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BY:

28 JUN 2005

Mr Anthony Morris QC
Commissioner
Bundaberg Hospital Commission of Inquiry
PO Box 13147
GEORGE STREET QLD 4003

Dear Tony

We are pleased to attach two papers on key issues that we have prepared for the Commission of Inquiry and the Review of Queensland Health Systems. We trust these papers will assist the inquiry and the review in their deliberations.

As a priority, we have prepared papers on aspects of the health workforce—the broad medical workforce and enhanced clinical roles.

The first, entitled *Health Workforce Paper 1 – Medical Workforce*, focuses on systemic health workforce information and issues. The paper outlines options to address a significant medical workforce gap and forecasted increased medical workforce demand. The options include alternative models of care, new and enhanced clinical roles, and a possible medical workforce restructure based on patient need rather than medical training imperatives. The options also include new ways of working and strategies to improve Queensland's competitive position in the global market.

We shall provide you with a subsequent, second health workforce paper that will expand on options canvassed in this paper and develop further health workforce reform options relevant to Queensland.

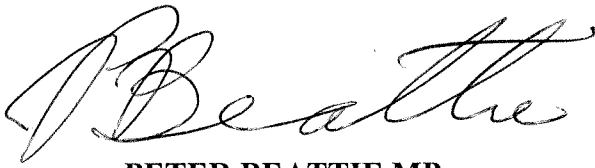
The second issues paper we attach, entitled *Enhanced Clinical Roles*, focuses on health workforce planning stepping beyond traditional professional demarcations to consider how best to use the skills and experience of the range of health professionals to meet community needs. It includes discussion of the promising Nurse Practitioner role.

We would appreciate it if you could release the issues papers on your website as soon as practicable. Following this, we shall also make the papers publicly available.

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We intend to provide you with further papers relevant to the inquiry and the review in the near future. We wish you well in your deliberations.

Yours sincerely

A handwritten signature in black ink, appearing to read 'P Beattie', with a stylized, cursive script.

PETER BEATTIE MP
PREMIER AND MINISTER FOR TRADE

A handwritten signature in black ink, appearing to read 'G. Nuttall', with a stylized, cursive script.

GORDON NUTTALL
MINISTER FOR HEALTH

Issue Paper for Bundaberg Hospital Commission of Inquiry

Health Workforce

Paper 1

Medical Workforce

June 2005

1. Executive Summary

This paper is the first of a two part series looking at the future Queensland Health medical workforce requirement.

In 2002, Queensland had the lowest number of registered doctors per head of population of any state or territory. The number of Queensland doctors per 100,000 population decreased from 236 in 1997 to 220 in 2002. This is in contrast to the Australian average where numbers increased from 260 to 275 over the same period. At the same time, the number of registered doctors in Queensland increased in the 5 years from 1997 to 2002 by only 1.7% as opposed to an increase of 12.0% for the rest of the country. Essentially the numbers of doctors in Queensland has not kept pace with the population growth.

The demand for doctors in Queensland and within Queensland Health is forecasted to continue increasing for the foreseeable future. This paper shows that as well as coping with Queensland's low rate of doctors per head of population, our future requirements will not be met by recent increases in university medical student intakes. If the current models of care offered in Queensland were maintained, this increase will not cover Queensland Health's requirement for medical staff. This is based on the assumption that the rates of recruitment, terminations and health models over the last several years are continued into the future. It must also be noted that there is a considerable lag time between when medical student intakes are increased and when they can be capable of independent practice as doctors. For Specialists this lag can be as long as 12 years.

If current models of care are continued by Queensland Health the forecasted gap in medical staff will increase from 478 in 2006 to 993 by 2010. These numbers include Queensland Health's current reliance on overseas trained doctors.

Queensland Health is not alone in this medical shortage. Every state in Australia and most first world countries are facing the same problem and are dealing with it in different ways.

Options for reform in Queensland could include:

- alternative models of care across the lifespan and spectrum of interventions
- investigating new and expanded clinical roles and new ways of working
- alternatives to the current medical training model
- strategies to improve competitive advantage in the global market

The second paper in this series will expand on the analysis and options presented here and cover the following areas of the medical workforce:

- an analysis of issues including lead time from entry to productive practice/specialisation
- general practice and specialist numbers and projections
- specialist training positions – history and projections, strategies to increase and comparative performance with other jurisdictions

2. Introduction

The aim of this paper is to estimate the future overall medical workforce requirement for Queensland Health for the years 2006 through to 2011 and provide some preliminary options to be expanded on in a following paper.

A gap analysis has been performed based on the forecasted future medical workforce demand and supply. To derive this gap it was necessary to model both future demand and supply components. The gap is the difference between the forecasted demand for doctors and the number of graduates. The second part of the paper identifies potential solutions to the workforce gap detailed.

3. Current medical workforce

3.1 Australian medical workforce¹

Declining workforce growth is a function of the growing and ageing population. Over the next twenty-five years, growth in Australia's working age population is projected to slow significantly from an average net growth of around 170,000 per annum to an annual net growth of around 12,000 per annum or approximately 125,000 in total for the entire decade between 2020 and 2030. The impact for the health workforce means that there will effectively be fewer workers to care for more people. This is further exacerbated by existing workforce shortages.

The Australian Government controls the number of university places for medical degrees and the number of Medicare provider numbers. A report by the Australian Medical Workforce Advisory Committee (1998) considers that in the mid to late 1990's, a number of decisions were made by the Australian Government aimed at constraining the growth in medical and health expenditure. These decisions included:

- reductions in medical school intakes
- reductions in net additions to the workforce from immigration
- reductions in annual intakes for general practice training programs
- access to Medicare provider numbers for new graduates denied until they enter a recognised general or specialist training program.

These measures were coupled with earlier decisions to cap or even reduce numbers of medical school graduates. Until recently there have been no increases in medical school intakes, despite increases in both population and demand for medical services.

In response to the recognised national medical workforce shortage the Australian Government has funded the creation of two additional medical schools in Queensland – at the James Cook University in Townsville and at the Griffith University at the Gold Coast. The Bond University has also established a private medical school. The first graduates from James Cook will enter the workforce as interns in 2006, and the first graduates from the other new schools will enter the workforce in 2009. Over the next five years, the numbers of new graduates from medical schools in Queensland entering the workforce will increase from 232 in 2004 to 540 per year in 2010.

¹ *Queensland Health Initial Submission to the Bundaberg Hospital Commission of Inquiry, 16 May 2005*

However, additional graduates also place pressure on the existing workforce to support clinical placements and training.

The following presents an overview of the **Australian** medical workforce. The following details are graphically represented in Appendix 1:

- There were an estimated 59,023 registered medical practitioners in Australia in 2002. 53,991 were working in medicine, a rise of 12.0% from 1997.
- Of the clinicians, 43.7% were primary care practitioners (mainly general practitioners), 35.6% were specialists, 11.0% were specialists-in-training and 9.7% were hospital non-specialists.
- The average age of the medical workforce in 2002 was 46.6 years, continuing an ageing trend (average age in 1997 was 44.7 years).
- The proportion of female practitioners continues to rise, with 31.6% in 2002 compared with 27.2% in 1995.
- Medical practitioners worked an average week of 44.4 hours, a decline since 1997 when they worked an average of 47.6 hours. Clinical hours worked per week by clinicians have fallen from an average of 46.4 hours in 1997 to an average of 40.8 hours in 2002.
- The decline in average hours worked has been across all age groups, both male and female, and all major occupation categories that are specialist, primary care practitioner, specialist-in-training and hospital non-specialist.
- In 2001, 44.3% of practitioners worked more than 50 hours per week, a decline since 1997 (51.1%).
- The practitioner rate rose from 260 to 275 per 100,000 population between 1997 and 2002, but was unchanged between 2001 and 2002. Taking into account the hours worked, the outcome in 2002 was a decrease in the supply of full-time equivalent practitioners, which was 271 per 100,000 population (based on a 45 hour week). In 1996 it was 278 per 100,000 population (based on a 45 hour week).
- Across regions generally, the medical practitioner rate decreased and their hours increased as regional population lessened: the rate (per 100,000 population) ranged from 315 in 'major cities' to 140 in 'remote areas'.
- There is also a "mal-distribution" of health workers in that while 66.3% of Australia's population live in metropolitan areas, around three-quarters of health professionals work in the same metropolitan areas.

These statistics are illustrative of a number of factors about the Australian medical workforce, including the ageing of the medical workforce, changing patterns of workforce participation including the generational trend away from historical patterns of work in favour of a work-life balance. When coupled with other factors currently influencing workforce supply in Australia, the impacts are significant:

- Globalisation of the workforce means the well-trained Australian workforce is highly sought after in global markets. The United Kingdom, Canada and the United States all actively recruit international medical graduates.
- There is an increased length of time from entry to medical school to participation in the workforce as an independent practitioner.
- Professional indemnity insurance costs for particular specialities are rising, including obstetrics, anaesthesia, some surgery and general procedures.

- The majority of practitioners prefer to work in larger metropolitan centres.
- The change in patterns of workforce participation, including the declining trend in working hours and hence the reduction in full time equivalent numbers.
- The impact of a reduction in medical intake in the 1997-98 Federal Budget.
- Restrictions placed on Medicare provider numbers particularly for junior doctors in 1997.

3.2 Medical Workforce Issues for Queensland²

Queensland has the most widely distributed health system in Australia. Our population is the most geographically dispersed in Australia with 22.3% of our population living in outer regional areas compared to 13.5% nationally. The majority of population growth is concentrated in the State's south east corner. The growth in Queensland's medical workforce has not keep pace with our population growth.

The compounding effect of these demographic factors and the issues facing medical workforces globally result in even more critical workforce statistics for Queensland:

- There were an estimated 8,159 registered medical practitioners in Queensland in 2002 compared to 8,024 in 1997, an increase of 1.7% over the five years. In comparison there was an increase of 12.0% across Australia over the five years.
- Of these, 3,341 were primary care practitioners (mainly general practitioners), an increase of 0.5% from the 1997 figure of 3,324.
- In 2002, Queensland had the lowest number of registered doctors per head of population of any state or territory. The number of Queensland doctors per 100,000 population decreased from 236 in 1997 to 220 in 2002. This is in contrast to the Australian average where numbers increased from 260 to 275. See graph 5, below.
- In 2002 Queensland had the lowest number of full time equivalent practitioners (working medical practitioners) per head of population of any state or territory. The Queensland full time equivalent practitioner rate fell from 247 per 100,000 population based on a 45 hour week in 1997 to 217 in 2002. This was a fall of 30 FTE practitioners per 100,000 population based on a 45-hour week and is 54 FTE practitioners less than the national average. It was the biggest fall of all the states and territories. Across Australia the full time equivalent practitioner rate fell from 275 per 100,000 population based on a 45-hour week to 271.
- Queensland has the lowest number of primary care practitioners per 100,000 population, of all the states and territories. The full time equivalent practitioner rate for Queensland fell from 94 in 1997 to 82 in 2002, compared to the national figure of 101 primary care practitioners per 100,000 population.³

² *Queensland Health Initial Submission to the Bundaberg Hospital Commission of Inquiry, 16 May 2005*

³ *Source: Dr. Jeannette Young, Report to Dr. Mark Waters, 11 May 2005 (figures sourced from AIHW's Medical Labour Force 2002 Report and AMWAC Annual Report 2003/04)*

- The low numbers of medical practitioners impact on service delivery. The average annual Medicare benefit per capita for Queenslanders is \$376, compared to the national average of \$395. Access to benefits under the Pharmaceutical Benefits Scheme is also lower. The per capita benefit to Queenslanders is \$224 per annum, compared to the national average of \$234.
- Queensland is not meeting the Australian Medical Workforce Advisory Committee's recommendations for training numbers in a significant number of disciplines. If this were to continue Queensland will not be able to meet its future requirements for specialist staff from the specialist doctors able to be trained in this State.

