328,847	316	13	4,230,205
URO	306	10	3,008,067	306	23	7,014,193	306	73	22,328,847	306	14	4,230,205
VAS	148	20	3,008,067	148	47	7,014,193	148	151	22,328,847	148	29	4,230,205
<b>Total</b>	<b>*3,685</b>	<b>1</b>	<b>3,008,067</b>	<b>*3,685</b>	<b>2</b>	<b>7,014,193</b>	<b>3,755</b>	<b>6</b>	<b>22,328,847</b>	<b>3,755</b>	<b>1</b>	<b>4,230,205</b>

\*Excludes Paediatric Surgeons

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table 32. Projected number of Australian surgeons (under the age of 70) against the projected Australian population (by age cluster)**

To maintain the same ratio as above (Table 31) the following are the number of surgeons needed for the projected population.

2025 Specialty	High Demand			Moderate Demand			Conservative Demand			No Surgeons Required	Ratio 1 Surgeon per ≤ 14 ('000)	Projected Pop ≤ 14
	*No Surgeons Required	*Ratio 1 Surgeon per Pop ≥65 ('000)	Projected Pop ≥65	*No Surgeons Required	*Ratio 1 Surgeon per ≥50 ('000)	Projected Pop ≥50	No Surgeons Required	Ratio 1 Surgeon per Total Pop ('000)	Total Pop			
CAR	243	20	4,942,425	205	47	9,718,440	176	151	26,593,902	170	29	4,848,510
GEN	2062	2	4,942,425	1739	6	9,718,440	1495	18	26,593,902	1438	3	4,848,510
NEU	294	17	4,942,425	248	39	9,718,440	213	125	26,593,902	205	24	4,848,510
ORT	1609	3	4,942,425	1356	7	9,718,440	1166	23	26,593,902	1122	4	4,848,510
OTO	582	8	4,942,425	490	20	9,718,440	422	63	26,593,902	406	12	4,848,510
PAE	~	~	4,942,425	~	~	9,718,440	~	~	26,593,902	80	60	4,848,510
PLA	519	10	4,942,425	438	22	9,718,440	376	71	26,593,902	362	13	4,848,510
URO	503	10	4,942,425	424	23	9,718,440	364	73	26,593,902	351	14	4,848,510
VAS	243	20	4,942,425	205	47	9,718,440	176	151	26,593,902	170	29	4,848,510
<b>Total</b>	<b>*6,055</b>	<b>1</b>	<b>4,942,425</b>	<b>*5,106</b>	<b>2</b>	<b>9,718,440</b>	<b>4,472</b>	<b>6</b>	<b>26,593,902</b>	<b>4,304</b>	<b>1</b>	<b>4,848,510</b>

\*Excludes Paediatric Surgeons

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table 33. Annual number of new Australian surgeons needed to be trained each year to service projected population from now until 2025.**

	High Demand	Moderate Demand	Conservative Demand	
	*Projected Pop ≥ 65	*Projected Pop ≥ 50	Projected Total Pop	Projected Pop ≤14
Total No of new Fellows to 2025 based on (Table 30 projection)	*2,370	*1,421	717	549
Yearly Increase in New Fellows (Table 30 projection)	*169	*102	51	39

\*Excludes Paediatric Surgeons

## Planning scenario model 3: work-life balance

### Work life balance

Currently, the reported working hours of the surgical workforce on average is 60 hours per week (excluding 25 hours per week on average spent on-call)(Surgical Workforce Report 2009). Increasing family time and desire for enhanced work life balance will see an increased need for surgeons. A decrease of 5 hours per week in Australia would require an additional 372 (Table 34). A collective decrease of 10 hours per week would require an additional 818 (Table 34).

To accommodate reduced working hours while maintaining a current workload that can meet the surgical needs of the Australian community, a greater number of surgeons will be needed. That is, 5313 surgeons will be required to service the total age profile ratios to accommodate a decrease of 5 working hours per week across the active Fellowship (Table 36). An additional 87 Australian Surgical Fellows would need to be trained each year from now until 2025.

A total of 5844 surgeons will be required to service the total age profile ratios to accommodate a decrease of 10 working hours per week across the active Fellowship (Table 36). That is, an additional 125 surgeons will need to be trained each year from now until 2025.

With regard to the population ratios for the greater than 50 years age group, a reduction of 5 hours per week across the active Fellowship would require 6055 active surgeons, equating to 1966 additional surgeons (excluding retirement calculations) (Table 38). That is, 140 Australian surgeons will need to be trained each year from now until 2025.

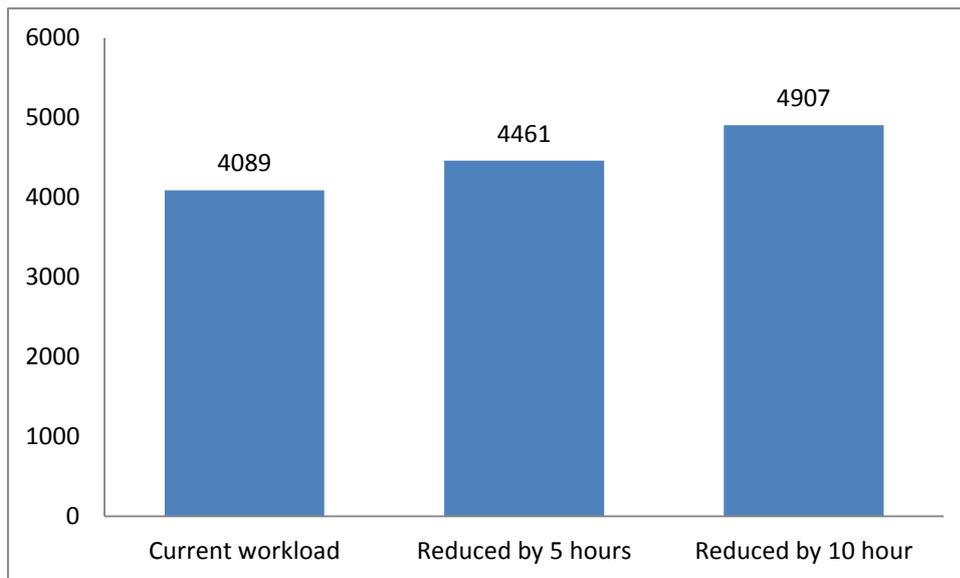
With regards to the population ratios for the greater than 65 years age group, a reduction of 5 hours per week across the active Fellowship, would require 7180 active surgeons, equating to 3091 additional surgeons (excluding retirement calculations) (Table 38). That is, 221 Australian surgeons will need to be trained each year from now until 2025.

**Table 34. Number of Australian surgeons by specialty required to sustain current workload by decreasing working hours**

Specialty	Conservative Demand						Moderate Demand	
	Current hours worked per week		Projected No Surgeons required to decrease current working hours by 5 per week.		Projected No Surgeons required to decrease current working hours by 10 per week.			
	Hours per week	No. Surgeons	No. Surgeons	Additional Surgeons Required	No. Surgeons	Additional Surgeons Required		
<b>CAR</b>	60	153	167	14	184	31		
<b>GEN</b>	60	1381	1507	126	1657	276		
<b>NEU</b>	60	197	215	18	236	39		
<b>ORT</b>	60	1069	1166	97	1283	214		
<b>OTO</b>	60	383	418	35	460	77		
<b>PAE</b>	60	83	91	8	100	17		
<b>PLA</b>	60	343	374	31	412	69		
<b>URO</b>	60	324	353	29	389	65		
<b>VAS</b>	60	156	170	14	187	31		
<b>Total</b>	<b>60</b>	<b>4089</b>	<b>4461</b>	<b>372</b>	<b>4907</b>	<b>818</b>		

Source: RACS Surgical Workforce Census 2009; 2010 Annual Activities Report

**Figure 10. Number of Australian surgeons required to sustain current workload by decreasing working hours**



Source: RACS Surgical Workforce Census 2009; 2010 Annual Activities Report

Feminisation has increased the diversity of the medical workforce over the past three decades. In 2009, the proportion of commencing Australia medical students 54.3% female and 45.7% male (Medical Training Review Plan 14th Report 2011). The proportion of surgical trainees who were female was 23.8% and 76.2% were male (RACS 2010 Annual Activities Report). Female general practitioners have a working life that approximates to 60% of that of male doctors (The general practice workforce in Australia. Canberra: Access Economics, 2001). The proportion of the total Australian surgical Fellowship who are female has grown from 5.6% in 2005 to 7.7% in 2009 (RACS Surgical Workforce Census 2009). In 2005, the Active Australian Fellowship worked 51 hours per week.

Given the overall increase Fellows' in working hours from 2005 to 2009, it is inconclusive whether feminisation of the surgical workforce has in fact had an impact to date. Based on the propensity of both male and female surgical Trainees to address work-life balance, it is more appropriate to consider work-life balance as an issue for all surgeons rather than those of a particular gender.

**Table 35: Number of Australian surgeons required to decrease current working hours per week by specialty and population ratio**

2010 Specialty	Conservative Demand						Moderate Demand		
	Current No Surgeons maintaining surgical workload	Ratio 1 Surgeon per Total Pop (‘000)	Total Pop	No Surgeons to maintain surgical workload with a 5 hour per week decrease	Ratio 1 Surgeon per Total Pop (‘000)	Total Pop	No Surgeons to maintain surgical workload with a 10 hour per week decrease	Ratio 1 Surgeon per Total Pop (‘000)	Total Pop
CAR	153	146	22,328,847	167	134	22,328,847	184	121	22,328,847
GEN	1,381	16	22,328,847	1,507	15	22,328,847	1,657	13	22,328,847
NEU	197	113	22,328,847	215	104	22,328,847	236	95	22,328,847
ORT	1,069	21	22,328,847	1,166	19	22,328,847	1,283	17	22,328,847
OTO	383	58	22,328,847	418	53	22,328,847	460	49	22,328,847
PAE	83	269	22,328,847	91	245	22,328,847	100	223	22,328,847
PLA	343	65	22,328,847	374	60	22,328,847	412	54	22,328,847
URO	324	69	22,328,847	353	63	22,328,847	389	57	22,328,847
VAS	156	143	22,328,847	170	131	22,328,847	187	119	22,328,847
<b>Total</b>	<b>4,089</b>	<b>5</b>	<b>22,328,847</b>	<b>4,461</b>	<b>5</b>	<b>22,328,847</b>	<b>4,907</b>	<b>5</b>	<b>22,328,847</b>

Source: RACS 2010 Annual Activities Report; RACS Surgical Workforce Census 2009; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010; 3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table 36. Projected number of Australian surgeons required to decrease current working hours per week by specialty and population ratio to 2025**

To maintain the same ratio as above (Table 35) the following are the number of surgeons needed for the projected population.

