SUBMISSION TO PRODUCTIVITY COMMISSION ON MEDICAL WORKFORCE

By Patrick Cregan, F.R.A.C.S.

Section 1 – Introduction.

This submission is a personal submission. It is based on a long interest in the broader questions associated with the development and utilisation of medical and health workforce. This submission will primarily focus on the medical workforce but some comment will also be addressed to the nursing and allied health aspects in Section 7.

Curriculum Vitae

I am a general surgeon with a particular interest in laparoscopic, endocrine and breast surgery, practicing at Nepean Hospital, Nepean Private Hospital, and have practiced in a variety of other hospital settings during the past 20 years. I am currently the senior surgeon at Nepean Hospital, I chair the New South Wales Department of Health Surgical Services Taskforce, I co-chair the newly formed Sydney West Area Health Services Surgical Network. I was formerly clinical director of surgery for the Wentworth Area Health Service. I am a member of the Board of Cancer Institute of New South Wales and chair the Quality, Safety and Clinical Effectiveness Sub-Committee of that Institute and more recently, the Audit Committee of the Cancer Institute. I have been a member of the Greater Metropolitan Services Implementation group, the Greater Metropolitan Transition Task Force and more recently, the Greater Metropolitan Clinical Taskforce. These were State Government instrumentalities and my particular role in service on them was in regard to the role and function of the smaller district / metropolitan hospitals. (http://www.health.nsw.gov.au/policy/gap/metro/keymetro.pdf) I co-chaired the group on this that made recommendations for the G.M.S.I.G. and the G.M.T.T. I have been the secretary of the state committee RACS and a member of the Board of Directors of the Wentworth Area Health Service and the NSW Department of Health Clinical Council.

I have a long interest in the application of advanced technologies to medical practice. On 5th May 1998 I performed the first remote surgical procedure performed in Australia, and the 6th in the world. My principal research interests relate to robotics and Hapto-visual environments as they apply to surgery and surgical training. I was the founder of the ViCCU project. This is a collaboration between the old Wentworth Area Health Service, New South Wales Department of Health and the C.S.I.R.O. to utilise ultra broadband internet to leverage of specialist services in larger hospitals, and support the acute critical care functions of smaller functions. Links to this may be found at http://www3.ict.csiro.au/ict/content/display/0,,a16254_b16412_d41654,00.html

General Comments

It is reasonable to ask why it takes a minimum of 13 years to deliver to the health system a qualified specialist from entry to the faculty of medicine. Given that the intake into medical schools uses the top 1% of those sitting university qualifying exams and frequently supplemented by pre-entry interviews, why does it take so long? The problem clearly is the training system, not the trainees.

It is of note that the medical workforce is ageing, and ageing faster than the population. This applies also to nursing and allied health, and the structure of the workforce allows little flexibility to deal with this. There is a worldwide shortage of medical practitioners generally, and in most medical specialities. Particularly in medicine, there are shortages of anaesthetists, intensive care physicians, rehabilitation and geriatric physicians, some surgical subspecialties and obstetrics.

The reasons for this may be found in the history of the development of provision of medical services, and correlating to that, medical education. This will be explored in Section 3. Section 2 will be a summary of the principal issues and recommendations. In Section 4, specific problems relating to undergraduate medical education will be discussed. In Section 5, problems relating to postgraduate medical education will be addressed. Section 6 generally looks at some issues in regard to service delivery. Section 7 looks at non-medical workforce issues and Section 8 will be recommendations.

Section 2 – Summary

Shorten training time

- Abolish Graduate Medicine Programme
- Maximum time for Medical Graduates 5 years
- Maximum time for Postgraduate certification 5 years
- Maximum age to achieve specialist certification 28 years

Competency based training & assessment

- Prohibit length of exposure based assessments of training
- Training needs analysis
- Define necessary skill sets
- Define and test for basic physical abilities and psychometric skills

Flexible training

- Enable other groups than the colleges to train postgraduate / specialist students
- Develop skills centres as the basis of undergraduate & postgraduate training
- Teach specific skill sets irrespective of professional grouping

Breakdown professional silos

- Enlarge the roles of EN versus RN, Theatre tech versus RN, Nurse practitioner versus medical practitioner
- Classify professional groups by skill set rather than professional group eg endoscopist, mammogram reader
- Develop Professional assistants eg Physician assistant, Physiotherapy assistant etc

