

The Outlook for Surgical Services in Australasia

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THE OUTLOOK FOR SURGICAL SERVICES IN AUSTRALASIA

Introduction

In both New Zealand and Australia the provision of surgical services is a matter of some controversy. In each country, there is concern that sections of the public do not have adequate access to such services and that in the context of an ageing society the situation could worsen. This report addresses the extent and causes of current shortages and the future outlook in the light of current training levels and the prospective demand for surgical services.

In Australia, the Australian Competition and Consumer Commission (ACCC) believes there is a shortage of surgical services and has accused the Royal Australasian College of Surgeons (RACS) of contributing to this shortage. The accusation is spelled out in the context of RACS' request to the ACCC for authorisation to continue its management of the training and accreditation of surgeons. The ACCC alleges that RACS has used its authority in these matters to place excessive limits over entry into the surgical workforce. According to the ACCC, this has been done partly because of an excessive zeal in maintaining 'unreasonably high' skill standards. It is also implied that RACS has an interest in restricting entry because this produces 'higher incomes for surgeons'.¹

These accusations beg two questions. One is whether RACS is the prime mover in regard to training levels in Australia or New Zealand. As the ACCC itself acknowledges, since the formation of the Australian Medical Workforce Advisory Council (AMWAC) in 1995, the level of training in surgery in Australia is largely determined by AMWAC's recommendations regarding the number of training places and the willingness of State Governments to fund the recommended places. The situation is similar in New Zealand, where a government agency, the Clinical Training Agency (CTA), decides on the number of posts it will fund. The District Health Boards also fund some posts from their operational budgets. RACS role in New Zealand is limited to approving the hospitals suitable for basic training and the hospital posts for advanced training. The other question begged concerns the assumption that RACS is opposed to expansion in the level of surgical training. RACS and some of its constituent groups (like the Rural Surgeons Group) have for a number of years been advocating an increase in the number of training places for surgeons.

Nonetheless, as with other branches of specialist medicine, RACS and its specialist societies are responsible for the training and assessment of surgeons. Most of the larger public hospitals have accredited positions for basic trainees and advanced trainees in surgery. The basic trainees are instructed in various aspects of surgery over a minimum of two years. After passing the examinations at the end of this instruction they can then apply to enter advanced training positions which require a further four to six years training (depending on the surgical speciality they enter). It is the responsibility of consultant surgeons to provide the on-the-job training and to conduct the required seminar work and assessments. RACS also influences where that training takes place through its role in accrediting hospitals suitable for training. Finally RACS has the responsibility of assessing claims on the part of overseas-trained doctors (OTDs) wishing to practise surgery in Australia. In New Zealand, RACS makes recommendations to the Medical

Council of New Zealand (MCNZ) concerning OTD surgeons. The MCNZ has the statutory power to make decisions on medical registration.

Thus, within the limits of the number of training places funded by government, it is possible for RACS to influence the rate of entry to the ranks of doctors allowed to practise surgery. The extent, direction and circumstances under which it has used this influence are another matter, and this is explored below. The contrast with General Practitioners is instructive. Postgraduate training is now a requirement for GP work in Australia and for vocational registration as a General Practitioner in New Zealand. But the number of training places and the location of these places are largely in the hands of State and Federal Government authorities. Nor do the GP associations or the Australian Medical Association have any control over the accrediting process for OTDs. In the case of non-specialist OTDs, this accreditation is conducted by the Australian Medical Council, which is an independent agency.

There have been proposals (as in the 1994 Baume report discussed below) that the training and accreditation of surgeons be conducted more at arms length from RACS, such as by university medical schools. These proposals have come to nothing. Specialist medicine is quite unusual in the extent to which practising professionals continue to support training and accrediting in their respective fields. Another striking feature (at least to outside observers) of the training system is that the surgeons who perform this training and accreditation largely do so without formal payment. Most Australian and New Zealand consultant surgeons (almost all of whom are Fellows of RACS) work part of their time in the public hospital system and part in the private hospital system. In both Australia and New Zealand, consultant surgeons working in the public teaching hospitals are expected to conduct surgical work and to supervise and instruct trainee surgeons. In the past this was done on an honorary basis. Currently, consultant surgeons are remunerated for their public hospital work on a per hour basis, at between \$100 and \$140 per hour in Australia. In New Zealand also, consultants working in the public hospital system are salaried employees. The on-the-job training of surgical trainees is included in their remuneration. However, much of the other seminar and supervisory work consultant surgeons do is done pro-bono outside these hours.

There would be considerable public costs if this more academic side of surgeon training was conducted by university or other specialist training staff. The same point applies to the public hospital work performed by consultant surgeons. They are paid far more for the fee-for-service work they perform in the private hospital system or on private patients seen within the public hospital system (in New Zealand private patients are rarely seen in public hospitals). There is also little training work done in the private hospital system. The private work performed by surgeons in effect subsidises their work with public patients.

If surgeons wished to maximise their pecuniary interests they would work exclusively in the private sector. They do not, in part because there is insufficient work in the private sector and in part because there are other non-financial incentives (discussed below) to continue work in the public sector. Nonetheless, the proportion of surgical services being performed in the private sector is increasing and with it the temptation for surgeons to avoid the public sector altogether. It is important that organisations like the ACCC who are challenging RACS' educational role understand this situation. The ACCC is doctrinally predisposed to favour market-based 'solutions'. Whether intended or not, by

restricting the finance available to the public hospital system the Commonwealth and State Governments in Australia have already ensured that the private market place is playing a greater role in the provision of surgical services. If this process continues, it raises serious questions about how the training function will be performed, especially if there is a need to train more surgeons.

The policy setting

At the beginning of the 1990s there was a crisis in Australian medical workforce planning circles. It was a crisis driven by concern about oversupply. It is important that this context is understood, for it has helped shape the surgeon supply problems evident at present. The perception at the beginning of the 1990s was that the medical workforce was growing too rapidly. This was thought to be a product of high domestic training — there were around 1,400 graduates from Australian medical schools per annum through the 1980s compared with about 1,200 today — and high levels of migration to Australia of OTDs. One indication of the scale of the latter is that by 1991 there were 2,174 doctors who arrived in Australia over the period 1986-2001 who were employed as doctors (or some 400 per year.) The main birthplace source was the United Kingdom and Ireland (875), followed by 194 from New Zealand.² Thousands more were still trying to get their credentials accredited in Australia.

Various indicators were produced which supported the ‘oversupply’ perception. Doctor-to-population ratios had fallen sharply during the 1980s and early 1990s. In General Practice, such was the competition for patients that the proportion of non-referred services bulk-billed climbed from 52.5 per cent in 1984-85 to 70.3 per cent in 1990-91, to subsequently peak at 80.6 per cent in 1996-97.³ From the Australian Government’s perspective, the alarming feature of this expansion in doctor numbers was the mounting Medicare bill. The dominant view within policy-making circles was that the rapid growth in medical services (reflected in a striking growth in the number of medical services per capita during the 1980s and early 1990s) was doctor driven. It was thought that the rapid growth in the number of services performed partially reflected the power of doctors to service their patients to a level that allowed doctors to meet their target income levels. In an environment where the doctor has considerable influence over service provision and where there is little cost constraint on the consumer, this factor, rather than the legitimate health needs of the patient population, was thought to be shaping demand.

There was a series of policy responses in the early 1990s which reflected this ‘medical oversupply’ diagnosis. One was action to reduce the inflow of OTDs. This was done by making it harder for doctors to gain a permanent resident visa. The accrediting process within Australia was tightened by requiring all OTDs (including those from the United Kingdom and other Commonwealth countries) to pass the Australian Medical Council examinations and by placing a quota on the numbers allowed to succeed each year. (These rules did not apply to New Zealand-trained doctors, since New Zealand medical schools are jointly approved by the Australian Medical Council and the New Zealand Medical Council.) Enforcement of this quota proved difficult due to legal action on the part of some of the OTDs struggling to gain accreditation in Australia by the early 1990s.

This stalemate prompted even tougher action in the mid-1990s. In 1995 the then Labor government tried to reduce the number of first year medical students (by that time already reduced to around 1,200) to 1,000.⁴ This attempt failed. However, in 1996 the incoming Coalition government put into legislation a package embodying the following key measures:

- Doctors were not permitted to bill on Medicare as GPs unless they first completed the post-graduate General Practice training program. At the same time, the number of entry-level training places was reduced from 450 to 400. The combination of these two measures drastically reduced the number of new entrants billing as GPs.
- OTDs who had not begun the accreditation process before the end of 1996 were not permitted to bill on Medicare until the elapse of ten years after they completed their accreditation. This rule applied to full-fee overseas students who graduated in medicine in Australia and to GPs trained in New Zealand. It also affected surgeons. Thus, henceforth, surgeons from the United Kingdom, New Zealand and South Africa who would normally have been able to gain accreditation reasonably quickly in Australia could no longer bill on Medicare. They could work as salaried employees but, as indicated, the remuneration was low relative to private work and, as a consequence, largely removed the incentive for such specialists (including New Zealand surgeons) to migrate to Australia. However, if GPs, surgeons or any other specialists were appointed to 'area of need' positions, they were permitted to bill on Medicare.

The mood at the time (late 1996 and early 1997) was exemplified by the reaction of interns and of medical students close to graduation. Such was their concern about career prospects that they took to the streets in protest. These concerns included worries that, with the cut-back in training places in General Practice, they might not be able to access a training place at all, let alone in General Practice.

In parallel action the Australian Government introduced stricter rules on medical migration, including points penalties for applicants under the skill programmes who were doctors. Then, in mid-1999, doctors (including specialists) were removed from the list of occupations which were eligible for permanent entry under the Independent and sponsored skilled visa categories. However, doctors can still gain permanent entry visas through the employer nomination, family reunion, and humanitarian categories, or by coming to Australia as 'third-country' New Zealanders. This last category covers those who, after gaining New Zealand citizenship (requiring a minimum stay of three years), then avail themselves of the rights of movement across the Tasman under the Trans-Tasman Arrangement between Australia and New Zealand. In 2000-01, some 795 entered Australia as doctors (including 486 who were New Zealand citizens) and in 2001-02, some 459 (of whom 131 were New Zealand citizens).⁵ All of these New Zealand doctors declared that they intended to stay permanently in Australia.

The flow from New Zealand is spectacular. Most of these doctors are 'third-country' New Zealanders. Only 76 of the 486 New Zealand citizens arriving in 2000-01 were New Zealand-born. The very large number of 'third-country' arrivals reflects a different immigration policy regime in New Zealand. In contrast to Australia, in the early 1990s the New Zealand Government liberalised the rules governing the entry of skilled migrants. The result was a sharp increase in the migration of professionals, including doctors (mainly from Asia). One of the reasons for this influx was that at the time the

New Zealand Medical Council did not act as the accrediting authority for doctors. This situation was not changed until the mid-1990s, by which time large numbers of OTDs had arrived in New Zealand, many of whom subsequently struggled to gain accreditation in New Zealand. As the New Zealand Minister for Health, Annette King put it recently, 'Hundreds of overseas doctors had been left unemployed, driving taxis or were underutilised because of an immigration error from 1991 to 1995'.⁶

AMWAC was established in 1995 at a time when the 'oversupply thesis' dominated the medical policy making ethos. Its early recommendations on training mirrored the Labor Government and the subsequent Coalition Government's perception of the issue. In the case of GPs, AMWAC's position was that there was a 'considerable oversupply' in metropolitan locations and an undersupply in rural and remote areas. Overall, the diagnosis was that there was a surplus of GPs and that the main policy objective should be to relocate doctors into undersupplied locations.⁷ In the case of surgery, there were challenges to the 'oversupply' thesis. The Labor Government commissioned Professor Peter Baume to survey the situation in 1994. He produced a rather alarmist report (discussed below) which alleged that there were serious (and growing) shortages in surgeon numbers. However, AMWAC's stance on surgeons was more in tune with the prevailing views about the 'doctor crisis'. AMWAC's first three reports on surgical fields in 1996 and 1997, namely on the orthopaedic, urology and general surgeon workforce, referred respectively to the workforce levels at the time as 'satisfactory',⁸ 'adequate'⁹ and 'adequately meeting requirements'¹⁰.

By the late 1990s the notion that there was a 'doctor crisis' attributable to there being too many doctors had largely disappeared. In its place there emerged a new and politically charged concern that shortages of GPs and specialists were widespread in regional Australia, even in outer-metropolitan suburban areas¹¹. This version of the 'crisis' was driven by the urgency of demands from regional communities that something be done to rectify their difficulties in attracting doctors. This urgency was partly a consequence of the implementation of the Coalition's policies, particularly the measures which limited eligibility to bill on the Medicare system. The most important of these measures was the ruling which restricted eligibility to those who had achieved specialist status or those who had completed, or were undertaking, the postgraduate general practice training program. While this affected both specialists and GPs, the impact has been severe in the case of the latter, with a consequent slowdown in the numbers of doctors entering general practice. This in turn has meant that there is even less competitive pressure on GPs located in metropolitan areas to locate or relocate into regional locations.

The rate of growth of GP numbers has slowed, and with it the volume of services billed on Medicare, especially those which are bulk-billed. In the case of unreferral GP attendances, their number reached 102.1 million in 1995-96, having grown by 4-5 per cent per annum over the previous decade. But since 1995-96 the number of such attendances has actually fallen, to just 99.9 million in 2001-2002.¹²

The pattern seems to have been similar in New Zealand. The doctor-patient ratio fell sharply during the 1980s and 1990s. The number of medical school places was also reduced. As a consequence, the number of graduates from New Zealand medical schools fell from around 300 per year in the early 1980s to around 250 a year in the late 1980, after which time it settled at about 300 per year.¹³

The prevailing view in medical policy circles was that the 'crisis' was one not of supply but of maldistribution of the medical workforce. But this case has foundered in the face of evidence of fundamental structurally based shortages of doctors in Australia. This is particularly evident at the level of the hospital doctor workforce. The problem is clear at the level of first and second year interns. They provide the core of junior doctors in the public hospitals, but in recent years there have not been enough to fill requirements. Shortages in their numbers in several states have prompted hospitals to employ hundreds of OTDs in these positions, in many cases doctors who had not completed their AMC accreditation. In Victoria as of late 2001 there were 283 OTDs provisionally registered by the Medical Board of Victoria (meaning that they had not completed their AMC accreditation) who were working at the junior doctor level, often in emergency departments in outer suburban and regional hospitals.¹⁴ These shortages cannot be reduced to problems of maldistribution. Rather they are a consequence of there being too few graduates from medical schools in Australia.

This deficiency at the junior doctor level also has implications for specialist training. The fears held by interns at the time of the 1996 reform legislation proved to be groundless. As awareness has grown about the need to increase training levels across most of the specialties, so the number of training places has expanded. Junior doctors have a wide range of choice, so much so, that some specialties, including psychiatry, have had trouble filling their training ranks.¹⁵ This fate is unlikely to befall surgery because of its popularity as a specialty. Nonetheless, the emergence of this situation adds weight to the case for further expansion in medical school enrolments.

These developments have prompted the Coalition Government to revise some of its 1996 initiatives. It has set up state-based recruiting agencies to help fill regional vacancies. Much of the activity of these agencies has centred on recruiting OTDs, sometimes via temporary positions (usually from the United Kingdom) and sometimes from the stock of non-accredited OTDs already resident in Australia. Partly as a consequence, the number of temporary visas issued to OTDs grew from 1,209 in 1997-98 to 1,923 in 2001-02. Most recently, the rules on full-fee overseas graduates in medicine have been changed to allow increasing numbers to do their intern year in Australia (reflecting the shortage of junior doctors noted above).

