

**Issue Paper for Bundaberg Hospital Commission of Inquiry**

# **Health Workforce**

**Paper 2**

# **Medical Workforce**

**August 2005**

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# Specialist Medical Workforce Reform

## Executive summary

This is the second medical workforce issue paper in a series of two papers. The issues facing the medical workforce in Queensland are wide-ranging and complex.

The demand for medical services in the future will not be homogenous in nature. Some specialities are forecast to increase dramatically while others will only increase slightly if at all.

The other major side to demand for workforce will be the loss through retirement from the medical workforce which in some specialities will make up a significant number of specialists.

Queensland and Queensland Health are reliant on International Medical Graduates to maintain a viable health service. This will need to continue until we can become self sufficient. Both Staff Specialists and VMOs are valued members of Queensland Health's workforce. Both are seen as vital to providing a high quality service to Queenslanders. It must be remembered that those professionals who work in the public system whether as Staff Specialists or VMOs do so to improve the health of Queenslanders.

The options for reforming the medical stream are detailed in the last section of this paper but take the form of:

### **1. Support for Rural Generalist senior medical staff**

The introduction of Rural Generalist medical staff would assist with meeting the healthcare needs of rural and remote communities. This is seen as a long term strategy to fix the medical workforce shortage in rural and remote Queensland. Such medical staff would choose rural general medicine as a speciality career path that allows them to practise independently across a number of specialty areas as proceduralists. Rural Generalists would be senior medical staff, practising at the registrar or consultant level.

The rural generalist program would reduce Queensland Health's reliance on Overseas Trained Doctors and junior Doctors that have to relieve in rural and remote areas. It would work best in areas that have populations between 3,000 and 20,000.

The Australian Council of Rural and Remote Medicine (ACRRM) has developed three pathways which are currently operational for Registrars to train towards a Fellowship in rural and remote medicine. These pathways have not yet completed the AMC process for recognition of rural medicine as a speciality but the commonwealth instituted training broker for GP training in Australia (GPET,) as at 2005 recognises and supports training towards a fellowship in rural and remote medicine (FACRRM) as a deliverable via the national Regional Training Provider network. ACRRM has attracted over 60 registrars nation-wide to train towards FACRRM, and ACRRM monitors and supports this training. This pathway would provide a pathway for

Generalists working in rural hospitals in Queensland. Queensland already has one Doctor in training working at Stanthorpe hospital under specialist supervision. It is believed that this program could be rolled out state-wide in 2006.

## **2. Improve assessment, training and support for IMGs employed by Area of Need, and introduce a requirement to pass the AMC exam within a set timeframe**

Area of Need International Medical Graduates (IMGs) are sourced from many countries around the world, and present at Queensland Health at varying levels of work-readiness. It is not usually possible to determine an IMG's level of work-readiness from their country of training.

As this improved program of assessment, training and supervision for Area of Need IMGs is likely to reduce their capacity to contribute to the workforce, this initiative will result in medical staff shortages in areas that rely heavily on these IMGs, unless it is implemented in tandem with the redistribution of the medical workforce as described below.

## **3. Redistribute the medical workforce**

The employment of new IMGs in Area of Need positions currently occurs mainly where the need for medical staff is greatest, and therefore the capacity to train and supervise the new IMGs is smallest. A program of improved assessment, supervision and training of new Area of Need IMGs will not be possible with the current workforce distribution, as staffing levels are too tight and the availability of resources and appropriate supervisory staff often do not exist at the locations where new Area of Need IMGs are employed.

In order to appropriately train and supervise new Area of Need IMGs to a point of work-readiness, therefore, Queensland Health must explore options for centrally coordinating the improved distribution of the medical workforce. This may involve increasing the employment of Area of Need IMGs in metropolitan centres, where the capacity for training and supervision is greatest, and reducing their employment elsewhere. Redistribution needs to occur for medical staff at Intern, Senior House Officer and Registrar levels.

## **4. Develop competency-based training and assessment standards for all levels of practice, across streams of care and for induction into health services in Queensland**

There may be considerable advantages associated with the further development of competency-based assessment, training, monitoring and review of the medical workforce. This could involve a more comprehensive identification of the competency based standards required across the practitioner's career life span, taking into account different levels of practice as well as site-specific competencies.

## **5. Introduce choice for graduates to work towards their chosen specialty from internship**

Many doctors choose their specialty at a very early stage. 20.2% of doctors have made their choice by the end of medical school (4% in fact know their specialty before they begin medical school), and a further 16.4% make their choice during their intern year.

It may be possible, therefore, to begin vocational training from graduation for those graduates who choose this path, structuring the intern and subsequent junior years towards a particular specialty. It may be necessary to ensure that experience in 'popular' specialties is still available to graduates who are pursuing general experience. Entry to Registrar training positions would remain open to doctors who have had general experience as well as those who have had experience directed towards that specialty. This training path may be particularly useful in the development of Rural Generalists, as discussed above.

## **6. Increase the number of specialist training positions**

The number of specialist training positions for many specialties is not adequate to replace the specialists intending to retire within the next 5 years. Increasing the number of specialist training positions in deficit specialties is urgently needed. Queensland Health has recently increased by 20 the number of specialist training positions. Queensland Health should continue to work towards increasing the amount of specialist training occurring within the private sector. The additional number of training positions should be determined using the AMWAC recommendations and the data presented in this paper.

## **7. Increase the number of intern and prevocational training places**

Queensland Health needs to ensure that there is sufficient funding to place the future numbers of medical graduates entering intern and prevocational training places over the foreseeable future. Queensland will have an unprecedented number of Medical school graduates in coming years and these will need to be accommodated into intern training places. Further down the track these graduates will require placements in prevocational and vocational speciality training places. This is longer term commitment is to ensure Queensland's speciality workforce needs are met.

## **8. Increase specialist training in the private sector**

Currently all specialty training, with only a few exceptions, is carried out by the public sector. (Queensland Health has recently made an agreement with the Royal Australasian College of Surgeons to train surgical registrars in some private hospitals, and a small number of training places have been established). However, a large proportion of specialists in all fields work wholly or partly within the private sector. Given the increasing focus on private sector healthcare in Australia, it may be timely to consider the level of responsibility that should be held by the private sector for training its workforce.

## **9. Introduce a requirement in public sector specialty training contracts for a period of service in the public sector post-specialisation, at a national level**

In the light of the level of specialty training that occurs within the public sector, and the increase in the level of specialist activity within the private sector, it may be appropriate to consider introducing training contracts that involve a period of service within the public sector post-specialisation. Should this initiative be introduced only in Queensland, however, it would provide a considerable disincentive to undertake specialty training in Queensland. Discussions regarding this initiative should therefore progress at a national level.

#### **10. Introduce specialty training networks involving rotation to smaller hospitals**

The majority of specialty training currently occurs within larger hospitals in metropolitan areas. Smaller centres, however, are able to offer valuable experience and training opportunities. A system of training networks could be developed, for example that group a large metropolitan hospital together with several smaller, regional or rural facilities. Training within this network would involve rotation to smaller centres and/or regular (possibly weekly) sessions at smaller centres. For example, a Registrar working at the Princess Alexandra Hospital may be asked to work for one day per week at Ipswich Hospital.

Such networks would provide Registrars with enhanced opportunities for training and experience, and would contribute to the redistribution of the medical workforce, as previously discussed.

#### **11. Continue to improve training methods for specialty training and patient safety**

The Patient safety centre and CPIC are currently working along these lines. Increased awareness of patient safety at the undergraduate level needs to occur by closer collaboration between Queensland Health and Universities. This long term strategy will improve Queensland Health's future Medical workforce.

#### **12. Limit working hours for medical staff**

Working arrangements for doctors in some specialties and in some locations often requires extended working hours. Limiting working hours for doctors is an important factor for the perception of Queensland Health as an 'employer of choice', and while this may effectively reduce available workforce resources, it is an important complementary strategy in ensuring a sustained workforce supply. This needs to be fully investigated in line with current developments interstate and overseas in this area. The effects are wide ranging with implications for health budgeting, staffing, rostering and training models.

#### **13. Examine pay and conditions for medical staff**

In recent times, Queensland Health specialists have been offered attractive employment packages to take up employment in other states. Anecdotal evidence exists to suggest that other states are currently offering attractive conditions for employment in rural areas. Similarly, specialists are being attracted to work overseas

through the offer of attractive remuneration packages. Queensland Health may be suffering from a less favourable comparison with other states and other countries in this respect.

Queensland Health may therefore need to examine its structure of pay and conditions in order to remain competitive to recruit and retain its medical workforce. This issue will be dealt with in the current round of Enterprise Negotiations. Queensland Health is currently examining its structure for Medical pay and conditions in consultation with the unions under EB 6 negotiations. Queensland Health is also looking into variations between the States and Territories on Medical remuneration rates.

#### **14. Commonwealth Government action**

Queensland needs the Commonwealth Government to take action on the following Medical workforce issues:

The Commonwealth Government needs to increase funding for health sector education across all clinical streams. By increasing Nursing and Allied Health professional numbers the load on Doctors should be reduced.

Changes to Commonwealth legislation is needed to ensure equitable distribution of benefits to all patients (eg. those treated by Nurse Practitioners are currently not entitled to Medicare or Pharmaceutical Benefits Scheme subsidies).

The level of General Practitioner (GP) service provision is inadequate in many areas, especially in rural and remote locations. Access to GPs who bulk-bill can be particularly limited. People who are unable to access GP services often seek assistance instead from the public health service. The Commonwealth Government needs to ensure that GP services are adequate and accessible.

In order to meet the future health care demands, Australia will need to recruit a percentage of its workforce from overseas. Commonwealth coordination is required for the development of inter-jurisdictional standards for skills recognition, and ethical recruitment principles for overseas-trained professionals.

## Introduction

Queensland faces significant challenges now and into the future in maintaining an adequate number of appropriately skilled medical professionals. Some of the main issues which need addressing concern the recruitment and retention of medical staff and the use of International Medical Graduates otherwise known as Overseas Trained Doctors (OTDs). Service provision and training as well as quality and safety issues in the delivery of medical services are also major issues.

Public hospitals in Queensland find it difficult to recruit sufficient numbers of medical staff in all required areas. This difficulty varies according to where the hospital is located and the services and facilities it offers. It is generally harder for outer suburban and rural hospitals to attract and retain medical staff than it is for the inner city tertiary hospitals.

The increased use of overseas trained doctors has been the response of Queensland Health to staff shortages and problems with recruitment. There are many challenges with the process of recruiting and using OTDs, including helping OTDs adapt and learn about the Queensland health system and dealing with variations in skill levels and supervision requirements. Rural and remote areas in Queensland have higher levels of reliance on OTDs than urban areas. The shortage of Australian trained graduates is seen as one of the main reasons for the increase in OTDs in the medical workforce both public and private.

Increasing demands for service provision will impact significantly on Queensland Health's ability to offer adequate and regular training to medical staff. Training resources, time availability and the presence of suitably qualified supervisors as well as senior staff are all seen as central to the provision of appropriate training for recent graduates, OTDs and vocational trainees.

This paper highlights and expands on some of these issues and offers some potential solutions.

# Future demand for speciality medical workforce in Queensland

## Population change

Queensland's population is projected to grow from 3.6 million people in 2001 to 5.3 million people in 25 years, reaching 6.5 million in 50 years. The population has grown from 2.09 million people 25 years ago to 3.6 million people in 2001, an increase of 1.54 million people (1976 to 2001). In comparison, the population is projected to grow by 1.66 million people in the 25 years from 2001 to reach 5.3 million in 2026. Growth of this magnitude will result in Queensland's 1976 population doubling by 2011 and being three times the size by 2051<sup>1</sup>.

Changing patterns of population distribution have important implications for the provision of health service delivery and specialist services. Queenslanders have expressed a preference for living close to the coast and particularly in South East Queensland. As the population becomes increasingly concentrated in a relatively small part of the State, two main impacts will occur. Firstly, a concentrated population in a small area will lead to escalating demand for specialist services in the South East while secondly creating issues of delivering these services to an ever decreasing population in some areas of the state.

## The health of Queenslanders

It is recognised that the health of Queenslanders is very good overall and continues to improve and that the health system in Queensland performs well when compared internationally<sup>2</sup>. However, recent declines in the amount of physical activity, poor nutrition, an increase in the prevalence of overweight and obese people, as well as continuing high levels of smoking and alcohol misuse and an increasing incidence and prevalence of chronic disease, require urgent action to ensure the health system in Queensland remains sustainable for the long-term.

Opportunities exist for improvement in Queensland's health system through the combined efforts of governments, public and private health service providers, the non-government sector, communities and individuals.

According to *Health Determinants Queensland*<sup>3</sup>, coronary heart disease (CHD), stroke, chronic obstructive pulmonary disease (COPD), and Type 2 diabetes mellitus, accounted for 32.6 per cent of premature deaths during 1996-98 in Queensland. For the same period, asthma, Type 2 diabetes mellitus, COPD and stroke accounted for 15.1 per cent of disability adjusted life years (a burden of disease measure). The number of Queenslanders with chronic renal failure is growing by 6 per cent per year, resulting in rising costs over the next 10 years, conservatively estimated at \$0.8 billion for Queensland.

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<sup>1</sup> Source: ABS 3101.0; and Queensland Government Population Projections, 2003 (medium series)

<sup>2</sup> Queensland Health (2002) *Smart State: Health 2020 A vision for the future – Directions statement*. Brisbane: Queensland Health

<sup>3</sup> Queensland Health (2004) *Health Determinants Queensland 2004*. Brisbane: Queensland Health

Much of the burden of disease caused by these conditions can be prevented by reducing smoking rates, improving nutrition, increasing physical activity, and reducing rates of harmful and hazardous alcohol consumption. It is recognised that social, economic and environmental factors influence Queenslanders' ability to actively pursue healthy lifestyles and consequently the burden of disease<sup>4</sup>.

### **Changing demand for specialty services.**

If past trends continue, the demand for some specialty services will grow at alarming rates putting enormous pressure on the Queensland health system, both public and private. The following table shows the anticipated growth in both overnight and day only presentations for a select group of high demand specialties.

Increasing community expectations and the use of technology also drive increased use of medical services.

Statistical methods were used to provide projections to the year 2021-2022 for each of the main components underlying the demand for each speciality. The demand projections take into account gender, age group, day only, over-night, tertiary and non-tertiary parameters.

In many cases, the data showed a consistent pattern that was amenable to statistical modelling. However, in some important areas, the historical trend data cannot be modelled satisfactorily using statistics alone and clinical knowledge can also provide valuable insights into the trends that are likely to be seen over the next 10 to 15 years.

The total sum of the separations adds the day only to the overnight separation forecasts to give the totals in table 5 below.

**Table 5: Expected growth rate in particular specialties.**

<b>Specialty</b>	<b>Total Sum of Separations for 2006_7</b>	<b>Total Sum of Separations for 2021_22</b>	<b>Annualised Growth Rate</b>
Cardiology	59,626	103,568	<b>4.91%</b>
Cardiothoracic Surgery	5,782	9,202	<b>3.94%</b>
Gastroenterology	24,277	39,082	<b>4.07%</b>
Non acute services	58,215	120,573	<b>7.14%</b>
Obstetrics	78,789	84,034	<b>0.44%</b>
Renal Dialysis	155,690	345,475	<b>8.13%</b>
Renal failure	1,984	3,280	<b>4.35%</b>
Renal Medicine	10,223	19,888	<b>6.30%</b>
Geriatric Management	16,823	41,932	<b>9.95%</b>

Source: HARDS' Inpatient Model, Projecting Demand and Supply of Acute Inpatients

Based on this modelling<sup>5</sup> some specialties show large increases in future demand for services. The major contributing factor appears to be the ageing effect which flows

<sup>4</sup> Prevention and Management of Chronic Disease Discussion Paper 2005-2015.

<sup>5</sup> The details of the HARDS' modelling is shown in Appendices 7 and 8.

directly into demand for Geriatric services. Each of the specialities and sub-speciality groups are detailed in Appendix 1.

### **General Practitioner and Physician supply and demand<sup>6</sup>**

The members of the AMWAC review team suggested that Australia might be heading towards a significant shortage of doctors. For more than a decade, the number of medical student places in Australian universities has been capped. In fact, the recent opening of the James Cook Medical School in North Queensland and the Medical Rural Bonded Scholarships have only replaced the more than one hundred medical student places that were lost in the early 1990s.

The recently announced increases of some 230 medical places will go some way towards redressing this shortfall, but future shortages are still likely. Shortages in medical personnel seem to exist in most medical spheres, but particularly in general practice. The number of vocational trainees in general practice declined from around 1900 in 1994 to just over 1400 in 2002,<sup>7</sup> and decreases were also seen in the number of pathology trainees. These shortages, especially of general practitioners, are seen particularly in rural areas<sup>8</sup> and have been a major reason for the establishment of rural clinical schools in Queensland, Victoria and the Australian Capital Territory.

Queensland has met the AMWAC 2004 recommendation for the number of general practice vocational trainees. The waiting times to see specialists are inordinately long, as they were some years ago, again suggesting a workforce shortage.<sup>9</sup>

There are at least three factors driving these apparent absolute and relative workforce shortages: feminisation of the medical workforce, increasing patient and community demands for healthcare, and globalisation of the healthcare workforce. The full impact of these factors is yet to be felt, but might occur very rapidly.

### **Surgical workforce supply and demand for surgical services<sup>10</sup>**

In Australia over one third of the surgical workforce is aged 55 or over. The overall workforce participation (hours worked) has been declining with the average total hours per week across all surgical specialties decreasing by 2.5 hours between 1995 and 2002. This is coupled with the real prospect of increasing demand for surgical services in the future. To balance this there has been strong growth in the number of private hospital separations over recent years.

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<sup>6</sup> Medical workforce issues in Australia: “tomorrow’s doctors — too few, too far” Peter M Brooks, Helen M Lapsley and David B Butt. MJA 2003; 179 (4): 206-208.

<sup>7</sup> Australian Medical Workforce Advisory Committee. Annual report 2001–2002. Sydney: AMWAC, 2002: 9.

<sup>8</sup> Australian Medical Workforce Advisory Committee. The medical workforce in rural and remote Australia. Sydney: AMWAC, 1996.