The Australian Government investment in the private provision of medical services also serves to increase potential earnings for doctors in the private sector, with which the public sector cannot compete. The Australian Health Ministers' Advisory Council has noted that the availability of doctors within the private sector is not evenly distributed across the state, with inner metropolitan areas being the location of choice.

4. Queensland Health Medical workforce

The current Queensland Health medical workforce is ageing. As of April 2005, 952 or 20.4% of the doctors in Queensland Health were over 50 years of age as detailed in Appendix 1. The ageing of the workforce will have an effect on the future numbers of doctors required as retirements increase.

Within Queensland Health there is a slight widening gap between headcount and occupied FTE (full time equivalent⁴) workforce numbers. This indicates more staff are shifting towards less than full-time employment.⁵ Changes in future working hour scenarios will be modelled in the second paper of this series and could greatly increase Queensland Health's required medical workforce numbers⁶.

Full time medical specialist services are augmented through the use of Visiting Medical Officers (VMOs). Visiting Medical Officers work an average of 8-9 hours per week in Queensland Health facilities and make up approximately 2% of Queensland Health's wages bill. Although this is a small component of the Queensland Health medical workforce it is a vital one, with VMOs providing the sole speciality service, in a number of disciplines, in many rural and regional facilities. Without VMOs, many rural and major regional centres would be without specialist medical services.

'Super' specialities in public hospitals in the main are almost exclusively provided by VMOs. Speciality services such as ophthalmology, neurosurgery, ear nose & throat, plastic surgery, maxillo-facial and urology within the major metropolitan hospitals rely on VMOs for specialist services.

⁴ Occupied FTE is defined as: Current Occupant's Standard Hours ÷ Award Fulltime Standard Hours

⁵ This is shown in the graphs in Appendix 1.

⁶ The growing awareness of the importance of safe working hours for the medical workforce to ensure safety and quality in clinical services is another factor affecting workforce participation. This will be expanded and evaluated in the second paper.

One of the main reasons for this is that private specialists earn a far greater income in the private sector because the Commonwealth has, in recent years, increased the minimum fees under the Medicare Benefits Schedule.

4.1 Time series forecasting for Medical workforce growth in headcount and full time workforce

The forecasts for medical headcount and occupied FTE are based on the projection of historical growth rates of medical staff within Queensland Health which includes our current numbers of overseas trained doctors.⁷ Essentially there will be a significant growth in the requirement for medical staff. Table 1 details the gap between these levels of future demand and the incoming new graduates.

The required headcount and FTE of medical officers within Queensland Health is forecasted to continue increasing for the foreseeable future if the current models of care are continued.^{8,9} Since January 2003, Queensland Health's recruitment of medical staff has increased at a greater rate than its terminations.

5. Medical university numbers

To combat the perceived medical workforce shortfall increases have occurred in the number of medical school places nationwide. The intake numbers and projected graduates in the future is detailed in Appendix 3.

6. Future Gap in the Queensland Health medical workforce

The gap between the forecasted future Queensland Health medical workforce requirement and the graduate medical numbers is shown in Table 1. This workforce gap will need to be supplemented from a source other than new Queensland medical graduates.

Based on the modelling in this paper the gap between the required medical workforce and the number of new graduates is increasing at a substantial rate. The method for the forecasts in this paper is based on the status quo projection of the historical number of doctors required. It does not take into account the future burden of chronic disease, changes to medical workforce management like working hour limits or the ageing of the population and workforce. These scenarios will be modelled in the second paper in this series. This makes these future requirements very conservative as all of these factors will most likely increase workforce requirements.

⁷ The limitations of the forecasting model are detailed in Appendix 2.

⁸ Average working hours assumed for FTE workforce.

⁹ See Appendix 3.

Table 1: Future Gap in overall medical workforce

Year	Medical graduates (Qld)	Forecasted required recruitment	Gap in workforce (not filled by QLD graduates)
2006	312	790	478
2007	355	975	620
2008	355	1161	806
2009	518	1347	829
2010	540	1533	993

7. International comparisons

The 'global market' for the medical workforce is opening up, with fewer barriers for the movement of medical practitioners. Whilst many Australian-trained doctors spend some time in countries such as the UK, the USA and Canada, Australia is currently a net importer of doctors. The UK and Canada have both recognised that they have an undersupply of doctors, and therefore a level of competition exists internationally to attract doctors.¹⁰

Within Organisation for Economic Cooperation and Development (OECD) countries, the density of practising doctors per 1,000 population has increased from 1.2 to 1.8 between 1977 and 1999, an increase of 50%. However these increases are not sufficient to meet the demand, and a supply shortage exists for all health professions internationally.¹¹

8. Options for reform

The *Smart State: Health 2020 Directions Statement* outlined the Queensland Government's vision for health and the management and development of the health system in Queensland to the year 2020. It drew attention to the need to address future pressures on the health system and many positive initiatives have flowed from this vision.

Queensland has increased its training places for medical students significantly in recent years; however this paper has shown that this increase will not meet the forecasted increase in demand for medical staff. Queensland Health is placing an increased emphasis on preventative healthcare measures in an attempt to reduce the demand for health services. These strategies will have a limited impact in the short term.

In recognising the impossibility of meeting this increased demand by the medical workforce, utilising current practice and within reasonable hours of work, alternative solutions should be sought for the maintenance of service delivery. Reform options focus on:

¹⁰Source: *The Australian Medical Workforce Advisory Committee, 2002, 'Tomorrow's Doctors.'*

¹¹Source: *World Health Organisation, 2002, 'Imbalances in the Health Workforce'.*

- alternative models of care across the lifespan and spectrum of interventions
- investigating new and expanded clinical roles
- alternatives to the current training model
- strategies to improve competitive advantage in the global market

8.1 Alternative models of care

New ways of working can be developed that will reduce the call on medical staff working hours. The best practice examples here come from the National Health Service (NHS) in the UK¹².

The NHS has made a range of modernising changes to health service delivery, mainly due to the requirements of the European Working Time Directive (EWTD). The EWTD required, from August 2004, that no doctor should work in excess of 58 hours per week, reducing to 48 hours per week by 2009. This significantly reduced medical staffing resources across the country. One approach the NHS management has taken in response to this challenge is to introduce new models of care.

The most notable new model of care introduced in the NHS is the 'Hospital at Night' scheme. On-call services at night were traditionally managed by on-call teams for each specialty. 'Hospital at Night' schemes employ a single multidisciplinary team to cover all specialties, ensuring that an appropriate mix of staff is rostered on each occasion. Nurse practitioner roles are usually included. Some specialties may be excluded from this scheme, such as paediatrics or obstetrics.

The Canadian health service is facing many of the same challenges for service provision as Queensland, with its relatively small population dispersed over a wide geographical area. The province of British Columbia is developing Primary Healthcare Organisations, at which doctors work alongside other professionals to provide primary healthcare. Primary healthcare nurses and emergency nurses treat sprains, minor infections, and counsel patients on the management of their chronic disease, for example.¹³

The health service in Germany is examining similar options to the UK. It has trialled different shift-pattern options for surgical teams. These options were designed to prevent surgeons from working on the morning after a night-time on-call. It is also examining the benefits of working across specialisations for on-call work, as in the 'Hospital at Night' scheme.¹⁴

The increased focus on preventative healthcare is complemented by an increased focus on primary healthcare. For example, there may be potential to move some maternity care services into the community, in the medium to long term. Services

¹² www.modern.nhs.uk/workingtime/bulletin

¹³ British Columbia Ministry of Health Services, 2004, "Toward Better Health Care for British Columbians".

¹⁴ Büchler, P. et al, 2003, "Labour legislation in the European Union has impact on workforce management in surgical centers", *Surgery*.

have been proposed that provide ante-natal, birthing, and post-natal care with appropriate hospital back-up. Such ideas may warrant further investigation.¹⁵

Within Queensland, some alternative models of care have been trialled on a small scale. The recent 'Emergency Department Skill Mix and Work Analysis' project included trialling streamlined services for lower-priority patients, (ie. those who are not expected to require hospital admission). The 'See and Treat' clinic and the 'Fast Track' service used a separate space from the main department, with staff specifically dedicated to that service. Treatment was found to take place more efficiently in this way and overall waiting times were reduced. Another measure explored within this project was the 'Hospital in the Nursing Home' initiative, in which nursing home patients received care in the nursing home, for routine matters that would normally involve an emergency department presentation. This initiative involved training and supporting nursing home nurses in such routine interventions.¹⁶

8.2 New and expanded clinical roles

Many new models of care involve the introduction of new or enhanced roles, which relieve doctors of many routine and often time-consuming duties that can be safely and appropriately transferred to other professional groups. These strategies often allow services to be provided in a more timely fashion.

The NHS also provides good examples in this area. Local NHS services have developed a range of new roles suitable to their needs, including nurse practitioner roles and advanced practice roles open to professionals from any relevant discipline. Examples include orthopaedic and trauma nurse practitioners, first assistants in surgery, medical technical assistants who order and collate test results, anaesthesia practitioners, perioperative specialist practitioners.

There is also the potential to expand the use of existing roles for the same purposes. For example, the NHS has placed pharmacists within emergency departments and admissions wards, to undertake medication reviews. Other possibilities include expanding the role of radiographers to include reporting of X-rays within protocol guidelines, and employing physiotherapists in emergency departments as first contact practitioners. This latter initiative exists in a limited capacity in one Queensland Health hospital.

In addition to expanding the roles of nurses in primary healthcare settings, the British Columbians are increasing their training and use of nurse practitioners, particularly in the areas of geriatric/elder care and mental health care.¹⁷

The German study, as mentioned above, also advocates extending the roles of allied health professionals and increasing administrative support to medical staff, in order to relieve them of some of their current workload.¹⁸

¹⁵ Hirst, C., 2005, "Re-Birthing: Report of the Review of Maternity Services in Queensland".

¹⁶ Workforce Design and Participation Unit, 2005, "Emergency Department Skill Mix and Work Analysis Final Report", *Queensland Health*.

¹⁷ British Columbia Ministry of Health Services, 2004, "Toward Better Health Care for British Columbians".

Within Queensland, some new and expanded clinical roles have been implemented on a small scale. Such roles could be focused initially on areas of currently unmet need – for example, increasing the use of Rural Isolated Practice Registered Nurses. Another initiative – the ‘Fit for Surgery’ clinic for orthopaedics at one hospital - aims to assist in one of the longer waiting list specialties. These clinics employ multidisciplinary teams to assess and advise patients to ensure their fitness for surgery, meaning fewer surgical cancellations.

The emergency department skill mix and work analysis project as described above explored the benefits of expanding nurse roles to include activities such as ordering X-rays, pathology tests, taking blood samples, etc. In addition nurse practitioners in emergency departments would be able to perform initial assessments, interpret test results and order some medications, within protocol guidelines. These measures would further relieve doctors to attend to more critical tasks.¹⁹

The recent Productivity Commission Issues Paper examining the health workforce suggests that current job design and professional demarcations can inhibit workforce substitution. These rigidities reduce the scope to reallocate staff and can detract from productivity. There is clearly a range of strategies with which health workforce roles could be re-examined and redesigned for improved productivity.²⁰

8.3 Alternatives to the current training model

Queensland has increased its training places for medical students significantly in recent years; however this paper has shown that the expected increase in medical graduates will not meet the forecasted increase in demand for medical staff. Queensland Health is placing an increased emphasis on preventative healthcare measures in an attempt to reduce the demand for health services. Preventative healthcare measures will not off-set the problem of acute workforce shortages and should be seen as a longer term approach which are already being implemented through Health 2020.