These new circumstances have led to a sea change in attitudes towards medical training in Australia. The number of entry-level medical places for Australian students has been increased to around 1,300 in 2003 and in April 2003 the Coalition Government announced a proposal for a further 234 places. There has also been an attempt to link increased training opportunities to service in regional locations. This is being done by the provision of scholarships which bind the graduates to regional service for a substantial period and by the allocation of places to medical school applicants from regional locations. The proposed 234 additional places would also be tied to service in areas where the need for GP services is greatest. Finally, over the past two years, nine new clinical medical schools have been established across Australia, on the condition that, by 2004, 25 per cent of all local medical students complete the majority of their clinical training based in regional sites.¹⁶

There is no doubt that AMWAC is correct that the ratio of doctors-to-population (whether GPs or specialists) is, in relative terms, highly favourable to metropolitan communities.

But signs of shortages are appearing even in these locations, the most politically potent of which is the decline in the proportion of non-referred GP services which are bulk billed.

In New Zealand, as in Australia, the dominant issue currently in medical workforce planning is how to cover a domestic shortage of doctors, in a context where market forces have failed to deliver local graduates to non-metropolitan area locations. While OTDs have proven willing to meet this need, studies have demonstrated a typically brief length of stay, with replacement inflows subsequently required.¹⁷ Nonetheless, the need is such that the number of doctors recruited on temporary entry visas to New Zealand has increased significantly. Their numbers grew from 473 in 1999-2000 to 700 in 2000-01 and 844 in 2001-02. Most of these doctors came from the United Kingdom, South Africa and the United States.¹⁸ The New Zealand government has also just announced an increase in the number of state-subsidised first-year places within the two New Zealand medical schools, from 285 in 2003 to 325 in 2004.¹⁹

These developments imply that assessments of the adequacy of doctor numbers based on international doctor-patient ratios and on trend lines showing drastic declines in these ratios in Australia do not tell the full story. Other factors are intruding. Some, such as the feminisation of the medical workforce and its impact on hours of work and willingness to locate in non-metropolitan settings, are well known. Another is the tendency towards more specialisation in medicine and thus the growing number of specialist fields open to young doctors. This is not to imply that a new and sustained trend towards higher per capita numbers of medical services can be confidently projected. Much depends on how access to medical services is financed. Patients are price sensitive, as the evidence on GP attendances in direct-bill versus bulk-bill locations attests. The number of non-referred GP services per capita is much lower in areas where there is a high rate of direct billing of these services.²⁰ On the other hand, in regard to specialist services, the key issue is the extent to which services are provided through the public or private sector and the financial arrangements affecting both sectors. These issues are discussed below.

Views about the adequacy of the surgical workforce

Peter Baume's *The Cutting Edge; Australia's Surgical Workforce*, published in 1994 ran counter to the prevailing view that there were too many doctors. Baume anticipated some of the themes articulated in the ACCC review of RACS' training role published nearly a decade later in 2003. He concluded that there were shortages across most surgical specialties, especially in the public hospital sphere (including Ear Nose and Throat [ENT], orthopaedics, urology and ophthalmology) and that these were most marked in non-metropolitan Australia. He asserted that given the projected training effort and likely growth in demand for surgical services that there would be no improvement in the situation by 2001. Baume tied these shortages in part to what he alleged was 'excessively tight control of the supply of trained surgeons and the numbers of surgeons in various specialities by the Royal Australasian College of Surgeons (RACS) and by the surgical special societies.'²¹

Baume used notional surgeon-to-population ratios (SPRs) to assess the adequacy of the surgeon workforce. The surgeon workforce in Australia in 1994 fell well short of these notional levels. As his report predicted (and is shown below — see Table 2) there has been little improvement in these SPRs by the end of the 20th century. Whether these

notional SPRs are an adequate indicator of surgical need is another matter. As Baume notes, they are a ‘social construct reflecting social values and norms’²² and they came from diverse sources including RACS. Baume provides a smattering of data on waiting lists and anecdotal accounts of local shortages to back up his shortage diagnosis. (Since he only had a few months to prepare his report he can hardly be criticised for this.) However, well-constructed indicators drawn from this information form a better gauge of surgical need than notional SPRs.

When AMWAC began its detailed studies of surgical specialties, it largely ignored the SPR methodology in making its judgements about training needs. As noted, its first three reports were in tune with the dominant view about the ‘doctor crisis’ at the time. Its recommendations were based on detailed analysis of the supply side (including trainee completion rates and retirements) and trends in service levels as shown in actual numbers of services performed over recent years and projections of these services numbers. These projections were partially based on a model which linked the then current rates of surgical service to projections of Australia’s population by age. The present study applies the same methodology though with more recent cross sectional data on rates of surgical procedures by age.

AMWAC has recommended modest increases in training places in almost all of the specialties reviewed. With the exception of its recommendation for increased training levels for orthopaedic surgery (where the actual increase in training places has fallen well short of AMWACs recommendation²³), the numbers of advanced trainees have been lifted to the levels recommended by AMWAC. Table 1 shows the number of advanced training places filled for each speciality between 1997 and 2002. The total number of advanced trainees in surgery increased from 478 to 604, or by 26 per cent, during this five-year period. Thus, with the exception of orthopaedic surgery, if there is a current shortage of surgeons, the implication is that AMWAC’s assessments of training needs have been too conservative.

AMWAC has not completed any recent surveys of the surgical workforce. According to the analysis below, some of the earlier AMWAC judgments have been overtaken by recent events, which include a sharp increase in demand for surgery associated with increased enrolment in private health funds in Australia. These are a consequence of changes in health insurance regulations introduced in early 2000.

Table 1: Number of advanced trainees by surgical field, Australia, 1997 to 2002

Major speciality	1997	1998	1999	2002
General	177	189	217	246
Cardiothoracic	24	29	30	22
Neurosurgery	31	27	29	37
Orthopaedic	110	115	124	140
ENT	40	41	42	48
Paediatric	16	8	7	4
Plastic	38	36	40	50
Urology	37	44	46	45
Vascular	5	9	6	12
Total	478	498	541	604

Source: Medical Training Review Panel, Reports, 1997-2002

The most strident of these recent assessments comes from the 2003 ACCC report cited earlier. In its media release to medical writers the ACCC says that, on the basis of a consultant's report (by Professor Jeff Borland), it believes there are significant shortages of surgeons across a majority of specialties. It goes on to say:

In addition, a number of factors suggest that there could be a severe shortage of surgeons in the coming years. These include: the ageing Australian population; the ageing Australian surgical profession, including the possibility that many surgeons are considering retiring early; increased demand for Australian surgeons overseas; the reluctance of younger surgeons, and particularly female surgeons, to work excessive hours many surgeons have traditionally worked; and the implementation of the Australian Medical Association's safe working hours policy.

The ACCC is critical of AMWAC's reports on surgeons. AMWAC is said to be in favour of keeping existing ratios of surgeons-to-population stable and thus to be reluctant to reassess their adequacy. The organisation is also said to be too close to the surgical profession. It is claimed that 'surgeons are heavily involved in AMWAC, typically comprising half the membership of the working parties established by AMWAC to calculate the required numbers of surgical trainees'.²⁴

The ACCC consultant's report by Borland was based on a review of the various AMWAC reports on specialist groups of surgeons. Borland did not do any original research. Rather his judgements are based on an extrapolation of rates of growth in service provision in each surgical specialty as reported by AMWAC. Borland argues that these trends imply that that demand for surgical services is likely to outdistance supply (should training levels follow AMWAC recommendations).²⁵

The conflicting claims incorporated into these reports are assessed below.

Indicators of the adequacy of the surgical workforce

In order to set the scene, some basic indicators of the surgical workforce are reviewed below. There are three sources of information on surgeon numbers. One is the RACS record of active Fellows registered with the organisation whether working in Australia or New Zealand. This record is limited to persons who have achieved their Fellowship and thus does not include trainees and surgeons who are working in non-accredited hospital positions. The number of the latter is small but appears to be increasing. The second source of data is the periodic survey of doctors (including surgeons) conducted by the Australian Institute of Health and Welfare (AIHW) – the latest such survey being for the year 1998. Because the AIHW information is now rather dated we use the RACS records for our trend analysis. The third source is the Australian Census. The Census data is only available at the level of all surgeons (no information is collected on surgical specialties). Nevertheless, it is a useful source for comparisons of the age distribution and hours of work patterns of surgeons relative to other medical specialties. In this report the Census data has only been used to illuminate these issues. Our confidence in its value was strengthened by the finding that the number of persons who self identified in Australia as surgeons in 2001 (3,245) was broadly consistent with the RACS figures (3,003 at the beginning of 2003). It is to be expected that the Census figure would be higher given that it would include advanced trainees and surgeons who were not Fellows of RACS who were working in non-accredited surgical positions.

Table 2, which is based on RACS data, shows the number of surgeons and SPRs in Australia for 1994 and 2003, and New Zealand in 2003. Ophthalmologists have been excluded from this and most of the subsequent tables because they now have a specialist organisation separate from RACS. Table 2 may not tell the whole story as far as SPRs are concerned. It does not include doctors working as surgeons, perhaps in area-of-need positions who have yet to complete their RACS fellowship requirements. Some surgeons, particularly in New Zealand who have gained vocational registration do not become RACS Fellows because there is no need for them to do so. Thus the implication that New Zealand has a higher population-to-surgeon ratio than is the case in Australia could be misleading.

Table 2: SPRs by surgical group, Australia 1994 and 2003, and New Zealand 2003

Major speciality of practice	Australia				New Zealand	
	1994		2003		2003	
	Number	SPR	Number	SPR	Number	SPR
General*	1,360	13,000	1,119	18,000	179	22,000
Cardiothoracic	76	235,000	110	179,000	15	263,000
Neurosurgery	77	232,000	126	156,000	15	263,000
Orthopaedic	536	33,000	756	26,000	149	26,000
ENT	204	88,000	279	70,000	57	69,000
Paediatric	64	280,000	84	234,000	15	263,000
Plastic	156	114,000	239	82,000	35	113,000
Urology	186	96,000	218	90,000	39	101,000
Vascular			72	273,000	4	985,000
Total surgeons	2,659	6,700	3,003	6,500	508	7,800
Estimated resident population	17,854,738		19,662,781		3,939,100	

Source: RACS, unpublished

* In 1994 vascular surgeons were included in the general surgery category.

Table 3 shows the ideal SPRs used by Baume and both AMWAC and CTA. As can be seen, there has been very little change since Baume's initial work. The basis of Baume's conclusion that actual surgeon numbers in 1994 fell well short of his ideal SPRs can be seen from a comparison of the two tables. The number of RACS Fellows in 1994 was well short of the number required to meet Baume's ideal SPR for each specialty listed except for cardiothoracic surgery. There has been a significant improvement in actual SPRs between 1994 and 2003 in Australia. Nevertheless, in the case of orthopaedic and ENT, the actual numbers still fall below the current AMWAC ideal SPRs.

Table 3: Recommended SPRs: 'Baume' 1994, AMWAC and CTA 2003

Major speciality of surgery	'Baume' 1994	AMWAC and CTA 2003
General	11,000	21,500
Cardiothoracic	250,000	250,000
Neurosurgery	175,000	175,000
Orthopaedic	25,000	25,000
ENT	50,000	50,000
Paediatric	250,000	250,000
Plastic	100,000	100,000
Urology	60,000	100,000
Vascular	-	100,000

Source: Baume, *A Cutting Edge*, 1994; CTA, Clinical Training Agency (New Zealand), *Consultation document for strategic intentions plan, 2004, 2003* (CTA SPRs were derived from AMWAC)

Table 2 indicates that the overall New Zealand SPR is lower than is the case for Australia. On the basis of the Australian experience, it might be expected that the New Zealand medical planning authorities would interpret this indicator as a sign that training levels should be increased. This is not the case. The CTA ignores New Zealand's relatively unfavourable position in relation to Australia. Instead, in its recently released *Consultation Document* on surgical training, the CTA treats AMWAC's ideal SPRs as the main guide to the need for surgeons.²⁶ In this respect it departs fundamentally from AMWAC itself, which as noted, looks to the actual situation of supply and demand in the hospitals when it recommends training levels. Indeed, there is nothing in the CTA report at all about indicators like hospital waiting lists which would give a down-to-earth basis for its training recommendations. As discussed below, the New Zealand recommendations are for a reduction in surgical training levels.

Analysis of the contemporary supply/demand situation for surgeons

The approach in the current report is consistent with that taken by AMWAC. SPRs are regarded as useful indicators of trends in the relationship between surgeon numbers and the population. However, they should be supplemented by other indicators of demand for surgical services which get closer to the day-to-day world of surgeons and their prospective patients. These include waiting times for surgery, hours of work of surgeons and vacancies for surgeons.

Waiting times for surgery are, of course, a politically charged indicator of access to surgical services. Trend data on these times are available in Australia for surgery in the public hospital system. Table 4 provides information on the mean number of days people wait for surgery and the proportion of patients waiting more than a year for the years 1995-96 to 2000-01. The trend is towards longer waiting time for most surgical fields.

Table 4: Waiting times, public hospitals in Australia, selected years, 1995-96 to 2000-01

Surgical field	Median waiting times (days)				Proportion of patients waiting over 12 months for elective surgery (percent)			
	1995-96	1996-97	1999-2000	2000-01	1995-96	1996-97	1999-2000	2000-01
General	17	20	23	24	1	1	2	3
Cardiothoracic	13	12	11	11	0	0	0	0
Neurosurgery	11	12	14	15	0	0	1	1
Orthopaedic	34	42	53	44	3	3	7	8
ENT	36	41	44	41	4	4	7	9
Paediatric	-	-	-	-	-	-	-	-
Plastic	24	25	24	24	1	2	3	3
Urological	22	23	25	26	1	1	2	3
Vascular	11	13	13	14	1	1	2	3
Gynaecology	19	21	23	24	0	0	1	1
Other	3	7	14	12	0	0	1	1
Ophthalmology	46	49	54	52	2	1	5	10
Total	21	24	27	27	1	1	3	4

Source: AIHW, *Australian Hospital Statistics, 2000-01*

Waiting list data for New Zealand public hospitals are a less reliable indicator. This is because, to the extent that patients are delayed in access to surgery, the District Health Boards responsible for public hospitals handle the situation in a different manner to the authorities in Australia. The Boards allocate points for the severity, pain and disablement associated with patients' conditions. The higher the points, the more likely the condition will be treated. If demand grows relative to the capacity to provide a surgical service, the Boards may increase the number of points required for eligibility. This has occurred in a number of jurisdictions as a consequence of growing demand and parallel restrictions on the central government funds allocated to each Board for hospital services.

Most of these boards are reported to be operating in 'negative balance' or, in other words, in deficit situations. They have had little choice but to focus on patients with acute surgical needs. Those accepted for surgery receive a commitment to waiting no longer than six months. However, a number of patients whom surgeons believe require surgery are not judged to have sufficient priority and are returned to their GP for ongoing management. This latter group are then reassessed by their GP every six months and can be re-referred to the public hospital if it is considered that their situation has worsened. The level of service varies across the country depending on the severity of the cases being seen by each hospital. For example, on the occasion of the mailing of rejection letters to 10,500 of the 30,000 patients who waiting for surgery or initial specialist assessments at Canterbury hospitals, Jean O'Callaghan, the chief executive of the Canterbury District Health Board, recently stated 'It is impossible for us to meet all the demands of elective surgery or assessment with the resources and financial constraints we have'.²⁷ According to recent New Zealand press reports, patients also often face long waits even to see a specialist.²⁸ One manifestation of this situation is that it is estimated that about 64 per cent of in-patient elective procedures are privately funded, more than half through private health insurance.²⁹

Evidence of increased waiting times, or administrative constraints on access to surgery, does not necessarily mean there is a lack of surgeons. The source of the problem may be a

shortage of hospital beds in the public hospital system, a lack of willingness on the part of governments to finance expansion of the public hospital system and/or an inability or reluctance on the part of citizens to take out private health insurance. In Australia there has been little growth in services provided by the public hospital system in recent years. Between the years 1996-97 and 2000-01, the number of separations from public hospitals per 1,000 of the Australian population has been stable, while the number of patient days spent in public hospitals has declined (by an average of 1.2 per cent per annum).³⁰ At the same time the available beds in public hospitals has declined by 1.9 per cent per annum.³¹ Yet Australia's population has been growing by over 200,000 a year during this period. This outcome reflects the expenditure priorities of the various State and Commonwealth governments. In the case of the Coalition Government, there appears to be a strong preference for limiting Government obligations for hospital care to the least affluent sections of the community and an accompanying interest in moving as much as possible of the task to the private hospital system.