2025 Specialty	Conservative Demand						Moderate Demand		
	Projected No Surgeons Required to maintain current surgical workload	Projected Ratio 1 Surgeon per Total Pop (‘000)	Projected Total Pop	Projected No Surgeons Required maintain surgical workload with a 5 hour per week decrease	Projected Ratio 1 Surgeon per Total Pop (‘000)	Projected Total Pop	Projected No Surgeons Required maintain surgical workload with a 10 hour per week decrease	Projected Ratio 1 Surgeon per Total Pop (‘000)	Projected Total Pop
CAR	182	146	26,593,902	199	134	26,593,902	219	122	26,593,902
GEN	1,645	16	26,593,902	1,794	15	26,593,902	1,974	13	26,593,902
NEU	235	113	26,593,902	256	104	26,593,902	282	94	26,593,902
ORT	1,273	21	26,593,902	1,389	19	26,593,902	1,528	17	26,593,902
OTO	456	58	26,593,902	498	53	26,593,902	547	49	26,593,902
PAE	99	269	26,593,902	108	247	26,593,902	119	224	26,593,902
PLA	409	65	26,593,902	446	60	26,593,902	490	54	26,593,902
URO	386	69	26,593,902	421	63	26,593,902	463	57	26,593,902
VAS	186	143	26,593,902	203	131	26,593,902	223	119	26,593,902
<b>Total</b>	<b>4,870</b>	<b>5</b>	<b>26,593,902</b>	<b>5,313</b>	<b>5</b>	<b>26,593,902</b>	<b>5,844</b>	<b>5</b>	<b>26,593,902</b>

Source: RACS 2010 Annual Activities Report; RACS Surgical Workforce Census 2009; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010; 3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table 37. Annual number of new Australian surgeons needed to be trained each year to service projected population from now until 2025.**

	Conservative Demand		Moderate Demand
	Current working hours	5 hour decrease per week	10 hour decrease per week
Total No of new Fellows to 2025 (based on Table 33 projections)	781	852	937
Yearly Increase in New Fellows	56	61	67

**Table 38: Projected number of Australian surgeons required to maintain current surgical workload with a decrease in working hours per week by specialty and population ratio to 2025**

To maintain the current surgical workload with a collective decrease of 5 hours per week as seen in Table 34, the following are the number of Australian surgeons needed for the projected population

2025 Specialty	5 hour per week decrease (Conservative Demand)				10 hour per week decrease (Moderate Demand)			
	High Demand	Moderate Demand	Conservative Demand		High Demand	Moderate Demand	Conservative Demand	
	*Projected No Surgeons Required to Service Projected Pop ≥ 65	*Projected No Surgeons Required to Service Projected Pop ≥ 50	*Projected No Surgeons Required to Service Projected Total Pop	*Projected No Surgeons Required to Service Projected Pop ≤14	*Projected No Surgeons Required to Service Projected Pop ≥ 65	*Projected No Surgeons Required to Service Projected Pop ≥ 50	*Projected No Surgeons Required to Service Projected Total Pop	*Projected No Surgeons Required to Service Projected Pop ≤14
CAR	274	231	199	191	302	255	219	211
GEN	2,476	2,088	1,794	1,727	2,723	2,296	1,974	1,899
NEU	353	298	256	246	388	327	282	270
ORT	1,916	1,616	1,389	1,336	2,108	1,778	1,528	1,471
OTO	687	579	498	479	756	637	547	527
PAE	~	~	~	104	~	~	~	115
PLA	615	518	446	429	677	571	490	472
URO	580	489	421	405	639	539	463	446
VAS	279	236	203	195	307	259	223	214
<b>Total</b>	<b>*7,180</b>	<b>*6,055</b>	<b>5,313</b>	<b>5,112</b>	<b>*7900</b>	<b>*6662</b>	<b>5,844</b>	<b>5,625</b>

\*Excludes Paediatric Surgeons

Source: RACS 2010 Annual Activities Report; RACS Surgical Workforce Census 2009; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010; 3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table 39. Annual number of new Australian surgeons needed to be trained each year to service projected population from now until 2025.**

	5 hour decrease per week			
	High Demand	Moderate Demand	Conservative Demand	
	*Projected Pop ≥ 65	*Projected Pop ≥ 50	Projected Total Pop	Projected Pop ≤14
Total No of new Fellows to 2025 (based on Table 36 projections)	*3,091	*1,966	1,224	1,024
Yearly Increase in New Fellows	*221	*140	87	73
	10 hour decrease per week			
	High Demand	Moderate Demand	Conservative Demand	
	*Projected Pop ≥ 65	*Projected Pop ≥ 50	Projected Total Pop	Projected Pop ≤14
Total No of new Fellows to 2025 (based on Table 36 projections)	*3,811	*2,573	1,755	1,535
Yearly Increase in New Fellows	*272	*184	125	110

\*Excludes Paediatric Surgeons

## Planning scenario model 4: Work-life balance for active surgeons under the age of 65.

### Work life balance

Excluding active surgeons over the age of 65, the following models have been prepared.

**Table 40. Predicted number of Australian surgeons (under the age of 65) by specialty required to sustain current workload by decreasing working hours**

Specialty	Conservative Demand					Moderate Demand		
	Current hours worked per week		Projected No Surgeons required to decrease current working hours by 5 per week.			Projected No Surgeons required to decrease current working hours by 10 per week.		
	Hours per week	No. Surgeons	Hours per week	No. Surgeons	Additional Surgeons Required	Hours per week	No. Surgeons	Additional Surgeons Required
CAR	60	137	55	149	14	50	164	31
GEN	60	1,090	55	1,189	126	50	1,308	276
NEU	60	169	55	184	18	50	203	39
ORT	60	907	55	989	97	50	1,088	214
OTO	60	311	55	339	35	50	373	77
PAE	60	67	55	73	8	50	80	17
PLA	60	281	55	307	31	50	337	69
URO	60	284	55	310	29	50	341	65
VAS	60	129	55	141	14	50	155	31
<b>Total</b>	<b>60</b>	<b>3,375</b>	<b>55</b>	<b>3,682</b>	<b>372</b>	<b>50</b>	<b>4,050</b>	<b>818</b>

Source: RACS 2010 Annual Activities Report; RACS Surgical Workforce Census 2009

**Table 41. Number of Australian surgeons (under the age of 65) required to decrease current working hours per week by specialty and population ratio**

2010 Specialty	Conservative Demand						Moderate Demand		
	Current No Surgeons maintaining surgical workload	Ratio 1 Surgeon per Total Pop (‘000)	Total Pop	No Surgeons to maintain surgical workload with a 5 hour per week decrease	Ratio 1 Surgeon per Total Pop (‘000)	Total Pop	No Surgeons to maintain surgical workload with a 10 hour per week decrease	Ratio 1 Surgeon per Total Pop (‘000)	Total Pop
CAR	137	163	22,328,847	149	149	22,328,847	164	136	22,328,847
GEN	1,090	20	22,328,847	1,189	19	22,328,847	1,308	17	22,328,847
NEU	169	132	22,328,847	184	121	22,328,847	203	110	22,328,847
ORT	907	25	22,328,847	989	23	22,328,847	1,088	21	22,328,847
OTO	311	72	22,328,847	339	66	22,328,847	373	60	22,328,847
PAE	67	333	22,328,847	73	305	22,328,847	80	278	22,328,847
PLA	281	79	22,328,847	307	73	22,328,847	337	66	22,328,847
URO	284	79	22,328,847	310	72	22,328,847	341	66	22,328,847
VAS	129	173	22,328,847	141	159	22,328,847	155	144	22,328,847
<b>Total</b>	<b>3,375</b>	<b>5</b>	<b>22,328,847</b>	<b>3,682</b>	<b>5</b>	<b>22,328,847</b>	<b>4,050</b>	<b>5</b>	<b>22,328,847</b>

Source: 2010 Annual Activities Report; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Table 42. Projected number of Australian surgeons (under the age of 65) required to decrease current working hours per week by specialty and population ratio to 2025**

To maintain the same ratio as above (Table 41) the following are the number of surgeons needed for the projected population.

2025 Specialty	Conservative Demand						Moderate Demand		
	Projected No Surgeons Required to maintain current surgical workload	Projected Ratio 1 Surgeon per Total Pop (‘000)	Projected Total Pop	Projected No Surgeons Required maintain surgical workload with a 5 hour per week decrease	Projected Ratio 1 Surgeon per Total Pop (‘000)	Projected Total Pop	Projected No Surgeons Required maintain surgical workload with a 10 hour per week decrease	Projected Ratio 1 Surgeon per Total Pop (‘000)	Projected Total Pop
CAR	163	163	26,593,902	178	149	26,593,902	196	136	26,593,902
GEN	1,298	20	26,593,902	1,416	19	26,593,902	1,558	17	26,593,902
NEU	201	132	26,593,902	220	121	26,593,902	242	110	26,593,902
ORT	1,080	25	26,593,902	1,178	23	26,593,902	1,296	21	26,593,902
OTO	370	72	26,593,902	404	66	26,593,902	444	60	26,593,902
PAE	80	333	26,593,902	87	305	26,593,902	96	278	26,593,902
PLA	335	79	26,593,902	365	73	26,593,902	402	66	26,593,902
URO	338	79	26,593,902	369	72	26,593,902	406	66	26,593,902
VAS	154	173	26,593,902	168	159	26,593,902	184	144	26,593,902
<b>Total</b>	<b>4,870</b>	<b>5</b>	<b>26,593,902</b>	<b>5,313</b>	<b>5</b>	<b>26,593,902</b>	<b>5,844</b>	<b>5</b>	<b>26,593,902</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table 43. Annual number of new Australian surgeons needed to be trained each year to service projected population from now until 2025.**

	Conservative Demand		Moderate Demand
	Current working hours	5 hour decrease per week	10 hour decrease per week
Total No of new Fellows to 2025 (based on Table 40 projection)	1,495	1,631	1,794
Yearly Increase in New Fellows	107	117	128

**Table 44. Projected number Australian surgeons (under the age of 65) required to maintain current surgical workload with a decrease in working hours per week by specialty and population ratio to 2025**

To maintain the current surgical workload with a collective decrease of 5 hours per week as seen in in Table 41, the following are the number of surgeons needed for the projected population.