The medical workforce required by Queensland Health depends on the service the organisation wishes to provide in the future and how that is structured and distributed. Currently the Queensland Health public medical workforce model is based on a training model.

In the current public health system resident medical officers (RMO's) and Registrars are employed on twelve month contracts in which they rotate through different “terms” giving direct patient care. This structure is more aligned to the needs of the medical staff training and experience rather than quality service provision.

¹⁸ Büchler, P. et al, 2003, “Labour legislation in the European Union has impact on workforce management in surgical centers”, *Surgery*.

¹⁹ Workforce Design and Participation Unit, 2005, “Emergency Department Skill Mix and Work Analysis Final Report”, *Queensland Health*.

²⁰ Productivity Commission, 2005, “The Health Workforce – Issues Paper”, *Australian Government*.

The training model is an apprenticeship model and is based on doctors learning by experience and diffusion over time rather than being educationally based on predetermined competencies.

The current model requires RMO's and Registrars to develop their skill set by working long hours. The paradox is that many of these hours are now provided by overseas trained doctors (OTD's) who are not in training positions.

An alternate model, as used in Canada is for patients to be primarily seen, treated and operated on by fully trained specialists. Medical training is a separate but related issue and the RMO staff engaged are specifically employed as trainees. This fundamentally changes the issue of the number of RMOs required. The number of RMO's required would then be based on the number of doctors Queensland Health wishes to train, rather than the number we need to fulfil the hours needed under the current apprenticeship model.

This would impact on the requirement for OTD RMOs.

The difficulty with this model lies in having enough specialists and GPs to provide the 'consultant led service'. The implications of such a model need to be fully considered in the context of the distribution of the Queensland population and the distribution of specialists and GP's.

The re-examination of the medical model of service delivery provides an opportunity to reconsider medical training as one important priority, within a model that is primarily driven by the public need for good-quality healthcare services. This will allow Queensland Health to consider new approaches to current problems of clinical supervision, related to such areas as quality, safety and sustainability. This refers to clinical supervision and the associated assessment of performance, not only for medical students and post-graduate specialty trainees, but also to doctors who are new to Queensland Health and doctors returning after a break in service, as appropriate.

8.4 Strategies to improve competitive advantage in the global market

There are a number of considerations in relation to the competitive position of Queensland, and in particular Queensland Health, in the global market for medical practitioners including:

- employment conditions and incentives for full time medical practitioners in the public sector
- employment conditions and incentives for Visiting Medical Officers
- employment conditions, incentives, mentoring and supervision for specialty trainees
- system support including roles in decision making and clinical governance

A number of these will be explored further in the second paper in this series.

9. Conclusion

This analysis provides part one of a two part series looking at the future medical requirements for Queensland Health.

In 2002, Queensland had the lowest number of registered doctors per head of population of any state or territory. The number of Queensland doctors per 100,000 population decreased from 236 in 1997 to 220 in 2002. This is in contrast to the Australian average where numbers increased from 260 to 275.

The number of registered medical practitioners in Queensland increased in the 5 years from 1997 to 2002 by only 1.7% as opposed to an increase of 12.0% for the rest of the country.

The workforce models in this paper provide a snapshot of the how the forecasted increase in demand for service will require increases in the headcount and full time equivalent staff in the medical stream as well changes to the way health services are delivered in Queensland. The forecasts for staffing numbers provide an indication of Queensland Health's requirement for doctors if current models of service delivery and training are unchanged.

The expected increase in demand for doctors by Queensland Health over the period from 2006 to 2011, will far out strip the number of new graduates when terminations are taken into effect. The growing differential between the required medical workforce and the number of new graduates will need to be alleviated by means other than increasing graduate numbers.

This paper identifies potential options worth exploring under themes of alternative models of care, new and expanded clinical roles and alternatives to the current training model and recruitment practices.

The second paper in this series due will expand on the analysis presented here and cover the following areas of the medical workforce:

- An analysis of issues including lead time from entry to productive practice/specialisation
- General practice and specialist numbers and projections
- Specialist training positions – history and projections, strategies to increase; comparative performance with other jurisdictions

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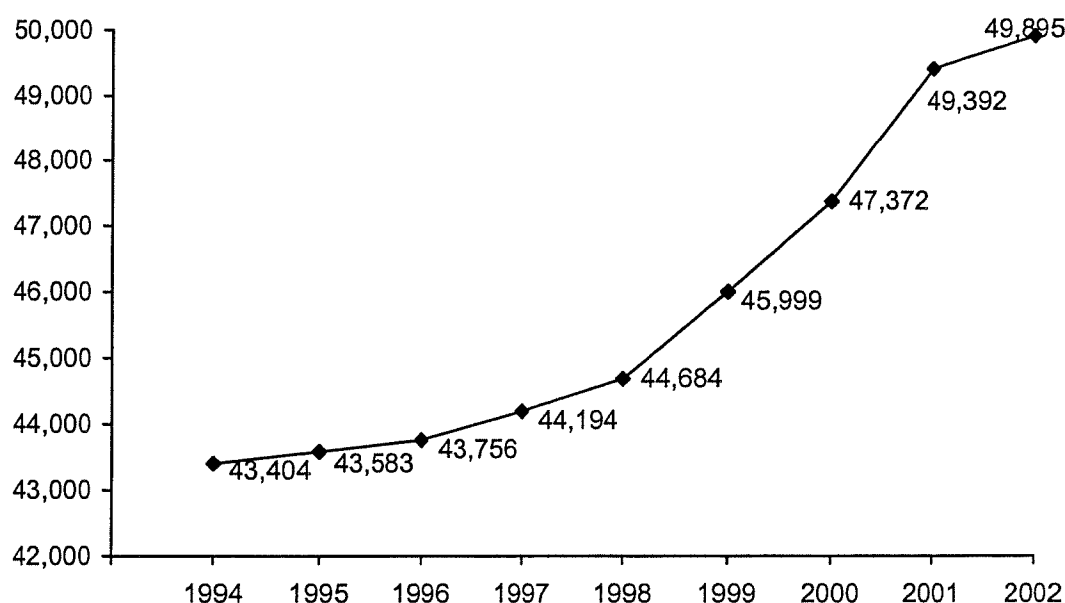
Health Advisory Unit, 2005, Forecasted intern numbers - information sourced directly from relevant Universities.

Appendix 1: Table 1 and 2 and graphs 1 through 8 provide an overview of trends across key aspects of the Australian medical workforce.

Table 1: Medical workforce, key characteristics, 1996 and 2002²¹

Characteristic	1996	2002	Change 1996-2002
Number of medical practitioners	43,756	49,895	+6,139
Practitioners per 100,000 population	246	275	+29
% Female	27.6	31.6	+4 %points
Average hours worked	48.1	44.4	-3.7 hours
-Male	51.1	47.4	-3.7 hours
-Female	40.2	37.3	-2.9 hours
% working >50 hours per week	53	44.3	-8.7 %points
Average age (years)	44.9	46.6	+1.7 years
% aged 35 to 45 years	53.1	54.8	+1.7%points
% aged >55 years	21.8	23.7	+1.9 %points
FTE participation rate (45 hours/week) per 100,000 pop	27	271	-7

Graph 1: Medical practitioners, employed practitioners, 1994-2002²²

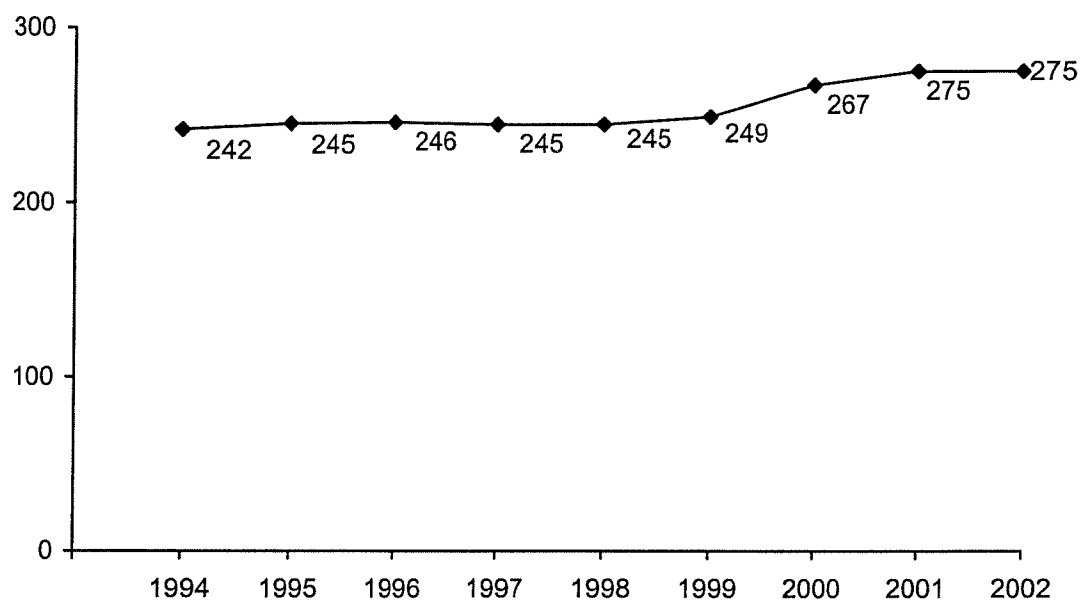


Source: AIHW Medical Labour Force Survey

²¹ Source: Dr. Jeannette Young, Report to Dr. Mark Waters, 11 May 2005 (figures sourced from AIHW's Medical Labour Force 2002 Report and AMWAC Annual Report 2003/04)

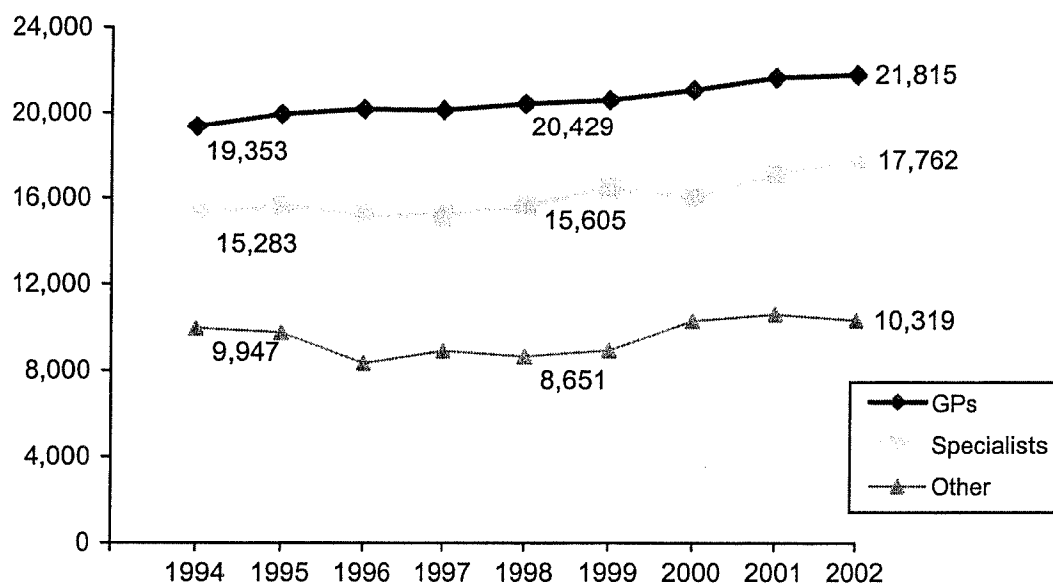
²² ibid

Graph 2: Medical practitioners, employed practitioners per 100,000 population, 1994-2002²³