<sup>9</sup> Baume P. A cutting edge: Australia’s surgical workforce. Canberra: AGPS, 1994.

<sup>10</sup> Australian Medical Workforce Advisory Committee: The Surgical Workforce In Australia. An Overview of Supply and Requirements 2004 to 2015. AMWAC Report 2005.1 May 2005

In 2002 most surgeons in Australia (77.8%) reported the work setting of their main job as a major city. The combination of an ageing surgical workforce working less hours, and increasing demands for surgical services, has major implications for the future supply of, and requirements for, surgeons in Australia.

A variety of data sources was used to examine the distribution of surgeons by State and Territory. Based on medical labour force survey data, Queensland had 14.5 surgeons per 100,000 population in 2002, compared with the Australian average at the time of 16.5 surgeons per 100,000. For Queensland this is lower than the 1995 figure of 15.4 surgeons per 100,000.

Compared to the rest of the country Queensland has some of the lowest rates per 100,000 population. The only states behind Queensland are WA, NT, ACT and TAS as shown in Table 1 below.

**Table 1: Numbers of specialists by State: State territory health departments 2005 as at 2005**

<b>Surgical specialty</b>	<b>NSW</b>	<b>Vic</b>	<b>Qld</b>	<b>SA</b>	<b>WA</b>	<b>Tas</b>	<b>NT</b>	<b>ACT</b>	<b>Total</b>
Cardiothoracic	41	39	22	11	10	2	0	3	<b>128</b>
Ear Nose and Throat	107	80	51	40	26	6	2	4	<b>316</b>
General	356	323	197	136	83	19	9	12	<b>1135</b>
Neurosurgery	45	39	23	16	12	3	0	3	<b>141</b>
Orthopaedic	314	203	153	104	82	13	6	11	<b>886</b>
Paediatric	25	23	10	7	4	1	0	3	<b>73</b>
Plastic and reconstructive	95	87	41	37	28	9	1	4	<b>302</b>
Urology	74	66	46	22	26	6	0	4	<b>244</b>
Vascular	58	25	18	6	4	4	1	2	<b>118</b>
<b>Total</b>	<b>1115</b>	<b>885</b>	<b>561</b>	<b>379</b>	<b>275</b>	<b>63</b>	<b>19</b>	<b>46</b>	<b>3343</b>
% of total surgeons	33.4	26.5	16.8	11.3	8.2	1.9	0.6	1.4	<b>100</b>
% of population	33.4	24.7	19.3	7.6	9.9	2.4	1	1.6	<b>100</b>
<b>Number per 100,000</b>	<b>16.5</b>	<b>17.7</b>	<b>14.4</b>	<b>24.7</b>	<b>13.8</b>	<b>13</b>	<b>9.5</b>	<b>14.2</b>	<b>16.6</b>

Source: State territory health departments 2005; ABS population statistics catalogue 3101.0 September 2004

## **Vocational medical training placements.**

AMWAC and the medical colleges have been undertaking a data collection on the supply of training placements since 1997. The trends in some of the key data over that period are summarised below. The Medical Training Review Panel (MTRP) publishes data on the number of vocational and prevocational training places. The specialities and state comparisons as at November 2004 are shown in Appendix 2.

Over the period 1997 to 2004, the total number of advanced vocational training places has increased by 722 (12.7%), having been 5,665 in 1997 and 6,387 in 2004. The major areas of increase have been in surgery (an increase of 231 positions or 48.3%), adult medicine (an increase of 219 trainees or 49.3%), intensive care (an increase of 38 trainees or 35.2%), radiodiagnosis (an increase of 55 trainees or 29.6%), psychiatry (an increase of 64 trainees or 9.7%), rehabilitation medicine (an increase of 50 trainees or 73.5%) and occupational medicine (an increase of 38 trainees or 158.3%).

The main reductions in the total number of training placements since 1997 have occurred in the specialty areas of emergency medicine (a decrease of 131 trainees or 21.8%) and obstetrics and gynaecology (a decrease of 58 trainees or 16.6%). Since 1994, the number of vocational trainees in Australia has doubled, increasing by 3,218 (101.5%) from 3,169 in 1994 to 6,387 in 2004.

Over the period 1997 to 2004, the estimated number of first year training placements likely to be available has increased by 413 (30.2%). For first year places, the main increases since 1997 have been in the disciplines of general practice (224, an increase of 56.0%) surgery (43, an increase of 33.6%), adult medicine (109, an increase of 73.6%), paediatrics (38, an increase of 64.4%) and rehabilitation medicine (16, an increase of 123.1%). Generally, these increases have been in line with adjustments to trainee numbers recommended by AMWAC workforce reviews.

For general practice, the apparent anomaly of first year places increasing but total trainee numbers decreasing is explained by the fact that, for the MTRP reporting period (1997 to 2004), entry to the general practice training program had been capped at the historically low level of 400 new places per year for the period 1995 to 2000. The increase in first year placements, therefore, has only occurred over the period 2002 to 2004.

As a result, total numbers have fallen as the size of 1997 to 2001 entry cohorts were maintained at low levels, and the earlier, larger cohorts of trainees moved through to complete training. This trend has started to reverse in 2003 and can be expected to reverse further as the additional first year placements in 2004 and beyond enter the general practice training program.

In terms of State/Territory distribution the largest increases in training placements over the period 1997 to 2004, have occurred in New South Wales (up 358 positions, 19.6%) and Victoria (up 339 positions, 23.4%). In Queensland, the total increase in training placements has only been 104 (11.0%) over the period 1997 to 2004, despite Queensland continuing to have a share of training placements noticeably below its

population share. The Queensland Government has recently announced an additional 20 specialist training places.

Over the period 2001 to 2004, the number of vocational training placements in rural and remote locations has increased by 43.6% from 741 trainees in 2001 to 1,064 trainees in 2004. Over the period 1997 to 2004, the number of female trainees has increased by 608 (26.1%), with the proportion of trainees who are female increasing from 41.9% of trainees in 1997 to 45.8% of trainees in 2004.

## International Medical Graduates - trends and issues

International Medical Graduates (IMGs) are doctors whose primary medical qualification was gained in a country other than Australia. The Australian Medical Council considers doctors trained in New Zealand equivalent to those trained in Australia. Doctors trained in all other countries are generally grouped as international medical graduates, however this is not a homogenous group.

IMGs may be temporary residents not planning to stay, temporary residents planning to stay or permanent residents. Temporary residents planning to stay or permanent residents are encouraged to attain general registration or Australian Specialist College recognition of a medical specialty, depending on their background. Temporary resident international medical graduates are frequently referred to as TRDs (temporary resident doctors). A Temporary Resident Doctor (TRD) is a medically qualified person holding a temporary resident visa to enter Australia for short term employment or training purposes.

A national English language competency requirement is expected to be in place in all jurisdictions by 2006. Aside from this there are no national standards for the appointment of IMG's. In contrast to this, in the UK, USA and Canada an IMG must pass tests of English language, medical knowledge and clinical skills before being able to practise medicine.

Overseas trained medical practitioners who are not eligible for general unconditional registration in Queensland may be granted conditional special purpose registration under the *Medical Practitioners' Registration Act 2001*. The categories of special purpose registration under the *Medical Practitioners' Registration Act 2001* include:

- Postgraduate study or training
- Supervised training to prepare for clinical exams
- Practice in an Area of Need
- Practice in the public interest
- Practice in General Practice

**Table 2: Number of visa subclass 422 nominations, by state, 2000–01 to 2002–03**

STATE	2000–01	2001–02	2002–03
Western Australia	456	472	597
Victoria	406	508	581
New South Wales	58	89	176
Tasmania	94	82	89
South Australia	60	68	133
Australian Capital Territory	7	12	50
Northern Territory	84	98	97
Queensland	899	716	1016
<b>Total</b>	<b>2062</b>	<b>2045</b>	<b>2739</b>

Source: Birrell and Hawthorne 2004, based on unpublished data provided by the Department of Immigration and Multicultural and Indigenous Affairs

Australia has always used overseas trained doctors in its workforce. Australian Institute of Health and Welfare data from December 1998 reports that nearly 22% of those registered and practising in the Australian medical workforce at that time gained their initial qualifications overseas.

The demographics of temporary resident doctors (TRDs) are changing. The number of doctors recruited from overseas has increased so has the diversity of their country of origin. In 1997-1998, 70% of overseas medical practitioners arriving under visa sub-class 422 (Medical Practitioner) were from the UK and Ireland. By 2002-2003 this proportion had reduced to 43%.

TRDs have a range of backgrounds with differences in language, culture, education and health systems which present a number of challenges to TRDs and their employing workplace. This issue was acknowledged Nationally with the Medical Training Review Panel (MTRP) establishing a working party to examine the issues around the use of overseas trained doctors in the Australian health system. The working party completed this work in February 2004. (MTRP OTD Subcommittee, 2004)

Within the report on OTDs prepared for MTRP, it is noted that gaps still exist in assessing skills of OTDs prior to their commencing employment. Further that employers are under increasing pressure to rapidly fill medical workforce vacancies and frequently do not know how to adequately assess the competence of OTDs. (MTRP OTD Subcommittee, 2004)

International Medical Graduates (IMGs) registered under special purpose registration, such as Area of Need, are not required to undertake AMC examinations prior to registration by the relevant State or Territory Medical Board. TRDs in the Australian medical workforce have increased from an estimated number of 692 between 1992-1993 to an estimated number of 4000 in 2002-2003. It was also estimated that there were 420 permanent resident IMGs training and working in Australia with the aim of progressing to full registration and fellowship of a medical college in 2002 to 2003. (MTRP OTD Subcommittee, 2004).

TRDs are being employed in particular areas of need (AON) – most notably in rural general practice and elements of the public hospital system. Consequently, what was initially conceived as a short term measure to address medical workforce needs, is now a feature of the Australian and Queensland Health medical workforce.

Experience with the assessment of overseas trained specialists in New South Wales from 1990, and nationally through the AMC since 1993, confirms that many applicants will experience difficulties meeting the standards required for full recognition for independent specialist practice in Australia, or will require significant periods of advanced training to meet the standards.

Depending on the specialty concerned, a critical issue is whether or not the overseas trained specialist can successfully compete for one of the limited number of accredited training places to enable him/her to complete the College's requirements. There is a pool of permanent resident overseas trained specialists who are unable to pursue their careers because they cannot complete the requirements for recognition.

This points to the need for a broader range of opportunities to be made available for suitable training and work opportunities for overseas trained specialists so that gaps in their skills and experience in that market to seek doctors to provide services – particularly in areas of health service workforce shortage in rural and remote Australia.

The Australian Competition and Consumer Commission's (ACCC) authorisation of the Royal Australasian College of Surgeons on 30 June 2003 imposed a number of conditions. Among the major concerns identified by the ACCC, and the areas that require reform are:

- the delays in making decisions and not providing reasons for decisions regarding the recognition of overseas trained specialists, and
- not following, or inconsistently applying, assessment processes.

Some of the major concerns in relation to the assessment of area of need specialists are the costs and the length and complexity of the process, indicating that further attention needs to be given to ways and means of streamlining the processes while at the same time maintaining standards.

The AMC (2004) state that overseas trained doctors are a valuable addition to Australia's medical workforce and many are serving communities in rural and remote areas. However, there are some overseas trained specialists who do not make 'satisfactory progress' towards completion of the requirements for recognition. The AMC goes on to say there is clearly a need for the provision of suitable counselling and advice to those who realistically should consider career re-orientation and be assisted in making the transition to another field.

With respect to the medical practitioners, at the end of the 2003-2004 reporting period of the 11,038 registered practitioners, 1,398 were registered under one of the categories of special purpose registration categories with the Queensland Medical Board.

Queensland Health has a high reliance on overseas trained doctors. Overseas trained doctors, employed within Queensland Health and registered through the area of need provisions of the *Medical Practitioner Registration Act 2001* comprise an average of 20.7% (737.73).

The majority of OTDs are employed at the level of Junior House Officer (33.4%) and Senior House Officer (37.4%). Approximately a quarter are employed in each the Registrar/Principal House Officer (26.7%) and Senior Medical Officer (26.4%) categories.

Queensland Health, in recognition of the role IMGs play in the provision of health services and in order to increase support for IMGs, has supported the Centre for International Medical Graduates (CIMG) from its inception. The Centre for International Medical Graduates commenced operations as the Centre for Overseas Trained Doctors in 1996 when Queensland Health provided funding to the University of Queensland to conduct a Bridging Course that would prepare permanent resident IMGs for the AMC Multiple Choice examination.

Additional funding was provided by the Department of Education, Science and Training from 1997-2000, to conduct bridging programs for 20 permanent resident IMGs each year. Due to legislation changes in 2001, this funding was no longer accessible. Instead, individual IMGs were required to access HECS style funding. Lack of support for these programs by IMGs resulted in their collapse nationally. The Centre continued operations at the University of Queensland with Queensland Health funding.

The management and operations of the Centre were transferred to the Queensland Health Skills Development Centre in July 2004. At this time the name was changed to the Centre for International Medical Graduates (CIMG). In addition to providing the bridging course, the CIMG provides Preparation for Employment (PFE) courses aimed at preparing IMGs for the workforce with structured observerships for all participants.

The *Preparation for Employment Course* offered by the CIMG involves a pre-course assessment, 3 weeks orientation and a 16 week clinical placement in a Queensland Health facility. This course, which is available to IMGs who have passed the AMC MCQ examination and have, or are eligible for, conditional medical registration, covers:

- language skills, including communication for medical practice
- clinical knowledge and skills
- procedural skills
- understanding of the Australian health care system including practice in the Queensland health system
- workplace culture and professional behaviours
- cultural safety.

The CIMG also provides an information service for overseas trained doctors, career pathway management to assist overseas trained doctors identify their career options, and counselling services to assist overseas trained doctors settle into the Queensland health system.

Since the CIMG moved to the Queensland Health Skills Development Centre, 46 IMGs have attended the PFE course, 21 of these have been employed in Queensland Health facilities and 1 in private practice. There have been 58 IMGs complete the preparation for MCQ program. Twenty-two of these IMGs have since sat the MCQ exam, 16 passed. Another 36 are scheduled to sit the MCQ examination this year.

### **Seniority of the Area of Need international medical workforce in Queensland.**

As at March 2005 there were 737 full time equivalent, Area of Need International Medical Graduates in Queensland. These are detailed in Appendix 3. The breakdown of Area of Need Doctors by staff type is seen in table 3 below.

**Table 3: Sum of the FTE for Area of need IMG**

<b>Staff Type</b>	<b>Total Area of need IMG</b>
Intern	25
JHO	102
Medical Officer	67
Medical Superintendent	16
PHO	380
SHO	74
Staff Specialist	73
<b>Total</b>	<b>737</b>

Source: Queensland Health Lattice Pay run 221 OTD database created May 2005.

## **New generation of doctors**

Newer generations of doctors have differed from previous ones in their emphasis on family and lifestyle issues, and this has affected recruitment and retention. Many newer trainees and resident medical staff were less willing to work the long hours of their predecessors and to accept unpaid overtime.

The increasing number of female medical graduates is one factor which had prompted increased demand for part-time work and traineeships and the ability to move in and out of the workforce easily. The option to work fewer hours has been more accessible to urban than rural doctors, further disadvantaging rural areas in their recruitment efforts. Lifestyle factors and working hours were also seen as influencing choice of training programs leading to shortages in some areas. If Queensland Health moves to adopt a safe working hours initiative, leading to reduced working hours, hospitals will then need to employ more staff to cover the same amount of work.<sup>11</sup>

The ageing of the current specialist workforce has also meant that they are less willing to work long hours than previously. Many areas, particularly non-urban ones, were facing impending retirement of their longstanding medical staff with few prospects of recruiting replacements. Likewise, there is less willingness to undertake extensive shift or weekend work by many doctors. On-call work in rural areas is seen as a major disincentive to attracting and retaining doctors, especially in an area with few other specialists.

These changes in the medical workforce profile have added to the shortage of Doctors which Queensland Health is already struggling to recruit. A recent survey conducted by Queensland Health identified the vacancies by specialty for Queensland. The most severe in FTE terms were Anaesthetics (11.6), Intensive care (10.5), Radiology (4.7), Orthopaedics (4.4) and Psychiatry (4.4). Even small numbers of vacancies in some specialities can have dramatic effects on service delivery viability.

The Elective Surgery report published in April 2005 indicated that the tertiary referral hospitals of the Princess Alexandra Hospital and the Royal Brisbane and Women's Hospital both had trouble treating category 1 patients within 30 days for Vascular, Plastics and Reconstructive, Urology and General Surgery.

### **Excessive hours of work**

The data from the Queensland labour force surveys indicates that some specialists are working excessively long hours to cover the increased demand for services and the decline in Doctor participation rates. The labour force surveys are a self reporting questionnaire which is completed at re-registration time. In particular 56 % of Cardiologists, 53 % of Cardiothoracic surgeons 36 % of Infectious Diseases Physicians, 33% of Gastroenterologists, 37 % of General Surgeons 58% of Neurosurgeons and 32 % of Orthopaedic Surgeons are working more than 60 hours per week.

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<sup>11</sup> Australian Medical Workforce Advisory Committee. The Public Hospital Medical Workforce In Australia: AMWAC Report 2004.3: August 2004

Some speciality groups are working over 70 hours per week; 22 % of Cardiologists, 13 % of Cardiothoracic surgeons, 27 % of Infectious Diseases Physicians, 15 % of General Surgeons, 17% of Neurosurgeons and 13 % of Orthopaedic Surgeons are working more than 70 hours per week.

These hours are not direct patient care hours but they may indicate that some specialists are in short supply.

## **Gap in future specialist workforce**

### **Loss of workforce**

The Medical labour force survey gives an indication of the retirement intentions of medical practitioners. It asked the question “How many more years do you intend to remain in the Medical workforce”. As shown in Appendix 4 some specialties will experience a large percentage and numerical loss of workforce. For example over 20% of General Medicine, and General Surgeons have indicated that they will leave the profession in the next 5 years.

Fifteen percent of Doctors in Diagnostic Radiology, General Pathology, Ophthalmology, Paediatric Surgery and Rehabilitation Medicine have said they will leave in the next 5 years.