The trend towards the private hospital system has gone further in Australia, because of the large subsidies allocated to persons taking out private health insurance by the Commonwealth Government. In New Zealand the proportion of persons with private health insurance has declined from around 51 per cent in 1990-91 to 35 per cent by June 2001.³² By contrast, the proportion of persons who are members of health insurance funds in Australia is currently around 44 per cent (see discussion below).

The Australian situation in more detail

The following comments are confined to Australia because there were no parallel New Zealand data on the trends in surgical procedures within the public and private hospital sectors.

The Australian Government's policies have been reflected in an increase in the private hospital workload. In contrast to the decline in patients and beds in the public hospitals, there was an average annual growth of 3.7 per cent per annum in patient days spent in the private hospital system over the 1996-97 to 2000-01 period.³³ The introduction of Lifetime Health cover in 2000 gave a huge impetus to this process. The proportion of Australia's population covered by private health insurance declined from 33.6 per cent in June 1996 to around 30 per cent during 1999. It was 32.1 per cent in March 2000, and then subsequently jumped to 42.8 per cent in June 2000. It has since levelled off at about 44 per cent.³⁴ In this three-month period between March and June 2000, the number of private insurance fund members increased by about two million, from 6.1 million to 8.2 million.

The published statistics on public hospital services do not distinguish surgical procedures from other hospital treatments. However, it is apparent that the trend towards the private hospital services is particularly strong for surgery. By 2000-01, 63 per cent of all hospital separations occurred in the Australian public hospital system but, according to unpublished AIHW data, only 47.4 per cent of surgical procedures in 2000-01 took place within the public hospital system. More than half, or 52.6 per cent, of these procedures by 2000-01 were performed in the private hospital system. The AIHW data identify surgical procedures by public/private hospital provision and by age of patient. Unfortunately, no trend data for surgical services by hospital system were available from this source at the national level.

The Victorian Department of Health Services was able to provide an unpublished data set covering the years 1993-94 to 2000-01 that details hospital separations involving a surgical component by diagnoses and hospital system. Though these data differ from procedures (in that there can be more than one procedure per separation) they give an indication of trends in the location of surgical service delivery. The proportion of these separations occurring in the private hospital system in Victoria increased rapidly from 36 per cent in 1993-94 to 41 per cent in 1995-96 and to 49 per cent in 2000-01.³⁵ Though these figures are based on different definitions to those of the AIHW procedures data, the 49 per cent figure is only a little lower than the 52.6 per cent figure cited above for all of Australia.

The following comments on the private hospital system apply primarily to metropolitan regions. There are relatively few private hospitals in regional areas. The trend towards the provision of surgical services in private hospitals within Australia's metropolitan areas is confirmed by our interviews with Australian surgeons. They agreed that more surgical work is being done in the private hospital system and that this would continue to be the case because the rewards for practising in these hospitals were so much greater than in the public hospital system. It also seems likely that this move is having, and will continue to have, important implications for the career structure of surgeons, the traditional training system and for the prospects of attracting surgeons to regional areas or to low income outer-suburban metropolitan areas (where private hospitals are also scarce).

The expansion in the proportion of Australians with private hospital insurance means that surgery is generally available for the more affluent and for those with the foresight, means and willingness to make the required financial sacrifice. Metropolitan residents living in the more affluent suburbs are also favoured because most of the private hospitals are located in these areas. Whether extra demand for surgical services generated by expansion in the ranks of the privately insured can be met by the existing surgical workforce is another matter. To judge by the comments of surgeons, further growth in demand for surgeons to work in the private sector is likely to be at the expense of the hours that surgeons work in the public sector. As one surgeon commented,

The lack of involvement in the public sector is dramatically greater now than it was ten years back. It's not just due to surgeons leaving the public sector completely, but also by greatly reducing their commitment to it... Most people of reasonable competence will get a job where they want it. The big problem for the public hospitals is that people only go there for a major commitment for a very short time, because their private practice builds up very quickly and then they leave. There's two groups: the very few surgeons that work full time, and the others who largely work as sessional consultants (two to five sessions per week). That's because that's all they want to work... The salary differential is enormous between the public and private sectors. A third year staff specialist (at a major city hospital) gets probably \$100,000 per year. If they were out for three years it might not be much more in the private sector, but five years out and it would be five times higher... We are now starting to see difficulty in recruiting good people to (the big teaching hospitals). Now that would have been absolutely unheard of ten years ago – people were crying out to get there. And the situation is infinitely more difficult in the country.

However, at the present time, there does not seem to be a shortage of consultant level surgeons in the major metropolitan public hospitals. Since less than half the Australian population has taken out private health insurance, there remains a considerable demand for public hospital services even in the metropolitan areas. The tendency for waiting lists to grow within the public sector is thus a reflection of this situation and the parallel reluctance of governments to finance growth in the public hospital system. The resulting

expansion of public hospital waiting lists, at least in metropolitan areas, does not seem to be a consequence of a shortage of surgeons. This situation may change given the outlook for the supply and demand for surgical services explored below.

The public hospital sector in Australia (particularly in metropolitan areas) is becoming a residual system which caters for acute conditions which cannot be dealt with in the private hospitals and for all other surgical needs for the non-insured section of the community. The public hospitals are returning to their status of a century ago when their role was largely charitable, their clientele were the poor and the more affluent were excluded by a means test. One indicator of this trend is the contraction of services to private patients. Between 1996-97 and 2000-01 the number of private patients (not including Veterans' Affairs patients) treated in the public hospitals of Australia fell from 551,472 to 497,113. By 2000-01 the share of private patients treated in public hospitals to all patients fell to 12.8 per cent from 15.1 per cent in 1996-97.³⁶

The regional situation in Australia

The situation in Australian non-metropolitan settings is different. Access to surgical services is more difficult. The main reason is a shortage of surgeons willing to practise in regional areas.³⁷ There has been some contraction of public hospital beds in regional areas as well as the same pressures for cost cutting as afflicted metropolitan hospitals. However, the availability of public hospital beds in relation to population is much higher than in metropolitan areas. The regional public hospital sector has long played an important part in regional life, often with the enthusiastic financial support of the local community. Partly as a consequence, there are relatively few private hospitals in the regional setting. Private patients are serviced in the public hospitals but interviews with Australian surgeons suggest that there are strong pressures to provide for locals as public patients. Thus, the problem of access to surgical services in regional Australia at present appears to have more to do with the difficulties regional public hospitals are having in keeping and attracting surgeons than the availability of public hospital facilities.

It is not easy to put precise numbers on these regional shortages, in part because surgeons are independent doctors who work in the public hospital system but are not full-time employees of the hospitals. Thus vacancies do not show up in the same way as they do for hospital medical officers or nurses. AMWAC's reports on surgeons have expressed concern about the regional situation. Our inquiries confirm this concern. While the problem of attracting surgeons to regional settings is not new, it is evident that it has become much more serious in recent years.

According to senior College informants, while there is reasonable access to surgeons in regional Victoria, the situation can be described as 'acute' in New South Wales, pockets of South Australia (e.g. Whyalla) and Western Australia, and 'disastrous' in regional Queensland. A range of towns in New South Wales wholly lack surgeons, or have surgeons unable to function due to unfilled related positions (e.g. a lack of anaesthetists). Dubbo, for instance, is reliant for surgical services on Royal North Shore Hospital. Virtually no ENT surgeons are available west of the Blue Mountains, and there is only one Advanced Surgical Trainee position west of the Great Divide. Tamworth has no urologist but is about to get one 'who will be the sole urologist in that vast area up to the north'. Queensland from Mackay to Gladstone is described as 'a black hole' in terms of

surgery. The scale of these problems is such that they cannot be rectified by the RACS locum service. The following quotes illustrate the supply issues across Australia:

Dubbo: We have four general surgeons and will soon be looking for a fifth as we do hardly any vascular work, the place is growing and we will soon be required to provide more outreach surgery. One of the surgeons is in his late 50s. There are no resident orthopods. We need three. The hospital is staffed by a team of orthopods from Royal North Shore, but we are desperate to get them to live here... There is no ENT. We need two. One visits once a month. There is no resident urologist. We need two. Two visit on a fortnightly basis... (The town) is 40,000 (population) but is the sole referral hospital for about 120,000 people.

Public hospital on the outskirts of Perth: There is a critical shortage of general surgeons... Recently qualified surgical trainees - not available; next surgical trainees in WA due to become qualified in 2005. Advanced surgical trainee positions – funding availability yet to be clarified. Current WA consultants – a range of ads placed without success. Interstate surgeons – no responses to national ad placed. Overseas surgeons – received 28 responses to ads... Given the critical implications of the current situation it is necessary to recruit appropriately qualified doctors from overseas to take up these positions.

Sale: We recruited a third surgeon late last year from India via Edinburgh and Ireland. He is well qualified and has held a consultant position... I have to oversee him with a report to the College every three months for at least one year. (His CV is much better than mine!) He has settled in well, but the worry is what will happen when he gets full registration... Since the inception of the rural surgical training scheme we have only had three registrars who were in it, all the others were destined for metropolitan practice and although they all seemed happy with us had other commitments that took them away.

RACS informant: There is often insufficient elective work to attract surgeons to select places (e.g. in orthopaedics). You need sufficient private patients to generate an adequate income stream (not just be on call 24 hours a day to handle emergency situations). To perform such procedures also requires access to private hospitals – a major problem being the recent restriction of operating time in public theatre facilities in some states, despite waiting lists theoretically ballooning out.

While such comments shed light on specific shortages, no comprehensive national or state records of regional shortages could be located, nor any definition of the number of accredited and non-accredited surgical registrar positions by area of surgical speciality or site. Further, it appears that the Rural Surgical Training Programme established by RACS has no capacity to funnel Advanced Surgical Trainees into areas of regional shortage. Its aim is to introduce those potentially interested to select locations, to match them to mentors, and then check what incentives local employers may be willing to offer. Surgical trainees reportedly enjoy their regional rotations, acquiring significantly greater exposure and opportunity to perform surgical procedures.³⁸ At the same time, such experience does not determine ultimate location, with only a few trainees actually entering regional surgical practice on completion of their training.

To understand problems related to distribution requires an examination of the social context of the surgical world. Surgeons are part of the medical elite. They are drawn from the very cream of academic achievers. As academic super achievers they are oriented towards the intellectually challenging end of the profession. This is located in metropolitan centres, particularly in the major teaching hospitals which dominate the research end of the field. If a surgeon is to be a high flyer in the profession, he or she will wish to vie for a consultant position within these hospitals. In the past, these were honorary positions but nevertheless highly valued because they were the key to establishing a high surgical reputation, as well as the foundation for a substantial private patient clientele. They still are today, notwithstanding the changes occurring in the

metropolitan public hospital system described above. To gain a consultant position in the public hospital system, a young surgical Fellow needs to keep his or her name to the forefront in a metropolitan setting by working with top surgeons or by doing research work in a teaching hospital. Another common career pattern is to work overseas for a year or two in a major teaching hospital or research setting before seeking a consultant position.

Young surgeons who have completed their advanced training and gained their RACS Fellowship may take a few years to gain a metropolitan consultant position. One might think that this would make a move to a regional area attractive — even necessary. However, there appear to be financial disincentives to such a move. A consultant position in the metropolitan setting will eventually lead to a much larger private patient case load than is available in regional areas. Young surgical Fellows also have the option of setting up in private practice in metropolitan areas. For example, in urology or ENT it is possible for a young surgeon to gain a reasonable income via consultations with patients wanting advice on their situation, yet without performing many surgical procedures. Furthermore, with the expansion of the private sector noted above, there are increasing opportunities to by-pass the public system altogether. The numbers of surgeons doing so are still small, but they are growing rapidly. The move towards greater private hospital work in the metropolitan setting implies that the advantages of working in metropolitan areas, relative to regional areas, will increase.

Another factor militating against work in a regional setting is the risks involved. Surgeons working in such settings are less likely to have colleagues to support them and to share the inevitable risks of surgical procedures. They thus tend to feel more vulnerable about the prospects of legal threats. The rapidly increasing costs of medical indemnity insurance and the incidence of litigation makes this a potent issue for surgeons. According to one senior surgical informant:

I think medicine in Australia is in free-fall at the moment and that surgery is heading there fastest, mainly because of the medical indemnity crisis... These problems are magnified tenfold if you go into the country. The regional issues come back to the medico-legal problem. Surgeons don't want to work alone. I like working with a group of people so if I have a difficult case three to four other people can see the patient. Surgery can be a high-risk area, and you never know where the next lawsuit is going to come from. I know a couple of surgeons who have left the country because they felt too isolated professionally, they felt the country people put too big a demand on them and the hospitals they worked for were quite unsupportive of them. So it's a big ask for them to stay there, especially if their families all want to move back to the city anyway!

As indicated here, preferences of family members are a powerful influence on decisions about where to practise. The point is repeatedly made that surgeons with young families have a hard time convincing wives about the attractions of regional settings. Employment for partners and access to high quality private schools for children appear to be a major issue. When surgeons locate in the country now, it is typically for a brief period of stay rather than a long-term commitment.

As a result of the factors described above, it is proving extremely difficult to attract surgeons to regional areas. Even substantial packages involving access to private patients within the public system do not seem sufficient to attract young surgeons. RACS officials responsible for helping to keep a flow of surgeons to regional areas report many examples where older surgeons are reluctantly remaining on the job because it is not possible to find a replacement.

Filling surgical shortages: the role of overseas-trained doctors

As stated earlier in this paper, Australia is characterised by growing reliance on overseas-trained doctors to fill persistent labourforce shortages. Though extending to select urban locations, this dependence has a strong regional focus,³⁹ including some speciality areas such as psychiatry, emergency medicine and surgery.

Overseas-trained surgeons in Australia

It is within the context of Australia's growing reliance on OTDs for the provision of general and medical specialist services that we turn to examine the role of OTDs in surgery in Australia. While it is usual to describe overseas-trained doctors by residential status (permanent versus temporary visas), three major categories are addressed below in relation to surgical practice:

1. Occupational Trainees;
2. 'Area of need' surgeons; and
3. Non-accredited surgical registrars.

1. Occupational Trainees

First, a substantial stream of overseas-trained surgeons (OTS) is currently entering Australia each year as one component of OTDs who are sponsored under the Occupational Trainee visa category (subclass 442). In 2002 there were 306 such surgical sponsorships in Australia, almost all of which were accepted, and 151 in the first five months of 2003 (see Table 5). These doctors have been granted temporary visas by the Department of Immigration on the basis of a training program in Australia. Occupational Trainee visas in the case of medicine are confined to the various medical specialties, with surgery being one of the most important. Before a visa can be granted, the surgical group which wishes to take on the trainee must gain approval of the proposed training program. The Department of Immigration has designated RACS as the approval body. The training program usually does not extend for more than a year, though renewals are sometimes granted. Trainees are told that they cannot proceed to an Advanced Training place in surgery.