Source: AIHW Medical Labour Force Survey

Graph 3: General practitioners, specialists, 1994-2002²⁴

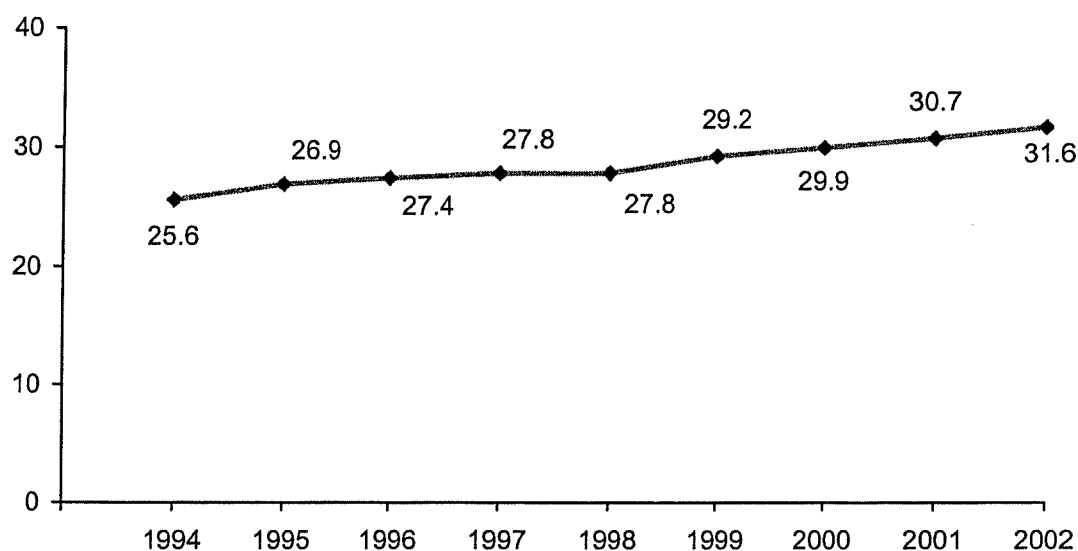


Source: AIHW Medical Labour Force Survey

²³ Source: Dr. Jeannette Young, Report to Dr. Mark Waters, 11 May 2005 (figures sourced from AIHW's Medical Labour Force 2002 Report and AMWAC Annual Report 2003/04)

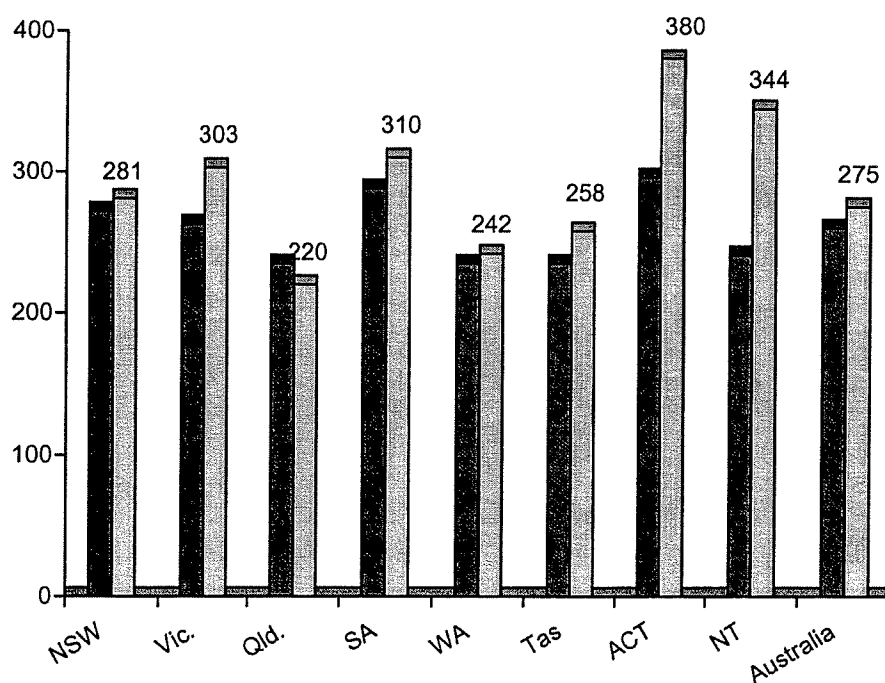
²⁴ *ibid*

Graph 4: Medical practitioners, employed practitioners, % female, 1994-2002²⁵



Source: AIHW Medical Labour Force Survey

Graph 5: Medical practitioners, employed practitioners per 100,000 population, by State/Territory, 1996 and 2002²⁶



Source: AIHW Medical Labour Force Survey

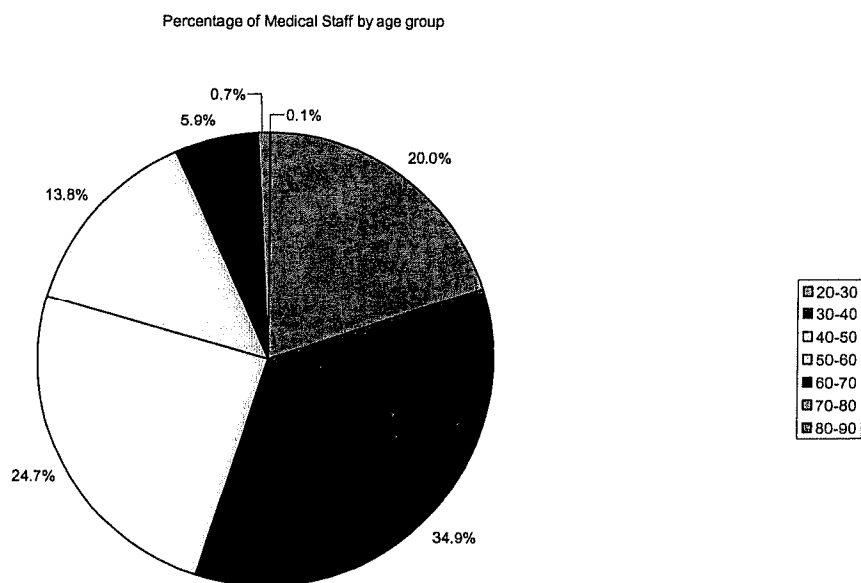
²⁵ Source: Dr. Jeannette Young, Report to Dr. Mark Waters, 11 May 2005 (figures sourced from AIHW's Medical Labour Force 2002 Report and AMWAC Annual Report 2003/04)

²⁶ *ibid*

Table 2: Medical age group breakdown for Queensland Health staff. (source: HRDSS)

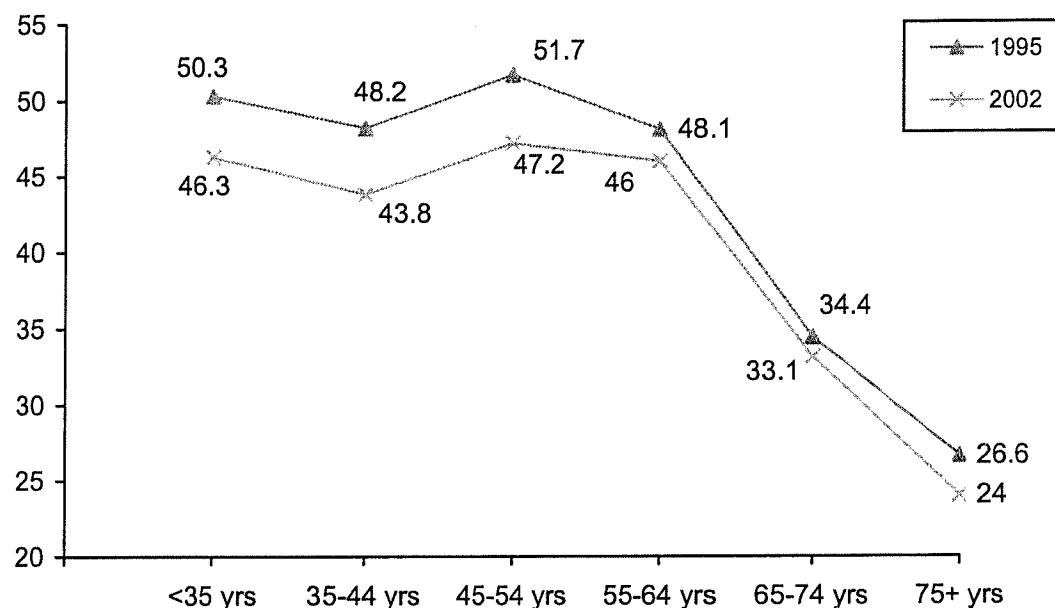
Count of AGE	
AGE	Total
20-30	929
30-40	1626
40-50	1149
50-60	643
60-70	273
70-80	33
80-90	3
Grand Total	4656

Graph 6: Graphical representation of the Medical age group breakdown for Queensland Health staff



Source: Workforce Design and Participation Unit June 2005.

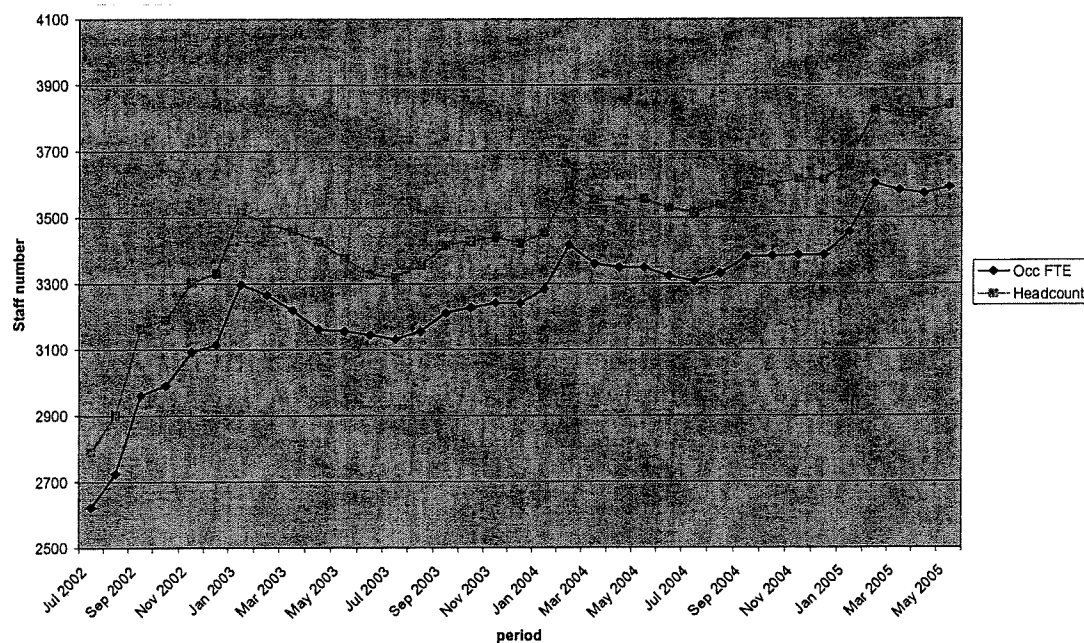
Graph 7: Medical practitioners, average hours worked, by age group, 1995 and 2002



Source: AIHW Medical Labour Force Survey

The substantial growth in both headcount and FTE can be seen in graph 8 below.