The impact of loss will be greatest in the specialities that naturally have a small quantum of workforce and the impact on service delivery. These could include the loss of three Cardio-thoracic Surgeons in the next 5 years and 16 Ophthalmologists in the next 5 years. These assessments are only a guide to the loss through retirement of the speciality workforce.

### **Difference between numbers being trained and the required numbers**

According to the AMWAC workforce review conducted in September 2004 Queensland failed to fill its training places in Gastroenterology, Haematology, Medical Oncology, Ear Nose and Throat Surgery, Orthopaedic Surgery, Emergency Medicine, Obstetrics and Gynaecology, Pathology, Psychiatry and Radiology. This is detailed in Appendix 5.

Some of the unfilled vacancies have been filled with Area of Need Doctors. Even with the use of Area of Need Doctors some of these training positions are still vacant. Some of these specialities will suffer from significant loss due to permanent retirement in the next 5 to 10 years. This is detailed in Table 4 below.

**Table 4: Loss of Specialists through retirement in the next five and ten years.**

Specialty	Numbers due to leave profession in 5 years	Numbers due to leave profession in 10 years
Anaesthetics	46	110
Dermatology	5	9
Emergency Medicine	3	6
Medical Administration	2	6
Medicine (including subspecialties)	74	179
Obstetrics and Gynaecology	21	61
Ophthalmology	16	28
Paediatrics	6	28
Pathology (all subspecialties)	14	31
Psychiatry	26	69
Public Health	1	4
Radiology	28	51
Surgery (including subspecialties)	71	105
ICU	1	4
Neonatology	N/A	N/A
Radiation Oncology	1	2
Orthopaedics	17	34
<b>TOTAL NUMBERS</b>	<b>332</b>	<b>727</b>

Source: Queensland Medical Labour force survey 2004.

N/A : Not available.

### **Lag time to specialist competency and work/life balance changes.**

Younger medical practitioners are demonstrating a preference for a greater work/life balance. This manifests as an increase in part-time or interrupted training, as well as a lack of interest by many younger medical practitioners to work ‘undesirable’ shifts, such as weekends or overnight.

These traits are not confined to the increased number of female medical graduates; rather it is a generational difference. Changes in the industrial and employment environment have led to a reduction in hours worked, in recognition of the quality and safety implications for both medical practitioners and patients, and have compounded the staffing implications of this generational change.

This means that a greater number of doctors are required to maintain the same level of care. While there have been a number of additions to the medical workforce supply, such as additional medical school places, as well as the opening of new medical schools, the time taken to educate and train doctors means that there is a time lag between the effect of these initiatives and current workforce requirements<sup>12</sup>.

<sup>12</sup> The Public Hospital Medical Workforce In Australia: Australian Medical Workforce Advisory Committee AMWAC Report 2004.3. August 2004

As detailed in Appendix 6 most specialities take between 3 and 5 years to complete after one or two postgraduate years. This is if no delays are encountered. The lag period is of considerable importance to speciality training.

### **Staff Specialists and Visiting Medical Officers (VMOs).**

The Queensland Government rejects any notion that VMOs are by their nature better Doctors than Staff Specialists. There are both Staff specialists and VMOs who are at the cutting edge of medical practice.

Certain highly specialised procedures are performed only in public facilities due to their nature. Queensland Health Staff Specialists perform complex medical procedures on a daily basis. Examples of this are Queensland Health's world class Cardiac, Liver and other transplant services.

Both Staff Specialists and VMOs are valued members of Queensland Health's workforce. Both are seen as vital to providing a high quality service to Queenslanders. It must be remembered that those professionals who work in the public system whether as Staff Specialists or VMOs do so to improve the health of Queenslanders.

Discussion Paper No 6 of the Bundaberg Hospital Commission of Inquiry proposes greater use of VMOs in Queensland public hospitals. This proposal should be considered from the standpoint of the competencies required in particular service models rather than according to the employment contracts of the individual doctors involved. There is no basis to the assumption that VMOs are better qualified than Queensland Health Staff Specialists as most VMOs and Full-time Staff Specialists undertook their training in the public system according to the same standards set by the Specialists colleges.

Queensland due to its decentralised nature utilises varied medical staffing models depending on region and service-specific characteristics. This is reflected in the broad skill mix exhibited by Queensland Health's Staff Specialists and VMOs.

## Specialty training place issues

### International Medical Graduates

Queensland currently has difficulty filling some of its speciality training places. Therefore, a number of training places are filled by International Medical Graduates (IMGs). IMGs with overseas specialist qualifications are able to gain registration to practise in Australia by having their qualifications assessed by the relevant specialist college to determine if their experience enables them to be accepted as deemed specialists or alternatively that are able to progress to Fellowship.

IMGs without specialist qualifications may gain their Australian medical registration by passing the AMC exam. However, this route is not commonly used, as it can be time consuming and usually necessitates the IMG to be resident in Australia, having migrated here under visa conditions unrelated to medical employment.

More commonly, non-specialist IMGs are employed in an 'area of need' position. Employment in an 'area of need' position allows IMGs to practise in Australia following registration by the relevant Medical Board. In Queensland, an applicant for special purpose registration under 'area of need' will have their qualifications and suitability for the position assessed by the Medical Board of Queensland. The Board will outline the conditions of their registration which may include level of supervision and other requirements.

In order to prepare IMGs for employment, the Queensland Health Skills Development Centre is developing a program called RAPTS, which is examining the Recruitment, Assessment, Placement, Training and Support requirements for IMGs. This program will assist and encourage IMGs to pass the AMC exam (or gain fellowship of their relevant College) – this will include, but not be limited to, IMGs currently working in an 'area of need' position. The RAPTS program will also ensure that IMGs' knowledge is to the required level in a number of areas. The program proposes to do this in a number of ways:

- **Graduate Certificate in Australian Health Practice.** This course will cover general knowledge required to work within the Australian health system, including information on the system itself, Medicare, Aboriginal and Torres Strait Islander information, women's health issues, and other matters. It is intended that gaining this qualification will assist towards passing the AMC exam.
- **Bridging courses.** These courses aim to ensure that levels of clinical knowledge are equivalent to Australian standards.
- **Language assessment.** English language proficiency should be of the IELTS level 7.0 standard.
- **Pre-employment placement and training programs.** The paid programs provide orientation and training to employees prior to their taking up their new positions in Queensland Health.

There are IMGs who are permanent residents in Australia but who cannot get their medical registration. The average amount of time such IMGs are out of clinical

practice is currently around 6 years.<sup>13</sup> Many of these IMGs have been out of the workforce through personal choice, or have been working in a related career and do not intend to return to medicine. However, there is the potential to provide support to assist many of these IMGs to return to the medical workforce.

In March, 2005 the Medical Advisory Unit in Queensland Health collated the number of training positions filled by non-trainee Doctors under Area of Need. For all of the specialities within Queensland Health this totalled 213 as shown in Appendix 4. The speciality training places most filled by Area of Need Doctors were: Emergency Medicine 37, Medicine including subspecialties 53, Paediatrics 28, Psychiatry 37, Surgery 13 and Intensive Care 13. This was still inadequate to fill all of the speciality training places, as 38 vacancies remained.

### **Supervision**

The specialist colleges outline the criteria which must be present for a position to be classified as a registrar training position. This includes supervision requirements. Training registrars are required to be supervised by Fellows of the relevant specialist college. IMG's working in 'Area of Need' positions who are not Fellows of an Australian College are not able to supervise training registrars.

Increasing the number of specialty training places will require increased capacity to provide supervision. In addition, the continued employment of IMGs, particularly where employed in 'area of need' positions, will require an increased focus on supervision under the RAPTS program.

### **New training methods**

The Queensland Health Skills Development Centre is also providing access to new methods of training for specialists in training. This highly technologically-advanced centre allows such trainees to perform specialist procedures on simulators. The equipment and physical settings for the simulated procedures are designed to mirror real-life situations closely, including operating theatres, emergency rooms, laboratories, training wards and debrief rooms. The scenarios undertaken in these settings are scenarios that the participants are likely to encounter in real life, and are recorded for debriefing and further learning afterwards, and in many areas the virtual-reality technology makes the experience very lifelike.

Domains identify areas of special focus for the Centre. In the surgical section, clinical staff can practise the latest surgical procedures, and receive feedback on how effectively each individual performed the procedure. Other courses prepare clinical staff to deal with crisis and trauma situations, for example, the Pre-Hospital Trauma Life Support course that is well recognised around the world, or the courses in Crisis Resource Management that cover crisis situations in various settings. The Centre also has courses to assist healthcare professionals improve their communication and interpersonal skills. The Centre for International Medical Graduates (CIMG) prepares overseas qualified doctors for registration with the Australian Medical Council and assists them in gaining employment. Interactive e-learning suites provide self-paced

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<sup>13</sup> Medical Training Review Panel Overseas Trained Doctor Subcommittee Report, February 2004.

learning in a number of areas, with the opportunity to interact with peers in an asynchronous group environment. There is also a domain totally dedicated to the development and evaluation of existing and new courses. The Rural and Remote Arrangements domain provides non-urban healthcare professionals the opportunity to enhance and upgrade existing skills.

### **Safe working hours**

At times, hospital medical practice requires the working of extended hours for service provision and continuity of care. Additionally, the often unpredictable call on hospital services creates circumstances in which long hours are worked by doctors. The issue of reducing doctor working hours, where necessary, has been under discussion in recent times, and the Medical Board of Queensland is currently developing a working hours standard.

Any possible solutions for reducing medical staff working hours are likely to effectively reduce the available medical workforce, and to reduce the contact time that specialists in training have with patients. This issue is under discussion in countries such as the UK, where the European Working Time Directive has limited doctor working hours to 58 per week.

The impacts of implementing this policy in Queensland are yet to be modelled. This change is seen by many as an opportunity to move away from the ‘apprenticeship’ model of training, which depends upon the length of exposure to medical practice within the relevant field and number of cases seen, towards a competency-based approach. As such, training programs would need to become more focused and based on agreed training plans.

### **Expansion of training in the private sector**

Currently all specialty training, with only a few exceptions, is carried out by the public sector. (Queensland Health has recently made an agreement with the Royal Australasian College of Surgeons to train surgical registrars in some private hospitals, and a small number of training places have been established). However, a large proportion of specialists in all fields work wholly or partly within the private sector. Given the increasing focus on private sector healthcare in Australia, it may be timely to consider the level of responsibility that should be held by the private sector for training its workforce.

In addition, it may be appropriate to consider a shift away from a healthcare service that is focused upon the training needs of the medical workforce, towards a specialist-led service with medical training as a separate but related issue. In this way, the number and role of specialists in training would be dependent upon the future requirements for the specialist workforce, rather than on current requirements for medical staff to provide the service. This model is currently in use in Canada, as discussed in Paper 1 of this series. Such a shift in focus may enable a requirement that specialists in training commit to serving a certain period of time within the public system following completion of their training.

The provision of training within the private sector may be problematic, due to the likely expectation of 'paying customers' that they will be treated by their chosen specialist, and not by a medical student, junior doctor or specialist in training. However, a small amount of specialty training is beginning to occur in Queensland, and the potential for expansion of this program to other specialty areas should be investigated.

### **Service delivery changes**

Queensland Health's Collaborative for Healthcare Improvement (CHI) is a state-wide network of clinicians working together to improve patient care by sharing resources and learning to resolve local issues with state-wide applicability. CHI aims to identify evidence-practice gaps in patient care, to ameliorate such gaps using a collaborative model of comparative performance feedback and hospital-specific quality improvement interventions supported by CHI's centrally located program support team and on-site quality officers.

Fundamental to CHI's success are its methodology for recruiting clinicians to service improvement, its establishment of measurement systems to provide clinicians with the evidence they need to target opportunities for improvement, and its facilitation of clinician-chosen quality improvement interventions.

CHI was initiated in April 2000 under funding provided through the Queensland Health Quality Improvement and Enhancement Program. Membership in CHI has grown to over 450 healthcare professionals, including 40 senior medical staff, across 35 hospitals.

#### CHI Service Improvement Collaboratives:

- Cardiac Collaborative (acute coronary syndromes and congestive heart failure)
- Outpatient Cardiac Rehabilitation Collaborative
- Emergency Department Collaborative
- Renal Collaborative
- Stroke Collaborative

#### CHI Problem Definition Workshops:

- CHI's problem definition workshops facilitate participative strategic planning. They foster innovation and creativity in a changing environment and bring together different groups with different ideas to build a shared understanding of goals.

#### CHI Measurement Systems:

CHI has established a statewide approach to the audit, review and feedback of core clinical indicator data. CHI's methodology for development and updating of clinical indicators provides translation of data reporting needs, effectively serving as the interface between technology / data and clinicians. CHI's data collection systems,

including scannable technology, allow data to be collected increasingly in real time as part of routine care documentation, and at reduced cost.

The Indicator Analysis Tool (IAT), developed by CHI and Queensland Health's Decision Support System, provides timely and readily accessible data to clinicians via their desktop. The IAT analyses and reports data in analytical reporting cubes and has flexible on-line analytical processing technology allowing clinicians to manipulate their data and for indicators to be modified as evidence changes.

CHI Change Management:

- CHI's program support team provides management consultancy in measurable clinical quality improvement.
- CHI's skills development approach provides 'hands on' experience focused on building a critical mass of quality improvement experts operating across organisational and professional boundaries.
- CHI's 6-monthly Queensland Hospitals Forums foster change management through showcasing of hospital-specific quality improvement interventions, review of indicators based on current best research evidence, and training of clinicians in the use of the Indicator Analysis Tool.

CHI was initiated under funding provided through the Queensland Health Quality Improvement and Enhancement Program (QIEP).

## Options for reform

### 1. Support for Rural Generalist senior medical staff

The introduction of Rural Generalist medical staff would assist with meeting the healthcare needs of rural and remote communities. Such medical staff would choose rural general medicine as a career path that allows them to practise independently across a number of specialty areas as proceduralists. Rural Generalists would be senior medical staff, practising at the registrar or consultant level.

The Australian College of Rural and Remote Medicine (ACRRM) is seeking the recognition of rural and remote medicine as a specialism. It recognises that many rural and remote general practitioners are providing secondary or tertiary level services in emergency medicine, obstetrics and gynaecology, surgery, anaesthetics, psychiatry, paediatrics, palliative care and hospital inpatient care in addition to their primary care services.<sup>14</sup> Rural Generalists would be trained and accredited by ACRRM to provide limited services across many or all of these specialities, as locally appropriate, with relevant tertiary hospital or specialist support.

Training for Rural Generalists would involve hospital-based experience in a variety of specialty areas. Competency-based accreditation to practise as a Rural Generalist in a specialty area would be provided by ACRRM, towards a qualification as a Fellow of ACRRM. Should a medical graduate choose the role of Rural Generalist, the training program could be structured from internship onwards.

Any costs associated with the development of a training program for Rural Generalists would be outweighed by the benefits of providing rural communities with appropriate secondary healthcare services. Retention of medical staff within rural community facilities is currently fairly poor, as training opportunities towards a specialism are limited. This issue may be counteracted by developing rural medicine as a specialism in itself.

### 2. Improve assessment, training and support for IMGs employed by Area of Need, and introduce a requirement to pass the AMC exam within a set timeframe

Area of Need International Medical Graduates (IMGs) are sourced from many countries around the world, and present at Queensland Health at varying levels of work-readiness. It is not usually possible to determine an IMG's level of work-readiness from their country of training.

The RPTS initiative, as previously discussed, will assist with the assessment of new Area of Need IMGs and the formulation of a training and supervision program with the employing service or hospital. This training program would be likely to include elements of the RPTS program of courses and possibly other training offered by the Skills Development Centre. This program may mean that an IMG will work under close supervision for a period of time. In addition, regular time for one-on-one

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<sup>14</sup> Australian College of Rural and Remote Medicine, [www.acrrm.org.au](http://www.acrrm.org.au) Election Charter 2004

training may need to be taken by both the IMG and their supervisor. Any such supervision and training requirements will mean that the IMG will not contribute to the workforce to the same degree as currently, for the period of the program.

The aim of such a training and supervision program would be to ensure that the IMG passes the AMC exam within a reasonable timeframe. Employment in an intern position may be appropriate following the AMC exam. Such IMGs should therefore be employed where possible for the long term, to ensure that the investment in training and supervision is returned to Queensland Health.

Such training of new Area of Need IMGs should not be considered unjustifiably expensive. It should be borne in mind that the cost of undergraduate training for such IMGs has not been incurred by Australia or by Queensland Health. Any costs associated with providing the level of training described would be unlikely to reach the level of cost involved in the undergraduate training of a doctor within Australia.

It is important that a program of assessment, training and supervision is appropriately applied, to ensure that doctors from first-world countries who are usually work-ready on arrival are not deterred from taking up employment in Queensland, often for short periods only.

New Area of Need IMGs who are employed to fill Registrar positions may be assessed as requiring a significant amount of training and supervision before being 'work-ready' for that level of seniority. It may be appropriate, in such circumstances, to employ more competent, possibly Australian-trained, junior medical staff to fill these positions. It may therefore be appropriate to consider relaxing the requirements for a set period of service at a junior level before progressing to a Registrar post.

As this improved program of assessment, training and supervision for Area of Need IMGs is likely to reduce their capacity to contribute to the workforce, this initiative will result in medical staff shortages in areas that rely heavily on these IMGs, unless it is implemented in tandem with the redistribution of the medical workforce as described below.

### **3. Redistribute the medical workforce**

The employment of new IMGs in Area of Need positions currently occurs mainly where the need for medical staff is greatest, and therefore the capacity to train and supervise the new IMGs is smallest. A program of improved assessment, supervision and training of new Area of Need IMGs will not be possible with the current workforce distribution, as staffing levels are too tight and the availability of resources and appropriate supervisory staff often do not exist at the locations where new Area of Need IMGs are employed.

In order to appropriately train and supervise new Area of Need IMGs to a point of work-readiness, therefore, Queensland Health must explore options for centrally coordinating the improved distribution of the medical workforce. This may involve increasing the employment of Area of Need IMGs in metropolitan centres, where the capacity for training and supervision is greatest, and reducing their employment

elsewhere. Redistribution needs to occur for medical staff at Intern, Senior House Officer and Registrar levels.