As far as medicine is concerned, the visa category was originally intended to provide for the needs of OTDs from third world countries so that they could develop their skills, then return to make an enhanced contribution to health care in their home country. However, the program now extends well beyond this function. The number of Occupational Trainee positions in surgery has grown rapidly in recent years.

A random audit of 68 of the total 749 individual Occupational Trainee case files was examined in the Medical Board of Victoria in 2002. This showed that twenty-two per cent of the individual files surveyed were engaged in some form of surgical training. There was a range of source countries involved, with England being the largest single source but overall most came from various Asian countries. It seems fair to assume the Occupational Trainee scheme may represent a significant means of entry for overseas-trained surgeons to Australia – perhaps even more important in parts of Australia characterised by more acute surgical shortages.

Table 5: Applications of overseas trained surgeons for Occupational Trainee visas and RACS specialist assessment (January 2002 – May 2003)

Numbers of OTD Applications	Occupational Trainee Visas (Australia)	RACS Specialist Assessment by Field (Australia)	Occupational Trainee Visas (NZ)	RACS Specialist Assessment by Field (NZ)
2002	306	44 General: 18 Orthopaedic: 5 Plastic & Reconst: 5 Urology: 4 Otol, Head & Neck: 4 Cardiothoracic: 3 Neurosurgery: 3 Paediatric: 1	No Occupational Trainee Scheme in NZ	28 General: 7 Orthopaedic: 7 Otol, Head & Neck: 3 Plastic: 2 Urology: 2 Cardiothoracic: 2 Neurosurgery: 3 Paediatric: 1 Vascular: 1
2003 (to May 31)	151	21 General: 8 Orthopaedic: 6 Plastic & Reconst: 2 Otol, Head & Neck: 1 Cardiothoracic: 2 Neurosurgery: 2	-	9 Orthopaedic: 3 General: 2 Urology: 2 Otol, Head & Neck: 1 Cardiothoracic: 1

Despite the Occupational Trainee scheme theoretically being a temporary means of entry, a small but significant number of Victorian trainees ‘slipped’ between categories, with several transferring from temporary to permanent status, and a number of twelve-month training appointments becoming sequential (in several cases resulting in 3-4 year employment). While the majority of trainees were junior (seeking an intensive year of international experience to complement their home-country training), a range could also be described as reasonably senior surgeons.

Our examination of the training program data held by RACS indicated that only a third or so of these appear to fit the altruistic ideals originally guiding the program. Some of the trainees in question were paid by their home country and there were clear indications of the positions they were to return to. However, the majority of the trainee positions do not fit these criteria. Rather the vacancies appear to arise from a need by particular surgical teams in major public hospitals for assistance at the registrar level. Prospective Occupational Trainees are then advertised for, selected through the means of institutional linkages, or contacted following enquiries from surgeons based overseas.

Many trainees are regarded as assets, who have come to represent an integral part of the Australian surgical workforce. According to one informant,

Virtually all surgical units are dependent on having some overseas-trained surgeons there to help with the surgical workforce. At (major urban hospital) there are at any one time in the Department of Neurosurgery five to six overseas-trained surgeons. At the moment we have a person from the US who has finished his surgical training who will work two to three years with us. We’ve had (an Occupational Trainee from the States) for the past 15 years. There’s a surgeon from central China here for a year, and someone from Japan for two years who will go back. These people are all very helpful to us, because they provide a major workforce. We pay them very little. The ones from Japan and China are paid nothing. The one from the UK is paid at senior registrar level and the one from the US is paid at consultant level... I’ve had some very good neurosurgeons who’ve stayed on in Australia, but they’re the minority. There are two from South Africa who retrained with us and stayed on to work as neurosurgeons, great successes!... Selection methods vary, some

coming through institutional links, others through response to direct applications (of which) I get at least one a day.

The calibre of original training, however, may not always be known, with selection sometimes problematic. In the past, registrar-level surgical positions (as assistants to consultants leading surgical groups as in urology, orthopaedics or general surgery) have been filled by Australian trainees, whether at the basic or advanced trainee level. Surgical teams would normally only take on an Occupational Trainee if they could not find an Australian trainee. The recent increase in the number of Occupational Trainees is a clear indicator that there are not enough Australian trainee numbers to fill these places. The training programs described for most Occupational Trainee positions in surgery are virtually identical to those which Australian trainees are expected to follow.

2. *'Area of need' positions*

A second category of surgical employment in which there is increased reliance on overseas-trained surgeons is that of 'area of need' positions in rural or regional Australia. (This is a rare phenomenon in New Zealand). Where a regional employer cannot fill a public hospital vacancy from an accredited Australian resident surgeon, the employer can, with the agreement of their respective State Government health authority, have this post declared an 'area of need' position. When this occurs the task is to attract a surgeon with surgical training from an overseas country who has not yet been assessed by RACS to have achieved Fellowship status. State Health Departments may ask for RACS' advice on such a determination, but have the right to go ahead and recruit directly if desired. Three major streams of overseas-trained surgeons fill these positions.

The first is surgeons recruited from the United Kingdom, the European Union and select Commonwealth nations, of whom minimal professional adjustment is required. Such surgeons are usually experienced and thus exempted from both the Basic and Advanced Surgical Training program by RACS. They are likely to be approved for immediate practice with 12 months 'oversight' supervision, followed by access to the full Fellowship if desired. These surgeons have often established professional eminence in their fields (eg professorial status), and are keenly sought by many sponsoring bodies. For many, 'area of need' positions may be attractive because they provide a career break and lifestyle change, as well as the potential to explore Australia as an ultimate migration destination.

A second and comparably prestigious stream consists of South African surgeons, attracted by the prospect of securing permanent resident status immediately in Australia. Highly regarded by RACS and their surgical peers, these surgeons are typically required to complete a 12-24 month period of oversight prior to achieving full registration.

The third group of overseas-trained surgeons employed in 'areas of need' positions are derived from the ranks of permanent resident OTDs already in Australia, who in general have not been trained in Commonwealth countries, and who have not yet completed an Australian accreditation. (Their numbers are being supplemented by direct further recruitment from such nations.) It is not uncommon for such permanent resident surgeons to have been displaced from professional employment for periods of years, prior to making an 'area of need' application. Surgeons who are not fully accredited will normally be evaluated by RACS before being appointed. Once on the job they are in theory supervised by an accredited surgeon, though the degree of supervision will vary

according to the size of the hospital they are appointed to. The skills variability of this group and limits to the availability of supervision were highlighted by a number of informants:

Without being specific about training, you have no good idea of what's happened to them beforehand. You may be working with a 42 year old overseas-trained surgeon who on paper has got quite a good record, but who in practice seems to have big gaps in their knowledge compared to what we would expect... For instance we've had someone who was from (the Middle East). He had this enormous experience of dealing with trauma, but he seemed to be completely lacking in day-to-day management of basic surgical conditions. Having someone coming in the 40s or 50s to do six to twelve months 'oversight' assessment, you certainly wouldn't expect them to pick up all the differences. But unfortunately if you're looking for someone to work on the group as soon as possible I think you're willing to forego that. And so I think would be the local community...

Training is different for instance for surgeons from China, who don't train as general surgeons; rather they train as specific surgeons on an organ (eg pancreatic surgeon or bowel surgeon). They may have excellent skills in those areas, but no skills outside for other areas, plus language is a major barrier for them. Language, accent and medical vocabulary are issues they really struggle with. They have impaired performance not for their innate abilities but for their difficulties in communicating within the work environment...

Regardless of theoretical requirements, there are often insufficient Australia-trained surgeons in the location to provide adequate supervision. 'Distance' supervision, with all its limitations, may (have to) be provided...

There'd be a group of overseas-trained surgeons at any one time who would be looking for work, want to be recognised. And at the same time there'd be this group of rural hospitals who would be advertising for surgeons who want to come and work in their area... One of the concerns I have is that you go through this oversight process of assessment... and you get your FRACS there's nothing to stop you moving back to the city and continuing to practise there – which defeats the whole purpose!

The scale of these 'area of need' appointments appears to be substantial. In New South Wales since 1999 permanent resident OTDs have been able to compete for 'area of need' positions on an identical basis to temporary entrants (regardless of the status of their accreditation).⁴⁰ While short term contracts were the norm until the late 1990s, these have since been extended to three (and potentially five) years to enhance stability, with overseas-trained surgeons now able to work in 'area of need' positions for up to ten years. According to a number of informants, this represents a potentially appealing option, particularly for overseas-trained surgeons who find it very difficult to win entry to Advanced Surgical Training positions. (See discussion below.)

At the same time the risk of exploitation for non-accredited OTDs was described by a number of informants, including the following:

I have to say – and it's a generalization – that there are a lot of employers (and area of health boards) out there who are using these overseas trained practitioners as cannon fodder, because they cannot or will not make their environment a safe and appropriate one, and they can get these practitioners to come and work with them under these conditions, because these poor people want to have a job. They've got families, and they often can't return to their homeland for a whole variety of reasons. So they're a captive population. The overseas practitioner becomes a captive – they sit there for 10 years, they can't move anywhere else because they're not registered to do so, but the location is screwing them to the ground, paying them less, making them work in an unsafe environment, while they provide surgical services. You might say 'well at least they've got a job', but that's not in the public (or the surgeon's) interests.

3. Non-accredited surgical registrar positions

In addition to the above categories, there appear to be a number of overseas-trained doctors who are employed as ‘non-accredited surgical registrars’ – in theory for a very limited time (one to two years) but, reportedly, in practice for far more extended periods. They are being drawn from the pool of overseas-trained doctors and specialists who have failed to achieve full accreditation to date, yet who are understandably eager to achieve professional re-entry. Surgical training in their country of origin may differ significantly to that prevailing in Australasia. As a result, RACS’ may exempt them from Basic Surgical Training, but require that they compete for Advanced Surgical Training places with all other applicants.

It is important to acknowledge in advance of the discussion that follows that the provision of Advanced Surgical Training posts involves significant resourcing and infrastructure, with access to funding complicated by sparring between state and commonwealth health departments, and hospitals having an obligation to pay while RACS actually runs and supervises the training program. In the context of ‘safe hours’ programs, moreover, a minimum of 5 rather than 3 registrars may be required to cover specific surgical units. Additional resourcing may also be required to support new AST posts in terms of salaries for anaesthetist and nursing personnel, appropriate theatre facilities, and support for increased numbers of surgical procedures to ensure there is sufficient work for trainees etc.

The necessity to compete for trainee positions presents permanent resident surgeons with a serious challenge. While many can secure a short-term supernumerary position, typically in locations characterised by surgical shortages, few succeed in the competition for Advanced Surgical Training positions. According to a range of informants, it is virtually impossible for overseas-trained surgeons to compete for such positions:

To be selected first you need to pass the Part 1 exam (or be exempt), then do a semi-structured interview, then get a professional performance assessment (with all trainees having to submit a list of the people they have worked with, and contact made by RACS with 3 people from units in different hospitals)... There is a CV that is scored, then a structured reference sent out to two people which is also scored. Then people are ranked across Australia – a significant bone of contention, because of concern about the reproducibility of the figures... It’s hard for OTDs to be selected, partly because they don’t interview well (vocabulary, accents, people’s inherent biases which you’d like to believe don’t exist but do)... There is some potential for the Regional Board to decide if an individual was disadvantaged. S/he could be given an additional year. However, this would be available to very limited numbers. Most OTDs would have no further surgical options. Large numbers of Australian BST graduates will be in the same situation.

According to data provided by RACS for the year 2000, some 46 OTDs were considered suitable for interview. Of these, 57 per cent were advised to complete the AST (in the majority of cases including some BST or AMC component), with the remainder advised to complete variable periods of oversight (with or without the Part 2 exam). In general RACS informants felt special access to AST places should not be provided to overseas trained surgeons:

(W)e can have someone under oversight for 2 years. We might say to them part way through that ‘We misjudged you at interview – you need more training’. (Mostly we don’t say that.) In that case we say ‘You must go back and compete in open competition for a training post, because our training posts are limited and also we must be fair! This year we have over twice as many applicants for every one of our Advanced Training programmes as we have posts. So we can’t be

preferentially putting overseas trained practitioners into those posts. We just can't do that! And they require formal training supervision just like any other trainee, and formal training. We don't label them, we don't define them in any way, and some of them do extremely well. But I have to say that some of them don't. It's a competitive marketplace, and we are about standards – so if they can't meet the standard, they can't meet the standard. The fact that they've come to Australia is not our problem! Our problem is to maintain the standard. When we've got an oversupply of people who can meet the standard, it's not fair that they can be treated preferentially.

In the past a few lateral entry places were reserved annually to facilitate the entry of overseas-trained surgeons. This pathway has since been abolished. As a consequence there is now a substantial pool of 'non-accredited surgical registrars' in existence. These positions have some obvious attractions to overseas-trained surgeons. They may offer similar pay to that of accredited Australian trainees, acceptable clinical conditions, plus permit the performance of a wide range of surgical procedures (there being no formal definition of those which can or can't be undertaken by non-accredited surgeons). According to informants, public patients may have no knowledge of whether they are being seen by accredited or non-accredited surgeons. This is problematic situation as indicated in the following quotation:

Some people see benefits to the current system: BST and other non-accredited surgeons getting experience (not being wasted), the workforce being fairly elastic, the potential to attract people to unfilled locum positions etc. Many ex-BST trainees become 'career medical officers', contributing to a ratio of around 50:50 accredited compared with non-accredited surgical registrars. Non-accredited surgeons get all the jobs accredited surgeons don't want to do (e.g. night duty, locum duty, rural/regional public sector employment). The College has no real idea how many overseas-trained surgeons are filling these surgical positions... Australia probably often uses overseas-trained surgeons – people unlikely to secure AST positions.

It is possible overseas-trained surgeons and local basic surgical training surgeons may continue to fill non-accredited positions, if the level of unmet demand persists and favours their retention by regional employers. However, no one consulted was able to provide an estimate of actual number of overseas-trained surgeons filling the current 276 non-accredited surgical positions.

The indications are that the shortage of registrar level surgeons will worsen. The number of young Australian surgeons eligible for these positions is likely to contract because of new rules affecting the careers of basic level trainees in surgery. In the past, RACS did not put a limit on the numbers wishing to take up basic training in surgery. As a consequence, many have been destined to miss out on Advanced Trainee positions, because of the strict limits on the number of these positions. For the 2003 program year, 463 doctors who had completed basic surgery training applied for Advanced Trainee positions in Australia. Only 192 of these of these applicants were successful.

A new rule was implemented in the year 2000 which limited the length of time a candidate could remain as a basic trainee to four years. There was a substantial pool of basic trainees still to complete their training as of early 2003 in both Australia and New Zealand. In addition, according to RACS records, there were 180 Australian and 75 New Zealand trainee surgeons who had completed the requirements of the basic training program but had not found Advanced Training positions. This pool constitutes an important component of the registrar level surgical workforce.

RACS has cut back the numbers of doctors entering the basic training program so as to avoid a repeat of this situation. The intake was 200 in 2003 (for both Australia and New Zealand). This seems appropriate. There seems little sense drawing scarce young doctors (given the wide range of training places available in other specialties) into surgery if the limits on Advanced Training positions mean many cannot pursue a long term career in surgery. This situation adds to the case for more Advanced Trainee positions (argued further below). In the meantime, the prospect is that, as the numbers in the pool of basic trainees contract, there will be further shortages at the registrar level and probably increased demand for Occupational Trainees and for surgeons drawn from the ranks of overseas-trained doctors to fill non-accredited registrar positions.