Graph 8: Comparison between the growth in Medical headcount and the growth in Medical FTE numbers.



Source: Workforce Design and Participation Unit June 2005.

Appendix 2: Limitations of the modelling methodology.

The method for the forecasts in this paper is based on the status quo projection of the historical number of medical headcount and full time equivalents in Queensland Health. The model was based on a dataset from the Human Resource and Management Information System and was a time series over 35 monthly periods.

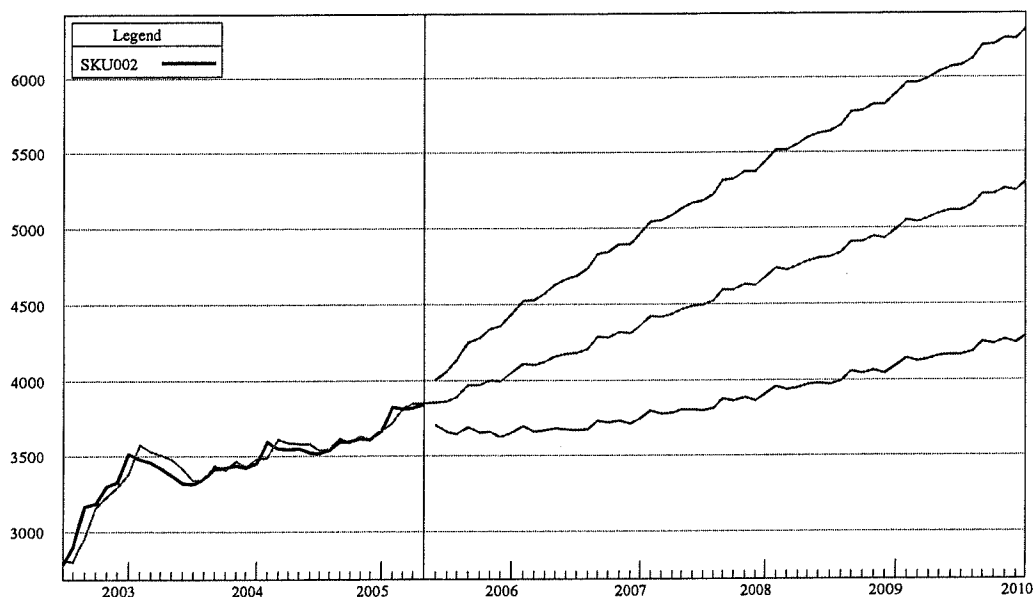
This modelling form suffers from its lack of ability to look at more than one variable namely medical staff numbers. As workforce is a derived demand underlying factors such as bed numbers, non-admitted patients and changes in future disease rates are not taken into account. Having said this any trends in these variables may impact on the forecasts but their individual effects are unknown.

The data was imported into an automated forecasting program called Forecast Pro Version 4.3 Extended Edition. This program determined by expert selection the most appropriate methodology to apply after interrogating the data set. In each of the cases it used exponential smoothing as the data set exhibited a trend-cycle and some seasonality. The series is too short to consider a Box-Jenkins method. The accuracy of the model was 91% (R-square 0.9153).

Appendix 3: Queensland Health Medical workforce forecasts.

The following graphs 9 through 14 and tables 3 through 7 show the forecasted future requirements for Medical workforce headcount, Medical workforce FTE, forecasted growth in part-time employment and the increasing growth in Medical appointments.

Graph 9: Medical workforce headcount forecasts for period 2005 to 2010.



Source: Workforce Design and Participation Unit June 2005²⁷.

* The black line represents the actual Medical headcount for Queensland Health. The red line is the forecast while the blue lines are confidence intervals for the forecasts.

Table 3: Medical workforce headcount forecasts for period 2005 to 2010

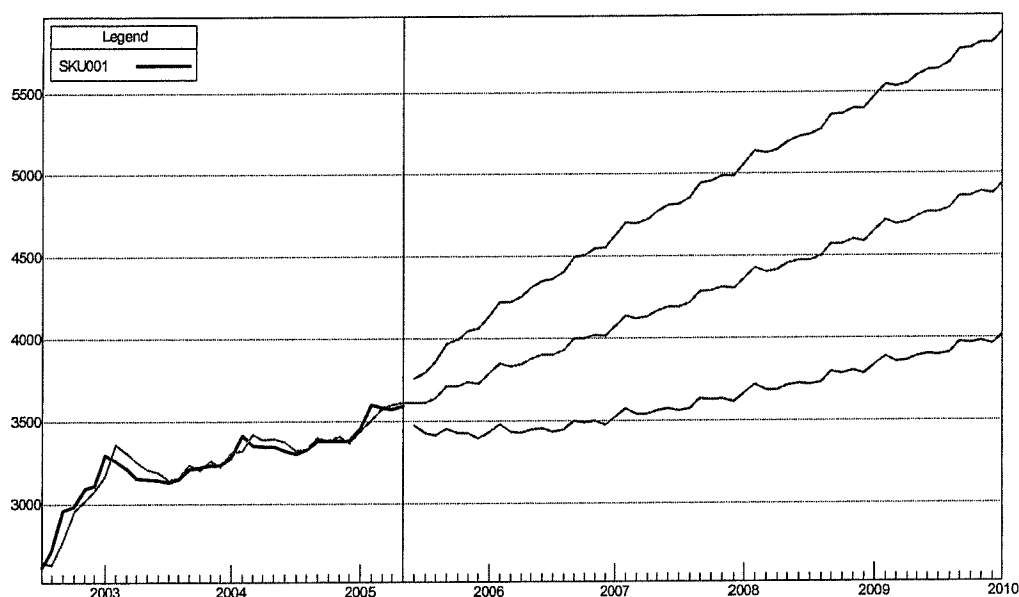
YEAR	FORECASTED HEADCOUNT
2006	4187
2007	4502
2008	4816
2009	5130

Source: Workforce Design and Participation Unit June 2005.

²⁷ The forecasting models developed in this paper use exponential smoothing of historic data set to forecast future variables.

The medical occupied FTE is also increasing but not at the same rate as the headcount. The actual number of occupied FTE required is shown in graph 10 and table 4 below.

Graph 10: Medical workforce Occupied FTE forecasts for period 2005 to 2010.



Source: Workforce Design and Participation Unit June 2005.

* The black line represents the actual Medical headcount for Queensland Health. The red line is the forecast while the blue lines are confidence intervals for the forecasts.

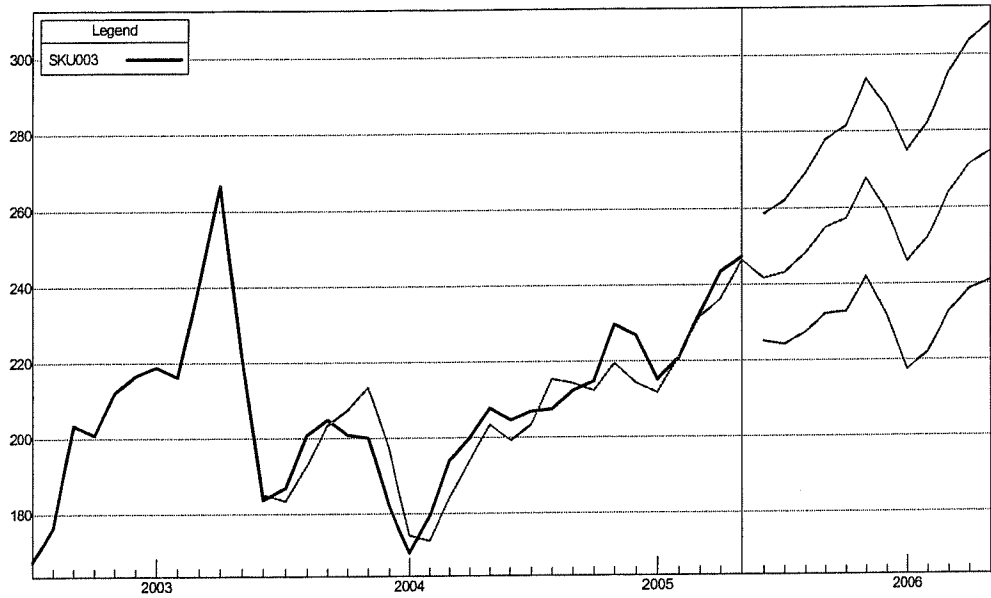
Table 4: Medical workforce Occupied FTE forecasts for period 2005 to 2010

YEAR	FORECASTED OCCUPIED FTE
2006	3914
2007	4202
2008	4490
2009	4778

Source: Workforce Design and Participation Unit June 2005.

Graph 11 shows the difference between headcount and FTE. This difference since 2004 has been positive indicating a trend towards part-time employment by Queensland Health medical staff. This is forecasted to continue as seen at the end of graph 11.

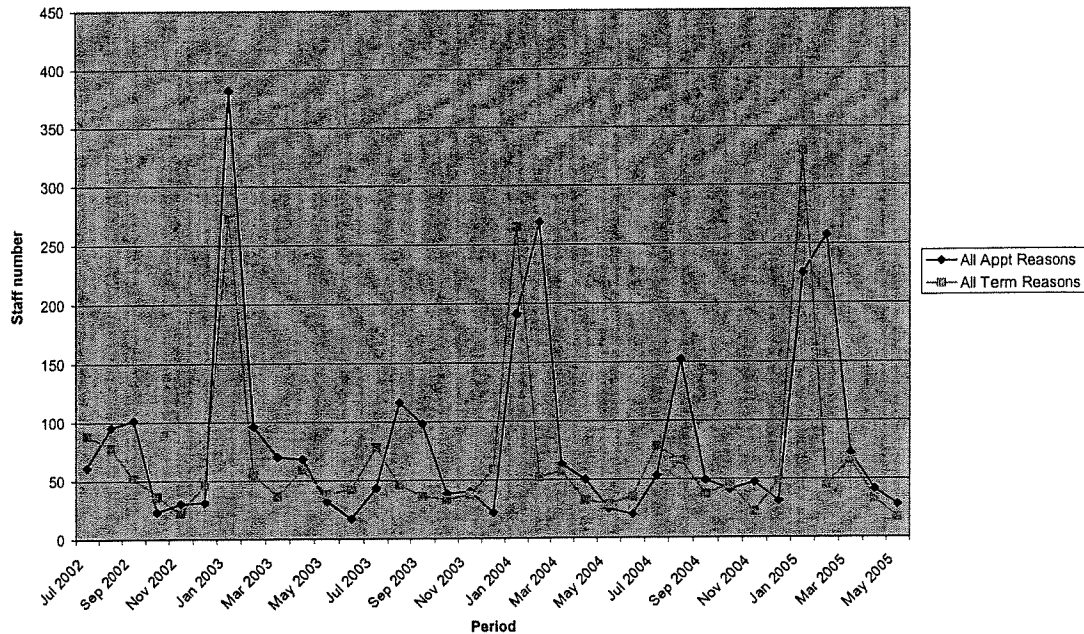
Graph 11: Forecasted growth in the headcount minus FTE for medical staff



Source: Workforce Design and Participation Unit June 2005.
* The black line represents the actual Medical headcount minus FTE for Queensland Health. The red line is the forecast while the blue lines are confidence intervals for the forecasts.