Do Not learn on humans

- Skills centre based training especially of dextrous and communication skills
- Virtual Reality based training
- Insist on machine based competency demonstration before applying skills to humans
- Consultant led service provision
- Ban service posts for trainees

Improve Transparency of education process

- Enable multiple training processes / organisations
- Federally guided State board based examination for registration
- Revitalise NSQAC process and recognise multiple specialities
- Colleges as elite “brands” not educators or examiners for the health system generally
- Improve University appointment processes to reflect health system needs not personal or research agenda

Improve training by involving Rural and Regional centres

- Rotation process compulsory for all training programmes
- Abolish the one big examination approach of the RACP
- Acknowledge the contribution of Rural & Regional trainers with Clinical Academic titles

Establish a proper process of career planning

- At the outset by a broader entry assessment process and early streaming
- Acknowledge the need for flexibility in career development
- Enable appointment of consultants before completion of training or appoint people to a process which inevitably results in a predetermined position
- Develop a system of end of career planning to enable maximum use of already trained workforce

Section 3 – Historical Perspective

The processes and institutions that provide services, and equally the processes and institutions that provide education, are being strongly challenged by changes that have come about in the health workplace, particularly over the past 20 years. As a consequence of evolution of systematic nursing, asepsis, advances in anaesthesia, surgery and obstetrics in the late 1800s and early 1900s a new process of medical care was developed. This was supplemented and improved by the development of effective drugs in the middle of the last century, continuing through to today. All of these recently have been affected by the explosion in knowledge, technology, in imaging etc. such that the process of care now is vastly different to what it was 120 years ago. The training and job descriptions of the health workforce, however, have not significantly changed from what was instituted in the 1880s.

The 1880s was the last period of equivalent change, and at that time the medical and surgical processes of care were being defined by figures such as William Osler and Halsted. The Halsted / North American model of surgical training in particular, which in many ways reflects the training of the British colleges, was one of an apprenticeship system with milestones measured by periods of exposure.

William Osler dominated the thinking about medical service provision, and this remains the process that is taught and aspired to today. In essence, Osler's method involved the process of history taking and physical examination, formulation of a theory of the patient's disease, a testing of that theory, and intervention to assist the patient and see if that changed the patient's disease state, reassessment, reinvestigation, alteration of therapy etc. on a highly individualised basis based on the knowledge and skill of the individual clinician.

This process has been reflected and reinforced by problem-based learning which is at the heart of many of the university education processes we see today, in particular the graduate medical programmes.

Medicine today, however, is a very different business. The trends that have been at work are

- a focus on evidence based medicine,
- specialisation and subspecialisation,
- the need for a critical mass of patients and staff,
- technological progress,
- the decline of professionalism and
- the rise of clinical governance and
- the difficulties inherent in an apprenticeship model of training.

The increase in medical knowledge has led to a need for specialisation. Further, the testing of knowledge by means such as randomised controlled trials and meta-analyses has led to a situation where a practitioner now should practice based on protocols. These protocols will reflect a local environment and be based on guidelines developed at a high,

usually national level. Such guidelines and protocols reflect the best available distilled evidence of meta-analyses etc. An example of this is in breast cancer where the National Health and Medical Research Council's guidelines on the management of early breast cancer (http://www.health.gov.au/nhmrc/publications/pdf/cp74.pdf) are based on a systematic review of the best available evidence. The evidence is graded and becomes guidelines. At a local hospital or institutional level, this then becomes protocols, (http://www.bci.org.au/medical/protocols.htm)which drive investigation and treatment. There is outstanding evidence that this approach improves care. This is at variance to the Oslerian model of observe, hypothesise, test, treat, re-observe on an individual patients by an individual physician.

Further, the extent of available knowledge is such that it is impossible to function as a true generalist. Thus, increasingly medical practitioners, nursing and allied staff specialise and subspecialise and as has been shown in a multitude of articles, most recently in a Lancet article, the volume of a particular problem or case that an individual person sees is an independent predictor of the outcome for the patient. The higher volume the better the outcome, and this is indeed true even in institutions that have low volumes but with a single high volume practitioner.

There is however, a critical mass of patients to provide an effective rostering system of staff necessary to provide this quality in medical practice. Critical mass is what allows specialisation and specialisation fosters the use of protocols, and a protocol based approach.