#### **4. Develop competency-based training and assessment standards for all levels of practice, across streams of care and for induction into health services in Queensland**

There may be considerable advantages associated with the further development of competency-based assessment, training, monitoring and review of the medical workforce. This could involve a more comprehensive identification of the competency based standards required across the practitioner's career life span, taking into account different levels of practice as well as site-specific competencies.

The competencies could potentially form the basis of education and assessment within clinical placements in undergraduate, beginning-level (eg. new NHS Foundation Year) and specialist programs. They could be similarly utilised in induction/orientation programs of new medical staff. This could involve a statewide induction program to medical practice in Queensland, for both new local, interstate and international medical graduates, service specific induction programs (both District and specialty area specific, that is, Royal Brisbane and Women's Hospital Health Service District (RBWH) and then RBWH Emergency Department). Speciality area specific skill sets could be developed from both a statewide (all Queensland emergency departments) and local perspective (Cairns Health Service District Emergency Department).

Competency based standards across streams of care and appropriate to the differing levels of practice could be developed through collaborative partnerships of the universities, medical colleges and associations, private and public sector employers.

The assessment and training, where required, of new IMGs (including those in Area of Need, as discussed above), needs to be focused on ensuring competency has been achieved in required skill sets. While this population of doctors may provide the specific impetus for the further development of competency-based standards, in the longer term the competency standards could be used for wider training purposes, for example to refresh the skills of a doctor who returns to work in an area that they have not practised in for some time.

#### **5. Introduce choice for graduates to work towards their chosen specialty from internship**

Many doctors choose their specialty at a very early stage. 20.2% of doctors have made their choice by the end of medical school (4% in fact know their specialty before they begin medical school), and a further 16.4% make their choice during their intern year.<sup>15</sup>

It may be possible, therefore, to begin vocational training from graduation for those graduates who choose this path, structuring the intern and subsequent junior years towards a particular specialty. It may be necessary to ensure that experience in

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<sup>15</sup> AMWAC, 2003, "Career Decision Making by Doctors in Vocational Training", p.65

'popular' specialties is still available to graduates who are pursuing general experience. Entry to Registrar training positions would remain open to doctors who have had general experience as well as those who have had experience directed towards that specialty. This training path may be particularly useful in the development of Rural Generalists, as discussed above.

## **6. Increase the number of specialist training positions**

The number of specialist training positions for many specialties is not adequate to replace the specialists intending to retire within the next 5 years. Increasing the number of specialist training positions in deficit specialties is urgently needed. Queensland Health should continue to work towards increasing the amount of specialist training occurring within the private sector. The additional number of training positions should be determined using the AMWAC recommendations and the data presented in this paper.

## **7. Increase the number of intern and prevocational training places**

Queensland Health needs to ensure that there is sufficient funding to place the future numbers of medical graduates entering intern and prevocational training places over the foreseeable future.

## **8. Increase specialist training in the private sector**

Currently all specialty training, with only a few exceptions, is carried out by the public sector. (Queensland Health has recently made an agreement with the Royal Australasian College of Surgeons to train surgical registrars in some private hospitals, and a small number of training places have been established). However, a large proportion of specialists in all fields work wholly or partly within the private sector. Given the increasing focus on private sector healthcare in Australia, it may be timely to consider the level of responsibility that should be held by the private sector for training its workforce.

The provision of training within the private sector may be problematic, due to the likely expectation of 'paying customers' that they will be treated by their chosen specialist, and not by a medical student, junior doctor or specialist in training. However, a small amount of specialty training is beginning to occur in Queensland, and the potential for expansion of this program and including other specialty areas should be investigated.

The need to increase training within the private sector should, however, be balanced with the need for increasing numbers within the medical workforce for the future. Under the current system, Registrars in training bear responsibility for a significant proportion of the medical workload.

Registrars who undertake speciality training in the private sector may be employed via a Queensland Health district, which ensures that Registrars do not lose their continuity of service with Queensland Health should they take up the option to pursue training in the private sector.

## **9. Introduce a requirement in public sector specialty training contracts for a period of service in the public sector post-specialisation, at a national level**

In the light of the level of specialty training that occurs within the public sector, and the increase in the level of specialist activity within the private sector, it may be appropriate to consider introducing training contracts that involve a period of service within the public sector post-specialisation. Should this initiative be introduced only in Queensland, however, it would provide a considerable disincentive to undertake specialty training in Queensland. Discussions regarding this initiative should therefore progress at a national level.

## **10. Introduce specialty training networks involving rotation to smaller hospitals**

The majority of specialty training currently occurs within larger hospitals in metropolitan areas. Smaller centres, however, are able to offer valuable experience and training opportunities. A system of training networks could be developed, for example that group a large metropolitan hospital together with several smaller, regional or rural facilities. Training within this network would involve rotation to smaller centres and/or regular (possibly weekly) sessions at smaller centres. For example, a Registrar working at the Princess Alexandra Hospital may be asked to work for one day per week at Ipswich Hospital.

Such networks would provide Registrars with enhanced opportunities for training and experience, and would contribute to the redistribution of the medical workforce, as previously discussed.

## **11. Continue to improve training methods for specialty training and patient safety**

As previously discussed, the Skills Development Centre provides Registrars in training and other staff with technologically advanced methods of training.

The Patient Safety Centre has developed a Human Error and Patient Safety training program. This program targets clinician managers and is relevant to all clinicians. The program's core messages include understanding the system-related causes of errors rather than blaming the individual; the importance of communication, assertiveness and teamwork; understanding that even the best staff can be involved in the worst errors; the need to be able to discuss adverse events openly and learn from them; and how to move away from a blame culture. The Patient Safety Centre is liaising with the University of Queensland to include elements of this program on the undergraduate course, with particular reference to prescribing errors. It is also aimed to build this training into specialist training courses via the Colleges. It is considered that addressing these important patient safety issues in this way will contribute to recruitment and retention of staff.

Continued support for such improved training methods is an important priority for Queensland Health.

## **12. Limit working hours for medical staff**

As previously discussed, working arrangements for doctors in some specialties and in some locations often require extended working hours. Limiting working hours for doctors is an important factor for the perception of Queensland Health as an 'employer of choice', and while this may effectively reduce available workforce resources, it is an important complementary strategy in ensuring a sustained workforce supply.

Any possible solutions for reducing medical staff working hours are likely to reduce the contact time that Registrars in training have with patients. This change could be seen as an opportunity to move away from the 'apprenticeship' model of training, which depends upon the length of exposure to medical practice within the relevant field and number of cases seen, towards a competency-based approach. As such, training programs would need to become more focused and based on agreed training plans.

## **13. Examine pay and conditions for medical staff**

In recent times, Queensland Health specialists have been offered attractive employment packages to take up employment in other states. Anecdotal evidence exists to suggest that other states are currently offering attractive conditions for employment in rural areas. Similarly, specialists are being attracted to work overseas through the offer of attractive remuneration packages. Queensland Health may be suffering from a less favourable comparison with other states and other countries in this respect.

Queensland Health may therefore need to examine its structure of pay and conditions in order to remain competitive to recruit and retain its medical workforce.

## **14. Commonwealth Government action**

Queensland needs the Commonwealth Government to take action on the following Medical workforce issues:

The Commonwealth Government needs to increase funding for health sector education across all clinical streams. By increasing Nursing and Allied Health professional numbers the load on Doctors should be reduced.

Changes to Commonwealth legislation is needed to ensure equitable distribution of benefits to all patients (eg. those treated by Nurse Practitioners are currently not entitled to Medicare or Pharmaceutical Benefits Scheme subsidies).

The level of General Practitioner (GP) service provision is inadequate in many areas, especially in rural and remote locations. Access to GPs who bulk-bill can be particularly limited. People who are unable to access GP services often seek assistance instead from the public health service. The Commonwealth Government needs to ensure that GP services are adequate and accessible.

In order to meet the future health care demands, Australia will need to recruit a percentage of its workforce from overseas. Commonwealth coordination is required

for the development of inter-jurisdictional standards for skills recognition, and ethical recruitment principles for overseas-trained professionals.

## Appendices.

### Appendix 1: Specialist Medical Colleges and Sub Faculties

<b>Field of specialist practice (including sub-specialties)</b>	<b>Specialist College responsible for assessment</b>
<b>Anaesthesia</b> Pain Medicine	<i>Australian and New Zealand College of Anaesthetists</i>
<b>Dermatology</b>	<i>Australasian College of Dermatologists</i>
<b>Emergency Medicine</b>	<i>Australasian College for Emergency Medicine</i>
<b>General Practice</b> Note: Not recognised by all State or Territory Medical Boards	<i>Royal Australian College of General Practitioners</i>
<b>Intensive Care Medicine and Paediatric Intensive Care Medicine</b>	<i>Joint Faculty of Intensive Care Medicine / Royal Australasian College of Physicians and Australian and New Zealand College of Anaesthetists</i>
<b>Internal Medicine</b> General Medicine Cardiology Clinical Genetics Haematology Immunology and Allergy Clinical Pharmacology Endocrinology Gastroenterology and Hepatology Geriatric Medicine Infectious Diseases Medical Oncology Nephrology Neurology Nuclear Medicine Rheumatology Sleep Medicine Thoracic Medicine	<i>Royal Australasian College of Physicians Adult Medicine Division</i>
<b>Medical Administration</b>	<i>Royal Australasian College of Medical Administrators</i>
<b>Obstetrics and Gynaecology</b> Gynaecological Oncology Maternal-Fetal Medicine Obstetrics and Gynaecology Obstetric and Gynaecological Ultrasound Reproductive Endocrinology and Infertility Urogynaecology	<i>Royal Australian and New Zealand College of Obstetricians and Gynaecologists</i>
<b>Occupational Medicine</b>	<i>Australasian Faculty of Occupational Medicine</i>

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**Ophthalmology** *Royal Australian and New Zealand College of Ophthalmologists*

<b>Field of specialist practice</b> (including sub-specialties)	<b>Specialist College responsible for assessment</b>
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**Paediatrics and Child Health** *Royal Australasian College of Physicians  
Paediatrics and Child Health Division*

Community Child Health  
Neonatology and Perinatology  
Paediatric Emergency Medicine  
Paediatric Rehabilitation Medicine  
Paediatric Subspecialties (as for Internal Medicine)

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**Palliative Medicine** *Australasian Chapter of Palliative Medicine  
Royal Australasian College of Physicians*

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**Pathology** *Royal College of Pathologists of Australasia*

General Pathology  
Anatomical Pathology (including Cytopathology and Forensic Pathology)  
Clinical Chemistry  
Genetics  
Haematology  
Immunology  
Microbiology

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**Psychiatry** *Royal Australian and New Zealand College of Psychiatrists*

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**Public Health Medicine** *Australasian Faculty of Public Health Medicine  
Royal Australasian College of Physicians*

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**Radiology** *Royal Australian and New Zealand College of Radiologists*

Diagnostic Radiology  
Diagnostic Ultrasound  
Nuclear Medicine  
Radiation Oncology

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**Rehabilitation Medicine** *Australasian Faculty of Rehabilitation Medicine  
Royal Australasian College of Physicians*

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**Surgery** *Royal Australasian College of Surgeons*

General Surgery  
Cardiothoracic Surgery  
Neurosurgery  
Orthopaedic Surgery  
Otolaryngology - head and neck surgery  
Paediatric Surgery  
Plastic and Reconstructive Surgery  
Urology  
Vascular Surgery

**Appendix 2: Total number of vocational training positions/trainees in programs, by college/ faculty/vocational training organisation and state/territory, 2004 and potential places in 2005 (Source: MTRP Medical Training Review Panel Eight report.)**

SPECIALTY	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
Anaesthesia <sup>a,b,c</sup>	160	118	84	38	41	12	4	8	<b>465</b>
Dermatology <sup>c</sup>	23	16	12	6	4	0	0	0	<b>61</b>
Emergency Medicine <sup>a,c</sup>	142	145	82	35	45	6	7	9	<b>471</b>
General Practice <sup>c</sup>	502 <sup>d</sup>	418	290	117	155	43	44	<b>e</b>	<b>1569</b>
Intensive Care <sup>c,f</sup>	59	30	23	17	10	2	1	4	<b>146</b>
Medical Administration <sup>c</sup>	33	28	20	5	5	0	1	4	<b>96</b>
Obstetrics and Gynaecology <sup>c,g</sup>	105	78	54	18	16	7	0	5	<b>283</b>
Othpalmology <sup>a</sup>	38	36	13	7	7	1	3	0	<b>105</b>
Pathology <sup>c,h</sup>	109	63	38	24	23	4	2	10	<b>273</b>
Adult Medicine <sup>a,c,i</sup>	216	225	81	68	53	8	2	10	<b>663</b>
Paediatrics <sup>a,c,j</sup>	94	70	44	18	27	0	5	0	<b>258</b>
Occupational Medicine <sup>c</sup>	21	18	11	6	6	0	0	0	<b>62</b>
Public Health <sup>c</sup>	20	13	10	2	7	1	6	6	<b>65</b>
Rehabilitation Medicine <sup>c</sup>	63	27	8	11	7	1	1	0	<b>118</b>
Psychiatry	240	209	117	74	65	9	3	8	<b>725</b>
Radiodiagnosis <sup>c</sup>	70	71	39	27	23	4	0	7	<b>241</b>
Radiation Oncology <sup>c</sup>	32	17	8	5	5	0	0	1	<b>68</b>
Surgery <sup>a</sup>	258	204	117	53	66	5	2	4	<b>709</b>
<b>TOTAL <sup>k</sup></b>	<b>2185</b>	<b>1786</b>	<b>1051</b>	<b>531</b>	<b>565</b>	<b>103</b>	<b>81</b>	<b>76<sup>l</sup></b>	<b>6378</b>
<b>Percent</b>	<b>34.2</b>	<b>28</b>	<b>16.5</b>	<b>8.3</b>	<b>8.9</b>	<b>1.6</b>	<b>1.3</b>	<b>1.2<sup>l</sup></b>	<b>100</b>
<b>Percent of population <sup>m</sup></b>	<b>33.6</b>	<b>24.7</b>	<b>19.2</b>	<b>7.7</b>	<b>9.8</b>	<b>2.4</b>	<b>1</b>	<b>1.6</b>	<b>100</b>

a for those colleges that require a period of recognised basic training prior to commencing advanced vocational training, the details of basic training positions/programs are summarised in table 10

b the data provided are the number of registered, financial trainees; from 2004 the ANZCA training program has changed to include a basic component (years 1–2) and an advanced component (years 3–5) so the data presented in this table are different from that presented in previous MTRP reports (1997 to 2003) as it only relates to advanced trainees in years 3 to 5 of the training program

c the data provided are advanced trainees in a training program, not accredited training positions

d includes ACT trainees

e included in NSW

f includes 18 trainees in intensive care who are registered in the JFICM training program; the trainees in this joint program have not been included in the total of RACP advanced trainees

g total excludes 9 trainees currently training overseas and so differs from the figure in table 1 (292)

h includes 2 trainees in chemical pathology/endocrinology, 58 trainees in haematology and 10 trainees in immunology who are registered in the joint RCPA/RACP training program; the 70 trainees in this program have not been included in the total of RACP advanced trainees

i the 88 RACP Adult Medicine Division advanced trainees in joint training programs (18 intensive care, 2 chemical pathology/endocrinology, 58 haematology and 10 immunology) have not been included in the RACP totals to avoid any possibility of double counting; as joint training relates to advanced trainees only, the number of basic trainees noted in table 10 is not affected

j paediatric advanced trainees in joint training programs have been excluded from this table to avoid any possibility of double counting; the relevant number is 3 in haematology and 2 in immunology; as joint training relates to advanced training only, the number of basic trainees noted in table 10 is not affected

k total (6,378) is different from the total in table 1 (6,387) because it does not include 9 trainees currently training overseas (see footnote g)

l the total and share of trainees in NSW is shown as higher than it would actually be and the total and share in the ACT is lower because there is no specific general practice training consortia exclusively for the ACT. Hence, the consortia covering the ACT includes NSW and has been included in the NSW data

m the population proportions are from Australian Bureau of Statistics (ABS) (2004), Australian Demographic Statistics, catalogue no. 3101.0, Canberra

n GP training consortia do not strictly conform to state boundaries. A map showing the GP training consortia boundaries is at Figure 2  
 Source: medical colleges, GPET, ABS, AMWAC

### Number of basic training positions/programs, by college/faculty and state/territory, 2004

(Source: MTRP Medical Training Review Panel Eight report.)

SPECIALTY	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
Anaesthesia	112	73	66	26	26	12	4	5	<b>324</b>
Emergency Medicine	77	74	32	14	24	13	4	6	<b>244</b>
Othpalmology	9	7	1	1	1	1	2	0	<b>22</b>
Adult Medicine	257	220	138	57	65	19	6	22	<b>784</b>
Paediatrics	86	76	44	25	19	1	4	4	<b>259</b>
Surgery	55	46	25	14	17	5	2	4	<b>168</b>
<b>TOTAL</b>	<b>596</b>	<b>496</b>	<b>306</b>	<b>137</b>	<b>152</b>	<b>51</b>	<b>22</b>	<b>41</b>	<b>1801</b>

### Estimated first year basic training positions/programs likely to be available in 2005. (Source: MTRP Medical Training Review Panel Eight report.)