New Zealand's reliance on overseas trained surgeons

By 2001 New Zealand had 2,491 overseas-qualified doctors (34 per cent of the medical workforce), with primary source countries England (25.7 per cent), South Africa (19.5 per cent), India (8.6 per cent), Scotland (8.4 per cent), Australia (7.3 per cent), Sri Lanka (6.3 per cent), Iraq (3.4 per cent) and China (1.7 per cent). From 1997 to 2003, 225 vocational registration applications were received from overseas qualified surgeons, with 143 of these assessed to May 2003. Of these cases, eight per cent were considered vocationally eligible, 48 per cent considered to require more training and 43 per cent considered to require a period of assessment, perhaps in addition to sitting the Part 2 RACS exam. According to a senior informant, the New Zealand screening process is rigorous given the fact that there is no Occupational Trainee scheme, no formal 'area of need' program, and minimal numbers of non-accredited surgical registrars allowed access to practise:

We require absolutely standard documentation for any overseas trained practitioner we are asked to assess... certified copies of qualifications, their log books, their certificate of good standing – that sort of thing. We often crosscheck it when we can on the internet. Extracting it is one of the significant causes of delay. People don't, or can't, or won't produce it. We keep going back (asking for what is necessary). Then what we do is a paper-based assessment of that. That assessment looks at not the qualification, but how they got it – the training process that led them to that (the scope of that process, the caseload and case mix, the level of supervision there, what sort of evaluations were there along the way etc)... Most of the Europeans will say to you 'we don't keep log books'. Their whole training process is vastly different, and it differs from country to country. Even their scope of practice is different, and it's really hard to substantiate that – it's hard for us, and it's also hard for them! That's one of the reasons why in NZ no practitioner will ever be registered by the Medical Council unconditionally without a 12 month period of practice with oversight. That's a Medical Council of New Zealand requirement, not a College requirement. It applies to anybody who doesn't hold an Australasian Fellowship in surgery, even if trained in the UK.

THE DEMAND FOR AND SUPPLY OF SURGICAL SERVICES IN THE FUTURE

Age structure of the surgical workforce

Before moving to an analysis of the key factors likely to shape the demand and supply of surgical services, an examination of the age structure of the existing surgeon workforce will help set the scene. By the standards of most professions in Australia, including other branches of medicine surgeons constitute a relatively aged workforce. There are large numbers of practising surgeons in the 55-64 and 65+ age brackets. As Table 6 shows, by 2001 some 33 per cent of Australian surgeons were aged 55 or older, followed by obstetricians and gynaecologists with 29 per cent in this age category. These proportions were well above those for all the other specialist groupings and for GPs.

Table 6: Medical specialist groups in Australia, age distribution, percentages, 2001

Specialist group	Age distribution					Total	Number
	<35	35-44	45-54	55-64	65+		
General Medical Practitioner	28	28	25	12	6	100	31,984
Anaesthetist	21	35	25	16	3	100	2,131
Dermatologist	11	37	30	13	8	100	240
Emergency Medicine	43	47	6	4	0	100	333
Obstetrician & Gynaecologist	14	28	29	22	7	100	811
Ophthalmologist	15	35	23	17	10	100	456
Paediatrician	28	35	24	10	3	100	773
Pathologist	22	29	28	16	6	100	1,152
Specialist Physician	14	35	28	16	7	100	1,932
Psychiatrist	15	29	29	18	8	100	2,020
Radiologist	18	34	26	16	6	100	1,390
Surgeon	16	28	23	23	10	100	3,245
Other Specialist Medical Practitioners	31	28	24	9	8	100	492
Total Medical Practitioners	19	32	26	17	7	100	14,975

Source: ABS, 2001 Census, customised matrix held by Centre for Population and Urban Research, Monash University

Comparative census data for New Zealand surgeons were not available for analysis. However, Table 7 provides age distribution data which is based on RACS Fellows working in Australia and New Zealand as of early 2003. These figures indicate that the New Zealand surgical workforce is somewhat younger than its Australian counterpart. The proportion of RACS Fellows in Australia who are 55 or over (42 per cent) is considerably higher than the figure for all Australian surgeons shown in Table 6 (33 per cent). This is because Table 7 is restricted to RACS Fellows and does not include trainees or other registrar level surgeons. Some of the older surgeons (as shown below) work very few hours. Nonetheless, the impending retirement issue is serious and particularly acute for general surgeons, ENT, paediatric and plastic surgeons.

Table 7: Number of surgeons by specialty and age group, Australia and New Zealand, 2003

Main Specialty	Number	% by age group					Total
		32-34	35-44	45-54	55-64	65+	
Australia							
General Surgery	1,119	4	23	26	32	15	100
Cardiothoracic	110	1	28	37	25	8	100
Neurosurgery	126	3	35	29	23	10	100
Orthopaedic	756	2	34	30	22	13	100
Otolaryngology	279	5	28	24	33	10	100
Paediatric	84	1	24	26	36	13	100
Plastic & Reconstructive	239	2	33	25	31	10	100
Urology	218	3	33	28	27	9	100
Vascular	72	0	21	18	54	7	100
Other	13	0	0	8	62	31	100
Australia Total	3,016	3	28	27	29	13	100
New Zealand							
General Surgery	179	1	32	35	27	5	100
Cardiothoracic	15	0	33	47	7	13	100
Neurosurgery	15	0	33	27	20	20	100
Orthopaedic	149	1	37	33	22	7	100
Otolaryngology	57	4	32	46	12	7	100
Paediatric	15	0	40	20	33	7	100
Plastic & Reconstructive	35	3	29	23	34	11	100
Urology	39	3	33	26	31	8	100
Vascular	4	0	25	25	50	0	100
Other	1	0	0	0	100	0	100
New Zealand Total	509	2	33	34	24	7	100

Source: Active cases from RACS database, 2003

Note: the total in this table differs from Table 2 as Table 2 does not include 'Other' surgeons.

Surgeons also report working longer hours than other medical specialties, with 70 per cent indicating an average working week of 49 or more hours, compared with 33 per cent of psychiatrists and 42 per cent of GPs (See Table 8). Moreover, as Table 9 shows, some 70 per cent of surgeons in the age bracket 55-64 work these hours. At one level this work level is to be expected given that the lengthy training period undertaken by surgeons means that they do not begin work as fully accredited professionals until their thirties. However, such a high hourly workload for persons aged in their late 50s and early 60s implies strong demand for their services. After age 64 there is a distinct contraction in working hours. Table 11 indicates that the proportion of surgeons working less than 24 hours per week increases sharply to reach 42 percent, while 'only' 31 per cent report working 49+ hours. There were more than 1,200 RACS Fellows who were in the 55+ age category, including 392 who were aged 65+. This suggests that at least 120, on average, are likely to retire each year over the next decade. Even if some of the older surgeons continue on in the profession when they reach 65, Table 11 indicates that there is a substantial drop off in the hours that they work once they reach this age group. It follows that the current output of RACS Fellows of around 120 a year (see Table 15) will barely replace these impending retirees.

Table 8: Medical specialist groups in Australia, hours worked per week, percentages, 2001

Specialist group	Hours worked (%)					Total	Number
	None to 24 hrs	25-34 hrs	35-48 hrs	49+ hrs	Not stated		
General Medical Practitioners	16	9	32	42	2	100	31,984
Anaesthetist	10	5	27	56	1	100	2,131
Dermatologist	19	10	35	35	0	100	240
Emergency Medicine Specialist	14	5	50	32	0	100	333
Obstetrician & Gynaecologist	10	3	17	68	2	100	811
Ophthalmologist	18	5	30	45	1	100	456
Paediatrician	13	4	25	56	2	100	773
Pathologist	18	10	42	28	2	100	1,152
Specialist Physician	12	4	21	61	2	100	1,932
Psychiatrist	16	9	41	33	1	100	2,020
Radiologist	13	6	36	44	1	100	1,390
Surgeon	11	4	14	70	2	100	3,245
Specialist Medical Practitioners nec*	17	3	39	40	1	100	492
Total Specialist Medical Practitioners	13	6	28	52	2	100	14,975

Source: ABS, 2001 Census, customised matrix held by Centre for Population and Urban Research, Monash University

* nec = not elsewhere classified

Table 9: Hours worked by age group, surgeons in Australia, 2001, per cent

Age group	Hours worked					Total surgeons	Age distribution per cent
	0-24	25-34	35-48	49+	Not stated		
<35	10	4	15	70	1	100	531
35-44	8	3	12	75	2	100	913
45-54	5	2	12	80	2	100	751
55-64	8	3	16	70	2	100	736
65+	42	13	14	31	0	100	314
Total	11	4	14	70	2	100	3,245

Source: ABS, 2001 Census, customised matrix held by Centre for Population and Urban Research, Monash University

Population ageing and other factors affecting the demand for surgeons

What does the future hold as regards the likely demand for surgical services? Given the impending growth and ageing of Australia and New Zealand's population, a preliminary answer requires an investigation of the likely scale of this demographic factor. If it is assumed that current rates of surgery by field continue through the projection period, this demographic influence can be calculated by comparing the number of surgical services required if the age distribution of the population were to remain as at present with those required as the population ages. Population ageing is inevitable in Australia and New Zealand because of the large number of 'baby boomers' who will reach the 65 plus age group over the next few decades. The results of this exercise for Australia are reported in Table 10 and for New Zealand in Table 12. There are of course, many other factors (considered below) which are likely to shape the volume of surgical services in the

medium term. These include the implications of medical research for the opening up of new surgical frontiers and the financial capacity of prospective patients to pay for the new services.

Table 10: Projected number of surgical procedures in light of projected population growth and ageing, Australia, 2001-2051(based on 2001 data)

Actual 2001	Projected				Change	Change				Change	
	2011	2021	2031	2051		2001-11	2011-21	2021-31	2031-51	2001-21	2001-31
Population											
18,769,249	21,288,783	22,926,424	24,254,439	25,408,516	No.	2,519,534	1,637,641	1,328,015	1,154,077	4,157,175	5,485,190
					%	13	8	6	5	22	29
Procedures under Scenario 1 (population growth but no ageing)											
2,298,543	2,607,093	2,807,644	2,970,277	3,111,609	No.	308,550	200,551	162,633	141,332	509,101	671,734
					%	13	8	6	5	22	29
Procedures under Scenario 2 (population growth with ageing)											
2,298,543	2,701,903	3,124,802	3,580,084	4,053,907	No.	403,360	422,899	455,282	473,824	826,259	1,281,541
					%	18	16	15	13	36	56
The effect of ageing (difference in number of procedures two scenarios)						94,810	222,348	292,649	332,492	317,158	609,807
Population growth as share (%) of projected increase under Scenario 2						76	47	36	30	62	52
Population ageing as share (%) of projected increase under Scenario 2						24	53	64	70	38	48

Source: Derived from public and private hospital statistics provided by Australian Institute of Health and Welfare, unpublished; and ABS Australian Population Projections, Series 2 (Assumptions: Net migration 90,000, Total Fertility Rate 1.6, Mortality declining slightly)

According to the Australian Bureau of Statistics middle range projections (net annual migration of 90,000 and total fertility rate 1.6), Australia's population is likely to grow to 22.9 million by 2021 and 24.2 million by 2031.⁴¹ If, as Table 10 shows, Australia's age structure remained the same as currently and rates of surgery remained unchanged there would need to be an increase of 22 per cent in surgical services by 2021 and 29 per cent by 2031. Table 10 also shows that when the impact of population ageing is taken into account, the required level of surgical services increases by 36 per cent over the 2001 to 2021 period and by 56 per cent over the 2001 to 2031 time period. It is evident that by the third decade of 21st century, population ageing is a more important factor in the growth of surgical need than is population growth. Some 64 per cent of the growth of surgical services over the period 2021-31 is projected to be due to population ageing and only 36 per cent due to population growth. This is because by this time population growth rates will have slowed but the proportion of the population entering the frail ages (around 75+) will have increased significantly.

This 'frail age' group currently records the highest per capita rate of surgical services. For example, the rate of surgical procedures for persons aged 75-79 in Australia in 2000-01 was more than 300 per thousand. For persons aged 45-49, the rate was 121 per thousand, or well under half that of the 75-79 year olds (see Table 11). The impact of the ageing factor can be observed in the projections of surgical procedures to 2051 by major type of surgery shown in Appendix I. In particular there is a rapid growth in procedures related to the eyes, which is linked to high rates of demand for such procedures on the part of older persons.

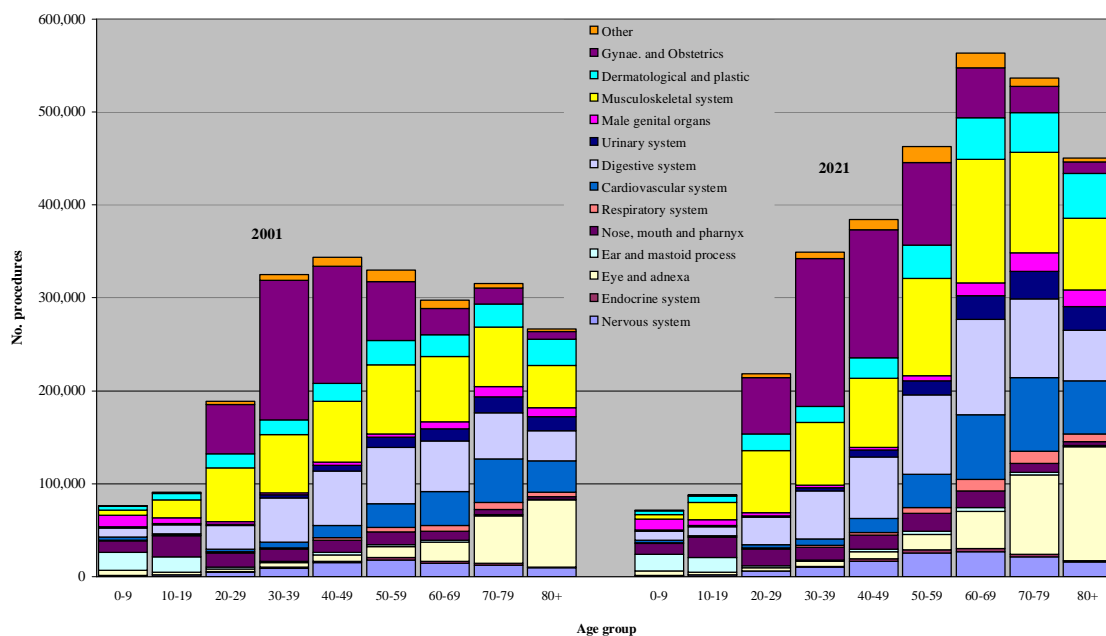
Table 11: Surgical procedures performed in Australian public and private hospitals, 2000-01, rates per thousand persons by age