Since January 2003 Queensland Health’s recruitment of medical staff has increased at a greater rate than its terminations. This is shown in graphs 12 and 13 below.

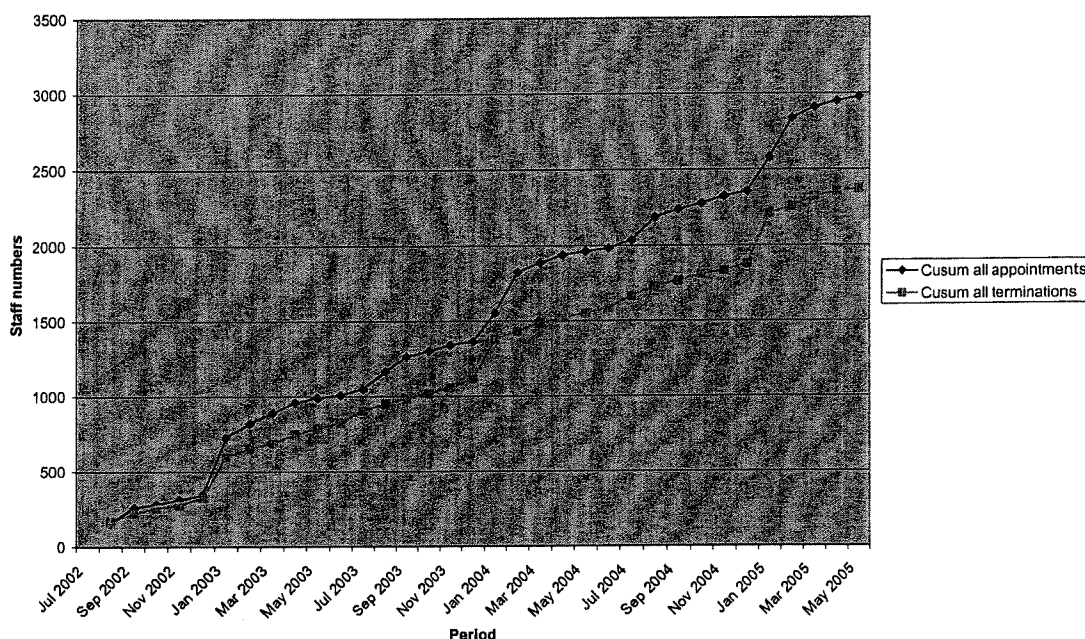
Graph 12: Medical recruitment and retention in Queensland Health



Source: Workforce Design and Participation Unit June 2005.

Taking the cumulative sum of all the recruitments and terminations clearly shows the increasing growth in Queensland Health's medical numbers.

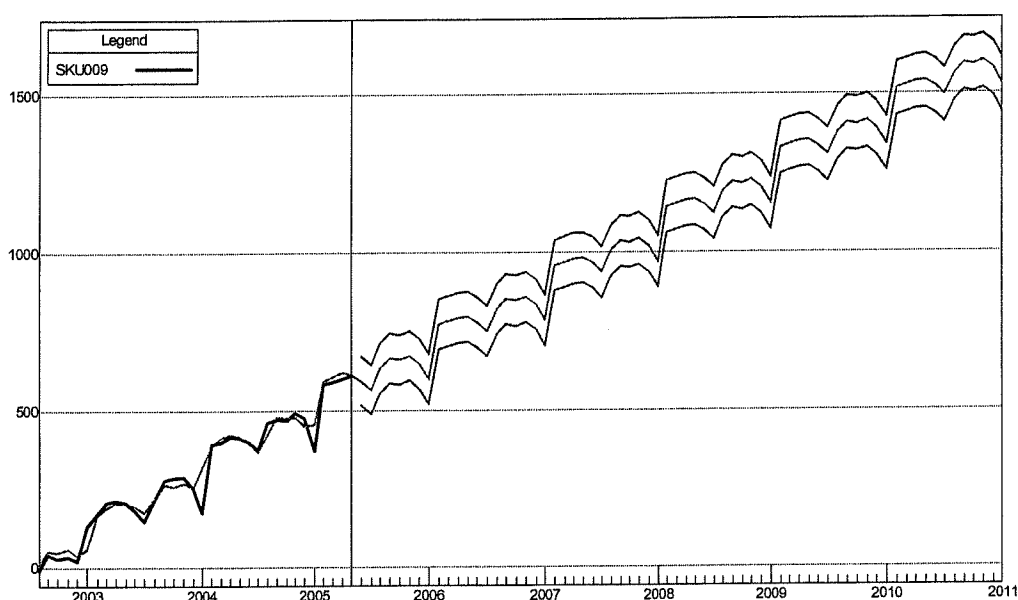
Graph 13: Cumulative sum of all the appointments and termination for medical staff.



Source: Workforce Design and Participation Unit June 2005.

Data on turnover for Queensland Health is difficult to obtain because of the crossover of medical staff particular junior doctors between Districts. To overcome this the following method has been produced which calculates the cumulative sum of the recruitment and termination for each month. For each month the net of recruitment minus termination is added to the previous total, this then becomes a cumulative sum of the net growth in Queensland Health medical workforce. The forecast of this is shown in Graph 14 and table 5 below.

Graph 14: Net recruitment per period and forecast (forecasted differential of the graph above)



Source: Workforce Design and Participation Unit June 2005.

* The black line represents the actual net recruitment for Queensland Health. The red line is the forecast while the blue lines are confidence intervals for the forecasts.

Table 5: Forecasted Medical headcount requirement to cover future loss of future Medical workforce for periods 2006 to 2010

YEAR	FORECASTED HEADCOUNT REQUIREMENT TO COVER INCREASED DEMAND AND FUTURE LOSS
2006	790
2007	975
2008	1161
2009	1347
2010	1533

5.4 Medical university numbers

To combat the perceived medical shortfall increases have occurred in the number of medical school places nationwide as seen in tables 6 and 7 below.

Table 6: First Year Medical Student Enrolment Numbers

Year	1999	2000	2001	2002	2003	2004	2005
University of Queensland	232	230	242	249	277	306	275
James Cook University	N/A	58	70	72	71	83	90
Griffith University	N/A	N/A	N/A	N/A	N/A	N/A	88
Bond University	N/A	N/A	N/A	N/A	N/A	N/A	65
Total	232	288	312	321	348	389	518
Yearly percentage increase		24.14%	8.33%	2.88%	8.41%	11.78%	33.16%
Total percentage increase 1999-2005							123.28%

Source: Organisational Development Branch

This means a projected rate of graduation for medical students as follows:

Table 7: Projected Queensland medical graduate numbers commencing internship - 2006-2010

University	2006	2007	2008	2009	2010
University of Queensland (4 year post-grad)	249	275	275	275	275
James Cook University (6 year under-grad)	63	80	80	90	90
Griffith University (4 year post-grad)	-	-	-	88	110
Bond University (5 year under-grad)	-	-	-	65	65
TOTAL	312	355	355	518	540

Note: Attrition rate unknown

Source: Organisational Development Branch

ENHANCED CLINICAL ROLES

EXECUTIVE SUMMARY

The document: *Smart State: Health 2020* and recent reports from the Australian Health Workforce Officials Committee (AHWOC) identify the key challenges facing the health system in the coming two decades as:

- Meeting the needs of a growing and ageing population
- Meeting health care needs in the context of declining workforce participation rates
- Responding to the rapid advances in scientific and technical tools
- Managing the growing prevalence of chronic and complex conditions/ disease
- Escalation in consumer's knowledge and their expectations of the health service
- The increasing cost of health care
- The opportunities and threats presented by globalisation.

These challenges require fundamental and substantial changes to the current system of health service delivery in order to achieve quality health outcomes, and financial and resource sustainability. Workforce planning is a key component in planning future health services.

Workforce planning is the process of estimating the required health workforce to meet future health service requirements and the development of strategies to meet these requirements. Defining and re-defining / reforming workplace roles and tasks is one component of workforce planning.

Opportunities to utilise the skills of our current workforce to an extended capacity, explore the development of new roles and support the unregulated workforce to take on substitution roles are currently being explored and piloted within Queensland.

Advanced nursing roles, including the Nurse Practitioner role, have been trialled and implemented to varying degrees both in Australia and overseas. Since 1999 Queensland Health has implemented a number of advanced practice nursing roles including: Rural and Isolated Practice Endorsed Nurse (RIPEN) and the Sexual and Reproductive Health Nurse.

In 2003 Queensland Health trialled the nurse practitioner role in four sites. A report on the trial was published in December 2003. The report identified that nurse practitioners provided a safe and effective health service and recommended the implementation of the role in Queensland.

Following release of the report, the current Government made an election commitment to change relevant legislation to allow for full implementation of the role and to implement additional demonstration sites. This is in line with other Australian States who have changed relevant legislation and policy, and who now have nurse practitioners practising in a number of areas. States who have

implemented the role to date are: New South Wales, Victoria, South Australia, Western Australia and the Australian Capital Territory.

A Nurse Practitioner (NP) is an experienced registered nurse educated to function autonomously and collaboratively in an expanded clinical role. Educational requirement is Masters-level degree.

The nurse practitioner will consult and collaborate with other members of the health care team but may frequently work in the absence of other team members. While the nurse practitioner will have a high level of autonomy, clinical decision making will be based on Health Management Protocols (HMPs) that have been developed by the multidisciplinary team which includes doctors, pharmacists, and allied health professionals.

Introduction

The challenges for the future health and healthcare of Queenslanders have been well documented in Smart State: Health 2020 and recent reports from the Australian Health Workforce Officials Committee (AHWOC). One of the major issues for Queensland in the future will be providing and maintaining a flexible, responsive, skilled workforce in the environment of less people entering the workforce, new advances in technology and growing expectations of health consumers.

No future workforce planning can be undertaken in isolation. In working towards a quality-based healthcare system that is responsive to the changing environment there needs to be consideration of the full impact of change on the broader workforce continuum. Any change in roles within any part of the workforce will impact on the expectation and capacity of the rest of the workforce.

Workforce planning is a key component in planning future health services. Workforce planning is the process of estimating the required health workforce to meet future health service requirements and the development of strategies to meet these requirements. Components of workforce planning include:

- Identifying shortages and surpluses;
- Defining (or re-defining) workplace organisation, tasks and roles;
- Identifying drivers of both demand and supply;
- Establishing workforce education and training needs;
- Providing knowledge and understanding of the workforce and its activities; and
- Ensuring there is a process for systematically addressing the factors influencing workforce and workplace change.

AHWAC 2004

Queensland Health strongly endorses workforce planning being undertaken with consideration to all health professions. In the past there has been a tendency for workforce planning to address health professions in isolation with limited recognition being paid to the interdependencies and pressures on professional boundaries with organisational change. The challenges of professional demarcation will need to be addressed in the context of opportunities to utilise the skills and experience of all health professionals across healthcare, making sure they are being used to full advantage in the areas of greatest need. Health consumers have complex needs with input required from cross disciplines and extending from hospitals. Patient care depends on a team working collaboratively to meet the patient's needs. Community has an expectation for a seamless service and a systematic approach that goes beyond structure and professional silos.

Scope of Paper

This paper will consider new and advanced roles for health professionals as well as the roles of support staff to enable this change to take place. It will outline the potential for change within the organisation and work that is currently being undertaken.