2025 Specialty	5 hour per week decrease (Conservative Demand)				10 hour per week decrease (Moderate Demand)			
	High Demand	Moderate Demand	Conservative Demand		High Demand	Moderate Demand	Conservative Demand	
	*Projected No Surgeons Required to Service Projected Pop ≥ 65	*Projected No Surgeons Required to Service Projected Pop ≥ 50	*Projected No Surgeons Required to Service Projected Total Pop	*Projected No Surgeons Required to Service Projected Pop ≤14	*Projected No Surgeons Required to Service Projected Pop ≥ 65	*Projected No Surgeons Required to Service Projected Pop ≥ 50	*Projected No Surgeons Required to Service Projected Total Pop	*Projected No Surgeons Required to Service Projected Pop ≤14
CAR	246	207	178	171	270	228	196	188
GEN	1,954	1,648	1,416	1,363	2,149	1,812	1,558	1,499
NEU	303	255	220	211	333	281	242	232
ORT	1,626	1,371	1,178	1,134	1,788	1,508	1,296	1,247
OTO	557	470	404	389	613	517	444	428
PAE	~	~	~	84	~	~	~	92
PLA	504	425	365	351	554	467	402	386
URO	509	429	369	355	560	472	406	391
VAS	231	195	168	161	254	214	184	177
<b>Total</b>	<b>*6,049</b>	<b>*5,101</b>	<b>4,870</b>	<b>4,220</b>	<b>*6,654</b>	<b>*5,611</b>	<b>4824</b>	<b>4,642</b>

\*Excludes Paediatric Surgeons

**Table 45. Annual number of new Australian surgeons needed to be trained each year to service projected population from now until 2025.**

	<b>5 hour decrease per week (Conservative Demand)</b>			
	<i>High Demand</i>	<i>Moderate Demand</i>	<i>Conservative Demand</i>	
	<b>*Projected Pop ≥ 65</b>	<b>*Projected Pop ≥ 50</b>	<b>Projected Total Pop</b>	<b>Projected Pop ≤14</b>
Total No of new Fellows to 2025 (based on Table 41 projections)	*2,674	*1,726	1,449	845
Yearly Increase in New Fellows	*191	*123	104	60
	<b>10 hour decrease per week (Moderate Demand)</b>			
	<i>High Demand</i>	<i>Moderate Demand</i>	<i>Conservative Demand</i>	
	<b>*Projected Pop ≥ 65</b>	<b>*Projected Pop ≥ 50</b>	<b>Projected Total Pop</b>	<b>Projected Pop ≤14</b>
Total No of new Fellows to 2025 (based on Table 41 projections)	*3,279	*2,236	1,495	1,267
Yearly Increase in New Fellows	*234	*160	107	91

\*Excludes Paediatric Surgeons

## Planning scenario model 5: Self-sufficiency – the current reliance on Overseas Trained Doctors

### International Medical Graduates

Of the 202 new Australian surgeons in 2010, (58 or 29%) were International Medical Graduates (IMGs). Currently there are 160 IMGs (non-FRACS) practicing surgery within Australia, meaning 1 in 26 surgeons is an IMG (RACS 2010 Annual Activities Report). There are 110 IMGs participating in the Maintenance of Professional Standards (MOPS) program. Since 2006 there has been a 107% increase in the number of IMGs obtaining Fellowship of the College (28 in 2006, 58 in 2010).

**Table 46. International Medical Graduates becoming new Fellows**

	<b>2010</b>	<b>2006</b>	<b>% Change 2010/2006</b>	<b>Average Yearly Intake (2006 to 2010)</b>
<b>Australian IMG new Fellows</b>	58	28	107.1%	46

Source: 2010 & 2007 Annual Activities Report

If the average yearly increase in IMGs becoming new Fellows is maintained, it is predicted that by 2025 644 will be practising in Australia. To reduce Australia's reliance on overseas trained medical graduates by 25%, a further 218 Fellows will need to be trained by 2030. That is, 12 new graduates per year will need to commence practice each year in Australia through to 2030 to bridge the 25% reduction in overseas trained medical graduates.

**Table 47. Projected number of International Medical Graduates obtaining Fellowship by 2025**

	<b>2010</b>	<b>Average Yearly Intake (2006 to 2010)</b>	<b>2025</b>
<b>Australian IMG</b>	58	46	644

Source: 2010 & 2007 Annual Activities Report

**Table 48. Decreasing reliance on International Medical Graduates projected to 2025**

Australian IMG Intake	No Change	50% decrease	95% decrease
Projected Reliance to 2025 on IMGs	644	322	32
Replacement needed by locally trained surgeons to sustain IMG decrease	0	322	612

Source: 2010 & 2007 Annual Activities Report

## Planning scenario model 6: Combined scenarios

**Table 49. Projection of new Fellows into 2025 (excluding International Medical Graduates)**

	Current (2010)	Projection to 2025	Number of new Fellows need to graduate per year to achieve parameter projection
^*average rate of new Fellows	184	2576	184
^*average rate of new Fellows (excluding Paediatric surgeons)	*173	*2422	*173

\*Excludes Paediatric Surgeons; ^ figures includes IMGs obtaining Fellowship

**Table 50. Combined projection scenarios**

Parameters	Current (2010)	Projection to 2025	Number of new Fellows need to graduate per year to achieve parameter projection
<i>Population Demand</i>			
Population demand - Projected Pop ≥65	*4,006	*6,582	184
Population demand - Projected Pop ≥50	*4,006	*5,547	110
Population demand - Projected Pop ≤14*(PAE)	4,089	4,870	56
Population demand - Projected Total Pop	4,089	4,687	43
<i>Work-life balance</i>			
Projected number of surgeons required to maintain current workload	4,089	4,870	56
Projected number of surgeons required to maintain current workload with a decrease by 5 working hours	4089	5,313	87
Projected number of surgeons required to maintain current workload with a decrease by 10 working hours	4,089	5,844	125
<i>Retirement</i>			
If surgeons retired at 65 in 2010	714	~	714
If surgeons retired at 70 in 2010	335	~	335
Current average annual retirement rate (2005 to 2010)	37	~	37
<i>IMG reliance</i>			
No decrease reliance on IMGs	58	644	0
50% decrease reliance on IMGs	58	322	23
95% decrease reliance on IMGs	58	32	44

\*Excludes Paediatric Surgeons;

**Table 51. Conservative combined projection scenarios**

	<b>Current (2010)</b>	<b>Projection to 2025</b>	<b>Number of new Fellows need to graduate per year to achieve parameter projection</b>
Population demand – Total Pop	4,089	4,870	43
50% decrease reliance on IMGs	58	322	23
Number of surgeons required to maintain current workload with a decrease by 5 working hours	4,089	5,313	87 (44 more than no decrease)
Average retirement rate to date (2005 to 2010)	37	~	37

**Table 52. Conservative combined projection scenarios - estimate of the number of new Fellows required to graduate per year between 2011 and 2025 to service the Australian community**

<b>Parameter</b>	<b>No</b>
Population demand – Total Pop	43
50% decrease reliance on IMGs	23
<b>Subtotal</b>	<b>=66</b>
Work-life balance (decrease of 5 hours per week)	87
<b>Subtotal</b>	<b>=153</b>
Current average annual retirement rate (2005 to 2010)	37
<b>Total</b>	<b>=190</b>

Table 53 indicates the number of new Australian surgeons required to graduate per year to service the community safely. This incorporates the parameters of population growth which are expected to have a demand on surgical services; decrease reliance on International Medical Graduates by 50%; the number of new surgeons to facilitate work-life balance and; if surgeons who are presently 70 years of age retired. This results in the figure of 264 new Fellows. In 2010 184 new Fellows graduated, having followed the pathway as well as the Surgical Education and Training program. Of the 264 needed to conservatively accommodate these parameters, 184 new Fellows are subtracted from this calculation to provide an overall figure of 80.

That is, 80 additional new Fellows are required to graduate per annum to 2025 in addition to the 184 currently graduating.

**Table 53. Total conservative estimate of the number of new Fellows required to graduate per year between 2011 and 2025 to service the Australian community**

<b>Parameter</b>	<b>No</b>
Population demand – Total Pop	43
50% decrease reliance on IMGs	23
<b>Subtotal</b>	<b>=66</b>
Work-life balance (decrease of 5 hours per week)	87
<b>Subtotal</b>	<b>=153</b>
If surgeons retired at 70 (between 2010 & 2025)	111
<b>Total number of new Fellows required annually</b>	<b>=264</b>
^No new Fellows in 2010 (incl. IMG)	184
<b>Number of new Fellows required annually in addition to the current new Fellowship rate</b>	<b>80</b>

^ Figures includes IMGs obtaining Fellowship

*Table 54. Numbers of surgeons leaving the workforce if retired at age 65 and 70*

<b>Year</b>	<b>TOTAL</b>	<b>Year</b>	<b>TOTAL</b>
Retirement at 65 (2010)	714	Retirement at 70 (2010)	335
Retiring in 5 years (2015)	422	Retiring in 5 years (2015)	379
Retiring in 10 years (2020)	411	Retiring in 10 years (2020)	422
Retiring in 15 years (2025)	530	Retiring in 15 years (2025)	411
Retiring in 20 years (2030)	619	Retiring in 20 years (2030)	530

Source: RACS 2010 Annual Activities Report

## Summary and conclusion

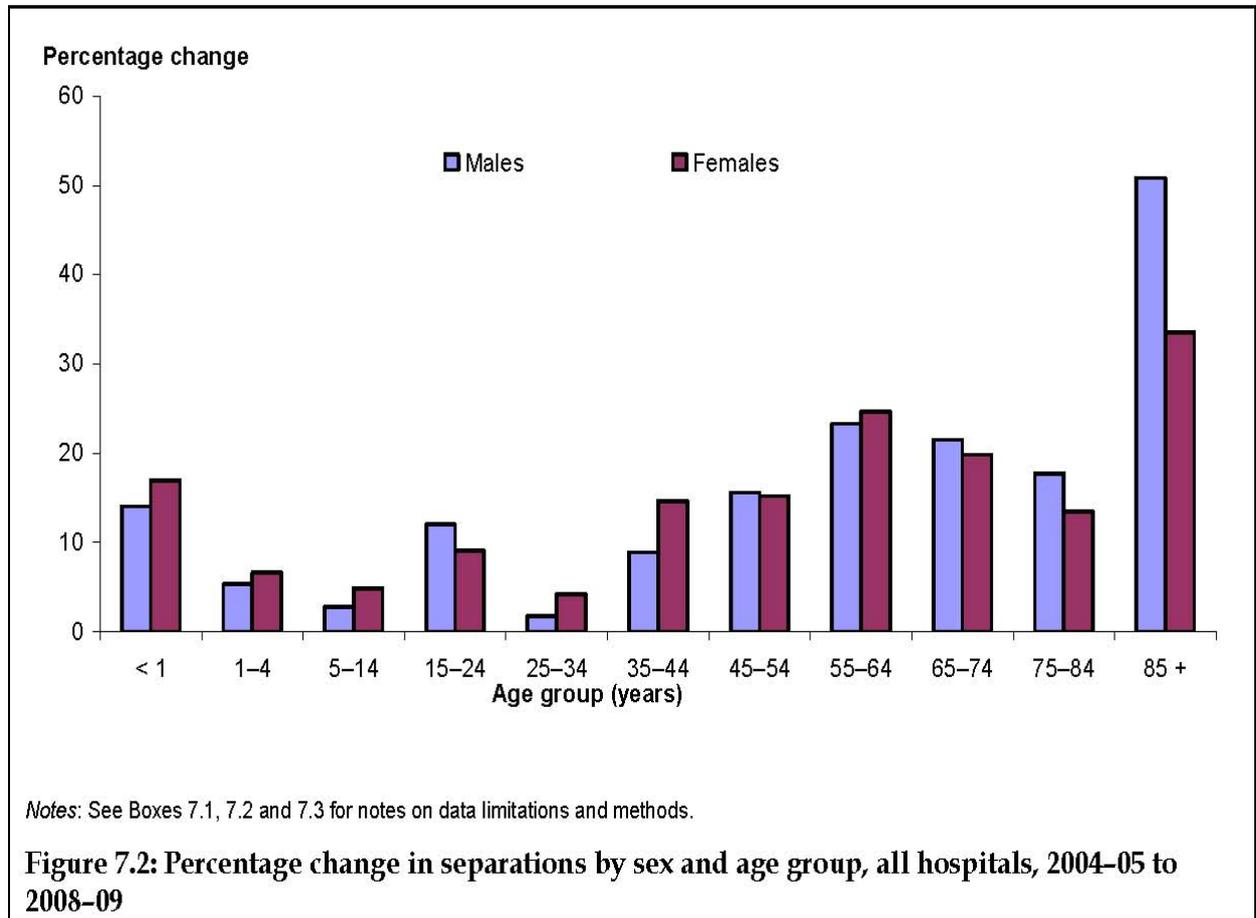
A large number of Fellows are approaching the age of retirement. The anticipated attrition rate is greater than the volume of graduating trainees. The public sector has reached capacity for surgical training posts. Currently 50% of elective surgery undertaken in New Zealand hospitals is carried out in the private sector. In Australia, more than 60% of elective surgery is in the private sector. To address the pressures facing public health now and into the future training must be extended into the private sector. This will involve a series of challenges pertaining to workload, remuneration, the division of labour between supervisor and trainee, government funding, and patient consent. And if room is found in the private sector to accommodate an increase in surgical training posts, how do surgeons find more time to supervise?