The need for protocol driven processes is even more apparent in the rapid turnover, short stay acute interventional part of medical practice. Effective drugs mean that patients are now usually treated as outpatients, not inpatients. For example the treatment of peptic ulcer on the best evidence 30 years ago was 3 weeks hospitalisation; it is now a 7-day outpatient combination of drugs. Cholecystectomy, which was a 7 to 10 day hospital stay is now being done laparoscopically as a day-only procedure. Multiple other diseases are treated in specific units be they intensive care units, coronary care units, stroke units etc. with adherence to protocol and again improved outcomes. These practices all require specialised knowledge and in particular a willingness to develop and use protocol based medicine. As indicated, this does not sit well with Oslerian teaching and approaches.

In procedural specialties in particular, apprenticeship training has been the method of choice. This, particularly with subspecialisation and the movement to safe working hours etc. has meant increasing length of time in training. Inevitably in an apprenticeship based system where periods of exposure are used to define that training, people are trained to a level of exposure not to a level of competence. Indeed there is no guarantee that competence has been achieved by any length of training, and educational theory would suggest that it is unlikely that the period of exposure relates to competence. Specific skills are not assessed in this model. Psychometric assessment is not undertaken, nor indeed is basic physical assessment, e.g. visual acuity, undertaken in this current training process.

Perhaps the most damning part of the apprenticeship training model is that those in training learn on humans. This has been disavowed in both the response of the General Medical Council to the Bristol Inquiry in the U.K. and in "Crossing the quality chasm" response to the "To err is human" documents in the National Institute of Health in the United States. We can no longer continue to learn on humans.

Responsibility has also become diffused in the current environment. There has been a significant decline in the confidence in and reliance on professionalism. When was the last person expelled from one of the learned colleges? Professionalism as a concept to underpin relationships between the health workforce and the general public has been challenged by a variety of developments, in particular the concept of clinical governance. It is defined as a top down method of ensuring quality of service, which has become systemically entrenched in the New South Wales Department of Health by the establishment of clinical governance units throughout all area health services. The demise of professionalism is further seen in the rise of institutions such as the Clinical Excellence Commission in New South Wales, the Australian Council of Quality and Standards in Health Care etc. These bodies reflect the failure of colleges and professional organisations to ensure standards.

The only non-government group who have done anything effective in maintenance of professional standards have been the medical boards to some degree, and the medical defence organisations, all of whom run "frequent flyer programmes".

Thus with the advance of history the systems and structures that underpin the provision of medical services and education have been challenged and found wanting.

Section 4 – Undergraduate

The artificial restrictions on undergraduate medical education have led to a significant lack of medical graduates in Australia. As indicated above, the graduates produced by the system are also frequently inappropriate to the task they will confront especially in hospital medicine. This is a reflection of the Oslerian philosophy of medical practice and the education system that teaches it and has in fact been amplified by the move to problem based medical education. This perhaps has reached its most bizarre outcome in the failure of many of the universities now to teach anatomy to medical undergraduates.

Beyond that it is reasonable to ask that in an evidence based, protocol driven environment, are medical staff the best people to implement such processes?

Protocol adherence and process engineering is not taught or acknowledged by the medical faculties, but as indicated above this is the basis now of modern quality, safety and efficiency in medical care.

The move to making medicine a graduate degree in a number of universities should be condemned. From personal experience (my daughter is a medical student in a graduate medical programme) the gaming, cramming etc. to get into the medical course of your choice is being deferred from the Higher School Certificate level to the GAMSAT level during an undergraduate degree. People in these programmes effectively waste three or four years, and this is done primarily in the interests of introducing some form of dissuasion from those who would go direct from Higher School Certificate to medical degree without any other form of assessment.

By way of contrast, the approach of the defence forces to those who enter the Australian Defence Forces Academy and in particular those who seek to do high skill jobs such as flying fast jets, undertake a structured, comprehensive assessment programme whilst still in high school, of which clearly academic achievement is part but medical and physical assessment, psychometric and psychological assessment and ultimately assessment of innate flying ability in both simulated and actual environments is undertaken prior to the community spending about the same on a flying officer as it will spend on a medical graduate. The defence forces want value for their money – it is reasonable for the community to want value for its money in the medical training process. This should come by an adequate assessment process, not by the bastardisation of would-be medical students by the use of a graduate medical programme.