SPECIALTY	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
Anaesthesia	56	37	33	13	13	6	2	2	<b>162</b>
Emergency Medicine									
Othpalmology	7	8	5	1	1	1	2	0	<b>25</b>
Adult Medicine	92	76	33	21	15	4	3	9	<b>253</b>
Paediatrics	10	19	11	4	2	0	1	2	<b>49</b>
Surgery	65	48	37	15	19	5	2	4	<b>195</b>
<b>TOTAL</b>	<b>230</b>	<b>188</b>	<b>119</b>	<b>54</b>	<b>50</b>	<b>16</b>	<b>10</b>	<b>17</b>	<b>684</b>

### Appendix 3: Number of Full time equivalent Area of Need International Medical Graduates.

HEALTH_ZONE	DISTRICT	Staff Type	Sum of the FTE for Area of need IMG
Southern Zone	BAYSIDE DISTRICT	Medical Officer	4.8
Southern Zone	BAYSIDE DISTRICT	PHO	18.18
Southern Zone	GOLD COAST DISTRICT	Intern	6
Southern Zone	GOLD COAST DISTRICT	JHO	10
Southern Zone	GOLD COAST DISTRICT	PHO	30
Southern Zone	GOLD COAST DISTRICT	SHO	13
Southern Zone	GOLD COAST DISTRICT	Staff Specialist	5
Southern Zone	LOGAN/BEAUDESERT DISTRICT	Intern	3
Southern Zone	LOGAN/BEAUDESERT DISTRICT	JHO	4.05
Southern Zone	LOGAN/BEAUDESERT DISTRICT	Medical Officer	7
Southern Zone	LOGAN/BEAUDESERT DISTRICT	PHO	18.66
Southern Zone	LOGAN/BEAUDESERT DISTRICT	SHO	3
Southern Zone	NORTHERN DOWNS DISTRICT	Medical Superintendent	4
Southern Zone	PRINCESS ALEXANDRA DISTRICT	JHO	6
Southern Zone	PRINCESS ALEXANDRA DISTRICT	PHO	21.39
Southern Zone	PRINCESS ALEXANDRA DISTRICT	Staff Specialist	2.8
Southern Zone	QUEEN ELIZABETH II DISTRICT	JHO	6.25
Southern Zone	QUEEN ELIZABETH II DISTRICT	PHO	9
Southern Zone	QUEEN ELIZABETH II DISTRICT	SHO	5
Southern Zone	TOOWOOMBA DISTRICT	JHO	3
Southern Zone	TOOWOOMBA DISTRICT	PHO	17
Southern Zone	TOOWOOMBA DISTRICT	SHO	4
Southern Zone	TOOWOOMBA DISTRICT	Staff Specialist	4
Southern Zone	WEST MORETON DISTRICT	JHO	7
Southern Zone	WEST MORETON DISTRICT	PHO	14.01
Path & Scientific Services Zone	PATHOLOGY and SCIENTIFIC SERVICES	PHO	2.6
Path & Scientific Services Zone	PATHOLOGY and SCIENTIFIC SERVICES	Staff Specialist	3
Northern Zone	BOWEN DISTRICT	Medical Officer	4
Northern Zone	CAIRNS DISTRICT	JHO	5
Northern Zone	CAIRNS DISTRICT	PHO	11.5
Northern Zone	CAIRNS DISTRICT	Staff Specialist	4
Northern Zone	MACKAY DISTRICT	JHO	3
Northern Zone	MACKAY DISTRICT	Medical Officer	8.04
Northern Zone	MACKAY DISTRICT	PHO	18
Northern Zone	MACKAY DISTRICT	SHO	4
Northern Zone	MACKAY DISTRICT	Staff Specialist	4
Northern Zone	MT ISA DISTRICT	JHO	4
Northern Zone	MT ISA DISTRICT	Medical Officer	4

Northern Zone	MT ISA DISTRICT	PHO	5
Northern Zone	MT ISA DISTRICT	Staff Specialist	3
Northern Zone	TOWNSVILLE DISTRICT	JHO	13
Northern Zone	TOWNSVILLE DISTRICT	Medical Officer	5
Northern Zone	TOWNSVILLE DISTRICT	PHO	40.25
Northern Zone	TOWNSVILLE DISTRICT	SHO	11
Northern Zone	TOWNSVILLE DISTRICT	Staff Specialist	7
Central Zone	BANANA DISTRICT	Medical Officer	2
Central Zone	BUNDABERG DISTRICT	JHO	3
Central Zone	BUNDABERG DISTRICT	Medical Officer	2
Central Zone	BUNDABERG DISTRICT	PHO	8
Central Zone	BUNDABERG DISTRICT	SHO	4
Central Zone	BUNDABERG DISTRICT	Staff Specialist	3
Central Zone	FRASER COAST DISTRICT	Intern	7
Central Zone	FRASER COAST DISTRICT	JHO	6
Central Zone	FRASER COAST DISTRICT	Medical Officer	11
Central Zone	FRASER COAST DISTRICT	PHO	11
Central Zone	FRASER COAST DISTRICT	SHO	3
Central Zone	FRASER COAST DISTRICT	Staff Specialist	2
Central Zone	GLADSTONE DISTRICT	JHO	2
Central Zone	GLADSTONE DISTRICT	PHO	3
Central Zone	GYMPIE DISTRICT	PHO	5
Central Zone	PRINCE CHARLES DISTRICT	JHO	5
Central Zone	PRINCE CHARLES DISTRICT	PHO	17
Central Zone	PRINCE CHARLES DISTRICT	SHO	6
Central Zone	PRINCE CHARLES DISTRICT	Staff Specialist	3
Central Zone	REDCLIFFE/CABOOLTURE DISTRICT	JHO	6
Central Zone	REDCLIFFE/CABOOLTURE DISTRICT	PHO	35.1
Central Zone	REDCLIFFE/CABOOLTURE DISTRICT	SHO	8
Central Zone	REDCLIFFE/CABOOLTURE DISTRICT	Staff Specialist	3
Central Zone	ROCKHAMPTON DISTRICT	JHO	5
Central Zone	ROCKHAMPTON DISTRICT	PHO	19
Central Zone	ROCKHAMPTON DISTRICT	SHO	4.2
Central Zone	ROCKHAMPTON DISTRICT	Staff Specialist	6
Central Zone	ROYAL BRISBANE DISTRICT	JHO	10
Central Zone	ROYAL BRISBANE DISTRICT	PHO	37.56
Central Zone	ROYAL BRISBANE DISTRICT	Staff Specialist	5.2
Central Zone	ROYAL CHILDREN'S DISTRICT	PHO	6
Central Zone	ROYAL CHILDREN'S DISTRICT	Staff Specialist	3
Central Zone	SUNSHINE COAST DISTRICT	PHO	29.8
Central Zone	SUNSHINE COAST DISTRICT	Staff Specialist	8.15

Central Zone	GLADSTONE DISTRICT	Medical Officer	2
Central Zone	GYMPIE DISTRICT	Medical Officer	2
Central Zone	REDCLIFFE/CABOOLTURE DISTRICT	Intern	2
Central Zone	ROCKHAMPTON DISTRICT	Medical Officer	2
Central Zone	SUNSHINE COAST DISTRICT	SHO	2
Northern Zone	CAIRNS DISTRICT	Medical Officer	2
Northern Zone	CHARTERS TOWERS DISTRICT	Medical Superintendent	2
Northern Zone	MT ISA DISTRICT	Medical Superintendent	2
Southern Zone	BAYSIDE DISTRICT	JHO	2
Southern Zone	BAYSIDE DISTRICT	SHO	2
Southern Zone	BAYSIDE DISTRICT	Staff Specialist	2
Southern Zone	LOGAN/BEAUDESERT DISTRICT	Staff Specialist	2
Southern Zone	PRINCESS ALEXANDRA DISTRICT	SHO	2
Southern Zone	WEST MORETON DISTRICT	Intern	2
Southern Zone	PRINCESS ALEXANDRA DISTRICT	Medical Officer	1.5
Central Zone	SUNSHINE COAST DISTRICT	Medical Officer	1.2
Central Zone	CENTRAL HIGHLANDS DISTRICT	Medical Officer	1
Central Zone	CENTRAL HIGHLANDS DISTRICT	PHO	1
Central Zone	REDCLIFFE/CABOOLTURE DISTRICT	Medical Officer	1
Central Zone	REDCLIFFE/CABOOLTURE DISTRICT	Medical Superintendent	1
Central Zone	ROYAL BRISBANE DISTRICT	Intern	1
Central Zone	ROYAL BRISBANE DISTRICT	Medical Officer	1
Central Zone	ROYAL BRISBANE DISTRICT	SHO	1
Central Zone	ROYAL CHILDREN'S DISTRICT	JHO	1
Central Zone	SOUTH BURNETT DISTRICT	Medical Superintendent	1
Central Zone	SUNSHINE COAST DISTRICT	JHO	1
Northern Zone	BOWEN DISTRICT	Medical Superintendent	1
Northern Zone	CAIRNS DISTRICT	Intern	1
Northern Zone	CAIRNS DISTRICT	SHO	1
Northern Zone	CAPE YORK DISTRICT	Medical Superintendent	1
Northern Zone	CHARTERS TOWERS DISTRICT	Medical Officer	1
Northern Zone	INNISFAIL DISTRICT	Medical Officer	1
Northern Zone	INNISFAIL DISTRICT	PHO	1
Northern Zone	INNISFAIL DISTRICT	Staff Specialist	1
Northern Zone	MACKAY DISTRICT	Intern	1
Northern Zone	MACKAY DISTRICT	Medical Superintendent	1
Northern Zone	MORANBAH DISTRICT	Medical Superintendent	1

Northern Zone	TABLELANDS DISTRICT	Medical Officer	1
Northern Zone	TABLELANDS DISTRICT	PHO	1
Northern Zone	TABLELANDS DISTRICT	Staff Specialist	1
Northern Zone	TOWNSVILLE DISTRICT	Intern	1
Southern Zone	BAYSIDE DISTRICT	Intern	1
Southern Zone	LOGAN/BEAUDESERT DISTRICT	Medical Superintendent	1
Southern Zone	QUEEN ELIZABETH II DISTRICT	Staff Specialist	1
Southern Zone	SOUTHERN DOWNS DISTRICT	Medical Superintendent	1
Southern Zone	TOOWOOMBA DISTRICT	Medical Officer	1
Southern Zone	WEST MORETON DISTRICT	Medical Officer	1
Southern Zone	WEST MORETON DISTRICT	SHO	1
Central Zone	ROCKHAMPTON DISTRICT	VMO	0.7
Path & Scientific Services Zone	PATHOLOGY and SCIENTIFIC SERVICES	VMO	0.53
Central Zone	FRASER COAST DISTRICT	VMO	0.5
Southern Zone	NORTHERN DOWNS DISTRICT	Medical Officer	0.5
Northern Zone	TOWNSVILLE DISTRICT	VMO	0.17
Northern Zone	MACKAY DISTRICT	VMO	0.1

**Appendix 4: Years to leaving the medical profession by speciality  
(Source: Medical Labour Force Survey 2004)**

Medical Speciality	Years to leaving the Medical Workforce									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-40	>40	
Anaesthesia (excluding Intensive Care)	46	66	72	64	69	39	11	1	15	383
Anatomical Pathology	9	10	20	9	8	5	5		2	68
Cardiology	7	8	21	12	25	9	5	2	6	95
Cardio-thoracic Surgery	3	2	5	3	7				1	21
Clinical Chemistry		1	3	2	1				1	8
Clinical Genetics			1	2	3					6
Clinical Haematology	2	1	8	3	6	3		3	2	28
Clinical Immunology (including allergy)		1			1		2			4
Clinical Pharmacology				1		1				2
Dermatology	5	4	8	7	6	3	3		1	37
Diagnostic Radiology (including ultrasound)	28	23	37	25	35	6	5		23	182
Emergency Medicine	3	3	15	15	30	11	10	2	1	90
Endocrinology		6	5	4	6	5	2	1	1	30
Forensic Pathology			1			1				2
Gastroenterology	2	10	16	4	14	7	2		3	58
General Medicine	27	20	24	8	11	7	9	1	8	115
General Pathology	3	5	3	2	1	1	1			16
General Surgery	36	38	30	15	20	10	8	1	9	167
Geriatrics	1	1		4	3	2	4			15
Haematology	1	2	2	1	2		3			11
Immunology			1		1					2
Infectious Diseases				4	7	1	2			14
Intensive Care - Anaesthesia	1	1	7	8	5	5			1	28
Intensive Care - Internal Medicine		2	5	1	8		2			18
Medical Administration	2	4	1	2	3		1		1	14
Medical Oncology		1	7	5	7	1	5			26
Microbiology	1		2	3	1					7
Neurology	5	7	4	4	9	3	2		1	35
Neurosurgery		6	2	2	2	2	2			16
Nuclear Medicine	2	3	4	4	3	2		2		20
Obstetrics and Gynaecology (inc. Gyn. Oncology)	21	40	42	25	30	8	4		9	179
Occupational Medicine	2	5	9	4	1	1				22
Ophthalmology	16	12	13	9	16	6	7	2	5	86
Orthopaedic Surgery	17	27	23	28	18	8	7	1	2	131
Other	3		5	4	3					15
Otolaryngology	5	3	9	7	8	1	4		2	39
Paediatric Medicine	6	22	25	24	31	12	7	1	3	131
Paediatric Surgery	2	4	2	2	1		1			12
Plastic/Reconstructive Surgery	4	4	4	5	5	4	1		3	30
Psychiatry	26	43	59	45	67	32	14	2	16	304
Public Health Medicine	1	3	4		4	2	1		1	16
Radiation Oncology	1	1	8	5	6	4			1	26
Rehabilitation Medicine	2	1	4	1	1	1			2	12
Renal Medicine	3	4	2	3	4	4	1		2	23

Rheumatology	1	3	4	1	7	1	1			18
Thoracic Medicine	6	3	5	6	13	3	6		2	44
Urology	5	4	4	5	7	4	3	1	4	37
Vascular Surgery	2	4	4	3	5				1	19

## Appendix 5: Detailed summary of the implementation of the recommendations of AMWAC workforce reviews, as at September 2004 by Queensland

Note: the year in brackets after the name of the specialty refers to the year in which the workforce review was completed, generally using training data from the previous year.

AMWAC RECOMMENDATION	IMPLEMENTATION	
<b>PRIMARY CARE</b>		
<b>General Practice (2000)</b>		
93 Qld first year trainees each year 2001-2003	124 Qld first year trainees in 2004	Met
<b>PHYSICIAN SPECIALTIES</b>		
<b>Cardiology (1999)</b>		
No specific QLD recommendation	38 first year advanced trainees in 2004	
24-28 first year advanced trainees each year from 2000	2 Qld	?
<b>Gastroenterology (2000)</b>		
3 Qld first year advanced trainees 2003-2008	Nil Qld first year advanced trainees in Qld in 2004	No
<b>Geriatric Medicine (1997)</b>		
4 Qld first year advanced trainees 2001 onwards	5 Qld first year advanced trainees in 2004	Met
<b>Haematology (2001)</b>		
5 Qld first year advanced trainees from 2004 onwards	1 Qld first year advanced trainee in 2004	No
<b>Medical Oncology (2001)</b>		
4 Qld first year advanced trainees from 2004 onwards	1 Qld first year advanced trainees in 2004	No
<b>Paediatrics and Child Health (1999)</b>		
No specific Qld recommendation	45 first year basic trainees in 2004	
30-35 first year basic trainees each year 2001-2009	10 in Qld	Met
<b>Thoracic Medicine (2000)</b>		
No specific Qld recommendation	30 first year advanced trainees in 2004	
24 first year advanced trainees from 2005 onwards	5 in Qld	?
<b>SURGICAL SPECIALTIES</b>		
<b>General Surgery (1997)</b>		
43 Qld total training positions by 2000	45 Qld training positions in 2004	Met
<b>Cardiothoracic Surgery (2001)</b>		
No specific Qld recommendation	6 first year advanced trainees in 2004	
5 first year trainees each year 2001-2011	1 in Qld	?
	24 total number of training positions in 2004	
	5 in Qld	
<b>Ear Nose and Throat Surgery (1997)</b>		
11 total Qld training positions by 2000	9 total Qld training positions in 2004	No
<b>Orthopaedic Surgery (1999)</b> (1999 update of the original 1996 review)		
9 Qld first year advanced trainees each year 2002-2005	5 Qld first year advanced trainees in 2004	No
<b>Neurosurgery (2000)</b>		

No specific Qld recommendation 6-8 first year advanced trainees each year 2001-2010	5 first year advanced trainees in 2004 None in Qld 51 total number of training positions in 2004 10 in Qld	?
<b>Urology</b> (1996) 10 Qld total number of training positions by 2006	10 Qld total number of training positions in 2004	Met
<b>OTHER SPECIALTIES</b>		
<b>Anaesthesia</b> (2001) (2001 update of the original 1996 review) 101 Qld total number of training positions by 2003 (years 1 to 4)	150 Qld total number of trainees in 2004 (years 1 to 5; following change in training program arrangements from 2004)	Met
<b>Dermatology</b> (1998) 11 Qld total number of training positions by 2001	12 Qld total number of training positions in 2004	Met
<b>Emergency Medicine</b> (2004) 25 Qld first year trainees from 2004	12 Qld first year trainees in 2004	No
<b>Intensive Care</b> (1999) 24-26 first year trainees each year 2000-20006; so as to ensure a minimum output of 20 from 2005 onwards.	The structure of the current training program makes it difficult to estimate first year intake as the majority of trainees transfer across from anaesthesia or surgery. Total number of trainees in 2004 - 146 23 in Qld	?
<b>Obstetrics and Gynaecology</b> (2004) 18 Qld first year trainees 2005 onwards	8 Qld first year trainees in 2004	No
<b>Ophthalmology</b> (1996) 11 Qld total number of training positions by 2006	13 Qld total number of training positions in 2004	Met
<b>Pathology</b> (2004) 132 first year trainees from 2004 onwards (no State/Terr. allocation recommended)	44 first year trainees in 2004 8 in Qld	No
<b>Psychiatry</b> (1999) 23 first year trainees from 2002 onwards	20 first year trainees in 2004	No
<b>Radiation Oncology</b> (1998) 8 Qld total number of training positions by 2000	8 Qld total number of training positions in 2004	Met
<b>Radiology</b> (2001) 50 Qld training positions by 2004	39 Qld total number of training positions in 2004	No
<b>Rehabilitation Medicine</b> (1997) No specific Qld recommendation 25 first year trainees each year 1998-2007 (from a base of 15 first year trainees in 1996)	29 first year trainees in 2004 2 in Qld	?