Utilising the ABS estimates of the population in 2025 and maintaining the surgeon per population ratios, the number of surgeons required at that time can be estimated. This can be adjusted for changes in population and age profiles. However all other parameters of technology, disease profiles, demand from each age segment, availability of hospital resources and insurance status is regarded as constant. A simplistic surgeon to population ratio does not reflect this complexity and can never be the complete answer to workforce planning. Importantly, it does not factor in the change in work-life balance or expectations of the surgeons themselves.

Population growth and aging as predicted by the ABS to 2025 will increase the demand for surgical services. An aging surgical Fellowship will require replacement by new surgeons. Health Workforce Australia's goal of decreasing reliance on International Medical Graduates will require additional new surgeons. The wish to achieve work-life balance, although conservative, requires new surgeons to work the hours that are reduced by others. In 2010, 184 new Australian surgeons graduated from surgical training and obtained a Fellowship to the Royal Australasian College of Surgeons. If this number remains constant there will not be enough surgeons practising in Australia to service the community safely and effectively by the year 2025. An immediate increase in the number of new surgeons entering surgical practice in Australia is required. Taking into consideration the conservative parameters outlined in this paragraph, a further 80 new Australian surgeons will need to graduate per year, in addition to the 184 currently graduating, if the Australian community is to have access to the surgical services it needs.

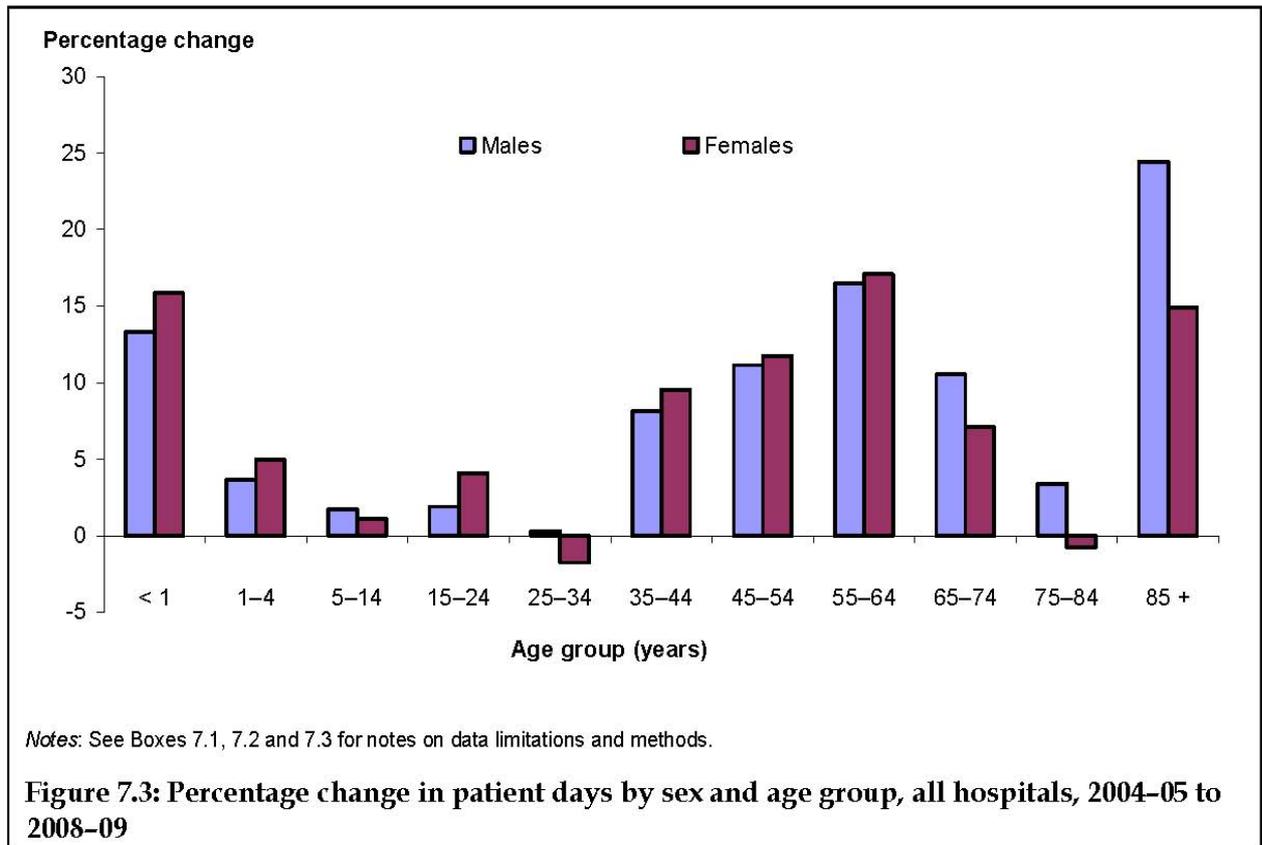
## Appendices

### Appendix 1 Australian Hospital Statistics – Percentage change Separations by gender and age



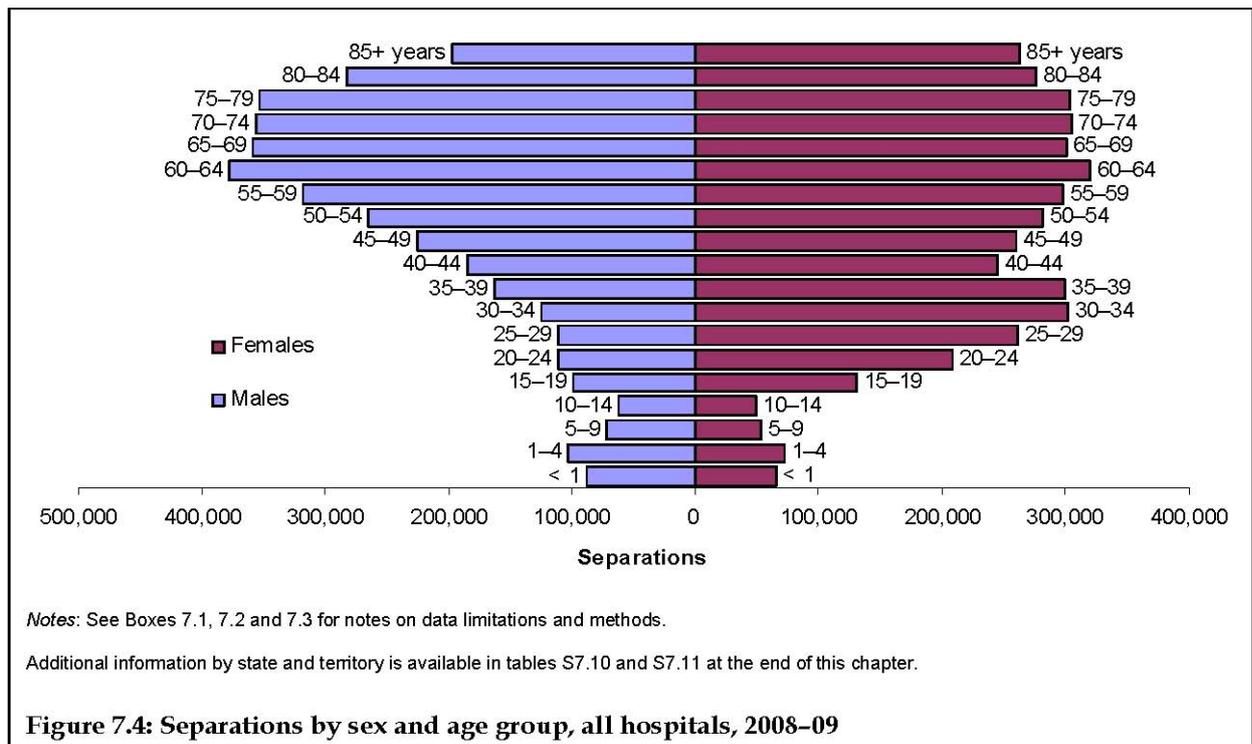
Source: Australian Hospital Statistics 2008-2009 published 17 June 2010. Page 134

## Appendix 2 Australian Hospital Statistics – Percentage change in patient days by sex and age



Source: Australian Hospital Statistics 2008-2009 published 17 June 2010. Page 135

## Appendix 3 Australian Hospital Statistics – Separations by sex and age



Source: Australian Hospital Statistics 2008-2009 published 17 June 2010. Page 135

## Appendix 4 Australian Hospital Statistics – Public Hospital Separations by sex, age and jurisdiction

Table S7.10: Separations, by age group and sex, public hospitals, states and territories, 2008-09