Surgical procedures related to:	Rates per thousand persons																		Total	Number ('000s)
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+		
Nervous system	0.4	0.5	0.5	0.7	1.8	2.1	2.8	3.6	4.8	5.9	6.7	9.9	9.8	9.8	9.9	12.7	18.7	12.4	4.7	87
Endocrine system	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.6	0.8	1.0	1.4	1.3	1.3	1.3	1.5	1.8	0.9	0.6	11
Eye and adnexa	0.8	3.3	1.5	0.8	1.0	1.2	1.6	1.8	2.1	2.8	3.9	7.0	10.9	18.4	30.8	63.5	128.9	116.7	10.5	197
Ear and mastoid process	1.1	13.5	10.0	2.3	0.9	0.5	0.5	0.7	0.8	0.9	1.0	1.4	1.5	1.6	1.4	1.4	1.9	1.1	2.6	49
Nose, mouth and pharynx	0.2	9.1	11.4	5.6	6.9	5.0	4.3	4.7	4.8	5.0	5.3	7.2	6.7	6.4	5.1	4.7	5.1	2.8	5.7	108
Dental services	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	2
Respiratory system	0.2	0.2	0.2	0.1	0.5	0.6	0.6	0.7	0.8	1.1	1.4	2.7	3.9	5.1	5.8	7.8	10.7	5.9	1.6	31
Cardiovascular system	1.6	1.1	0.6	0.5	1.1	1.2	1.8	2.6	4.0	5.8	8.4	15.6	21.7	29.8	34.9	49.6	70.8	42.6	9.4	176
Digestive system	3.6	3.8	3.2	4.4	8.2	11.4	15.2	18.1	20.1	22.3	23.6	32.4	35.4	39.5	39.5	49.8	64.9	43.7	18.9	354
Urinary system	0.5	0.6	0.4	0.2	0.4	0.6	0.9	1.3	1.9	2.9	3.9	6.3	8.1	10.7	12.7	19.0	29.3	21.5	3.9	74
Male genital organs (males only)	9.8	9.7	5.6	4.3	2.3	2.0	1.7	1.9	2.0	2.1	2.2	4.2	8.0	13.2	17.9	27.1	45.8	42.7	6.6	61
Gynaecological procedures (females only)	0.1	0.2	0.2	0.9	22.1	45.8	67.3	84.9	85.2	73.0	56.9	58.1	41.4	34.8	28.3	27.6	27.9	14.6	40.4	384
Obstetric procedures (females only)	-	-	-	0.0	3.3	10.7	25.2	30.4	16.6	3.9	0.2	0.0	-	-	-	-	-	-	6.8	64
Procedures on musculoskeletal system	0.8	3.2	5.1	9.0	21.9	23.4	22.5	21.5	22.5	25.3	27.5	41.4	46.9	50.5	50.3	64.1	88.4	65.4	25.5	479
Dermatological and plastic procedures	0.9	2.3	2.6	2.8	6.1	5.9	5.5	5.6	6.2	8.0	9.6	14.4	15.6	17.3	18.3	27.7	50.7	45.9	9.3	175
Chemotherapeutic and radiation oncology	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.4	0.3	0.1	1
Therapeutic interventions	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Others and not reported	0.0	0.0	0.0	0.1	0.9	1.4	1.8	2.4	2.9	3.9	4.6	6.1	5.6	5.2	4.0	4.1	4.6	3.1	2.4	45
Total	15.3	42.9	38.6	29.3	62.7	81.8	104.3	120.7	121.5	121.0	122.0	170.7	186.8	214.9	233.9	329.7	506.5	382.6	122.5	2,299
<i>Number of procedures('000s)</i>	<i>19</i>	<i>57</i>	<i>52</i>	<i>39</i>	<i>78</i>	<i>108</i>	<i>146</i>	<i>173</i>	<i>175</i>	<i>160</i>	<i>152</i>	<i>166</i>	<i>147</i>	<i>142</i>	<i>145</i>	<i>166</i>	<i>164</i>	<i>101</i>	<i>2299</i>	

Source: Derived from unpublished data supplied by Australian Institute of Health and Welfare and ABS Estimated Resident Population, 2001

Figure 1 provides another way of looking at this process. It overlays the numbers of surgical procedures by specialty by age group in 2001 with the projected numbers in 2021 if surgical procedure rates remain the same for each age group. The extent of the expansion, particularly for the older age groups is evident.

Figure 1: Number of surgical procedures by age and specialty, 2001 and projected 2021, Australia



It should be noted that the projections for surgical procedures shown in Tables 10 and 11, Figure 1 and Appendix I are not all performed by the surgeons under study in this report. This applies particularly to gynaecological procedures (often performed by gynaecologists) and cardiovascular procedures (often performed by cardiologists).

The impact of population and ageing on surgical services in New Zealand

The same projection method was employed for New Zealand. That is, the rates of surgical procedures by age group as of 2000-01 were applied to population projections to the year 2051. Unfortunately the New Zealand surgical procedure data was not strictly comparable with that of Australia because data were only available for procedures performed in public hospitals. Also the definition of procedures differed from that used in Australia, with the result that more procedures per separation were recorded. The absence of private hospital data may affect the pattern of surgical procedures recorded and thus means that the New Zealand projections are not strictly comparable with those for Australia. Nonetheless, the two projections are broadly comparable as indicators of the effects of population growth and ageing on the demand for surgical services in the two countries.

Table 12 shows that, on these assumptions (annual net overseas migration 5,000 and medium fertility and mortality), there will be substantial growth in demand for surgical services in New Zealand. The population growth factor is not as significant as in Australia, mainly because of the lower migration rate projected for New Zealand relative

to Australia. However, as in Australia, the population ageing effect is significant. In fact, it is more important in the 2011 to 2021 period in New Zealand than it is in Australia. Overall, on the assumption of no changes in rates of surgery by age group, the number of surgical procedures is projected to grow in New Zealand by 33 per cent between 2001 and 2021, and 48 per cent between 2001 and 2031.

Table 12: Projected number of surgical procedures in light of projected population growth and ageing, New Zealand, 2001-2051 (based on 2001 data)

Actual 2001	Projected				Change							
	2011	2021	2031	2051		2001-11	2011-21	2021-31	2031-51	2001-21	2001-31	
Population	3,880,470	4,248,200	4,505,870	4,714,170	4,806,550	No.	367,730	257,670	208,300	92,380	625,400	833,700
						%	9	6	5	2	16	21
Procedures under Scenario 1 (population growth but no ageing)	779,585	853,462	905,228	947,075	965,634	No.	73,877	51,766	41,847	18,559	125,643	167,490
						%	9	6	5	2	16	21
Procedures under Scenario 2 (population growth with ageing)	779,585	907,581	1,036,441	1,151,881	1,254,042	No.	127,996	128,860	115,440	102,161	256,856	372,296
						%	16	14	11	9	33	48
The effect of ageing (difference in number of procedures two scenarios)							54,119	77,094	73,593	83,602	131,213	204,806
Population growth as share (%) of projected increase under Scenario 2							58	40	36	18	49	45
Population ageing as share (%) of projected increase under Scenario 2							42	60	64	82	51	55

Source: Derived from public hospital statistics provided by Rebecca Kay, New Zealand Health Information Service, unpublished; and New Zealand Statistics Population Projections, Series 4 (Assumptions: Net migration 5,000, Medium Fertility and Mortality)

Impact of research and new technology on surgery

The demand for surgical services is likely to be shaped by far more than demographic developments. Amongst the most important are the massive changes underway in surgical techniques. These include endoscopic innovations in orthopaedic work, laser techniques for eye surgery and laparoscopic techniques in general and other branches of surgery. Those listed are just a few of the many surgical advances which have expanded the capacity of surgeons to treat their patients. These less invasive techniques along with the general improvement in health of older people mean that many more procedures are potentially available and of value to older patients. These innovations help explain, for example, the very rapid growth in the number of hospital admissions for surgical procedures on the knee in Victoria, from 14,955 in 1993-94 to 20,337 in 2000-01. Likewise the number of surgical admissions concerning eyes jumped from 25,528 to 43,423 over the same period.⁴²

On the other hand, new drugs, such as the alpha blockers, which are being used to suppress some of the symptoms of prostate enlargement, mean that fewer prostate operations are necessary. In the case of cardiothoracic surgery, greater awareness of the cholesterol factor in diet as well as the wider use of stents by cardiologists to deal with blockages has reduced the need for coronary by-pass operations. In Victoria, the number of separations relating to coronary bypass fell from 3,670 in 1993-94 to 3,518 in 2000-01.

The trend data available for Victoria, however, indicate that innovations which diminish the need for surgery are being overwhelmed by developments which increase the capacity of surgeons to operate usefully. There was a 26 per cent increase in separations in Victoria between 1993-94 and 2000-01 for patients diagnosed as needing surgical

treatment. This is nearly three times the level of Victoria's population growth during this period. As a result, the per capita rate of surgery grew significantly during this time. As Table 13 shows, this growth occurred mainly amongst older patients. For example, the number of surgical separations for persons aged 75-79 in Victoria grew from 178 per 1,000 in 1993-94 to 254 per 1,000 in 2000-01. The surgical areas where the most expansion occurred were those related to eyes and musculoskeletal and connective tissue. The growth in the rate of these procedures is consistent with the surgical innovations referred to above. These data indicate that there is an underlying trend towards greater per capita use of surgery, and that projections based on population increase and age distribution need to be adjusted upward to take account of this trend.

Table 13: Rate of surgical procedures* per thousand persons by age group, public and private hospitals, Victoria, 1993-94 and 2000-01

Age group	1993-94	2000-01
00-04	51	54
05-09	36	35
10-14	27	26
15-19	43	41
20-24	54	48
25-29	63	57
30-34	70	70
35-39	72	79
40-44	75	80
45-49	80	86
50-54	87	99
55-59	94	113
60-64	114	133
65-69	137	166
70-74	149	208
75-79	178	254
80-84	175	263
85+	157	222
Total	75	87

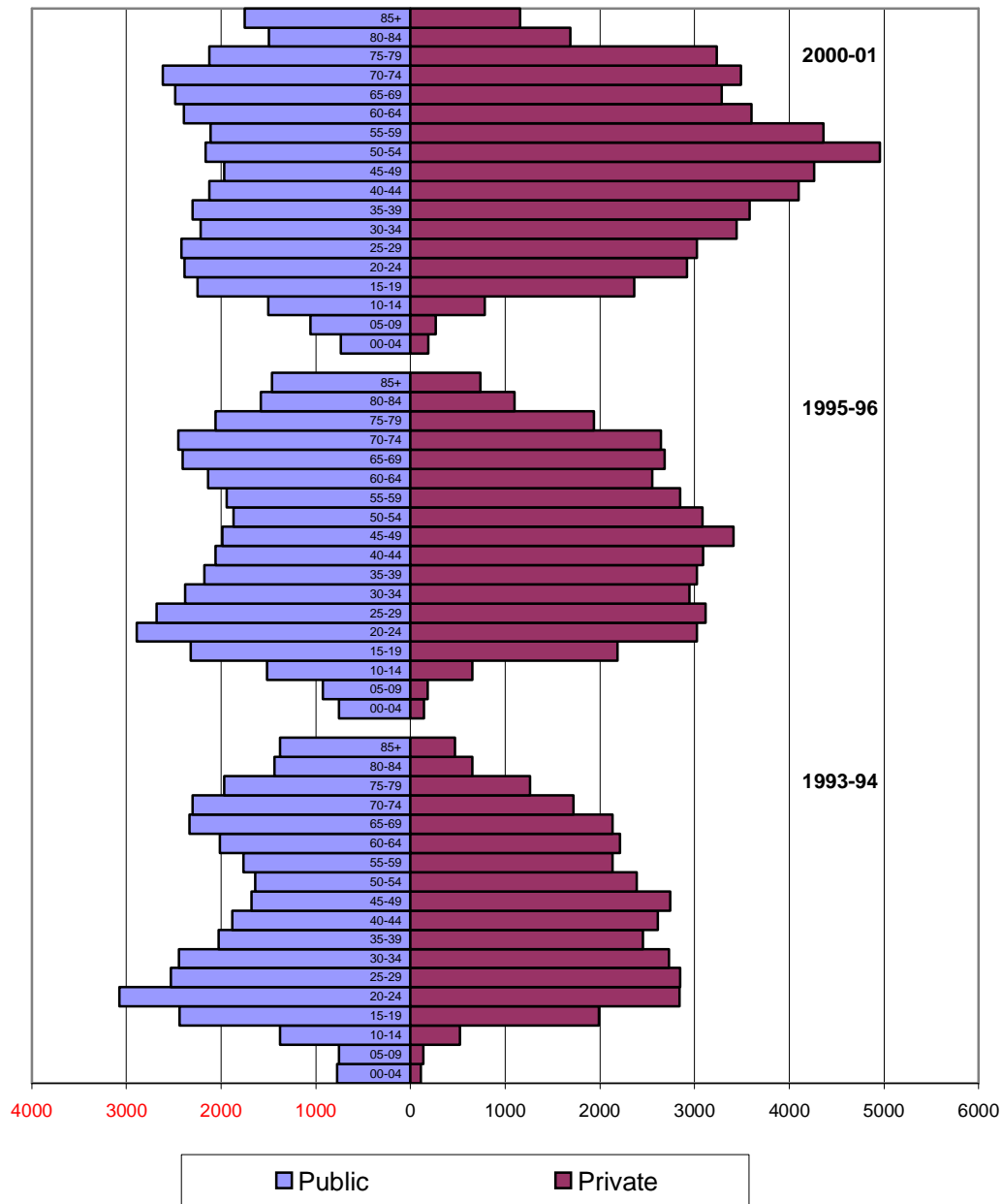
* Excludes procedures related to pregnancy

Source: prepared from unpublished data supplied by Department of Health and Community Services, Victoria; ABS Estimated Resident Population Victoria

The financing of surgical services

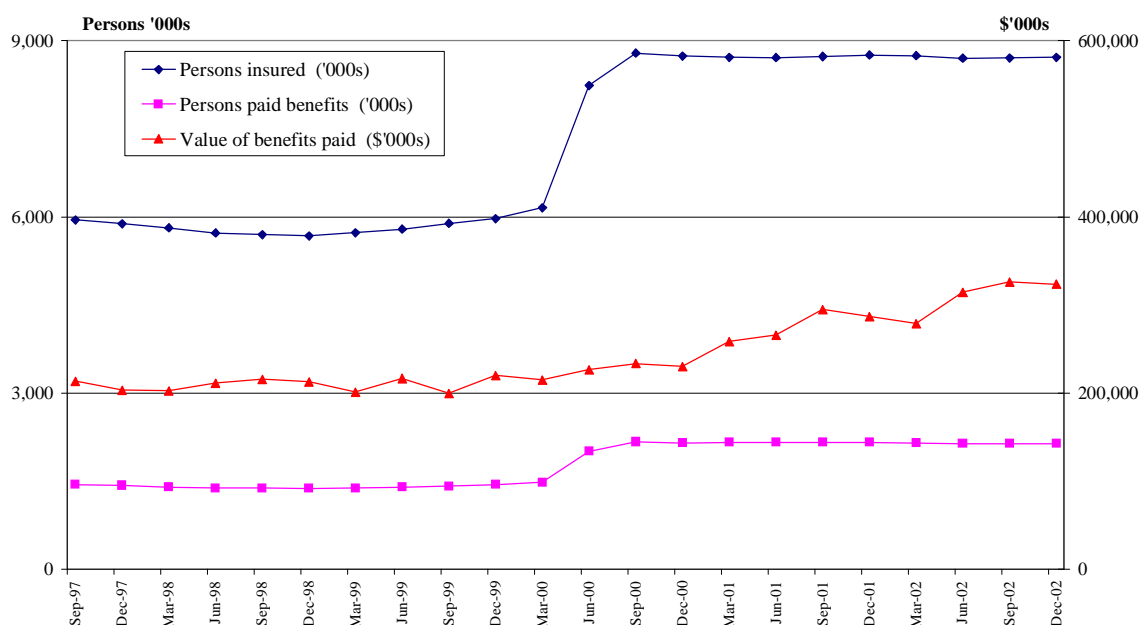
There is an alternative explanation for the growth in the per capita receipt of surgical services. This derives from changes in the level of private health insurance which occurred in the year 2000. It is significant that, in Victoria, almost all the growth in the number of surgical separations between the years 1993-94 and 2000-01 occurred in the private hospital system, particularly during the years 1995-96 to 2000-01. The case of musculoskeletal and connective tissue diagnoses shown in Figure 2 is an important case in point.