Source: AMWAC, medical colleges, GPET

## Appendix 6: Summary of medical college/ faculty part time training requirements, 2004.

Table 53:

College/faculty	Training requirements
Australian and New Zealand College of Anaesthetists	5 years full time. Can enter after completing PGY1 and PGY2
Australian College of Dermatologists	5 years full time. Can enter after completing PGY1 and PGY2
Australian College for Emergency Medicine	2 years basic training full time (which can comprise PGY1 and PGY2). 1 year provisional training full time. 4 years advanced training full time
General Practice Education and Training	3 years full time. Can enter after completing PGY1. There is a general pathway and rural pathway.
Joint Faculty of Intensive Care Medicine - Australian and new Zealand College of Anaesthetists and Royal Australian College of Physicians	3 years basic training full time. 3 years advanced training full time. Can enter after PGY1
Royal Australian College of Medical Administrators	5 years full time. Can enter after completing PGY1 and PGY2
Royal Australian and New Zealand College of Obstetricians and Gynaecologists	6 years full time. Years 1-4 in the Integrated Training Program. Years 5-6 in the Elective Program
Royal Australian College of Ophthalmologists	5 years full time. Can enter after completing PGY1 and PGY2
Royal College of Pathologists	5 years full time. Can enter after completing PGY1
Royal Australasian College of Physicians - Adult Medicine Division	3 years basic training full time. 3 years advanced training full time. Can enter after PGY1
Royal Australasian College of Physicians - Paediatrics and Child Health	3 years basic training full time. 3 years advanced training full time. Can enter after PGY1
Royal Australasian College of Physicians - Australasian Faculty of Occupational Medicine	4 years full time. Can enter after completing 3 years general clinical experience
Royal Australasian College of Physicians - Australasian faculty of Public Health Medicine	4 years full time. Can enter after completing 3 years general medical experience which is deemed relevant to public health medicine; also requires completion of course work of the Master of Public Health prior to entry
Royal Australasian College of Physicians - Australasian Faculty of Rehabilitation Medicine	4 years full time. Can enter after completing PGY1 and PGY2
Royal Australian and New Zealand College of Psychiatrists	5 years full time. Can enter after completing PGY1 And PGY2 (also has optional two year advanced training programs in child and adolescent psychiatry, psychiatry of old age, forensic psychiatry, psychotherapy and consultation-liaison)

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psychiatry)

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Royal Australian and New Zealand College of Radiologists - Radiodiagnosis	5 years full-time. Can enter after completing 2 years of basic training (which can consist of PGY1 and PGY2)
Royal Australian and New Zealand College of Radiologists - Faculty of Radiation Oncology	5 years full-time. Can enter after completing 2 years of basic training (which can consist of PGY1 and PGY2)
Royal Australasian College of Surgeons	2 years (minimum) basic training full-time. Can commence after PGY1 Advanced training occurs in 9 specialty areas:
	General surgery - 4 years fulltime
	Cardiothoracic Surgery - 2 years full time years fulltime in advanced general surgery + 4 years full-time in cardiothoracic surgery
	Neurosurgery - 5 years full time
	Orthopaedic surgery - 4 years full time
	Paediatric surgery - 2 years full time in advanced general surgery + 4 years full time in Paediatric surgery
	Plastic and reconstructive surgery - 1 year full time in advanced general surgery + 4 years full time in plastic surgery
	Urological surgery - 4 years full time
	Vascular surgery - 2 years full time in advanced general surgery + 3 years full time in vascular surgery

Source: AMWAC from information provided by medical colleges, GPET

## **Appendix 7: Hardes Inpatient Model, projecting demand and supply of acute inpatients**

### **Introduction**

The Acute Inpatient Modelling program (AIM) is a PC-based interactive program that enables health planners to review acute inpatient projections to the year 2021-2022. The status quo projections can be revised to take into account anticipated local changes in health delivery, including changes in demand, ALOS and referral patterns to hospitals. It provides detailed projections at the level of Enhanced Service Related Groups (ESRGs), 3 age groups, SLA of residence and hospital. The outcome variables provided are number of separations and beddays. The results are presented in the form of Excel pivot tables that allow the user to view the data in a flexible way. Indeed, the main purpose of the program is to create these tables which can then be viewed outside the program.

Users are able to select an ESRG, ATSI status and age group (0-14, 15-64, 65+) combination for each region of residence and obtain data relating to:

- Relative Utilisation (RU) for the base year (currently 2000/01);
- Current and projected separations and beddays for each region of residence;
- Current and projected percentage day only for each region of residence;
- Current and Projected ALOS for overnight+ separations; and
- Current referral pattern.

The flow matrix on which this is based can be chosen by the user so that they can drill down to individual SLAs and/or hospitals, keeping Areas and/or hospitals less relevant to their planning needs still aggregated. Scenarios involving changes to demand, % day only, ALOS and referral pattern can be made and stored. The results based on the status quo and scenario can then be quickly seen side by side in a pivot table, allowing easy interpretation and incorporation into reports. Once scenarios have been made for each ESRG, a large query to the database can be made from within the program and detailed results for each ESRG/age group/region of residence/place of treatment combination can be viewed in a pivot table. Additional scenarios can be based on scenarios previously made or started de novo.

### **Outline of methodology**

#### Development of trend parameters

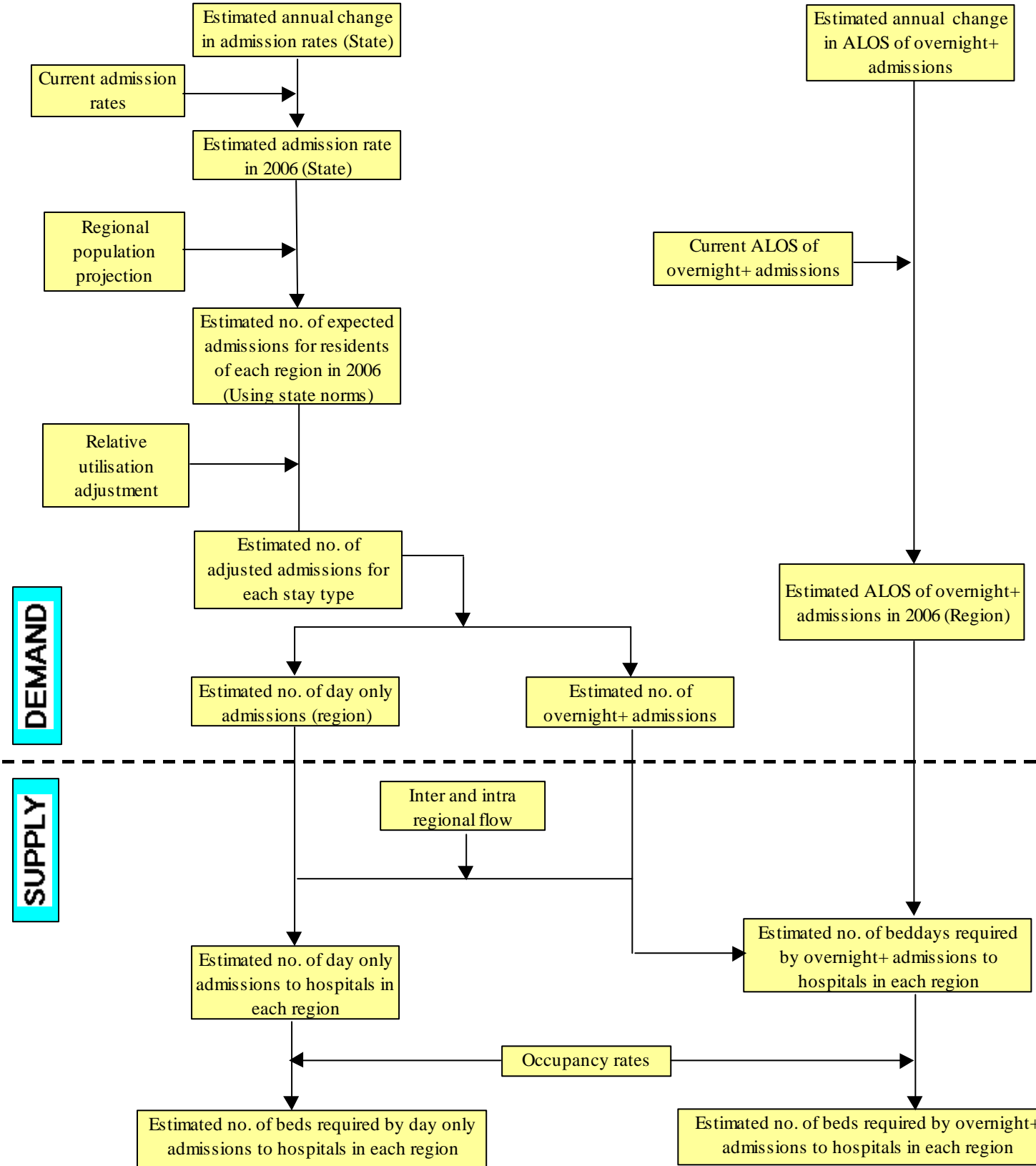
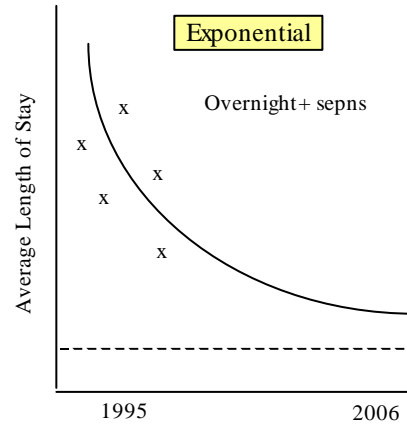
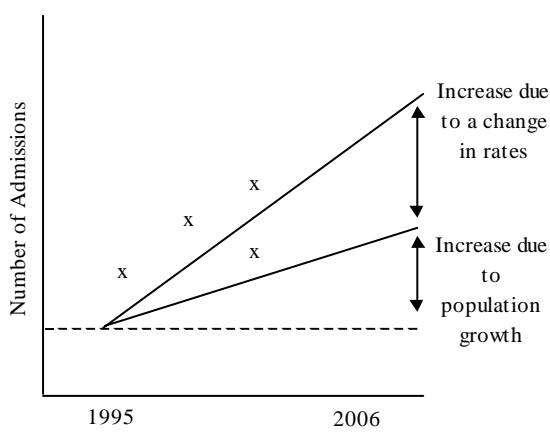
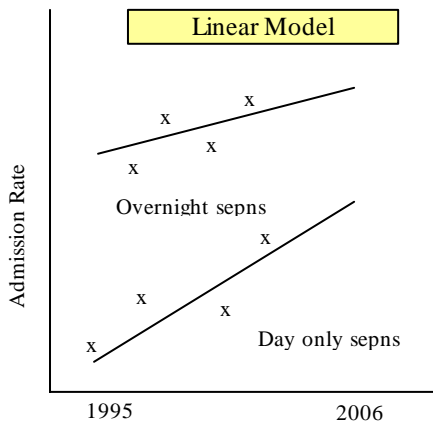
Statistical methods were used to provide projections to the year 2021-2022 for each of the main components of the study - linear regression was used for admission rates, and exponential decline for overnight+ ALOS (with an asymptotic limit of 1 day) of non-tertiary and tertiary admissions. Each admission rate projection was done for both sexes, 3 age groups (0-14, 15-64 and 65+ years) and 3 stay types (day only, non-tertiary overnight+ and tertiary), leading to 18 projections for each ESRG. The slope parameters derived from these models refer to the  $\beta$ 's seen in the equations below:

Admission Rate:  $\text{Admission Rate}(\text{year} = x) = \alpha + \beta * x$

ALOS (overnight+):  $\ln(\text{ALOS}(\text{year} = x) - 1) = \alpha + \beta * x$

In many cases, the data showed a consistent pattern that was amenable to statistical modelling. However, in some important areas, the historical trend data cannot be modelled satisfactorily using statistics alone and clinical knowledge can also provide valuable insights into the trends that are likely to be seen over the next 10 to 15 years. As a result, some of the trend parameters were altered in cases where the projected values seemed unlikely to be obtained.

The first step in calculating the results is to determine the total number of admissions for each ESRG / region of residence / age group / ATSI / stay type combination (total demand). These admissions are then allocated to individual places of treatment according to the referral patterns seen in the current year (status quo model). These referral patterns will differ for each ESRG / region of residence / age group / ATSI / stay type combination. The projected ALOS is then applied to the projected admissions to obtain future bedday requirements.



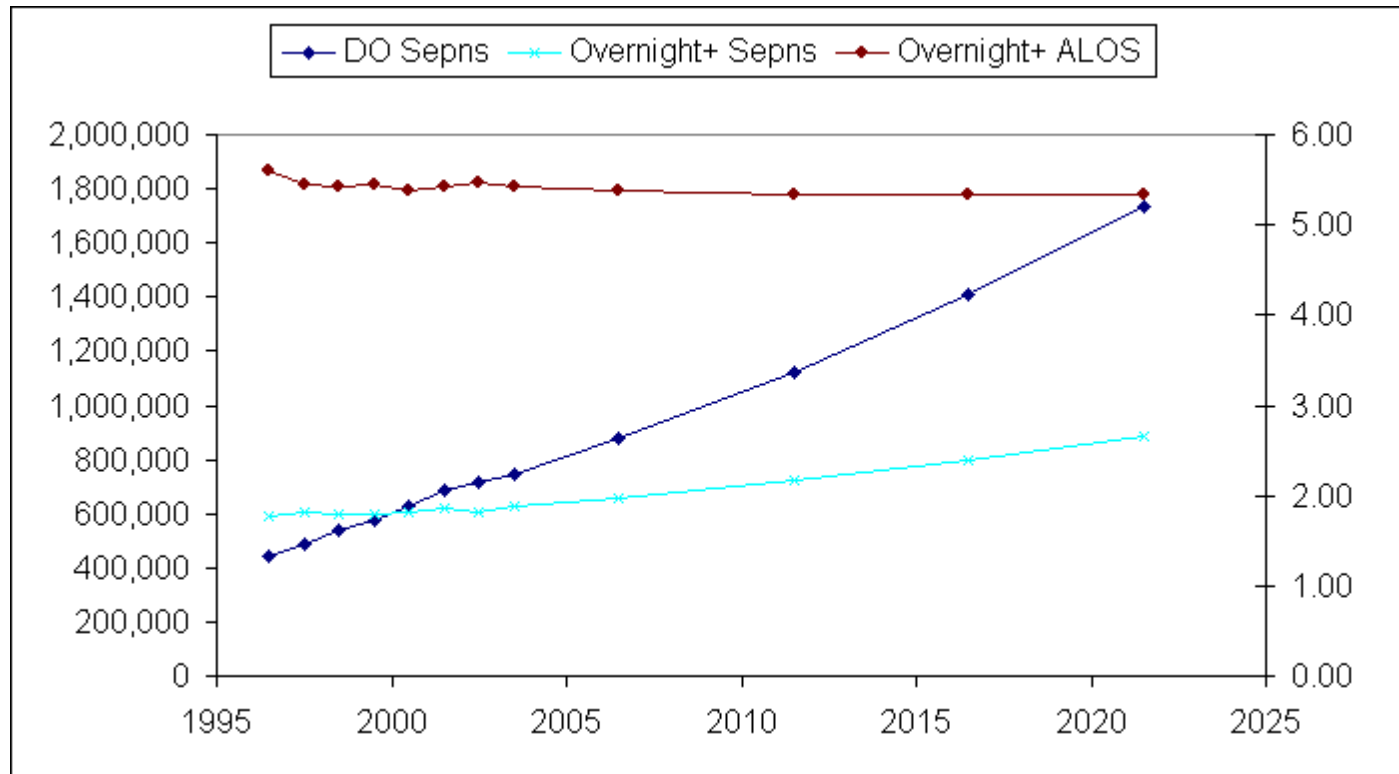
**Base data used**

The base year data was derived from the 2000/01 Qld Inpatient data set. LOS was truncated at 90 days, while day only stays were allocated a LOS of 1 day.

As you would be aware, no data set is static but changes over time as errors are found, records added or deleted, or definitions change. This may result in some discrepancies between the base data presented in AIM and the most recent version of the 2000/01 Qld Inpatient data.