Sex	Age group	NSW	VIC	QLD	WA	SA	TAS	ACT	NT	Total
Males	Under 1	26,407	16,817	13,377	5,895	5,244	1,221	1,327	1,414	71,702
	1-4	26,569	18,950	16,837	8,039	7,233	1,174	1,150	1,819	81,771
	5-14	33,390	25,703	22,376	10,835	7,443	1,906	1,842	1,895	105,390
	15-24	41,483	37,497	29,102	14,663	10,107	2,891	2,787	2,400	140,930
	25-34	45,353	43,418	33,212	16,556	11,248	3,300	3,339	3,452	159,878
	35-44	61,343	61,264	41,396	23,037	17,618	4,375	4,733	7,400	221,166
	45-54	84,145	81,286	56,403	29,589	21,681	6,310	5,252	9,375	294,041
	55-64	110,877	112,330	72,345	38,245	27,249	7,551	8,488	7,932	385,017
	65-74	127,415	131,246	71,991	38,808	29,509	8,575	7,849	5,191	420,584
	75-84	130,399	121,366	59,983	33,969	33,664	6,583	7,607	1,257	394,828
	85 and over	42,828	30,285	15,039	9,099	10,805	2,133	2,075	195	112,459
	<i>Total<sup>(a)</sup></i>	<i>730,210</i>	<i>680,162</i>	<i>432,061</i>	<i>228,735</i>	<i>181,801</i>	<i>46,019</i>	<i>46,449</i>	<i>42,330</i>	<i>2,387,767</i>
Females	Under 1	20,945	12,548	10,108	4,377	3,923	910	860	1,080	54,751
	1-4	19,737	13,740	12,305	5,548	4,868	864	817	1,312	59,191
	5-14	23,902	19,142	17,002	7,732	5,814	1,396	1,110	1,391	77,489
	15-24	63,584	55,960	51,604	22,986	18,904	4,783	3,652	5,310	226,783
	25-34	108,908	98,906	69,258	33,119	26,362	6,169	6,282	7,061	356,065
	35-44	82,900	83,568	52,836	28,736	22,484	5,615	5,415	8,976	290,530
	45-54	75,043	80,524	51,849	29,652	20,713	6,554	4,381	11,365	280,081
	55-64	83,407	91,073	56,120	29,712	21,205	6,794	6,017	10,691	305,019
	65-74	110,534	99,860	56,758	32,290	25,324	6,558	6,116	4,323	341,763
	75-84	122,183	97,893	49,124	29,904	28,511	6,309	5,843	1,218	340,985
	85 and over	64,600	46,246	24,315	14,641	14,630	2,920	2,927	299	170,578
	<i>Total<sup>(a)</sup></i>	<i>775,745</i>	<i>699,460</i>	<i>451,279</i>	<i>238,697</i>	<i>192,738</i>	<i>48,872</i>	<i>43,420</i>	<i>53,026</i>	<i>2,503,237</i>
	<b>Total<sup>(a)</sup></b>	<b>1,505,969</b>	<b>1,379,624</b>	<b>883,340</b>	<b>467,433</b>	<b>374,540</b>	<b>94,892</b>	<b>89,869</b>	<b>95,356</b>	<b>4,891,023</b>

Notes: See Boxes 7.1 and 7.2 for notes on data limitations and methods.

Source: Australian Hospital Statistics 2008-2009 published 17 June 2010. Page 174

## Appendix 5 Australian Hospital Statistics – Private Hospital Separations by sex, age and jurisdiction

Table S7.11: Separations, by age group and sex, private hospitals, states and territories, 2008–09

Sex	Age group	NSW	VIC	QLD	WA	SA	TAS	ACT	NT	Total
Males	Under 1	5,755	3,825	3,203	2,613	1,078	n.p.	n.p.	n.p.	16,959
	1–4	6,652	3,833	5,434	2,759	1,854	n.p.	n.p.	n.p.	21,419
	5–14	8,739	6,038	7,384	3,534	2,184	n.p.	n.p.	n.p.	28,953
	15–24	19,821	17,153	15,097	9,827	5,622	n.p.	n.p.	n.p.	70,080
	25–34	21,640	19,650	16,885	10,130	5,248	n.p.	n.p.	n.p.	76,412
	35–44	36,428	32,033	28,507	16,250	8,901	n.p.	n.p.	n.p.	126,186
	45–54	53,204	47,978	48,077	24,683	15,486	n.p.	n.p.	n.p.	195,955
	55–64	85,366	72,478	82,740	35,905	24,120	n.p.	n.p.	n.p.	310,713
	65–74	82,309	68,890	77,584	31,971	24,458	n.p.	n.p.	n.p.	294,255
	75–84	66,950	61,127	60,314	24,230	22,352	n.p.	n.p.	n.p.	241,654
	85 and over	22,035	21,583	24,806	6,969	6,224	n.p.	n.p.	n.p.	83,747
	<i>Total<sup>(a)</sup></i>	<i>408,899</i>	<i>354,588</i>	<i>370,031</i>	<i>168,871</i>	<i>117,527</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>1,466,333</i>
Females	Under 1	4,067	2,430	2,064	1,635	448	n.p.	n.p.	n.p.	11,028
	1–4	4,303	2,413	3,520	1,743	1,297	n.p.	n.p.	n.p.	13,767
	5–14	7,440	5,336	6,354	3,021	1,994	n.p.	n.p.	n.p.	25,100
	15–24	28,889	31,526	26,926	14,366	6,550	n.p.	n.p.	n.p.	112,446
	25–34	57,352	53,604	50,544	25,244	12,773	n.p.	n.p.	n.p.	207,844
	35–44	70,218	70,126	58,556	29,532	15,885	n.p.	n.p.	n.p.	253,600
	45–54	70,019	67,270	63,945	30,050	20,300	n.p.	n.p.	n.p.	261,204
	55–64	85,747	77,189	78,336	35,017	26,139	n.p.	n.p.	n.p.	312,644
	65–74	76,133	63,055	67,913	25,611	22,468	n.p.	n.p.	n.p.	263,625
	75–84	69,904	59,044	60,973	20,183	21,497	n.p.	n.p.	n.p.	238,347
	85 and over	24,243	24,428	24,779	6,889	8,610	n.p.	n.p.	n.p.	91,449
	<i>Total<sup>(a)</sup></i>	<i>498,315</i>	<i>456,421</i>	<i>443,910</i>	<i>193,291</i>	<i>137,961</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>1,791,054</i>
	<b>Total<sup>(a)</sup></b>	<b>907,214</b>	<b>811,020</b>	<b>813,941</b>	<b>362,162</b>	<b>255,500</b>	<b>n.p.</b>	<b>n.p.</b>	<b>n.p.</b>	<b>3,257,425</b>

Notes: See Boxes 7.1 and 7.2 for notes on data limitations and methods.

Source: Australian Hospital Statistics 2008-2009 published 17 June 2010. Page 175

## Appendix 6 Australian Hospital Statistics – Cost per case-mix adjusted Separation

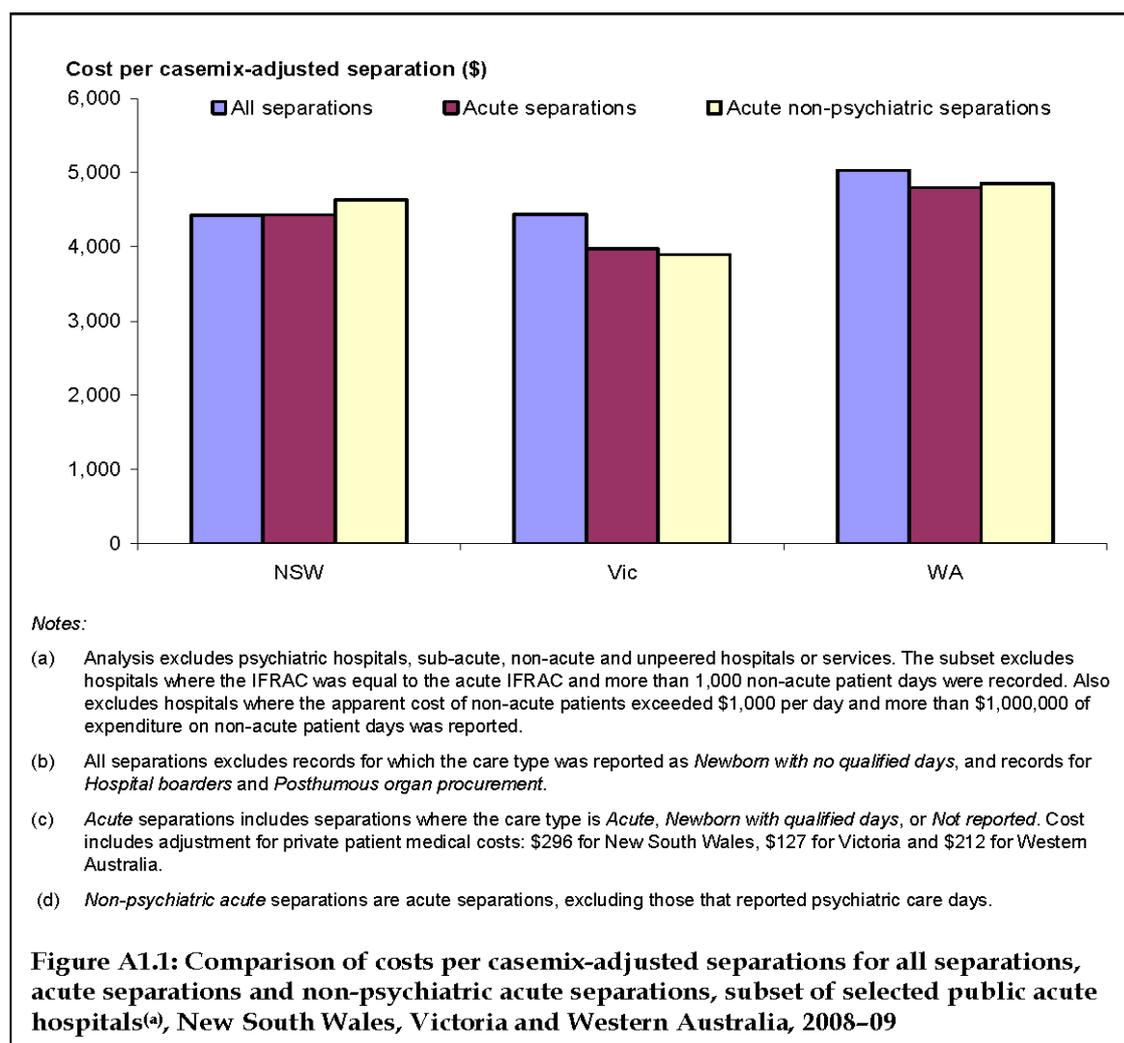
**Table 3.12: Cost (\$) per casemix-adjusted separation (excluding depreciation), selected public hospitals, states and territories, 2008–09**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Medical labour costs (\$)	1,035	807	966	1,190	1,030	972	1,118	964	974
Non-medical labour costs (\$)	2,253	2,310	2,318	2,440	1,920	2,328	2,322	2,854	2,281
Nursing (\$)	1,184	1,200	1,154	1,164	1,094	1,194	1,238	1,541	1,180
Other staff (includes superannuation) (\$)	1,068	1,110	1,164	1,276	826	1,134	1,084	1,313	1,101
Other recurrent costs (excludes depreciation) (\$)	1,166	1,263	1,222	1,212	1,124	1,516	1,184	1,544	1,215
Depreciation (\$)	159	170	183	118	124	124	129	44	157
<b>Total (excludes depreciation) (\$)</b>	<b>4,454</b>	<b>4,380</b>	<b>4,507</b>	<b>4,842</b>	<b>4,074</b>	<b>4,817</b>	<b>4,624</b>	<b>5,361</b>	<b>4,471</b>

Notes: See Boxes 3.1 and 3.2 for notes on data limitations and methods.