Figure 2: Number of musculoskeletal surgical separations by age for public and private hospitals, Victoria, 1993-94, 1995-96 and 2000-01



The increase in the number of these services coincided with a major development within the private health insurance industry. As shown in Figure 3, there was a huge jump in the number of subscribers to the health funds of some 2.1 million between March and June of 2000. This was a consequence of the Coalition Government's lifetime health care initiatives, which penalised persons who in future delay taking out health insurance until they age or are in need of service. Figure 3, which is drawn from information provided by the Private Health Insurance Administration Council, shows that most of the growth in hospital services paid for by the private health funds during the late 1990s occurred following this jump in subscriber numbers.

Figure 3: Private health insurance: hospital coverage, number of persons insured, value of benefits paid and number of persons receiving payments, Australia, September 1997 to December 2002



On this evidence, it appears that most of the increase in rates of surgery identified in Victoria during the 1990s can be attributed to the enhanced capacity to access surgery on the part of the new subscribers to private health insurance funds. The hypothesis is that many of these new subscribers had previously been unable to gain treatment in the public hospital system – perhaps because of the waiting times and perhaps because their ailment was not serious enough to justify a claim for public hospital treatment. However, once they joined a private insurance fund they took the opportunity to pursue treatment in a private hospital knowing that the financial costs to them would be limited.

If this hypothesis is correct, then it is likely that the increase in the rate of surgery during the 1990s was primarily driven by the increased ‘capacity to pay’ flowing from the private health care fund membership during the year 2000. Another implication is that there remains a huge untapped need for surgery amongst the more than 50 per cent of the Australian population who have not taken out private health insurance. These include most of the age group with the highest rates of surgical service usage. Analysis of Public Health Advisory Council information on the age structure of persons who are members of the private health funds in Australia indicated that the highest rates of cover are amongst persons aged 50-54 (58 per cent coverage) and 55-59 (64 per cent coverage). The rates of coverage for persons aged 65 plus are low by comparison. Only 48 per cent of persons aged 65-69, 43 per cent of 70-74, 39 per cent for persons aged 75-79 and even lower proportions of older persons were covered in 2002. Thus most of the persons likely to be in need of surgery are not insured.

Will the supply of surgeons match anticipated demand for surgical services?

The discussion of the demand side of the equation indicated that as a consequence of demographic factors alone, the number of surgical services is likely to increase by 36 per cent in Australia and 33 per cent in New Zealand by the year 2021 (see Tables 10 and 12). In Australia, 62 per cent of this projected growth in the number of surgical services is attributable to growth in population numbers and the rest to population ageing. In the case of New Zealand about half of this growth is attributable to growth in population numbers and half to population ageing. Further rapid growth in the need for surgical services in both Australia and New Zealand will occur over the next decade to 2031, though mostly as a consequence of population ageing.

One conclusion from these projections is that the SPRs selected by Baume in 1994, (though marginally modified since by AMWAC and the CTA) are of little value as guides to future needs for surgical services. This is because they have not been adjusted to take into account of the extent of population ageing that has occurred since 1994 and the further ageing which will occur over the next three decades in both countries. Given the much higher rate of surgical services noted earlier for people who reach the retirement ages than for those in the pre-retirement age groups, it is inevitable that there will be a need for more surgeons per thousand of the (ageing) populations of Australia and New Zealand over the next two to three decades than is currently the case.

Other factors are also likely to influence demand. The projections just discussed assume no change in rates of surgery by age group. However, the Victorian surgical data for the period 1993 to 2001 confirmed that there has been a rapid expansion in the rate of surgery, particularly for the older age groups during this period. This is partly driven by innovations in surgery and the resultant capacity of surgeons to deliver both new and better-targeted services for a range of ailments. The potential for further increases in per capita demand as a consequence of new research and innovation seems very high.

The limiting factor, at least on the demand side, is capacity to pay. In both Australia and New Zealand, government determination to limit increases in expenditure on the public hospital systems has put a severe constraint on access to surgical services. In both countries these systems now focus on relief of acute, life threatening or debilitating conditions. Elective surgery is increasingly occurring in the private hospitals. Given these public financing constraints, it is hard to see the public sector coping with much more than the inevitable growth in demand for such acute services due to population growth and ageing. Projections of future demand for surgery, and especially of elective surgery, thus depend heavily on the prospects for expansion of the private hospital sector.

In our view there will be major growth in this sector. Governments have a strong motive to promote the circumstances favourable to such growth in order to diminish demand on the public sector.⁴³ Citizens will be encouraged to insure themselves for their own medical and hospital expenses over their working lives. Nevertheless, as our analysis of current health fund insurance rates in Australia showed, there is a long way to go. Less than half of persons aged over 65 in Australia belong to a health fund. As awareness that people cannot depend on access to public hospitals for elective surgery grows, it seems inevitable that more people will join the private health funds. Alternatively, political pressure arising from the difficulties the uninsured will have in accessing elective surgery in the public hospitals could prompt further expansion of the public hospital system.

However, a more likely outcome is that governments will respond by providing greater subsidies or incentives to promote private insurance levels. Surgery offers such significant advantages for enhancing the quality of life for 'third age' citizens that it is hard to see how the current low insurance rates amongst retirement-aged people could continue. The implication is that as these insurance rates rise, so too will the effective demand for additional surgery.

These circumstances imply a significant expansion in rates of demand for surgery in the next few decades over and above that implied by the growth in projected population numbers and the ageing of the population. The Victorian experience between 1993-94 and 2000-01 may serve as a guide. As Table 13 showed, the rate of surgical procedures per thousand persons grew from 75 to 87 over this period — an increase of 17 per cent. This is equivalent to an annual rate of growth of 2.25 per cent. Because the dramatic jump in the numbers of members of health funds in 2000 is unlikely to be repeated in future, this rate of growth may not be sustained. Nevertheless, it seems reasonable to assume that a rate of growth of at least a third of this level, or 0.7 per cent per annum, due to surgical innovations and increased ability to pay will take place. If this is the case, then the effective demand for surgery in Australia (and New Zealand) will grow by an additional 15 per cent by 2021. This 15 per cent factor has to be added to the 36 per cent anticipated growth due to demographic factors in Australia and 33 per cent in New Zealand.

On these assumptions, there will be at least a 50 per cent growth in demand for surgical services by the 2021 in both New Zealand and Australia. This is a conservative judgement in the light of the range of surgical innovations occurring and the widespread expectation on the part of the baby boom generation that they should enjoy the quality of life made possible by medical advances. Nevertheless, it will serve to indicate the seriousness of the current prospects of either country meeting this demand given present training policies.

The supply of surgical services

Currently there are about 3,000 surgeons practising in Australia. If demand grows as projected by 50 per cent in 2021, there will have to be a similar increase in the number of surgeons to do the work. This is because the surgical workforce is already stretched to meet current demand – as is apparent from the evidence cited concerning their high hours of work and serious overload in the case of many of the surgeons working in regional settings. In these circumstances the stock of surgeons would need to grow to around 4,500 by 2021.

Surgeons have a working life span of about 30 years. Thus assuming an even age distribution, an output of 100 a year is needed just to cover retirements in a workforce of 3,000. As noted in Table 6, the surgeon workforce is weighted towards the older age groups, with 33 per cent aged 55 or above as of 2001. The implication is that for the next decade or so retirements may average around 120 each year. In addition, if a workforce of 4,500 is to be attained by 2021, another 75 will have to be added (on average) every year to 2021. Thus there will be a requirement for at least 195 new surgeons to be added to the workforce each year.

Table 14 shows the number of surgeons who completed their final Fellowship exams in Australia and New Zealand over the years 1990-2002. When this stage is completed the surgeon then becomes a RACS Fellow and thus takes his or her place as an independent surgeon. As can be seen, the numbers vary greatly from year to year. Over the past five years in Australia the average number completing the examination each year was 119. The actual addition to the full time surgeon workforce in Australia is somewhat less than this number implies because it is common for surgeons to work overseas for a few years in the early part of their careers. Also, some take up administrative or research positions. Finally, in a few cases, the Fellowship completion numbers double count because they include surgeons who already hold a Fellowship, for example where a General surgeon subsequently qualifies in another field like Plastic surgery.

Table 14: Number of completion of final Fellowship exams, by surgical speciality, 1990-2002

Speciality	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	TOTAL
General Surgery														
Australia	26	29	33	39	34	28	37	37	25	35	38	27	64	452
New Zealand	4	7	7	5	7	20	6	5	31	11	6	23	19	151
Overseas	-	-	-	-	-	-	-	-	-	-	1	1	4	6
Orthopaedic Surgery														
Australia	25	28	30	25	32	21	24	25	20	33	24	30	36	353
New Zealand	8	8	4	8	7	12	4	7	12	5	4	9	8	96
Plastic and Reconstructive surgery														
Australia	10	10	10	13	5	5	12	13	6	17	11	10	14	136
New Zealand	-	2	4	-	-	2	-	-	1	-	-	2	2	13
Cardiothoracic														
Australia	4	7	8	5	4	6	8	4	9	7	7	5	5	79
New Zealand	-	-	-	-	-	-	-	-	-	-	-	1	-	1
ENT - Otolaryngology														
Australia	9	7	4	10	7	12	10	8	10	17	10	10	13	127
New Zealand	3	2	-	-	-	7	-	-	3	-	3	6	-	24
Neurosurgery														
Australia	3	9	1	2	9	4	7	10	3	13	10	-	2	73
New Zealand	-	-	-	-	-	1	-	-	3	-	-	1	-	5
Paediatric														
Australia	6	1	3	1	6	1	3	10	3	1	3	2	2	42
New Zealand	-	-	-	-	-	4	-	-	1	-	-	2	-	7
Urology														
Australia	6	11	5	10	13	6	10	13	13	13	13	8	14	135
New Zealand	1	1	-	2	-	2	3	-	4	-	-	9	-	22
Vascular Surgery														
Australia	-	-	-	-	-	-	-	3	1	5	4	2	1	16
New Zealand	-	-	-	-	-	-	-	-	5	-	-	7	-	12
Total Australia	89	102	94	105	110	83	111	123	90	141	120	94	151	1,413
Total New Zealand	16	20	15	15	14	48	13	12	60	16	13	60	29	331
Total Overseas	0	0	0	0	0	0	0	0	0	0	1	1	4	6
Total	105	122	109	120	124	131	124	135	150	157	134	155	184	1,750

If the numbers of full-time surgeons added to the Australian workforce are to reach 195 a year, there clearly must be a substantial increase in training levels. In 2002 the number of

first-year advanced training positions was 185 (compared with 128 in 1997). If this rate of entry to Advanced Training continues there will be an increase in the current output of Fellows. About 90 per cent of the trainees who reach the final Fellowship exams pass (though often after two or more tries). Others do not complete the training program for various personal or other reasons. Assuming a net completion rate of around 80 per cent, around 150 can be expected to become Fellows eventually (though as indicated, not all will enter the full-time Australian surgical workforce).

On these figures, the entry level to Advanced Training will have to expand significantly to meet the projected need for surgeons. A figure of around 240 would be appropriate during the middle years of this decade since this would deliver around 195 additional Fellows after a few years. There will be significant variations in demand for surgery by specialty to take account of likely different rates of growth in effective demand. For example, there are likely to be especially rapid rates of growth for procedures associated with an ageing population, including those associated with eyes and some orthopaedic services. Thus some specialties will experience very heavy demands for their training services.

Overseas-trained doctors

So far it has been assumed that the growth in projected demand will derive from Australian trained surgeons. Overseas-trained surgeons could be an alternative source. As noted earlier, OTDs have played an important role in helping to fill gaps in the General Practice and the hospital medical workforces in Australia, though less so in New Zealand. Their role has been controversial because many have entered these positions without having completed the Australian Medical Council accreditation process. Any employment of OTDs with a surgical specialty where there has not been a rigorous accreditation process would be highly contentious.

Yet as described above, OTDs are beginning to play an important role in Australia in filling 'area of need' surgical positions, Occupational Trainee positions in metropolitan hospitals and as non-accredited surgical registrars. RACS has been delegated as the responsible authority for assessing and accrediting these surgeons. In most cases they have been assessed as capable of practising in registrar level positions (like Australian Basic Trainees or Advanced Trainees) which involve some degree of supervision by RACS Fellows. Depending on their experience and credentials, all of these overseas-trained surgeons need varying levels of additional training and/or on the job assessment before they can achieve RACS fellowship status.

The main problem with reliance on OTDs to fill gaps in the Australian or New Zealand workforce concerns the supervision and training they require. For the increasing proportion drawn from non-Western training locations, this usually means taking a Basic or Advanced Trainee position. The number of these trainee appointments is limited and subject to fierce competition from Australasian-trained doctors. Thus, if an overseas-trained surgeon takes one of these positions it will be at the expense of a prospective Australasian surgeon. In addition, if OTDs do take increasing numbers of these places there will be no net gain in the overall surgical workforce.

This is not an issue with a minority of overseas-trained surgeons, such as many of those from England or South Africa who do not need to enter a trainee position or require close

supervision. Since they are largely filling 'area of need' positions, they are providing a valued service. Over the past four years (1999 to 2002) some 33 OTDs have been granted exemptions from having to complete the Advanced Training program. This average of eight per year can be considered a net addition to the average of around 119 per year who have completed these exams.

To make effective use of the majority of overseas trained surgeons, the development of comprehensive and adequately funded bridging programs would be essential. In principle, RACS is open to the notion of developing and delivering such programs, so long as due support is provided.

In terms of providing a bridging program we would not be the only player. First of all the program would have to be funded. Whether it's funded on a user-pays basis or by the government is immaterial to us. It can't be funded by our Fellows, or our existing Australasian trainees. The next thing is that to allow (such a program) to happen, these doctors have to have jobs. Somebody has to pay for those jobs, and somebody has to find them... – otherwise people aren't going to be trained properly!...

Our aim would be to have proper registrable surgical practitioners at the end. Then I think it would work. But the second-tier system and backdoor entry (would be completely unacceptable)... So I think that any bridging program would have to be:

1. Tailored for the individual;
2. Based on provision of a tightly matched training post with suitable opportunities for further development for that particular person; with
3. Scope for that individual to work in an environment with the appropriate level of responsibility (eg not a junior registrar post if it's a 45 year old surgeon).

It can't possibly be seen to be easier than it is for our own trainees... And there has to be an undertaking from government that they will ensure safe and appropriate (training situations) will exist in the 'area of need' jobs.

The conclusion is that OTDs are making a significant contribution to Australia's surgical workforce. However they can only to a minor degree be regarded as a substitute for Australian training unless access to comprehensive well-structured bridging programs is provided.

The supply and demand situation in New Zealand

As noted earlier, the CTA in New Zealand has projected its needs for training and surgery on the basis of AMWAC's surgeon-to-population ratios. On this basis, the CTA's preliminary findings are that training levels in most surgical fields should fall over the period to 2013.⁴⁴

This conclusion is inconsistent with the foregoing analysis. There will be an additional demand for surgical services of 33 per cent to the year 2021, and 48 per cent to the year 2031, just to accommodate the projected growth and ageing of the New Zealand population. As in Australia, there is also evidence of existing shortages of access to surgical services, implying that with improved capacity to pay New Zealanders would demand many more such services. The calculations in the CTA document take account of population growth but not the impending ageing of New Zealand's population or unmet needs for elective surgery. Yet, as is shown in Table 12, the population-ageing factor in New Zealand is a more important component in the likely demand for surgical services than is population growth. If the training recommendations in the CTA report were acted on and the number of trainees drops over the next decade, there is likely to be a serious

shortfall in the availability of surgeons just at the time when there is likely to be an increased demand for their services attributable to the ageing of the population.