### Appendix 8: Hardes Inpatient Model, projecting demand for selected specialties.

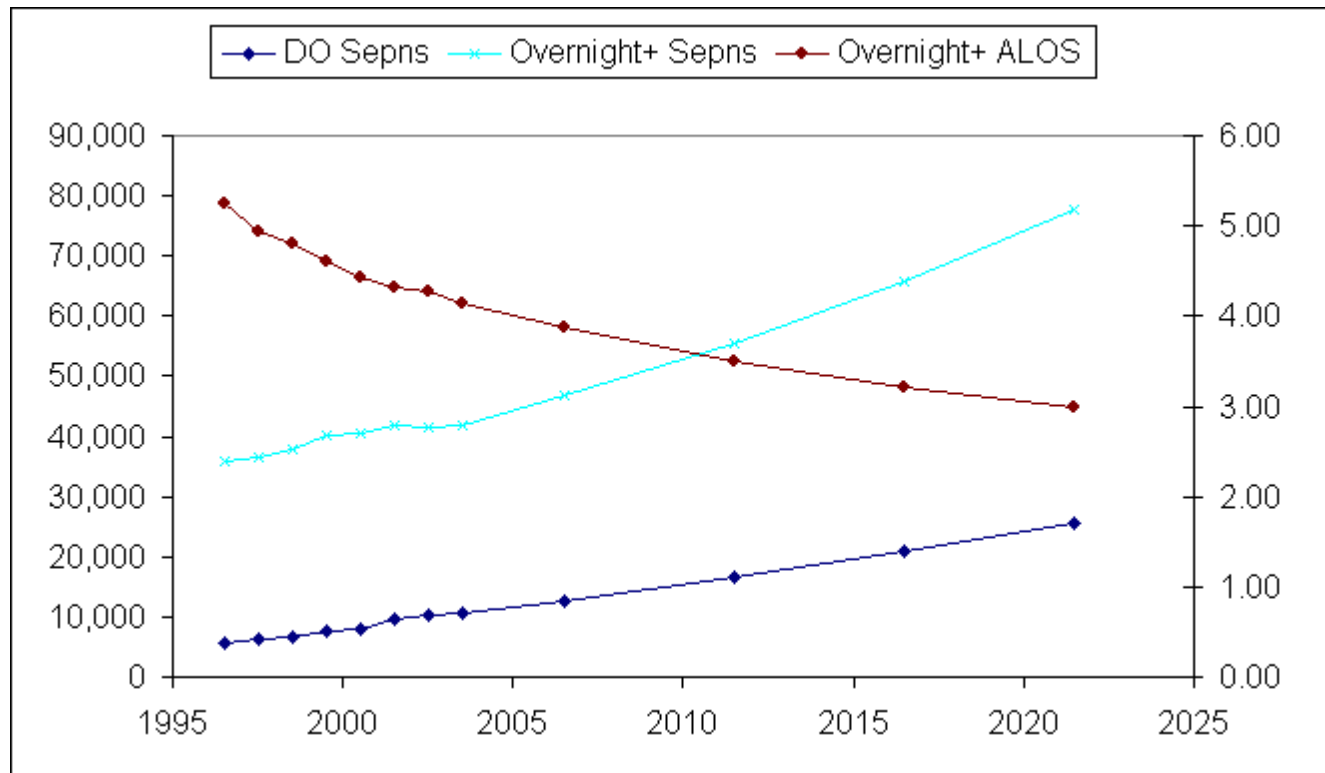
All DRG's		Year												
Stay_Type	Data	1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22	
Day only	Sum of Separations Auto Adj	441,406	489,933	536,342	578,203	624,177	683,019	712,461	744,152	880,769	1,124,651	1,410,462	1,735,245	
	Sum of Beddays Auto Adj	441,406	489,933	536,342	578,203	624,177	683,019	712,461	744,152	880,769	1,124,651	1,410,462	1,735,245	
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Overnight+	Sum of Separations Auto Adj	587,605	603,769	599,040	597,879	605,067	616,357	605,183	626,954	658,813	721,654	794,388	882,297	
	Sum of Beddays Auto Adj	3,290,313	3,289,572	3,252,022	3,258,528	3,252,576	3,344,836	3,308,373	3,403,775	3,546,318	3,854,045	4,231,734	4,709,907	
	Sum of ALOS	5.60	5.45	5.43	5.45	5.38	5.43	5.47	5.43	5.38	5.34	5.33	5.34	



Cardiology

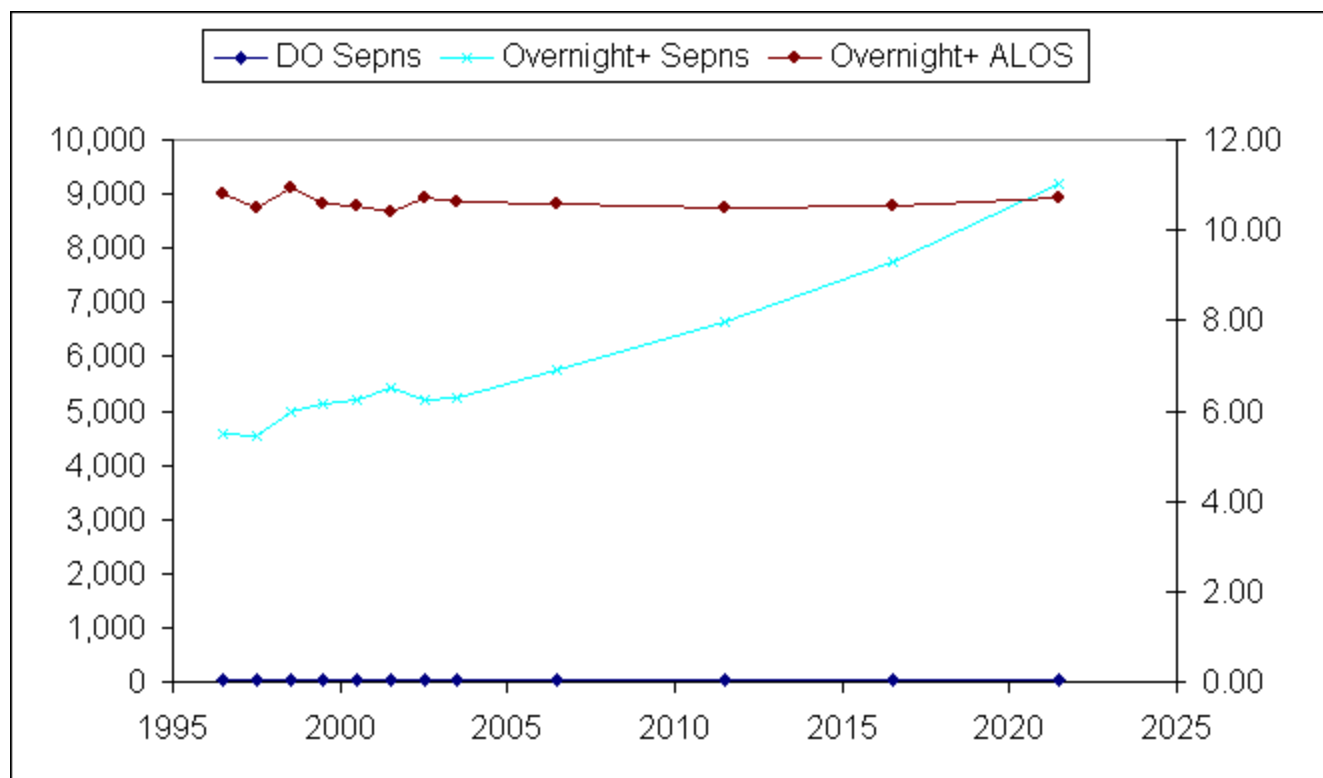
Year

Stay_Type	Data	1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22
Day only	Sum of Separations Auto Adj	5,497	6,413	6,615	7,659	7,970	9,526	10,144	10,663	12,706	16,444	20,814	25,728
	Sum of Beddays Auto Adj	5,497	6,413	6,615	7,659	7,970	9,526	10,144	10,663	12,706	16,444	20,814	25,728
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overnight+	Sum of Separations Auto Adj	35,779	36,394	37,934	40,019	40,548	41,686	41,531	41,944	46,920	55,485	65,709	77,840
	Sum of Beddays Auto Adj	188,127	179,331	182,602	184,597	179,427	179,641	177,397	173,885	181,758	194,138	210,409	232,087
	Sum of ALOS	5.26	4.93	4.81	4.61	4.43	4.31	4.27	4.15	3.87	3.50	3.20	2.98

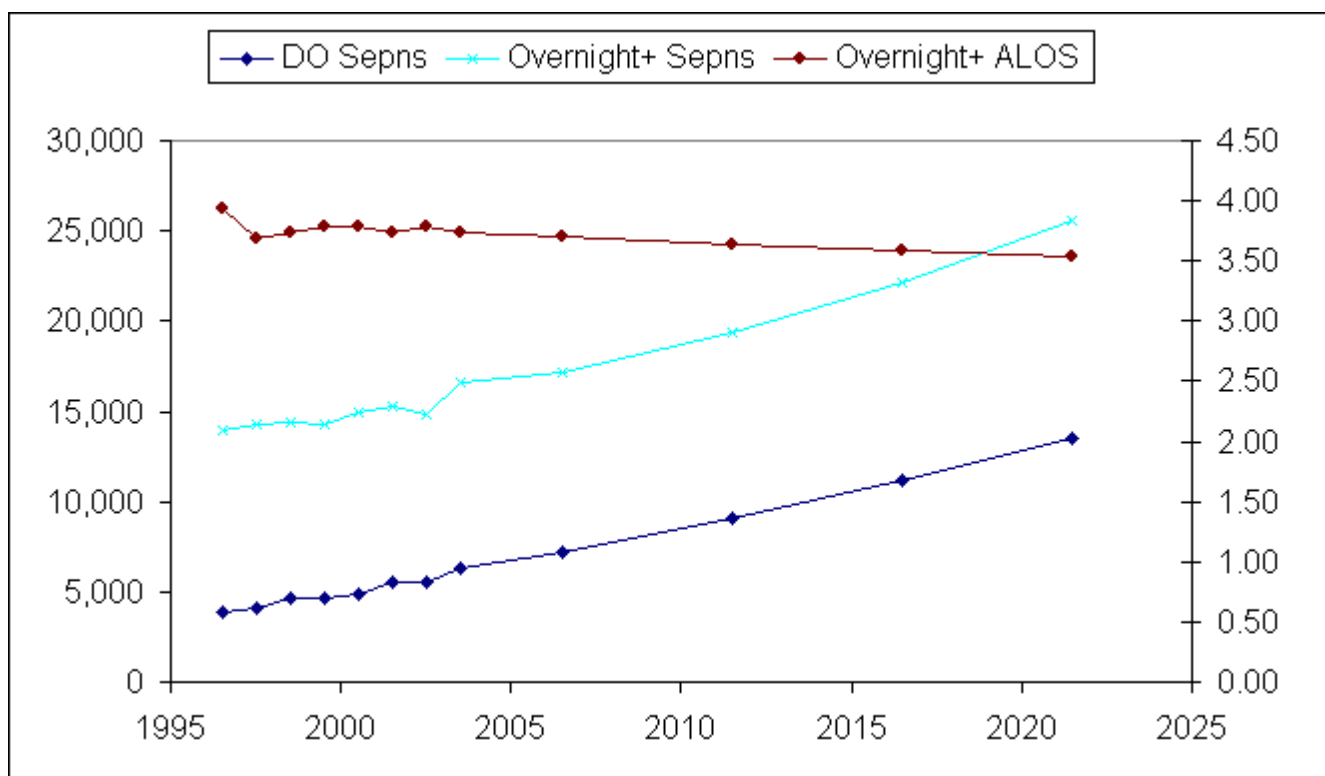


Cardiothoracic  
Surgery

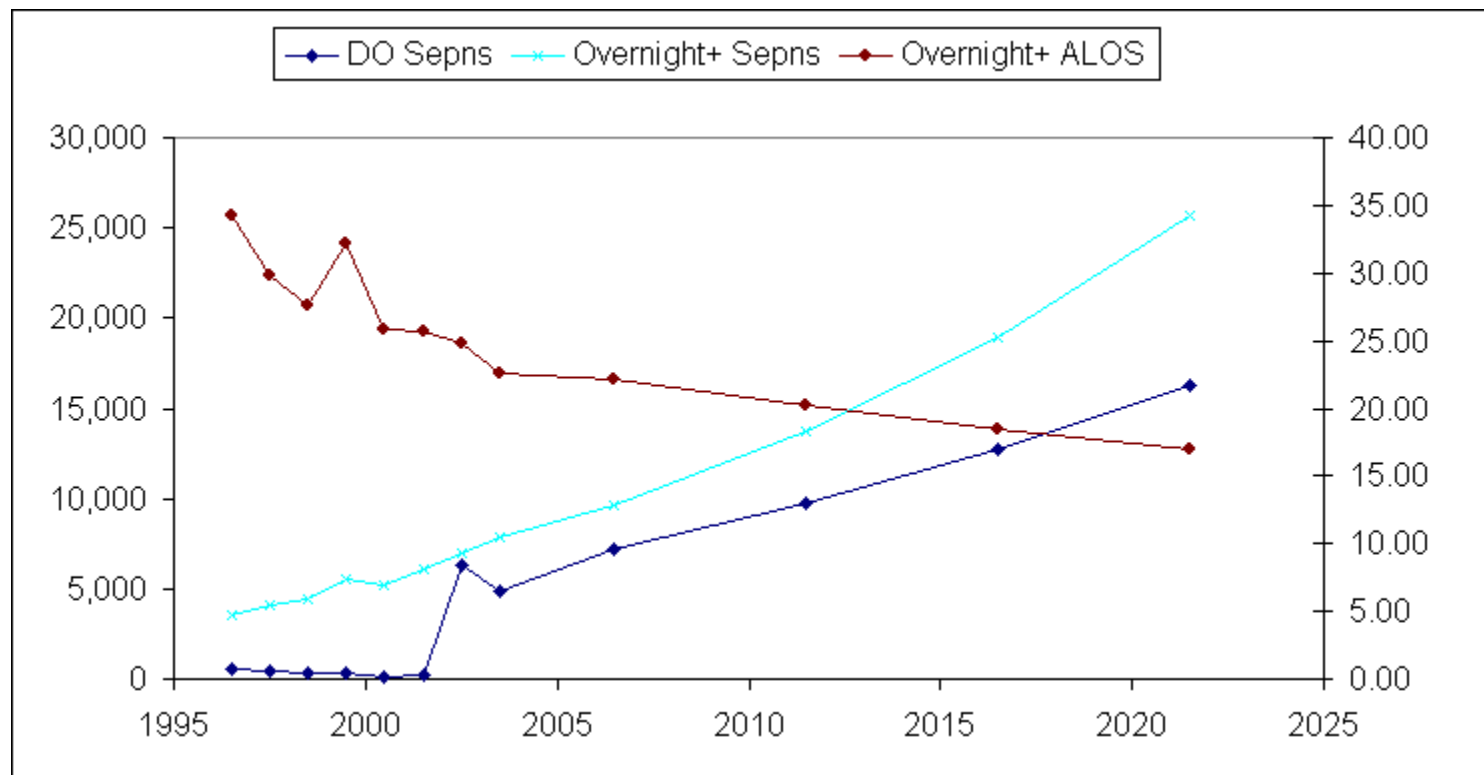
Stay_Type	Data	Year											
		1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22
Day only	Sum of Separations Auto Adj	22	28	28	23	31	25	19	22	22	23	24	25
	Sum of Beddays Auto Adj	22	28	28	23	31	25	19	22	22	23	24	25
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overnight+	Sum of Separations Auto Adj	4,558	4,555	4,965	5,142	5,203	5,429	5,191	5,234	5,761	6,630	7,734	9,177
	Sum of Beddays Auto Adj	49,171	47,841	54,304	54,387	54,937	56,556	55,687	55,714	60,939	69,602	81,486	98,192
	Sum of ALOS	10.79	10.50	10.94	10.58	10.56	10.42	10.73	10.64	10.58	10.50	10.54	10.70



Gastroenterology		Year											
Stay_Type	Data	1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22
Day only	Sum of Separations Auto Adj	3,828	4,146	4,618	4,685	4,898	5,492	5,546	6,281	7,154	9,076	11,229	13,551
	Sum of Beddays Auto Adj	3,828	4,146	4,618	4,685	4,898	5,492	5,546	6,281	7,154	9,076	11,229	13,551
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overnight+	Sum of Separations Auto Adj	13,898	14,263	14,407	14,321	14,956	15,283	14,800	16,555	17,123	19,423	22,171	25,531
	Sum of Beddays Auto Adj	54,748	52,682	53,792	54,304	56,579	56,987	56,112	61,851	63,421	70,706	79,465	90,337
	Sum of ALOS	3.94	3.69	3.73	3.79	3.78	3.73	3.79	3.74	3.70	3.64	3.58	3.54



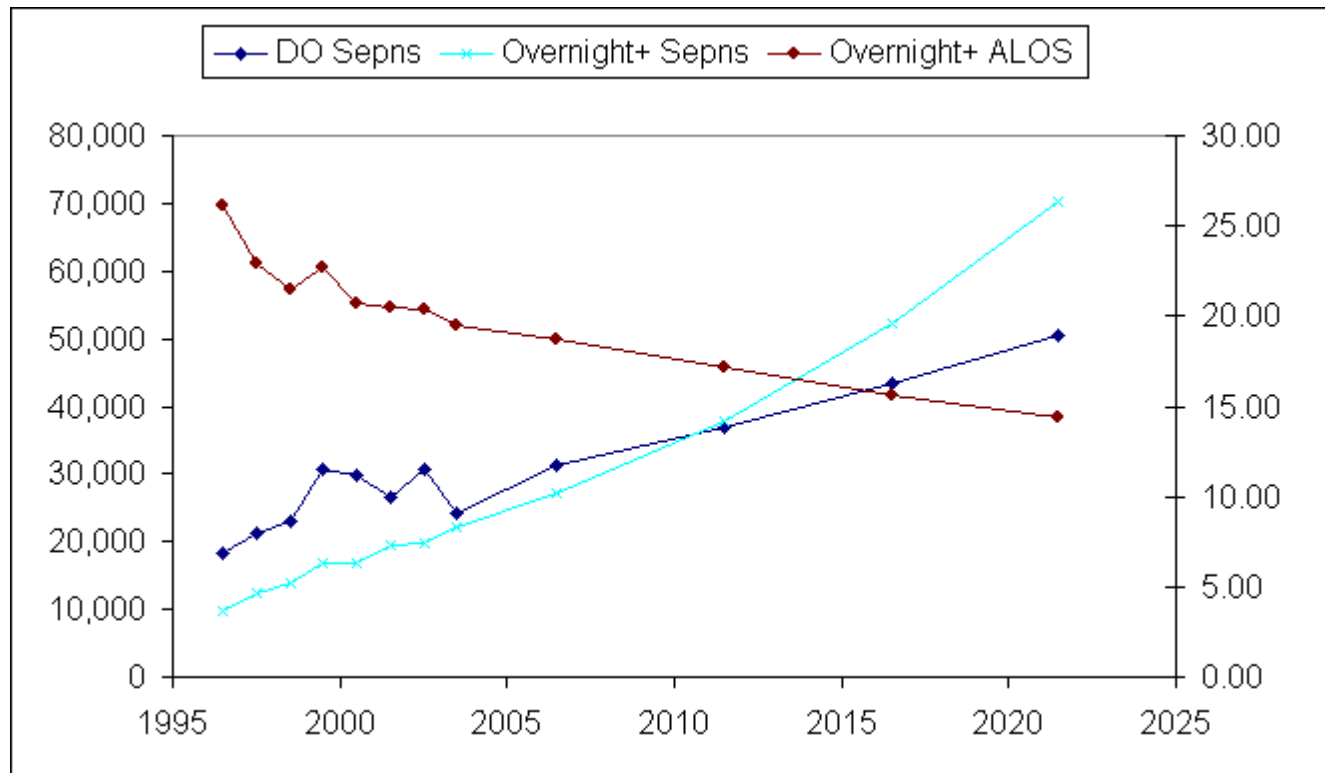
Geriatric Management		Year											
Stay_Type	Data	1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22
Day only	Sum of Separations Auto Adj	507	419	382	361	144	243	6,341	4,874	7,156	9,693	12,738	16,239
	Sum of Beddays Auto Adj	507	419	382	361	144	243	6,341	4,874	7,156	9,693	12,738	16,239
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overnight+	Sum of Separations Auto Adj	3,496	4,145	4,406	5,566	5,156	6,140	7,023	7,876	9,666	13,697	18,974	25,694
	Sum of Beddays Auto Adj	119,502	123,523	121,470	179,288	133,385	157,804	174,468	177,751	214,543	277,431	350,371	434,521
	Sum of ALOS	34.18	29.80	27.57	32.21	25.87	25.70	24.84	22.57	22.20	20.25	18.47	16.91