Source: Australian Hospital Statistics 2008-2009 published 17 June 2010. Page 34

## Appendix 7 Australian Hospital Statistics – Jurisdiction comparative of cost per case-mix adjusted Separation



Source: Australian Hospital Statistics 2008-2009 published 17 June 2010. Page 327

## Appendix 8 Australian Hospital Statistics – Cost weight of Separations by jurisdiction

**Table 7.18: Average cost weight of separations, by funding source, public and private hospitals, states and territories, 2008–09**

Funding source	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
<b>Public hospitals</b>									
Public patients <sup>(a)</sup>	1.04	0.94	1.00	0.94	1.08	1.05	0.97	0.67	0.99
Private health insurance	1.13	1.07	0.95	1.32	1.24	0.91	1.46	1.24	1.12
Self-funded <sup>(b)</sup>	1.21	0.74	1.04	0.83	0.82	n.a.	1.27	1.01	1.03
Workers compensation	1.31	1.19	1.32	1.29	1.21	1.21	1.48	1.16	1.27
Motor vehicle third party personal claim	1.89	2.20	2.30	2.70	2.21	2.24	3.57	2.54	2.23
Department of Veterans' Affairs	1.20	1.13	1.13	1.19	1.32	1.15	0.83	1.14	1.17
Other <sup>(c)</sup>	1.53	1.23	1.11	1.44	1.02	1.13	0.98	1.34	1.26
<i>Total</i>	<i>1.07</i>	<i>0.97</i>	<i>1.00</i>	<i>0.98</i>	<i>1.10</i>	<i>1.05</i>	<i>1.00</i>	<i>0.70</i>	<i>1.01</i>
<b>Private hospitals</b>									
Public patients <sup>(a)</sup>	1.14	1.17	0.56	0.17	0.31	n.p.	n.p.	n.p.	0.40
Private health insurance	0.86	0.83	0.83	0.86	0.88	n.p.	n.p.	n.p.	0.85
Self-funded <sup>(b)</sup>	0.63	0.46	0.49	0.58	0.61	n.p.	n.p.	n.p.	0.54
Workers compensation	1.15	1.12	0.96	1.00	1.13	n.p.	n.p.	n.p.	1.08
Motor vehicle third party personal claim	1.12	1.12	1.31	1.02	1.14	n.p.	n.p.	n.p.	1.12
Department of Veterans' Affairs	1.16	1.13	0.93	1.09	1.11	n.p.	n.p.	n.p.	1.05
Other <sup>(c)</sup>	0.99	0.55	0.40	0.47	0.68	n.p.	n.p.	n.p.	0.73
<i>Total</i>	<i>0.86</i>	<i>0.81</i>	<i>0.80</i>	<i>0.76</i>	<i>0.88</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>0.82</i>

Notes: see Boxes 7.1, 7.2 and 7.3 for notes on data limitations and methods.

(a) 'Public patients' includes separations with a funding source of *Australian Health Care Agreements, Reciprocal health care agreements, Other hospital or public authority (with a Public patient election status) and No charge raised* (in public hospitals). The majority of separations with a funding source of *No charge raised* in public hospitals were in Western Australia, reflecting that some public patient services were funded through the Medicare Benefit Schedule.

(b) Tasmania was unable to identify all patients whose funding source may have been *Self-funded*, therefore the number of separations in this category may be underestimated and others may be overestimated.

(c) 'Other' includes separations with a funding source of *Other compensation, Department of Defence, Correctional facilities, Other hospital or public authority (without a Public patient election status), Other, No charge raised* (in private hospitals) and *Not reported*.

Source: Australian Hospital Statistics 2008-2009 published 17 June 2010. Page 1

## Appendix 9 Population ratios, current and projected, by specialty

**Table A1. Current Active Australian Cardiothoracic Surgeons by Jurisdiction and Population (by age cluster)**

2010 Specialty	*Ratio 1 Surgeon per pop ≥ 65 ('000)			*Ratio 1 Surgeon per pop ≥ 50 ('000)			Ratio 1 Surgeon per Total Pop ('000)			Ratio 1 Surgeon per pop ≤ 14 ('000)		
	No Surgeons	Pop ≥ 65		No Surgeons	Pop ≥ 50		No Surgeons	Total Pop		No Surgeons	Pop ≤ 14	
ACT	4	9	36,865	4	25	99,549	4	90	358,571	4	17	66,042
NSW	48	21	1,017,930	48	48	2,315,294	48	151	7,232,589	48	28	1,355,146
NT	0	~	12,634	0	~	48,941	0	~	229,711	0	~	53,101
QLD	33	17	567,381	33	42	1,370,434	33	137	4,513,850	33	27	901,542
SA	8	32	256,958	8	71	571,733	8	206	1,644,582	8	37	293,153
TAS	3	26	79,068	3	61	182,033	3	169	507,643	3	33	97,648
VIC	46	17	759,917	46	38	1,738,768	46	121	5,545,932	46	22	1,017,271
WA	11	25	276,723	11	62	686,320	11	209	2,293,510	11	41	445,818
<b>AUS</b>	<b>153</b>	<b>20</b>	<b>3,008,067</b>	<b>153</b>	<b>46</b>	<b>7,014,193</b>	<b>153</b>	<b>146</b>	<b>22,328,847</b>	<b>153</b>	<b>28</b>	<b>4,230,205</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Table A2. Projected number of Australian Cardiothoracic Surgeons against the projected Australian population by 2025 (by age cluster)**

To maintain the same ratio as above (Table A1) the following are the number of surgeons needed for the projected population

2025 Specialty	*Projected Ratio 1 Surgeon per pop ≥ 65 ('000)			*Projected Ratio 1 Surgeon per pop ≥ 50 ('000)			Projected Ratio 1 Surgeon per Total Pop ('000)			Projected Ratio 1 Surgeon per pop ≤ 14 ('000)		
	Projected No Surgeons Required	Projected Pop ≥ 65		Projected No Surgeons Required	Projected Pop ≥ 50		Projected No Surgeons Required	Projected Total Pop		Projected No Surgeons Required	Projected pop ≤ 14	
ACT	7	9	66,444	5	25	135,160	5	90	407,788	4	17	72,831
NSW	75	21	1,583,211	63	48	3,048,379	55	151	8,219,682	51	28	1,453,040
NT	~	~	25,982	~	~	70,256	~	~	276,754	~	~	63,540
QLD	60	17	1,033,267	50	42	2,092,978	43	137	5,867,273	41	27	1,119,525
SA	12	32	391,793	10	71	731,955	9	206	1,848,784	9	37	323,373
TAS	~	26	124,595	~	61	228,644	3	169	543,586	3	33	101,146
VIC	73	17	1,211,674	63	38	2,377,855	54	121	6,509,780	53	22	1,164,942
WA	20	25	504,955	17	62	1,032,135	14	209	2,917,560	14	41	549,648
<b>AUS</b>	<b>251</b>	<b>20</b>	<b>4,942,425</b>	<b>212</b>	<b>46</b>	<b>9,718,440</b>	<b>182</b>	<b>146</b>	<b>26,593,902</b>	<b>175</b>	<b>28</b>	<b>4,848,510</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table A3. Current Active Australian General Surgeons by Jurisdiction and Population (by age cluster)**

2010 Specialty	*Ratio 1 Surgeon per pop ≥ 65			*Ratio 1 Surgeon per pop ≥ 50			Ratio 1 Surgeon per Total Pop			Ratio 1 Surgeon per pop ≤ 14		
	No Surgeons	('000)	Pop ≥ 65	No Surgeons	('000)	Pop ≥ 50	No Surgeons	('000)	Total Pop	No Surgeons	('000)	Pop ≤ 14
ACT	18	2	36,865	18	6	99,549	18	20	358,571	18	4	66,042
NSW	495	2	1,017,930	495	5	2,315,294	495	15	7,232,589	495	3	1,355,146
NT	11	~	12,634	11	~	48,941	11	~	229,711	11	~	53,101
QLD	240	2	567,381	240	6	1,370,434	240	19	4,513,850	240	4	901,542
SA	113	2	256,958	113	5	571,733	113	15	1,644,582	113	3	293,153
TAS	25	3	79,068	25	7	182,033	25	20	507,643	25	4	97,648
VIC	376	2	759,917	376	5	1,738,768	376	15	5,545,932	376	3	1,017,271
WA	103	3	276,723	103	7	686,320	103	22	2,293,510	103	4	445,818
<b>AUS</b>	<b>1,381</b>	<b>2</b>	<b>3,008,067</b>	<b>1,381</b>	<b>5</b>	<b>7,014,193</b>	<b>1,381</b>	<b>16</b>	<b>22,328,847</b>	<b>1,381</b>	<b>3</b>	<b>4,230,205</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table A4. Projected number of Australian General Surgeons against the projected Australian population by 2025 (by age cluster)**

To maintain the same ratio as above (Table A3) the following are the number of surgeons needed for the projected population

2025 Specialty	*Projected Ratio 1 Surgeon per pop ≥ 65			*Projected Ratio 1 Surgeon per pop ≥ 50			Projected Ratio 1 Surgeon per Total Pop			Projected Ratio 1 Surgeon per pop ≤ 14		
	Projected No Surgeons Required	('000)	Projected Pop ≥ 65	Projected No Surgeons Required	('000)	Projected Pop ≥ 50	Projected No Surgeons Required	('000)	Projected Total Pop	Projected No Surgeons Required	('000)	Projected pop ≤ 14
ACT	32	2	66,444	24	6	135,160	20	20	407,788	20	4	72,831
NSW	770	2	1,583,211	652	5	3,048,379	563	15	8,219,682	531	3	1,453,040
NT	~	~	25,982	~	~	70,256	~	~	276,754	~	~	63,540
QLD	437	2	1,033,267	367	6	2,092,978	312	19	5,867,273	298	4	1,119,525
SA	172	2	391,793	145	5	731,955	127	15	1,848,784	125	3	323,373
TAS	~	3	124,595	~	7	228,644	27	20	543,586	26	4	101,146
VIC	600	2	1,211,674	514	5	2,377,855	441	15	6,509,780	431	3	1,164,942
WA	188	3	504,955	155	7	1,032,135	131	22	2,917,560	127	4	549,648
<b>AUS</b>	<b>2,269</b>	<b>2</b>	<b>4,942,425</b>	<b>1,913</b>	<b>5</b>	<b>9,718,440</b>	<b>1,645</b>	<b>16</b>	<b>26,593,902</b>	<b>1,583</b>	<b>3</b>	<b>4,848,510</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table A5. Current Active Australian Neurosurgeons by Jurisdiction and Population (by age cluster)**