Conclusion

There is a need for additional training in surgery in both Australia and New Zealand. Why is it not happening? There has in fact been some increase in training as a result of successive AMWAC reports during the late 1990s. However, these reports have lagged behind some of the developments described above, particularly the jump in demand for surgery associated with increased membership in the private health funds in early 2000. This growth in demand has enhanced the attraction of metropolitan areas as locations for surgical practice. Partly as a consequence this has added a sharp edge to the difficulties of keeping and attracting surgeons to regional locations.

RACS is not responsible for this situation. While the ACCC's judgement that there is an emerging shortage of surgeons in Australia is correct, it has looked in the wrong place for the culprits. The scale of surgical training in Australia is a product of AMWAC recommendations and the willingness of the Health Departments of respective State Governments to fund additional training places. The only area of surgery where there was any evidence that the organised surgical profession lagged in implementing these recommendations concerned orthopaedic surgery. However, there has been a rapid increase in training in this field recently. Table 1 showed that in the three years between 1999 and 2002 the number of Advanced Trainees in orthopaedic surgery increased from 110 to 140. Far from dragging its feet on the training issue, RACS, and particularly its regional groups, have in recent years become vocal advocates for more training. As the analysis of the regional surgical situation showed, this advocacy has been based on a heartfelt concern amongst surgeons serving in regional areas that they cannot cope with the demands for their services.

The preceding analysis has established that an increase in the number of surgical training places will not in itself produce a fully satisfactory outcome from the point of view of equitable access to the skills of the surgeons trained. There are a number of cognate issues concerning access which RACS and other stakeholders in the issue will need to consider when making decisions about the training issue.

1. Regional Access: Any build up in training levels will take time to produce substantial extra numbers of surgeons. Meanwhile, if the projections detailed above are correct, the labour market for surgeons will remain tight and the continuing attractions of metropolitan location will ensure continued stress on the availability of surgeons in regional locations. It will be difficult to justify the public costs of additional training expenses if, on completion of their training, the new RACS Fellows locate primarily in metropolitan areas.

There may have to be some consideration of bonding newly funded trainees to periods of service in 'areas of need' – just as is now occurring with other branches of medicine. However, as the interviews with experienced regional surgeons made clear, if surgeons are to remain permanently in regional locations there must also be improvements to the surgical infrastructure of regional hospitals. Highly trained surgeons are reluctant to locate in settings where they cannot practise their craft at the cutting edge of

contemporary practice. Surgeons also like to be in contact with the latest technology. One option for enhancing these contacts would be the development of working partnerships between regional hospitals and the major metropolitan teaching hospitals.

2. The move to private sector provision of surgical services: The reluctance of governments in both Australia and New Zealand to provide public hospital services sufficient to keep up with demand for elective surgery has seen a decisive move towards private sector provision of such services. This is welcome in that many prospective patients now have a better chance of gaining the elective services they want. But as has been shown, the private hospital sector in Australia and New Zealand only serves a minority of citizens (for in both countries less than half the population belong to health funds). Also in Australia, private hospitals are concentrated in the more affluent sectors of the major metropolises. There are major equity issues arising from this situation. Less affluent Australians are being disenfranchised from access to elective surgery on the basis of income and location.

RACS is not responsible for this situation. Nevertheless, the questions raised above about ensuring a better spread of the surgical workforce are related to this problem. There has been a recent shake out in the private hospital sector in Australia which is partly related to the difficulties private hospitals have in functioning profitably in areas where there is a shortage of doctors, particularly surgeons. Thus the willingness of the private hospital sector to locate in regional and less affluent areas of the metropolises is linked to the resolution of the issue of workforce distribution.

3. The OTD situation: The growing reliance on overseas-trained surgeons is a symptom of the emerging shortage of surgeons in Australia and (to a far lesser extent) in New Zealand. This is an unsatisfactory situation because of the current lack of procedures to ensure the quality of such surgeons. Nevertheless, pending expansion in training levels in Australia and New Zealand, there is likely to be a continued reliance on this source, especially at the difficult to fill 'area of need' and non-accredited registrar levels. This reliance may in fact be exacerbated in the period ahead, as changes in selection for the BST program ensure fewer Australasian-trained BST graduates will be available for non-accredited surgical registrar work. This outcome is unsatisfactory from the point of view of the overseas-trained surgeons themselves and the public they serve. As demonstrated, many may become trapped in a second tier service without much prospect of career progression to RACS Fellowship level, and with no capacity to secure AST posts despite formal advice to do so.

There is a need to acknowledge Australia's growing reliance on these surgeons, and to establish an alternative training pathway for them, based on bridging programs incorporating continuous skill evaluation designed to ensure that those with the capacity to attain Fellowship level do so. Fields such as psychiatry and nursing, characterised by a high degree of dependence on overseas qualified professionals, have trialled training models with encouraging outcomes.⁴⁵ The 2002 extension of Australia's postgraduate loan scheme to migrant professionals requiring further training to secure full accreditation represents an important potential funding source. Such funding should be enhanced by contributions from the government and employer groups who rely on overseas trained surgeons' services, supported by expert advice from RACS concerning training content and coordination.

Appendix I (Basis for Table 9): Projected number of surgical procedures based on population projections and rate of procedures by age group 2000-01, Australia, 2001-2051

		Actual	Projected				2001	2011	2021	2031	2051	% change	
		2001	2011	2021	2031	2051						2001-11	2001-21
Population	Males	9,286,546	10,599,958	11,414,346	12,052,711	12,625,821							
	Females	9,502,703	10,688,825	11,512,078	12,201,728	12,782,695							
	Persons	18,789,249	21,288,783	22,926,424	24,254,439	25,408,516						13	22
Rate of procedures per 1000 persons	Scenario 1 (population growth, no change in age structure)	122	122	122	122	122							
	Scenario 2 (population growth and ageing society)	122	127	136	148	160							

Difference in number of procedures two scenarios below	0	94,810	317,158	609,807	942,298								
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Scenario 1		Age structure and rate of procedures per thousand persons stays as in 2001 but population grows as projected					Per cent of procedures						
Total procedures		2,298,543	2,607,093	2,807,644	2,970,277	3,111,609	100	100	100	100	100	13	22
Nervous system	87,296	99,014	106,631	112,808	118,175	4	4	4	4	4	13	22	
Endocrine system	10,815	12,267	13,210	13,976	14,641	0	0	0	0	0	13	22	
Eye and adnexa	197,009	223,455	240,644	254,584	266,697	9	9	9	9	9	13	22	
Ear and mastoid process	48,946	55,516	59,787	63,250	66,260	2	2	2	2	2	13	22	
Nose, mouth and pharynx	107,917	122,403	131,819	139,455	146,091	5	5	5	5	5	13	22	
Dental services	1,852	2,101	2,262	2,393	2,507	0	0	0	0	0	13	22	
Respiratory system	30,685	34,804	37,481	39,652	41,539	1	1	1	1	1	13	22	
Cardiovascular system	175,673	199,255	214,583	227,012	237,814	8	8	8	8	8	13	22	
Digestive system	354,201	401,748	432,652	457,714	479,493	15	15	15	15	15	13	22	
Urinary system	73,883	83,801	90,247	95,475	100,018	3	3	3	3	3	13	22	
Male genital organs	61,140	69,347	74,682	79,008	82,767	3	3	3	3	3	13	22	
Gynaecological procedures	384,234	435,813	469,337	496,524	520,150	17	17	17	17	17	13	22	
Obstetric procedures	64,180	72,795	78,395	82,936	86,882	3	3	3	3	3	13	22	
Procedures on musculoskeletal system	478,732	542,996	584,766	618,638	648,074	21	21	21	21	21	13	22	
Dermatological and plastic procedures	175,184	198,700	213,985	226,380	237,152	8	8	8	8	8	13	22	
Chemotherapeutic and radiation oncology procedures	1,173	1,330	1,433	1,516	1,588	0	0	0	0	0	13	22	
Therapeutic interventions	462	524	564	597	625	0	0	0	0	0	13	22	
Others	45,161	51,223	55,164	58,359	61,136	2	2	2	2	2	13	22	

Scenario 2		Population projections with altering age structure (that is with an ageing society)					Per cent of procedures						
Total procedures		2,298,543	2,701,903	3,124,802	3,580,084	4,053,907	100	100	100	100	100	18	36
Nervous system	87,296	106,347	124,122	141,484	158,634	4	4	4	4	4	22	42	
Endocrine system	10,815	13,308	15,519	17,419	19,054	0	0	0	0	0	23	43	
Eye and adnexa	197,009	228,261	288,423	383,021	504,235	9	8	9	11	12	16	46	
Ear and mastoid process	48,946	50,863	52,178	54,667	55,587	2	2	2	2	1	4	7	
Nose, mouth and pharynx	107,917	122,177	130,608	137,302	141,979	5	5	4	4	4	13	21	
Dental services	1,852	2,173	2,388	2,557	2,708	0	0	0	0	0	17	29	
Respiratory system	30,685	38,064	47,020	56,445	65,532	1	1	2	2	2	24	53	
Cardiovascular system	175,673	218,056	272,777	333,548	394,595	8	8	9	9	10	24	55	
Digestive system	354,201	424,381	492,175	556,449	617,567	15	16	16	16	15	20	39	
Urinary system	73,883	89,506	110,711	135,549	162,502	3	3	4	4	4	21	50	
Male genital organs	61,140	71,126	85,344	103,029	124,083	3	3	3	3	3	16	40	
Gynaecological procedures	384,234	439,381	471,928	493,392	502,067	17	16	15	14	12	14	23	
Obstetric procedures	64,180	67,705	68,721	69,394	67,004	3	3	2	2	2	5	7	
Procedures on musculoskeletal system	478,732	568,325	656,689	741,099	827,592	21	21	21	21	20	19	37	
Dermatological and plastic procedures	175,184	204,689	240,301	282,535	333,072	8	8	8	8	8	17	37	
Chemotherapeutic and radiation oncology procedures	1,173	1,481	1,898	2,300	2,685	0	0	0	0	0	26	62	
Therapeutic interventions	462	524	579	625	684	0	0	0	0	0	13	25	
Others	45,161	55,534	63,421	69,268	74,347	2	2	2	2	2	23	40	

Source: Derived from public and private hospital statistics provided by Australian Institute of Health and Welfare, unpublished; and ABS Australian Population Projections, Series 2 (Assumptions: Net migration 90,000, Total Fertility Rate 1.6, Mortality declining slightly)

Appendix II (Basis for Table 11): Projected number of surgical procedures (public hospital only) based on population projections and rate of procedures by age group 2000-01, New Zealand, 2001-2051

		Population	Projected population				Pop.	Projected population					% change	
		2001	2011	2021	2031	2051	2001	2011	2021	2031	2051	2001-11	2001-21	
Population	Males	1,903,200	2,090,950	2,218,460	2,319,130	2,366,530								
	Females	1,977,260	2,157,340	2,287,410	2,395,070	2,439,990								
	Persons	3,880,470	4,248,200	4,505,870	4,714,170	4,806,550						9	16	
Rate of procedures per 1000 persons	Scenario 1 (population growth, no change in age structure)	201	201	201	201	201								
	Scenario 2 (population growth and ageing society)	201	214	230	244	261								
Difference in number of procedures two scenarios below		0	54,119	131,213	204,806	288,408								
Scenario 1	Age structure and rate of procedures per thousand persons stays as in 2001 but population grows as projected						Per cent of procedures							
	Total procedures	779,585	853,462	905,228	947,075	965,634	100	100	100	100	100	9	16	
	Nervous system	19,404	21,243	22,531	23,573	24,035	2	2	2	2	2	9	16	
	Endocrine system	1,121	1,227	1,302	1,362	1,389	0	0	0	0	0	9	16	
	Eye and adnexa	17,211	18,842	19,985	20,909	21,318	2	2	2	2	2	9	16	
	Ear and mastoid process	12,019	13,158	13,956	14,601	14,887	2	2	2	2	2	9	16	
	Nose, mouth and pharynx	17,644	19,316	20,488	21,435	21,855	2	2	2	2	2	9	16	
	Dental services	20,416	22,351	23,706	24,802	25,288	3	3	3	3	3	9	16	
	Respiratory system	12,130	13,279	14,085	14,736	15,025	2	2	2	2	2	9	16	
	Cardiovascular system	53,243	58,289	61,824	64,682	65,950	7	7	7	7	7	9	16	
	Digestive system	76,728	83,999	89,094	93,213	95,039	10	10	10	10	10	9	16	
	Urinary system	33,974	37,194	39,449	41,273	42,082	4	4	4	4	4	9	16	
	Male genital organs	6,910	7,565	8,024	8,395	8,559	1	1	1	1	1	9	16	
	Gynaecological procedures	42,246	46,249	49,055	51,322	52,328	5	5	5	5	5	9	16	
	Obstetric procedures	86,979	95,222	100,997	105,666	107,737	11	11	11	11	11	9	16	
	Procedures on musculoskeletal system	71,341	78,102	82,839	86,668	88,367	9	9	9	9	9	9	16	
	Dermatological and plastic procedures	56,340	61,679	65,420	68,444	69,786	7	7	7	7	7	9	16	
	Chemotherapeutic and radiation oncology procedures	9,609	10,520	11,158	11,673	11,902	1	1	1	1	1	9	16	
	Therapeutic interventions	25,969	28,430	30,154	31,548	32,167	3	3	3	3	3	9	16	
	Others	216,301	236,799	251,161	262,772	267,922	28	28	28	28	28	9	16	
Scenario 2	Population projections with altering age structure (that is with an ageing society)						Per cent of procedures							
	Total procedures	779,585	907,581	1,036,441	1,151,881	1,254,042	100	100	100	100	100	16	33	
	Nervous system	19,404	22,417	24,861	26,854	28,073	2	2	2	2	2	16	28	
	Endocrine system	1,121	1,355	1,523	1,643	1,676	0	0	0	0	0	21	36	
	Eye and adnexa	17,211	21,420	26,811	33,508	40,366	2	2	3	3	3	24	56	
	Ear and mastoid process	12,019	11,967	12,024	12,252	11,622	2	1	1	1	1	0	0	
	Nose, mouth and pharynx	17,644	19,382	20,317	21,243	21,364	2	2	2	2	2	10	15	
	Dental services	20,416	20,695	20,900	21,277	20,362	3	2	2	2	2	1	2	
	Respiratory system	12,130	15,011	18,147	20,983	22,868	2	2	2	2	2	24	50	
	Cardiovascular system	53,243	66,728	81,272	92,489	97,378	7	7	8	8	8	25	53	
	Digestive system	76,728	93,703	110,672	127,173	140,386	10	10	11	11	11	22	44	
	Urinary system	33,974	42,353	50,516	57,652	62,684	4	5	5	5	5	25	49	
	Male genital organs	6,910	8,297	10,045	11,896	13,209	1	1	1	1	1	20	45	
	Gynaecological procedures	42,246	46,705	48,803	49,522	48,538	5	5	5	4	4	11	16	
	Obstetric procedures	86,979	88,919	93,105	89,137	85,952	11	10	9	8	7	2	7	
	Procedures on musculoskeletal system	71,341	83,859	93,545	103,472	113,024	9	9	9	9	9	18	31	
	Dermatological and plastic procedures	56,340	67,184	78,075	90,629	104,418	7	7	8	8	8	19	38	
	Chemotherapeutic and radiation oncology procedures	9,609	11,529	13,228	14,372	14,733	1	1	1	1	1	20	38	
	Therapeutic interventions	25,969	28,804	32,061	34,790	36,606	3	3	3	3	3	11	23	
	Others	216,301	257,253	300,538	342,988	390,782	28	28	29	30	31	19	39	

Source: Derived from public hospital statistics provided by Rebecca Kay, New Zealand Health Information Service, unpublished; and New Zealand Statistics Population Projections, Series 4 (Assumptions: Net migration 5,000, medium fertility, medium mortality)

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