Non acute services

Year

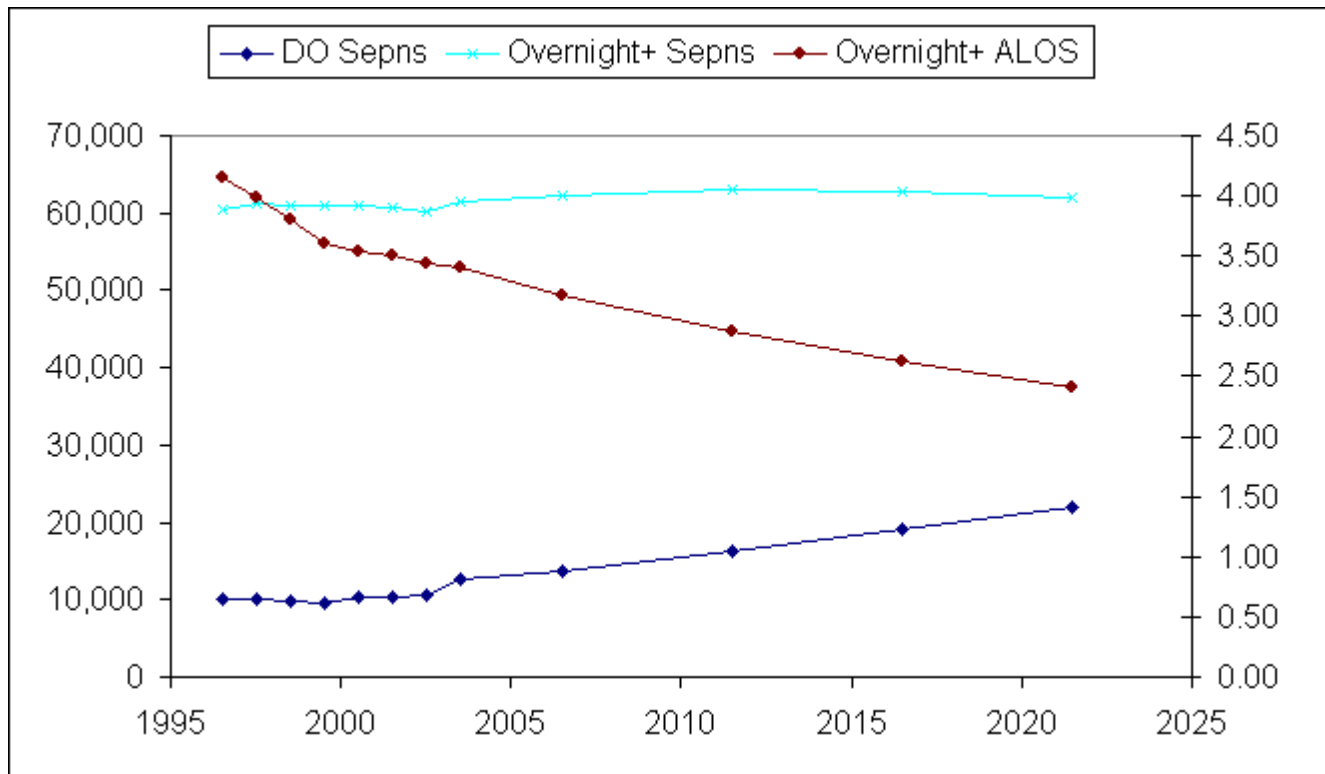
Stay_Type	Data	1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22
Day only	Sum of Separations Auto Adj	18,301	21,251	22,901	30,631	29,791	26,593	30,612	24,184	31,145	36,909	43,357	50,378
	Sum of Beddays Auto Adj	18,301	21,251	22,901	30,631	29,791	26,593	30,612	24,184	31,145	36,909	43,357	50,378
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overnight+	Sum of Separations Auto Adj	9,849	12,476	13,936	16,804	16,969	19,528	19,861	22,204	27,070	37,914	52,107	70,195
	Sum of Beddays Auto Adj	257,115	286,551	299,294	380,570	350,829	399,804	405,372	433,004	506,305	648,661	815,866	1,011,167
	Sum of ALOS	26.11	22.97	21.48	22.65	20.67	20.47	20.41	19.50	18.70	17.11	15.66	14.41



Obstetrics

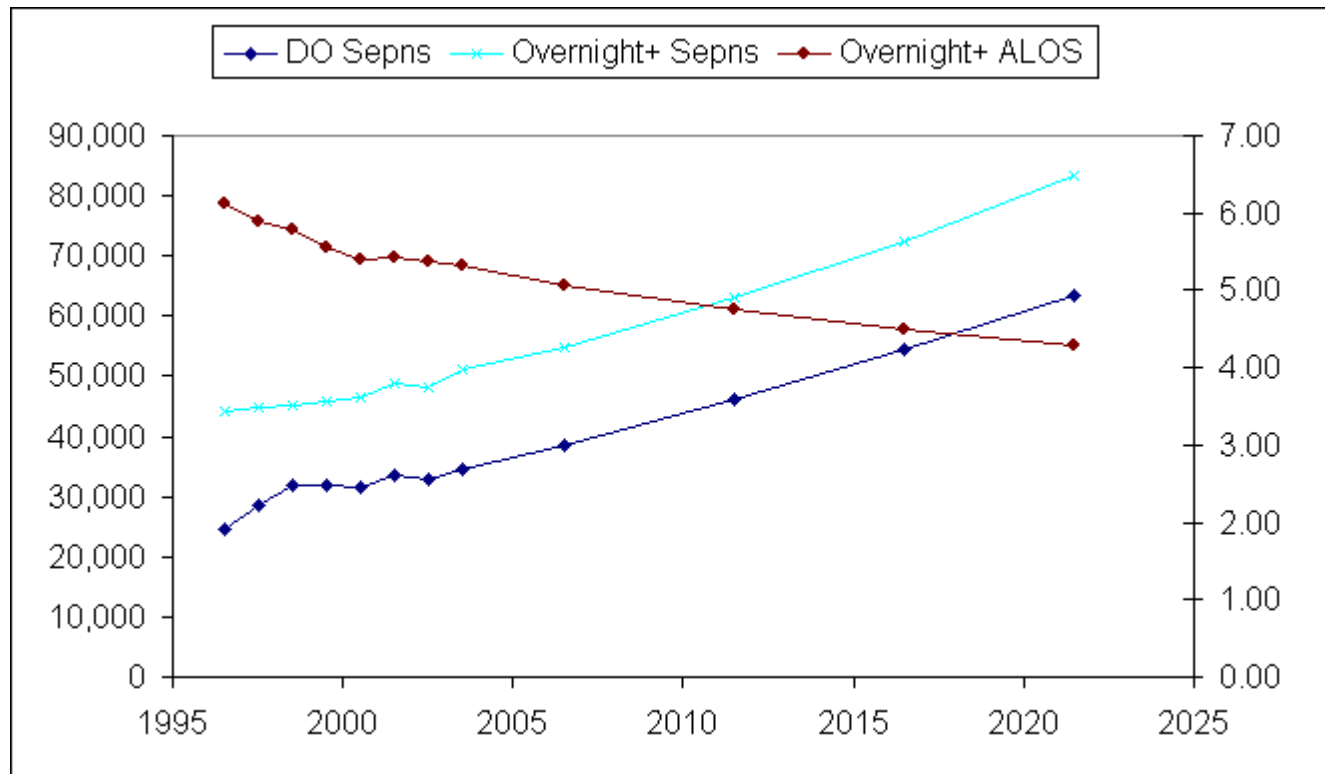
Year

Stay_Type	Data	1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22
Day only	Sum of Separations Auto Adj	10,140	10,090	9,745	9,500	10,251	10,411	10,718	12,557	13,596	16,376	19,206	21,990
	Sum of Beddays Auto Adj	10,140	10,090	9,745	9,500	10,251	10,411	10,718	12,557	13,596	16,376	19,206	21,990
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overnight+	Sum of Separations Auto Adj	60,529	61,297	60,839	61,017	61,003	60,707	60,176	61,399	62,193	62,920	62,703	62,045
	Sum of Beddays Auto Adj	251,775	244,748	230,955	220,204	215,282	212,290	206,688	208,839	197,162	180,545	164,030	149,702
	Sum of ALOS	4.16	3.99	3.80	3.61	3.53	3.50	3.43	3.40	3.17	2.87	2.62	2.41



Orthopaedics

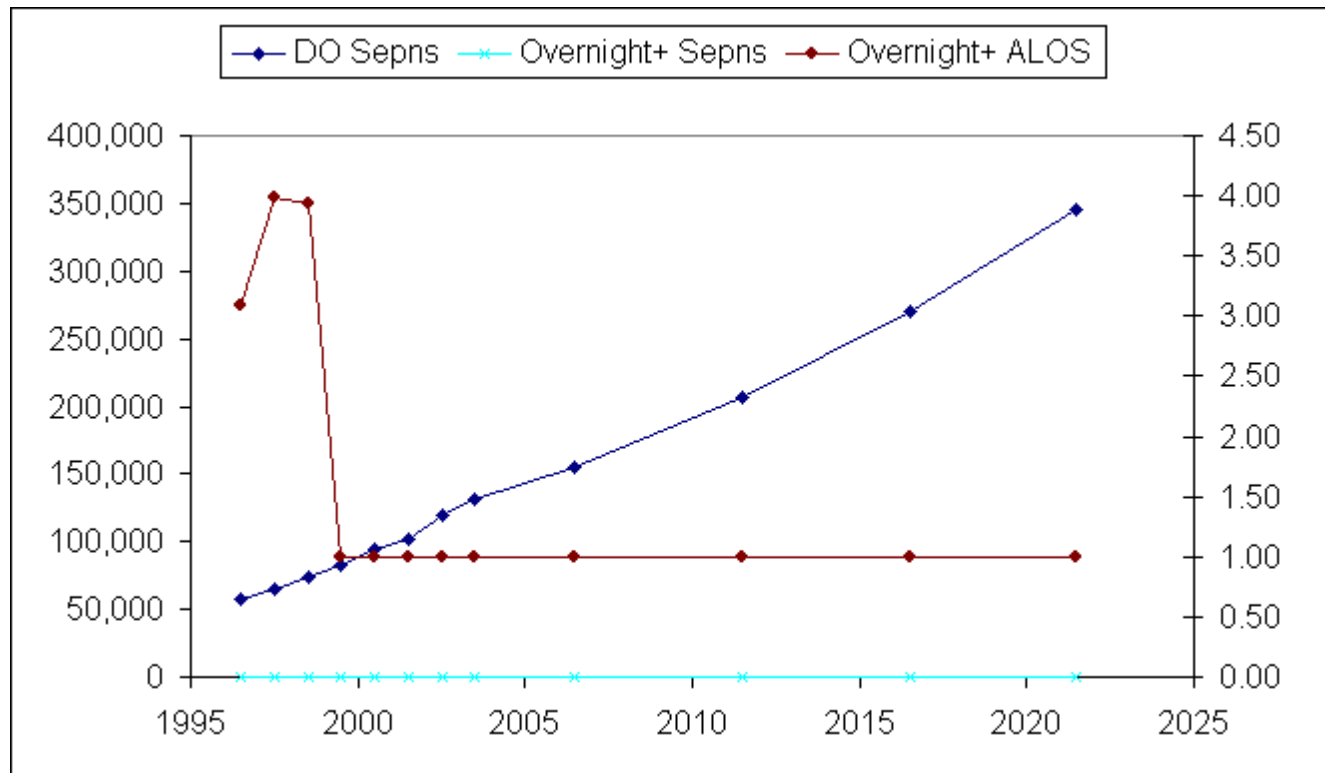
Stay_Type	Data	Year											
		1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22
Day only	Sum of Separations Auto Adj	24,711	28,581	31,822	31,964	31,607	33,442	32,741	34,637	38,582	46,092	54,439	63,375
	Sum of Beddays Auto Adj	24,711	28,581	31,822	31,964	31,607	33,442	32,741	34,637	38,582	46,092	54,439	63,375
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overnight+	Sum of Separations Auto Adj	44,248	44,919	45,084	45,703	46,364	48,707	48,078	51,073	54,838	63,005	72,430	83,343
	Sum of Beddays Auto Adj	270,765	264,327	260,913	253,222	250,086	264,250	258,029	271,984	278,181	299,285	324,619	356,993
	Sum of ALOS	6.12	5.88	5.79	5.54	5.39	5.43	5.37	5.33	5.07	4.75	4.48	4.28



Renal Dialysis

Year

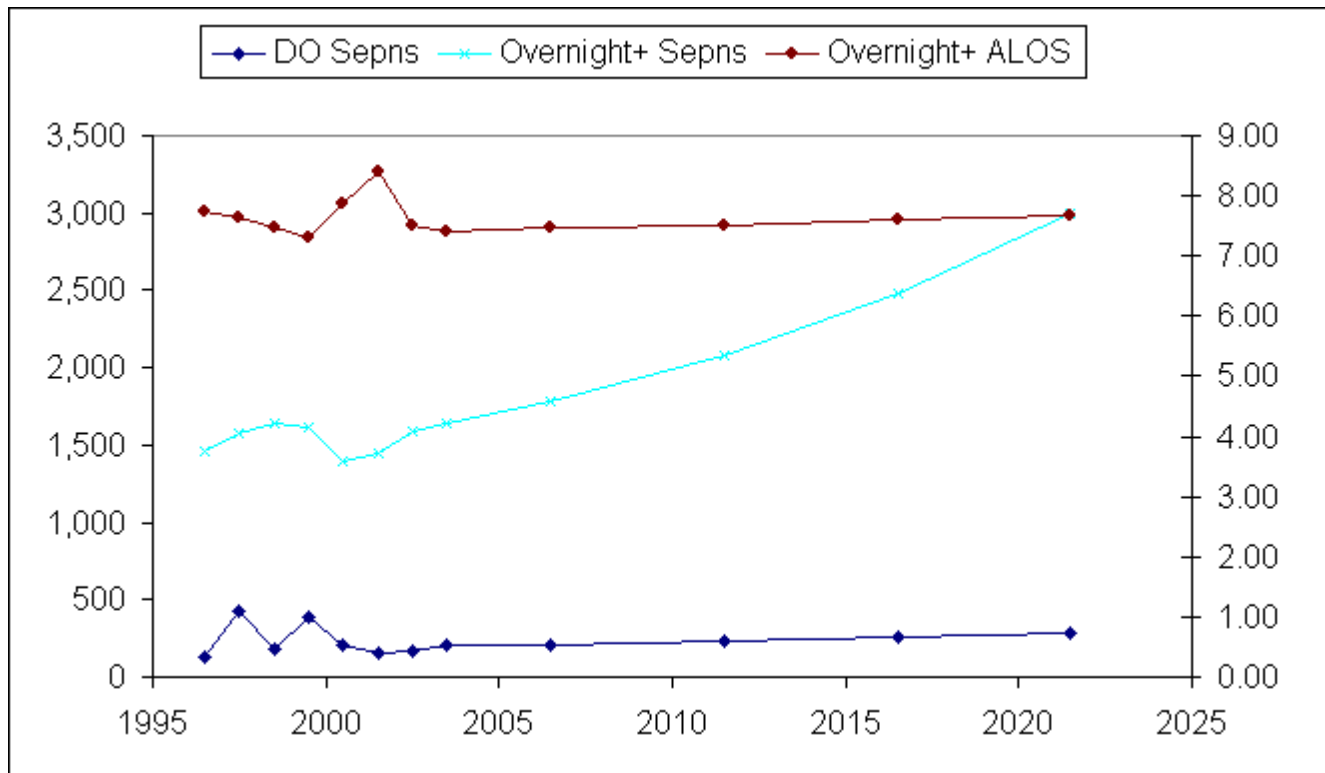
Stay_Type	Data	1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22
Day only	Sum of Separations Auto Adj	57,151	64,221	73,326	83,301	94,649	101,919	119,154	131,035	155,616	206,644	269,533	345,309
	Sum of Beddays Auto Adj	57,151	64,221	73,326	83,301	94,649	101,919	119,154	131,035	155,616	206,644	269,533	345,309
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overnight+	Sum of Separations Auto Adj	124	68	71	1	10	2	37	91	74	93	123	166
	Sum of Beddays Auto Adj	382	271	280	1	10	2	37	91	74	93	123	166
	Sum of ALOS	3.08	3.99	3.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



Renal failure

Year

Stay_Type	Data	1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22
Day only	Sum of Separations Auto Adj	129	426	185	391	201	161	171	206	203	227	254	287
	Sum of Beddays Auto Adj	129	426	185	391	201	161	171	206	203	227	254	287
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overnight+	Sum of Separations Auto Adj	1,459	1,572	1,642	1,617	1,391	1,450	1,591	1,640	1,781	2,083	2,482	2,993
	Sum of Beddays Auto Adj	11,282	12,022	12,245	11,798	10,971	12,180	11,939	12,124	13,315	15,662	18,840	22,966
	Sum of ALOS	7.73	7.65	7.46	7.30	7.89	8.40	7.50	7.39	7.48	7.52	7.59	7.67



Renal Medicine

Year

Stay_Type	Data	1996_97	1997_98	1998_99	1999_00	2000_01	2001_02	2002_03	2003_04	2006_07	2011_12	2016_17	2021_22
Day only	Sum of Separations Auto Adj	2,742	2,814	3,066	3,524	3,905	3,979	4,439	4,710	5,538	7,163	9,189	11,676
	Sum of Beddays Auto Adj	2,742	2,814	3,066	3,524	3,905	3,979	4,439	4,710	5,538	7,163	9,189	11,676
	Sum of ALOS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overnight+	Sum of Separations Auto Adj	3,773	3,838	4,050	3,995	4,057	4,107	4,079	4,270	4,685	5,568	6,718	8,212
	Sum of Beddays Auto Adj	22,492	23,502	23,050	21,799	23,250	24,229	22,977	23,947	26,157	31,194	38,571	49,328
	Sum of ALOS	5.96	6.12	5.69	5.46	5.73	5.90	5.63	5.61	5.58	5.60	5.74	6.01