2010 Specialty	No Surgeons	*Ratio 1 Surgeon per pop ≥ 65		No Surgeons	*Ratio 1 Surgeon per pop ≥ 50		No Surgeons	Ratio 1 Surgeon per Total Pop		No Surgeons	Ratio 1 Surgeon per pop ≤ 14	
		('000)	Pop ≥ 65		('000)	Pop ≥ 50		('000)	Total Pop		('000)	Pop ≤ 14
ACT	5	7	36,865	5	20	99,549	5	72	358,571	5	13	66,042
NSW	68	15	1,017,930	68	34	2,315,294	68	106	7,232,589	68	20	1,355,146
NT	0	~	12,634	0	~	48,941	0	~	229,711	0	~	53,101
QLD	36	16	567,381	36	38	1,370,434	36	125	4,513,850	36	25	901,542
SA	17	15	256,958	17	34	571,733	17	97	1,644,582	17	17	293,153
TAS	5	16	79,068	5	36	182,033	5	102	507,643	5	20	97,648
VIC	49	16	759,917	49	35	1,738,768	49	113	5,545,932	49	21	1,017,271
WA	17	16	276,723	17	40	686,320	17	135	2,293,510	17	26	445,818
<b>AUS</b>	<b>197</b>	<b>15</b>	<b>3,008,067</b>	<b>197</b>	<b>36</b>	<b>7,014,193</b>	<b>197</b>	<b>113</b>	<b>22,328,847</b>	<b>197</b>	<b>21</b>	<b>4,230,205</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Table A6. Projected number of Australian Neurosurgeons against the projected Australian population by 2025 (by age cluster).**

To maintain the same ratio as above (Table A5) the following are the number of surgeons needed for the projected population

2025 Specialty	Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 65		Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 50		Projected No Surgeons Required	Projected Ratio 1 Surgeon per Total Pop ('000)		Projected No Surgeons Required	Projected Ratio 1 Surgeon per pop ≤ 14 ('000)	
		('000)	Projected Pop ≥ 65		('000)	Projected Pop ≥ 50		Total Pop	Total Pop		Total Pop	Projected pop ≤ 14
ACT	9	7	66,444	7	20	135,160	6	72	407,788	6	13	72,831
NSW	106	15	1,583,211	90	34	3,048,379	77	106	8,219,682	73	20	1,453,040
NT	~	~	25,982	~	~	70,256	~	~	276,754	~	~	63,540
QLD	66	16	1,033,267	55	38	2,092,978	47	125	5,867,273	45	25	1,119,525
SA	26	15	391,793	22	34	731,955	19	97	1,848,784	19	17	323,373
TAS	~	16	124,595	~	36	228,644	5	102	543,586	5	20	101,146
VIC	78	16	1,211,674	67	35	2,377,855	58	113	6,509,780	56	21	1,164,942
WA	31	16	504,955	26	40	1,032,135	22	135	2,917,560	21	26	549,648
<b>AUS</b>	<b>324</b>	<b>15</b>	<b>4,942,425</b>	<b>273</b>	<b>36</b>	<b>9,718,440</b>	<b>235</b>	<b>113</b>	<b>26,593,902</b>	<b>226</b>	<b>21</b>	<b>4,848,510</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table A7. Current Active Australian Orthopaedic Surgeons by Jurisdiction and Population (by age cluster)**

2010 Specialty	No Surgeons	*Ratio 1 Surgeon per pop ≥ 65		No Surgeons	*Ratio 1 Surgeon per pop ≥ 50		No Surgeons	Ratio 1 Surgeon per Total Pop		No Surgeons	Ratio 1 Surgeon per pop ≤ 14	
		('000)	Pop ≥ 65		('000)	Pop ≥ 50		('000)	Total Pop		('000)	Pop ≤ 14
ACT	21	2	36,865	21	5	99,549	21	17	358,571	21	3	66,042
NSW	358	3	1,017,930	358	6	2,315,294	358	20	7,232,589	358	4	1,355,146
NT	4	~	12,634	4	~	48,941	4	~	229,711	4	~	53,101
QLD	221	3	567,381	221	6	1,370,434	221	20	4,513,850	221	4	901,542
SA	94	3	256,958	94	6	571,733	94	17	1,644,582	94	3	293,153
TAS	19	4	79,068	19	10	182,033	19	27	507,643	19	5	97,648
VIC	253	3	759,917	253	7	1,738,768	253	22	5,545,932	253	4	1,017,271
WA	99	3	276,723	99	7	686,320	99	23	2,293,510	99	5	445,818
<b>AUS</b>	<b>1,069</b>	<b>3</b>	<b>3,008,067</b>	<b>1,069</b>	<b>7</b>	<b>7,014,193</b>	<b>1,069</b>	<b>21</b>	<b>22,328,847</b>	<b>1,069</b>	<b>4</b>	<b>4,230,205</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Table A8. Projected number of Australian Orthopaedic Surgeons against the projected Australian population by 2025 (by age cluster)**

To maintain the same ratio as above (Table A7) the following are the number of surgeons needed for the projected population

2025 Specialty	Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 65		Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 50		Projected No Surgeons Required	Projected Ratio 1 Surgeon per Total Pop ('000)		Projected No Surgeons Required	Projected Ratio 1 Surgeon per pop ≤ 14 ('000)	
		('000)	Projected Pop ≥ 65		('000)	Projected Pop ≥ 50		Projected Total Pop	Projected pop ≤ 14			
ACT	38	2	66,444	29	5	135,160	24	17	407,788	23	3	72,831
NSW	557	3	1,583,211	471	6	3,048,379	407	20	8,219,682	384	4	1,453,040
NT	~	~	25,982	~	~	70,256	~	~	276,754	~	~	63,540
QLD	402	3	1,033,267	338	6	2,092,978	287	20	5,867,273	274	4	1,119,525
SA	143	3	391,793	120	6	731,955	106	17	1,848,784	104	3	323,373
TAS	~	4	124,595	~	10	228,644	20	27	543,586	20	5	101,146
VIC	403	3	1,211,674	346	7	2,377,855	297	22	6,509,780	290	4	1,164,942
WA	181	3	504,955	149	7	1,032,135	126	23	2,917,560	122	5	549,648
<b>AUS</b>	<b>1,756</b>	<b>3</b>	<b>4,942,425</b>	<b>1,481</b>	<b>7</b>	<b>9,718,440</b>	<b>1,273</b>	<b>21</b>	<b>26,593,902</b>	<b>1,225</b>	<b>4</b>	<b>4,848,510</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table A9. Current Active Australian Otolaryngology, Head & Neck Surgeons by Jurisdiction and Population (by age cluster)**

2010 Specialty	No Surgeons	*Ratio 1 Surgeon per pop ≥ 65		No Surgeons	*Ratio 1 Surgeon per pop ≥ 50		No Surgeons	Ratio 1 Surgeon per Total Pop		No Surgeons	Ratio 1 Surgeon per pop ≤ 14	
		('000)	Pop ≥ 65		('000)	Pop ≥ 50		('000)	Total Pop		('000)	Pop ≤ 14
ACT	7	5	36,865	7	14	99,549	7	51	358,571	7	9	66,042
NSW	126	8	1,017,930	126	18	2,315,294	126	57	7,232,589	126	11	1,355,146
NT	1	~	12,634	1	~	48,941	1	~	229,711	1	~	53,101
QLD	71	8	567,381	71	19	1,370,434	71	64	4,513,850	71	13	901,542
SA	36	7	256,958	36	16	571,733	36	46	1,644,582	36	8	293,153
TAS	7	11	79,068	7	26	182,033	7	73	507,643	7	14	97,648
VIC	99	8	759,917	99	18	1,738,768	99	56	5,545,932	99	10	1,017,271
WA	36	8	276,723	36	19	686,320	36	64	2,293,510	36	12	445,818
<b>AUS</b>	<b>383</b>	<b>8</b>	<b>3,008,067</b>	<b>383</b>	<b>18</b>	<b>7,014,193</b>	<b>383</b>	<b>58</b>	<b>22,328,847</b>	<b>383</b>	<b>11</b>	<b>4,230,205</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Table A10. Projected number of Australian Otolaryngology, Head & Neck Surgeons against the projected Australian population by 2025 (by age cluster)**

To maintain the same ratio as above (Table A9) the following are the number of surgeons needed for the projected population

2025 Specialty	Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 65		Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 50		Projected No Surgeons Required	Projected Ratio 1 Surgeon per Total Pop ('000)		Projected No Surgeons Required	Projected Ratio 1 Surgeon per pop ≤ 14 ('000)	
		('000)	Projected Pop ≥ 65		('000)	Projected Pop ≥ 50		Total Pop	Total Pop		Total Pop	Projected pop ≤ 14
ACT	13	5	66,444	10	14	135,160	8	51	407,788	8	9	72,831
NSW	196	8	1,583,211	166	18	3,048,379	143	57	8,219,682	135	11	1,453,040
NT	~	~	25,982	~	~	70,256	~	~	276,754	~	~	63,540
QLD	129	8	1,033,267	108	19	2,092,978	92	64	5,867,273	88	13	1,119,525
SA	55	7	391,793	46	16	731,955	40	46	1,848,784	40	8	323,373
TAS	~	11	124,595	~	26	228,644	7	73	543,586	7	14	101,146
VIC	158	8	1,211,674	135	18	2,377,855	116	56	6,509,780	113	10	1,164,942
WA	66	8	504,955	54	19	1,032,135	46	64	2,917,560	44	12	549,648
<b>AUS</b>	<b>629</b>	<b>8</b>	<b>4,942,425</b>	<b>531</b>	<b>18</b>	<b>9,718,440</b>	<b>456</b>	<b>58</b>	<b>26,593,902</b>	<b>439</b>	<b>11</b>	<b>4,848,510</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table A11. Current Active Australian Paediatric Surgeons by Jurisdiction and Population (by age cluster)**

2010 Specialty	*Ratio 1 Surgeon per pop ≥ 65 ('000)			*Ratio 1 Surgeon per pop ≥ 50 ('000)			Ratio 1 Surgeon per Total Pop ('000)			Ratio 1 Surgeon per pop ≤ 14 ('000)		
	No Surgeons	Pop ≥ 65		No Surgeons	Pop ≥ 50		No Surgeons	Total Pop		No Surgeons	Pop ≤ 14	
ACT	~	~	~	~	~	~	4	358,571	90	4	66,042	17
NSW	~	~	~	~	~	~	29	7,232,589	249	29	1,355,146	47
NT	~	~	~	~	~	~	0	229,711	~	0	53,101	~
QLD	~	~	~	~	~	~	12	4,513,850	376	12	901,542	75
SA	~	~	~	~	~	~	8	1,644,582	206	8	293,153	37
TAS	~	~	~	~	~	~	1	507,643	508	1	97,648	98
VIC	~	~	~	~	~	~	21	5,545,932	264	21	1,017,271	48
WA	~	~	~	~	~	~	8	2,293,510	287	8	445,818	56
<b>AUS</b>	~	~	~	~	~	~	<b>83</b>	<b>22,328,847</b>	<b>269</b>	<b>83</b>	<b>4,230,205</b>	<b>51</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Table A12. Projected number of Australian Paediatric Surgeons against the projected Australian population by 2025 (by age cluster)**

To maintain the same ratio as above (Table A11) the following are the number of surgeons needed for the projected population