The initial rationale for Queensland Health investigating alternate roles for nurses and possible substitution roles was a strategy to improve healthcare in underserved communities such as rural and geographically isolated communities. Parallel to this was research that indicated nurses were leaving the profession due to a lack of opportunities to fully utilise skills, experience and knowledge gained through their university training. It was further identified that there were other health professionals other than nurses with the necessary skills, knowledge and experiences to fill these gaps.

In the same way that the concept of nurses and other health professionals taking on tasks previously performed by medical officers is being explored, similar shortages in the other professional groups has led to the consideration of upskilling the support workforce to fill these gaps.

Information regarding advanced roles of health professionals has been gained through consultation with key stakeholders and a literature search of other jurisdictional initiatives nationally and internationally.

Issues

Current and predicted health workforce shortages have been identified in numerous studies, reports and discussion papers.

Health professionals account for 43% of employment in the health industry, nurses comprising just over 25% (Duckett, 2005). There are current recorded shortages in most health professionals however it is unlikely that future workforce planning based on providing more of the same will be enough to meet future needs. Increasing the numbers trained and entering the professions alone will not be enough. The roles performed by each professional group will need to change with realignment of some responsibilities and redesign of some roles. As part of workforce planning initiatives, health authorities in Australia and overseas are reviewing traditional professional boundaries and are developing new and redesigned roles in order to provide quality health services for their communities.

The educational preparation and clinical experiences of nurses provide a sound foundation for nurses to undertake more complex tasks and expanded roles. Advanced nursing roles, including the Nurse Practitioner role, have been trialled and implemented to varying degrees both in Australia and overseas.

Additionally the roles of Allied Health Professionals have not been fully utilised. Optimising the full potential of a broader scope of practice will maximise the specialist skills of Allied Health Professionals and may enhance retention through improved career paths.

Within the support workforce is the potential to develop and upskill people to take on roles of professional groups where gaps have already been identified, and where the professional groups will need to divest roles in order to take on new responsibilities.

The roles of indigenous health workers are varied and provide an opportunity to explore diverse and articulated pathways to support and deliver health care. Poor outcomes for the aboriginal and Torres Strait communities is well documented. There needs to be processes in place to clearly support self determination through improving access to mainstream health professional training and fully utilising the skills and abilities of the current indigenous health workers.

The rhetoric of articulation between vocational education training and higher education and the reality are quite different. The process of articulation is both cumbersome and difficult to navigate. The opportunities for articulation can also be exploited to resist change.

A further issue in relation to considering advanced roles for practitioners is the resistance to change through professional demarcation. This is further exacerbated by training that continues to use traditional educational models. The scope of practice for individual professions is bound by professional interest and history rather than evidence. Additionally the regulatory bodies are unduly rigid in allowing for flexibility and responsiveness of the workforce to the needs of the community.

Given the current situation in Queensland the public will need to be assured that any changes to traditional health care roles will not compromise safety and quality of health services. This is particularly so with respect to the medical profession's opposition to emerging roles of nurses and the nursing profession's concerns regarding the expansion of support personnel roles. Current and new roles will need to demonstrate transparent safety and quality monitoring.

Taking on new roles will require a fundamental review of existing roles of all health professionals to ensure there is no unnecessary duplication and an appropriate shift in some tasks as new roles are added. There will also need to be a significant investment in the training component of developing skills and remuneration commensurate with the expanded roles.

Long term and comprehensive workforce planning needs to be undertaken to ensure that the advanced roles are both relevant and sustainable. Any changes need to consider risks to demand and supply that inevitably may not address the issues around health service delivery.

Outcomes Required

In pursuing options and opportunities for advanced roles of health professionals and support staff the expectations of Queensland Health are :

- The skills of the current workforce are fully utilised
- The workforce reflects the diversity within the broader community and across the State
- A workforce responsive to the needs of a changing healthcare across the full continuum
- The changes need to acknowledge the changing social and generational expectations of both the community and workforce
- By investing in developing the roles and skills of support personnel there is evidence to suggest that the skills will remain within the local community and not leave with the health professional.

Options for Reform

Current Implemented or being Implemented

1. Advanced Practice Nursing Roles

Expanded nursing roles have been evolving for a number of years both nationally and internationally. In Queensland expanded nursing roles implemented to date include:

- Rural and Isolated Practice Endorsed Nurse
- Sexual and Reproductive Health Endorsed Nurse
- Immunisation Nurse

Nurses endorsed to undertake the above roles complete specified educational requirements related to the expanded role and are granted endorsement (for the specified role) with the Queensland Nursing Council (QNC).

Nurse Examiner and Bowel Cancer Screening (Gastro Intestinal Nurse Coordinator).

2. The Nurse Practitioner Role

A Nurse Practitioner (NP) is an experienced registered nurse educated to function autonomously and collaboratively in an expanded clinical role. Educational requirement is Masters-level degree.

The nurse practitioner role is at the apex of clinical nursing practice. The role extends and advances current nursing practice, with a strong foundation in knowledge, skills and competencies, for both population and individual health (Victorian Nurse Practitioner Project, 2001).

In Australia to date, the Nurse Practitioner role has been implemented in New South Wales, Victoria, South Australia, Western Australia, and the Australian Capital Territory.

In July 2002, Queensland Health formed a Nurse Practitioner Steering Committee to guide the development of appropriate models for Nurse Practitioner services in Queensland. Membership of the steering committee includes representation from: Queensland Nursing Council, Queensland Nurses Union, Australian Medical Association (Qld Branch), and Qld Divisions of General Practitioners.

In 2002 Queensland Health trialled the nurse practitioner role in four sites:

- Rural Health, Primary Health Care – Morven
- Rural Health, Primary Health care – Laura
- Rural Health – Nanango Hospital
- Oncology/Haematology – Princess Alexandra Hospital

The findings from these trials supported findings from interstate and overseas: that the care provided by nurse practitioners was safe and clinically effective, with the potential to significantly improve access to healthcare services, in terms of “geographical access” and “time waiting to access services”. The trials indicated a high level of satisfaction with the role from patients and fellow health care practitioners. The trial also provided information on what legislative and policy changes would be required to fully implement the role in Queensland. Members of the Nurse Practitioner Steering Committee were extensively involved in writing the report from this trial and this report was published in December 2003.

Following release of the report, the current Government made an election commitment to change relevant legislation to allow for full implementation of the role and to implement additional demonstration sites.

In early 2005 Queensland Health implemented additional nurse practitioner demonstration sites at:

- Aged Care - Quilpie
- Emergency Department – Redcliffe-Caboolture District
- Heart Failure – The Prince Charles Hospital
- Mental Health – Goondiwindi
- Neonatal ICU – Townsville Hospital
- Palliative Care – QEII District
- Women’s and Child Health – Ross River & Northern Beaches, Townsville

Key Points – Nurse Practitioner Role

- The Nurse Practitioner is an experienced nurse with a Master’s degree and has been assessed by the QNC has meeting national competency standards for nurse practitioners.
- The nurse practitioner role includes assessment and management of clients using nursing knowledge and skills and may include but is not limited to:
 - detailed health assessment & diagnosis

- ordering diagnostic investigations
- the direct referral of patients to other health care professionals,
- prescribing medications and other treatments/therapies
- The nurse practitioner will consult and collaborate with other members of the health care team but may frequently work in the absence of other team members.
- Whilst the nurse practitioner will have a high level of autonomy, clinical decision making will be based on Health Management Protocols (HMPs) that have been developed by the multidisciplinary team which includes doctors, pharmacists, and allied health professionals.
- The HMPs will draw extensively on national clinical guidelines and research evidence to ensure best practice. The prescribing of medication, ordering of pathology and requesting of x-rays, patient referrals and admission and discharge of patients by nurse practitioners will be in accordance with the HMP relevant to the specific area of clinical practice for a given Nurse Practitioner.
- Nurses wishing to practice as nurse practitioners will need to seek endorsement by the Queensland Nursing Council (QNC). To be eligible for nurse practitioner endorsement of their annual licence certificate, registered nurses must meet minimum professional and competency standards as outlined in the *QNC Policy on the Regulation of Nurse Practitioners in Queensland*.
- The National Review of Nursing Education noted the importance of developing the nurse practitioner role as part of planning for a workforce that meets the needs of the health, aged and community care sectors. Recommendation 5 from this report was that national standards for nurse practitioners be developed, to ensure national consistency in the implementation of the role.

EVIDENCE / COMPARATIVE ANALYSIS

Nurse practitioners have had a presence in other countries since the 1960s. In Australia, the role has been a focus of interest for State health departments since 1990. Over the past decade nurse practitioner trials have been conducted in Queensland, New South Wales, Victoria, South Australia, Western Australia and the Australian Capital Territory. A significant amount of data and information relating to the efficacy of this role has accumulated from these trials and overseas studies.

Nurse practitioners have been shown to offer beneficial service and fill a gap in health care provision, both in primary health care and acute care sectors. National and international studies have demonstrated they provide a service that is highly regarded (Brown & Grimes 1995, Horrocks et al 2002, Kinnersley et al 2000, Sherwood et al 1997, Venning et al 2000) and in demand (de Leon-Demare et al 1999, hand 2001). Nurse Practitioners have been demonstrated to be effective in managing common acute illnesses and injuries and stable chronic conditions (Sherwood et al 1997).

OVERSEAS

1. United States: The nurse practitioner role originated in the United States during the 1960s as a strategy to help improve health care in under-served communities. The role was quickly adopted throughout the United States expanding to include the vast majority of acute care settings such as inpatient speciality areas and emergency departments. Nurse Practitioners have become widely accepted as a valued and essential adjunct in the American health care system.
2. Canada: Originally implemented in the 1960s as a viable solution to a predicted physician shortage. Nursing and medical organisations were supportive of the role however the existence of a physician surplus (contrary to predictions) resulted in a failure to continue with proposed legislative and policy changes required for the role. The role has re-emerged since the late eighties as a result of physician shortages in rural and remote areas and healthcare reforms in metropolitan areas. However factors such as the provincial nature of the Canadian health care system has resulted in significant regional differences in policy, funding and legislation related to the role.
3. United Kingdom: Within the National Health Service (NHS) Modernisation the implementation of the "Working Time Directive provision" has been one catalyst for re-design of the health workforce and rethinking the way that NHS currently delivers healthcare. The working time directive provision limits the working week for junior doctors to 58 hours falling to 48 hours in August 2009.

The NHS Modernisation Agency has coordinated the development of a number of new roles including: non-medical anaesthetic practitioners, cardiac intensive care practitioners, orthopaedic nurse practitioners, neonatal/paediatric nurse practitioners,
4. New Zealand: In 2001 New Zealand formally implemented the Nurse Practitioner role. Nurse practitioners are regulated through the Nursing Council of New Zealand, requiring nurses seeking endorsement to meet minimum standards, competencies and educational requirements (Masters level degree).

AUSTRALIA

New South Wales, Victoria, South Australia, Australian Capitol Territory and Western Australia have all amended relevant State legislation to protect the title of Nurse Practitioner, and to allow for Nurse Practitioners to prescribe medications according to approved clinical practice guidelines. Changes to policy and/or legislation have also occurred to provide for Nurse Practitioners to request diagnostic investigations including x-rays and pathology tests.

1. In NSW, the first Nurse Practitioner positions were approved in 2000. There are currently 54 authorised NPs in NSW and an additional 26 nurses in transitional positions working towards their authorisation. The role of the NSW Nurse Practitioner includes ordering medications from an approved formulary, initiating diagnostic investigations according to approved clinical guidelines, and some limited referral rights.