Further, the graduate medical program creates significant problems for the junior medical officers who are now significantly older than their forebears or their peers from other universities. The practical implications of this for female undergraduates is that once they are about to enter specialist training they are forced to make a biological choice between career and family. Whilst in the past it was possible to be a mother of three and an orthopaedic surgeon or professor of medicine at a prominent Sydney teaching hospital, this is no longer feasible.

Of more concern to the broad community should be the fact that at graduation at specialist level, we have a crop of **OLD** people. A surgeon embarking upon his or her first appointment is likely to be in their late 30s. At this stage, much if not most of their creativity has been crushed or evaporated with age. It should be an article of faith that one's first specialist appointment should occur before one's 30th birthday. Again, this implies the need to train to competence and not substitute length of exposure for competence.

The university processes, in particular a corrupt appointment system, which values number of publications over contribution to teaching or development and implementation of services, is an issue of great concern. The ability to teach should be the paramount part of the appointment to a university position. Further, the processes involved in particular in the appointment of medical positions is in no way transparent, and the process has so many "cop out" clauses as to make the process a nonsense. Ultimately, it is a game of power and influence. By way of example, count the clinical academic titles awarded by the University of Sydney in the teaching hospitals of Central Sydney area health service as opposed to those in the northern and western area health services. There is a need for thorough reform of

- the entry system and criteria
- the educational processes within the universities and,
- their processes of appointment and staffing.

Section 5 – Postgraduate

The learned colleges were initially established as "brands". They were used to distinguish surgeons from barbers and physicians from soothsayers. Subsequently they evolved a process of apprenticeship training, at the completion of which the brand could be attached. I comment on two colleges but the principles apply to them all.

Firstly, the Royal Australasian College of Physicians has effectively ceded large parts of its training and assessment to the universities. This is done by failure to follow up adequately on training after the initial examination, which is relied upon as essentially the sole focus for entry into the College. Thereafter for appointment to a metropolitan and particularly a principal referral hospital a physician must have undertaken a research PhD at a university. It is reasonable to ask, is this producing the physicians that the workforce needs, and equally reasonable to answer no. The need for general physicians and people who can cover a range of subspecialty positions, particularly in smaller hospitals, is made abundantly clear in the findings of the Camden/Campbelltown inquiry.

Further, the R.A.C.P. reliance on one big examination distorts the training processes for would-be physicians. Trainees in internal medicine are loath to leave the large principal referrals hospitals for fear that this will jeopardise their chances in the examination, and although they value the clinical experience that is gained in peripheral terms in more remote hospitals, their focus is solely on this single overwhelming examination. Clearly this examination needs to be broken up into multiple components that can be taken piecemeal and indeed a way must be found to encourage, if not make compulsory, service in a peripheral term prior to being able to sit the examination.

The College of Surgeons, and indeed the other colleges, lack transparency concerning their internal appointment processes. It is unfair and untrue of the A.C.C.C. to find that there is a lack of transparency in the appointments of trainees and the methodologies employed therein. However, the processes that dictate the internal runnings of the College are of significant concern.

The colleges are run like golf clubs. They have essentially a political old boy network which runs and maintains their administration. There is no transparency in the way people are appointed to various positions, for example the Court of Examiners of the College of Surgeons in one year failed to appointment appropriately qualified people, and actively sought out an application well after the closing date so as to ensure that someone from Queensland was on the Committee. Again a section chairman arbitrarily over-rules the delegated person on the attachment of a trainee to a particular post without reference to the current or would be trainee, the term supervisor or the logbooks of trainees in that term. Such a section chairman is frequently elected by a couple of people at the end of a business meeting at an annual conference which may have only a tiny fraction of members present.

The colleges in fact suffer from the worst of this club like quasi-political organisational problem and the further impact of federalism. The need to ensure that smaller states are

represented, and their views are heard, tends to drown out the voices of the large groups and large states. Thus the ongoing tension that is seen in the College of Surgeons between groups such as orthopaedics, urology and, more recently, general surgery and the college itself. The concern is frequently expressed that the college is run by minor surgeons from minor states addressing minor issues.

Given the selection process that the colleges employ, where not only do they get the best and the brightest of the high school graduates who have then been further refined in a university process and then undertake a minimum of three years basic, on-the-job training and assessment, why does it take as long as it does to train a surgeon or a physician? The colleges are presented with the best available talent and yet their only response to concerns about training is to further increase its length, for example the recent 3 + 2 fiasco in the College of Surgeons.