2025 Specialty	*Projected Ratio 1 Surgeon per pop ≥ 65 ('000)			*Projected Ratio 1 Surgeon per pop ≥ 50 ('000)			Projected Ratio 1 Surgeon per Total Pop ('000)			Projected Ratio 1 Surgeon per pop ≤ 14 ('000)		
	Projected No Surgeons Required	Projected Pop ≥ 65		Projected No Surgeons Required	Projected Pop ≥ 50		Projected No Surgeons Required	Projected Total Pop		Projected No Surgeons Required	Projected pop ≤ 14	
ACT	~	~	~	~	~	~	5	407,788	90	4	72,831	17
NSW	~	~	~	~	~	~	33	8,219,682	249	31	1,453,040	47
NT	~	~	~	~	~	~	~	276,754	~	~	63,540	~
QLD	~	~	~	~	~	~	16	5,867,273	376	15	1,119,525	75
SA	~	~	~	~	~	~	9	1,848,784	206	9	323,373	37
TAS	~	~	~	~	~	~	1	543,586	508	1	101,146	98
VIC	~	~	~	~	~	~	25	6,509,780	264	24	1,164,942	48
WA	~	~	~	~	~	~	10	2,917,560	287	10	549,648	56
<b>AUS</b>	~	~	~	~	~	~	<b>99</b>	<b>26,593,902</b>	<b>269</b>	<b>95</b>	<b>4,848,510</b>	<b>51</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table A13. Current Active Australian Plastic & Reconstructive Surgeons by Jurisdiction and Population (by age cluster)**

2010 Specialty	No Surgeons	*Ratio 1 Surgeon per pop ≥ 65		No Surgeons	*Ratio 1 Surgeon per pop ≥ 50		No Surgeons	Ratio 1 Surgeon per Total Pop		No Surgeons	Ratio 1 Surgeon per pop ≤ 14	
		('000)	Pop ≥ 65		('000)	Pop ≥ 50		('000)	Total Pop		('000)	Pop ≤ 14
ACT	6	6	36,865	6	17	99,549	6	60	358,571	6	11	66,042
NSW	93	11	1,017,930	93	25	2,315,294	93	78	7,232,589	93	15	1,355,146
NT	1	~	12,634	1	~	48,941	1	~	229,711	1	~	53,101
QLD	53	11	567,381	53	26	1,370,434	53	85	4,513,850	53	17	901,542
SA	33	8	256,958	33	17	571,733	33	50	1,644,582	33	9	293,153
TAS	9	9	79,068	9	20	182,033	9	56	507,643	9	11	97,648
VIC	112	7	759,917	112	16	1,738,768	112	50	5,545,932	112	9	1,017,271
WA	36	8	276,723	36	19	686,320	36	64	2,293,510	36	12	445,818
<b>AUS</b>	<b>343</b>	<b>9</b>	<b>3,008,067</b>	<b>343</b>	<b>20</b>	<b>7,014,193</b>	<b>343</b>	<b>65</b>	<b>22,328,847</b>	<b>343</b>	<b>12</b>	<b>4,230,205</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Table A14. Projected number of Australian Plastic & Reconstructive Surgeons against the projected Australian population by 2025 (by age cluster)**

To maintain the same ratio as above (Table A13) the following are the number of surgeons needed for the projected population

2025 Specialty	Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 65		Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 50		Projected No Surgeons Required	Projected Ratio 1 Surgeon per Total Pop ('000)		Projected No Surgeons Required	Projected Ratio 1 Surgeon per pop ≤ 14 ('000)	
		('000)	Projected Pop ≥ 65		('000)	Projected Pop ≥ 50		Projected Total Pop	Projected pop ≤ 14			
ACT	11	6	66,444	8	17	135,160	7	60	407,788	7	11	72,831
NSW	145	11	1,583,211	122	25	3,048,379	106	78	8,219,682	100	15	1,453,040
NT	~	~	25,982	~	~	70,256	~	~	276,754	~	~	63,540
QLD	97	11	1,033,267	81	26	2,092,978	69	85	5,867,273	66	17	1,119,525
SA	50	8	391,793	42	17	731,955	37	50	1,848,784	36	9	323,373
TAS	~	9	124,595	~	20	228,644	10	56	543,586	9	11	101,146
VIC	179	7	1,211,674	153	16	2,377,855	131	50	6,509,780	128	9	1,164,942
WA	66	8	504,955	54	19	1,032,135	46	64	2,917,560	44	12	549,648
<b>AUS</b>	<b>564</b>	<b>9</b>	<b>4,942,425</b>	<b>475</b>	<b>20</b>	<b>9,718,440</b>	<b>409</b>	<b>65</b>	<b>26,593,902</b>	<b>393</b>	<b>12</b>	<b>4,848,510</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table A15. Current Active Australian Urology Surgeons by Jurisdiction and Population (by age cluster)**

2010 Specialty	No Surgeons	*Ratio 1 Surgeon per pop ≥ 65		No Surgeons	*Ratio 1 Surgeon per pop ≥ 50		No Surgeons	Ratio 1 Surgeon per Total Pop		No Surgeons	Ratio 1 Surgeon per pop ≤ 14	
		('000)	Pop ≥ 65		('000)	Pop ≥ 50		('000)	Total Pop		('000)	Pop ≤ 14
ACT	3	12	36,865	3	33	99,549	3	120	358,571	3	22	66,042
NSW	112	9	1,017,930	112	21	2,315,294	112	65	7,232,589	112	12	1,355,146
NT	0	~	12,634	0	~	48,941	0	~	229,711	0	~	53,101
QLD	62	9	567,381	62	22	1,370,434	62	73	4,513,850	62	15	901,542
SA	24	11	256,958	24	24	571,733	24	69	1,644,582	24	12	293,153
TAS	10	8	79,068	10	18	182,033	10	51	507,643	10	10	97,648
VIC	82	9	759,917	82	21	1,738,768	82	68	5,545,932	82	12	1,017,271
WA	31	9	276,723	31	22	686,320	31	74	2,293,510	31	14	445,818
<b>AUS</b>	<b>324</b>	<b>9</b>	<b>3,008,067</b>	<b>324</b>	<b>22</b>	<b>7,014,193</b>	<b>324</b>	<b>69</b>	<b>22,328,847</b>	<b>324</b>	<b>13</b>	<b>4,230,205</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (31010DO001\_201009 Australian Demographic Statistics, Sep 2010) at 3 June 2011

**Table A16. Projected number of Australian Urology Surgeons against the projected Australian population by 2025 (by age cluster)**

To maintain the same ratio as above (Table A15) the following are the number of surgeons needed for the projected population

2025 Specialty	Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 65		Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 50		Projected No Surgeons Required	Projected Ratio 1 Surgeon per Total Pop ('000)		Projected No Surgeons Required	Projected Ratio 1 Surgeon per pop ≤ 14 ('000)	
		('000)	Projected Pop ≥ 65		('000)	Projected Pop ≥ 50		Total Pop	Projected pop ≤ 14			
ACT	5	12	66,444	4	33	135,160	3	120	407,788	3	22	72,831
NSW	174	9	1,583,211	147	21	3,048,379	127	65	8,219,682	120	12	1,453,040
NT	~	~	25,982	~	~	70,256	~	~	276,754	~	~	63,540
QLD	113	9	1,033,267	95	22	2,092,978	81	73	5,867,273	77	15	1,119,525
SA	37	11	391,793	31	24	731,955	27	69	1,848,784	26	12	323,373
TAS	~	8	124,595	~	18	228,644	11	51	543,586	10	10	101,146
VIC	131	9	1,211,674	112	21	2,377,855	96	68	6,509,780	94	12	1,164,942
WA	57	9	504,955	47	22	1,032,135	39	74	2,917,560	38	14	549,648
<b>AUS</b>	<b>532</b>	<b>9</b>	<b>4,942,425</b>	<b>449</b>	<b>22</b>	<b>9,718,440</b>	<b>386</b>	<b>69</b>	<b>26,593,902</b>	<b>371</b>	<b>13</b>	<b>4,848,510</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table A17. Current Active Australian Vascular Surgeons by Jurisdiction and Population (by age cluster)**

2010 Specialty	No Surgeons	*Ratio 1 Surgeon per pop ≥ 65		No Surgeons	*Ratio 1 Surgeon per pop ≥ 50		No Surgeons	Ratio 1 Surgeon per Total Pop		No Surgeons	Ratio 1 Surgeon per pop ≤ 14	
		('000)	Pop ≥ 65		('000)	Pop ≥ 50		('000)	Total Pop		('000)	Pop ≤ 14
ACT	3	12	36,865	3	33	99,549	3	120	358,571	3	22	66,042
NSW	48	21	1,017,930	48	48	2,315,294	48	151	7,232,589	48	28	1,355,146
NT	1	~	12,634	1	~	48,941	1	~	229,711	1	~	53,101
QLD	32	18	567,381	32	43	1,370,434	32	141	4,513,850	32	28	901,542
SA	15	17	256,958	15	38	571,733	15	110	1,644,582	15	20	293,153
TAS	4	20	79,068	4	46	182,033	4	127	507,643	4	24	97,648
VIC	42	18	759,917	42	41	1,738,768	42	132	5,545,932	42	24	1,017,271
WA	11	25	276,723	11	62	686,320	11	209	2,293,510	11	41	445,818
<b>AUS</b>	<b>156</b>	<b>19</b>	<b>3,008,067</b>	<b>156</b>	<b>45</b>	<b>7,014,193</b>	<b>156</b>	<b>143</b>	<b>22,328,847</b>	<b>156</b>	<b>27</b>	<b>4,230,205</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011

**Table A18. Projected number of Australian Vascular Surgeons against the projected Australian population by 2025 (by age cluster)**

To maintain the same ratio as above (Table A17) the following are the number of surgeons needed for the projected population

2025 Specialty	Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 65		Projected No Surgeons Required	*Projected Ratio 1 Surgeon per pop ≥ 50		Projected No Surgeons Required	Projected Ratio 1 Surgeon per Total Pop ('000)		Projected No Surgeons Required	Projected Ratio 1 Surgeon per pop ≤ 14 ('000)	
		('000)	Projected Pop ≥ 65		('000)	Projected Pop ≥ 50		Total Pop	Total Pop		Total Pop	Projected pop ≤ 14
ACT	5	12	66,444	4	33	135,160	3	120	407,788	3	22	72,831
NSW	75	21	1,583,211	63	48	3,048,379	55	151	8,219,682	51	28	1,453,040
NT	~	~	25,982	~	~	70,256	~	~	276,754	~	~	63,540
QLD	58	18	1,033,267	49	43	2,092,978	42	141	5,867,273	40	28	1,119,525
SA	23	17	391,793	19	38	731,955	17	110	1,848,784	17	20	323,373
TAS	~	20	124,595	~	46	228,644	4	127	543,586	4	24	101,146
VIC	67	18	1,211,674	57	41	2,377,855	49	132	6,509,780	48	24	1,164,942
WA	20	25	504,955	17	62	1,032,135	14	209	2,917,560	14	41	549,648
<b>AUS</b>	<b>256</b>	<b>19</b>	<b>4,942,425</b>	<b>216</b>	<b>45</b>	<b>9,718,440</b>	<b>186</b>	<b>143</b>	<b>26,593,902</b>	<b>179</b>	<b>27</b>	<b>4,848,510</b>

Source: RACS 2010 Annual Activities Report; Australian Bureau of Statistics (3222.0 - Population Projections, Australia, 2006 to 2101) as at 3 June 2011