2. Victoria is currently implementing the role. The first four Victorian nurse practitioners were endorsed in November 2004, following amendment of the regulations of the Drugs Poisons and Controlled Substances Act to include the drug formulary for each category of nurse practitioner. The endorsed NPs are now working in the areas of Wound Management, ICU Liaison and two in Youth Health. The Nurse Board of Victoria has three approved providers for Masters in Nurse Practitioner education: La Trobe University, Flinders University and University of South Australia. In addition the NBV has approved University of Melbourne and University of South Australia as providers for the Therapeutic Medication Management Module. The role of the Victorian Nurse Practitioner will also include ordering medications from an approved formulary, initiating investigations according to approved clinical guidelines, and some limited referral and admitting rights.
3. South Australia is implementing the Nurse Practitioner role across the whole health care sector – in public, private, rural and urban settings. The South Australian Nurse Practitioner will be endorsed to order routine diagnostic tests, routine pathology investigations and to prescribe certain medications as specified in approved guidelines. To date South Australia has seven (7) nurses authorised to practice as nurse practitioners and several more nurses have submitted their application for endorsement to the Nurses Board of South Australia.
4. Western Australia has implemented the role with twenty-one (21) nurse practitioners currently authorised. Three courses have been approved for NP education in the state.
5. The Australian Capital Territory is currently implementing the role. To date 2 nurses have received nurse practitioner authorisation from the nurse's board. The ACT is also undertaking 'The Aged Care Nurse Practitioner Pilot Project (ACNPPP)' - a twelve-month, jointly funded initiative by the Australian Government and ACT Health. The project commenced in August 2004 and is due for completion in June 2005.

Future Options

1. Additional Advanced Nursing Roles:

Many advanced practice nursing roles do not require legislative change to enable implementation. These roles fall within the current scope of nursing practice.

The Queensland Nursing Council's Scope of Practice Framework for Nurses and Midwives identifies Advanced Practice as being characterised by greater and increasing complexity of nursing practice. Education, experience and competence development mark advancing practice.

The Queensland Nursing Council (QNC) provides guiding principles to expanding the scope of practice for Registered Nurses. These principles are:

- The primary motivation to expand the scope of practice is to meet the health needs of people and to improve health outcomes,
- Expansion of practice is based on appropriate consultation, planning, education and/or assessed competence,
- Expansion of practice enhances existing aspects of professional practice,
- The expanded practice is lawful and consistent with standards acceptable to the nursing profession and with policy requirements of the service provider,
- Assessment of competence for expanded practice is carried out by a competent health professional.

Possible advanced practice roles being considered in Queensland include:
Forensic

2. Extended scope of practice of Allied Health Professionals:

Within the Allied Health Professions there are many opportunities to maximise specialist skills, enhance health services and decrease medical profession workload. For example:

- advanced practice roles for physiotherapists, pharmacists, occupational therapists and social workers (triage and management of specific conditions), radiographers (initial x-ray reporting) in Emergency Departments;
- advanced practice roles in the management of outpatient and intermediate care services, e.g. physiotherapy, occupational therapy and podiatry in orthopaedics; orthoptists and optometrists in eye clinics, pharmacists in specific disease management clinics, in prescribing and immunisation; and
- advanced practice radiography, sonography and radiation therapy, e.g. mammography reporting, plain film reporting, ultrasound reporting, diagnostic procedures (cannulation for contrast injection), radiotherapy treatment planning and monitoring.

Evidence/Comparative Analysis for Allied Health Advanced Practice Roles

Podiatry

Podiatrists with appropriate education and certification perform below knee surgery in both the USA and UK. In Australia suitably educated and certified podiatrists can also perform ankle and foot surgery, however there are few practising in Queensland (< 5) and none in Queensland Health. Barriers are the cost of training which is self funded and the relatively few orthopaedic surgeons and anaesthetists willing to work with podiatric surgeons.

Pharmacy

The Pharmacist role has evolved from dispensing medication to: engaging with patients to provide education and advice on a broad range of health issues, help with management of medical conditions and medication management as part of community pharmacy practice; to a clinical pharmacy role in health care facilities, providing expert advice to patients and staff regarding medication management, quality use of medicines and medication safety, coordination of clinical research and trials involving drug therapies.

At a time of a chronic, international shortage of pharmacists, these extended roles are important in attracting new entrants to pharmacy careers and in retaining existing pharmacy staff.

The breadth and depth of pharmacist training means pharmacists are well placed to take on advanced practice roles including limited prescribing, management of specific medical conditions, particularly chronic disease management, immunisation and patient education.

Pharmacists also represent the most accessible professional in the health care system. Customers have always sought the advice of community pharmacists on a broad range of health care issues. In the USA for example 250 million people walk into a pharmacy every week. In the USA and the UK in recognition of this the role of both community and hospital pharmacists has been extended.

In the USA expanded roles in immunisation, specialised functions such as management of drug therapy and/or clinics (anticoagulation, cardiac risk, high risk pregnancy, diabetes, cardiac failure, nephrology and mental health) have legislative and regulatory support. Patients treated in pharmacist managed clinics had better anticoagulation control, fewer bleeding and thrombotic complications, fewer hospitalisations and emergency department visits and lower care costs than patients treated in the standard manner (i.e. in medical outpatient clinics) (ref: Pharmacist Position Paper – American Academy of Family Physicians, 2005 www.aafp.org/x16625.xml)

In the UK the NHS is contracting with community pharmacists to take on work previously done by GPs including public health work, chronic disease management clinics for diabetes, cardiac failure, sexual health and smoking cessation and in home management of older people. Pharmacists working in hospitals run specialist clinics for long term conditions and as part of medical

assessment multidisciplinary care teams take medical histories and advise regarding medication.

Medical Imaging (Radiography, Mammography, Radiation Therapy) REFS to be added plus supporting information re new roles from current research/evaluation

Radiographers are ideally positioned through their existing knowledge and skills base to perform extended roles in x-ray reporting.

The NHS in the UK has developed a four tier model of skill mix to address critical radiography workforce shortages driven by a worldwide shortage of practitioners (in both the medical imaging and medical workforce), continuing demand for and expansion of cancer services and the need to remove blockages occurring within general diagnostic processes. The multidisciplinary model developed is designed to shape the clinical team around patient and care requirements and as such describes new roles for both support staff (assistant practitioners) and medical imaging professionals (advanced practitioner and consultant practitioners). Examples of advanced practice roles include plain film reporting (skeleton and chest) for Accident and Emergency Departments and General Practitioners, cannulation and administration of contrast medium and other substances, mammography reporting as second readers and CT head reporting.

Physiotherapy

Extended and advanced roles are emerging in the NHS, UK for physiotherapists in the areas of Accident and Emergency and Orthopaedic Outpatient Clinics where they manage patients with musculoskeletal traumatic injuries including examination, requesting x-rays, referring on to the appropriate specialty, administer immediate treatment and discharge home with advice. The advanced practice role utilises musculoskeletal expertise to augment the medical service in order to provide a more comprehensive service. Studies have demonstrated cost effectiveness as well as maintaining quality of service. Physiotherapists have the capacity to function as first contact practitioners in both settings, avoiding the need for medical intervention in many instances.

Advanced roles for physiotherapists have also been identified in general practice, rheumatology and respiratory clinics.

Occupational therapy

Advanced practice roles for occupational therapists and physiotherapists (as part of a multidisciplinary team in medical assessment units collocated with A & E departments) have been developed in the NHS (Scotland – Lothian, East Kent and Chester Trusts) to provide services to the frail elderly including rapid assessment and referral for urgent medical outpatient treatment and intermediate care, referral to falls programs and pulmonary rehabilitation services, appropriate bed management and placement. It has been estimated that up to 40% of admissions are adequately or better managed through this process than through admission or readmission to hospital.

Orthoptists and Optometrists

Current training for optometrists already includes issuing prescriptions to patients, diagnosing and treating complex eye diseases. In addition optometrists are able to triage patients on hospital waiting lists for glaucoma and cataract assessments. In the UK orthoptists and optometrists triage patients presenting to eye clinics to fast track urgent cases to consultant medical specialists and perform routine follow up work from the consultants' clinics. These extended roles have resulted in reduction in waiting times for patients and better management of urgent cases.

For some practices the lead time to change is minimal, whereas for other options a greater commitment to time is required.

Utilising the full potential of a broader scope of practice will maximise the specialist skills of Allied Health Professionals and may enhance retention through improved career paths. It is important that these professionals are valued for their advanced skills within their profession rather than seen as assistants to medical practitioners.

There are significant opportunities to enhance current services and support practices traditionally undertaken by medical practitioners. However, there are some barriers to these alternative work practices:

- The challenges to traditional paradigms such as work practices and professional boundaries may contribute to the resistance to change.
- The requirement for some legislative changes. For example, podiatrists being able to prescribe a limited range of medications. In all the above examples the practices are already in place in some other States and within the NHS.
- In some instances Allied Health Professionals with advanced skills will require additional training, which is a longer term solution.
- There are currently significant workforce shortages in several of the Allied Health Professions.

Should Allied Health Professionals broaden their scope of practice consideration must be given to the support provided to Allied Health Professionals. Such as the utilisation of Allied Health Assistants to perform more routine tasks.

There are other solutions that may need to be considered to reduce waiting lists such as better referral policies. This is well demonstrated by optometry: the skills and training already exist for these professionals to treat conditions traditionally undertaken by ophthalmologists.

Future workforce planning will need to challenge the medical models that dominate the current health system. Future models of care will need to examine the broader issues of health and maximise the potential the health workforce across the full continuum of health care.

3. **Role of support staff** Paula/Mad/SA

The role and utilisation of the unregulated workforce is being explored nationally and internationally to both support and substitute for the roles of health professionals.

Anaesthetic technicians Paula

Allied Health Assistants
Pharmacy Assistants and Technicians
Radiography Assistants

New and emerging roles for indigenous health workers Warren

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Paula to add refs

APPENDIX 1 – New Roles in the United Kingdom NHS

Anaesthesia Practitioner	<ul style="list-style-type: none"> ▪ New ways of working in Anaesthesia which will focus on the development of non medical roles in the provision of anaesthetic services. This model involves a medically qualified anaesthetist supervising a number of anaesthesia practitioners in more than one theatre. ▪ It is expected that these practitioners will play a significant role not only in preparing the patients for theatre but also in monitoring their physical and psychological condition during the operation, thereby enabling anaesthetists the flexibility to cover more than one theatre. ▪ The role has the potential to release medical time enabling doctors to focus on the skills only they can provide. ▪ This role has been implemented in a number of European countries and the US.
Cardiac Intensive Care practitioners	<ul style="list-style-type: none"> ▪ Undertake a host of tasks such as diagnosis, x-ray requests, prescribing and general problem-solving ▪ Undertake a six month competency-based training program ▪ Although current cardiac intensive care practitioners happen to be trained nurses, it is thought in the future such roles may also open to other health care disciplines. ▪
Trauma & Orthopaedic Nurse Practitioners	<ul style="list-style-type: none"> ▪ Primary aim of introducing this role was to reduce the work intensity of junior doctors and improve the quality of front-line care to trauma patients ▪ Provide round-the-clock trauma service in close liaison with the emergency department ▪ Request x-rays, initiate & administer pain relief and fluid replacement and arrange further testing ▪ Once patient stabilised, the practitioner facilitates transfer to relevant area, liaises with fracture clinic, organises admission and if necessary applies plaster cast ▪ Benefits identified to date include: fast tracking of patients to the specialised trauma unit, patient spends less time in emergency department, and improved communication with regard to planned care.
Neonatal and Paediatric Nurse Practitioner	