It is time that the responsibility for postgraduate training was taken up by other groups. Whilst the colleges should not be prohibited from being involved in postgraduate training, universities and other institutions should be given the opportunity to train specialists of all kinds, and the Government should resume responsibility for acknowledgement of specialist training. In days gone by the NaSQAC (National Specialist Qualification Advisory Committee) was the group that acknowledged specialists or otherwise.

NaSQAC should be revitalised and as indicated, acknowledge training from sources other than the colleges, and indeed should focus closely on the training processes and their adequacy. Ultimately, the colleges should revert to being “brands” as they were originally intended rather than quasi government authorities who are run by part time amateurs with golf club like structures, and are frequently at the whim of special interest groups.

Section 6 – Service Delivery

As indicated above, the need to deliver excellent protocol driven care should be the primary aim of the health workforce henceforth. In general practice there is certainly an ongoing need for the problem based approach that has been the norm until now, but even there the approach, for example to a child with abdominal pain or asthma, is more likely to be effective if it is protocol driven.

The impact of technology on service delivery will continue to drive this change, and examples have been listed above. The opportunity exists to utilise new technologies to leverage of the existing skills bases and interim solution. The ViCCU project for example provides the opportunity to provide critical care support to a number of small institutions using the existing skills base. Although telemedicine has been around for a long time, the technology available using ultra broadband internet is such that effective clinical support can be provided because of the quality and variety of available television channels to the supporting specialist. Other developments in this field include VisICU and equivalent remote monitoring systems that are becoming commercially available in the United States. Whilst remote active intervention in surgery is still some time away, systems based around parts of these technologies can be implemented almost immediately.

The situation in regard to allied health, certainly as it affects the smaller hospitals in Sydney, is again critical. Numbers are restricted and positions are frequently not funded. There is very poor coordination of a supply of allied health practitioners. By way of example, a physiotherapist who passed with First Class Honours and the Clinical and Research prizes in physiotherapy in Queensland could not be accommodated within the New South Wales allied health system and its conventional distribution mechanisms. There is a need in this as in medical nursing workforce for assistant positions, such as physiotherapy assistants etc. Again, technology may be of assistance here. In Southern California a large rehabilitation hospital network is utilising robots to help with the provision of allied health and similar services (see www.intouchhealth.com.).

Section 7 – Non Medical

In many ways the problems in health workforce are worse in the non-medical areas. For example, the average age of an operating room nurse has risen by 10 years in the past 6, such that operating room nurses are now nearly as old as the surgeons with whom they work.

The structure of the operating room workforce again needs to be addressed. The Mayo Clinic runs 48 operating rooms with one registered nurse. There are usually two registered nurses and an enrolled nurse minimum in every operating theatre in New South Wales. The ability to use operating room technicians is something that must be explored as a matter of urgency.

In private practice, nurse practitioners are widely used. In my own practice I have a nurse practitioner who independently assesses and manages some wounds for some categories of patient, in fact does an initial consultation and screening prior to my seeing others. These roles are being extended elsewhere both at specialist and general practice levels, but it is of note that the use of nurse practitioners is severely curtailed in the public sector.

The need to provide additional nurses is a critical issue for the health workforce, and whilst some of the nursing roles may be expanded to include "medical" roles, other non nursing workforce members will need to undertake some "nursing" duties.

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Section 8 - Recommendations

1. Training.

There are multiple requirements in regard to training.

- It is no longer acceptable to train on humans where any other possible process exists.
- Training should either be undertaken by government run institutions or under government oversight.
- A mix of trainers must be acknowledged. These may be overseas training or training from other institutions such as universities.
- NaSQAC must be revised and become the definitive authority on specialist recognition, and appropriately resourced to that task.
- In training the emphasis must be on demonstrated competence rather than length of exposure.
- Skills laboratories such as that developed at Royal Brisbane Hospital must be developed and expanded to become a vital part of the training process.
- The move to evidence based and thus protocol driven medicine must be enhanced, and training must reflect the need then for protocol development and adherence.
- There is a need to completely jig the workforce with use of other people in non traditional roles, e.g. colonoscopists performing the bulk of screening colonoscopies rather than gastroenterologists.
- We need to utilise technology such as the ViCCU to leverage off available expertise in the short to medium term.
- Medical and nursing training should be routinely available as an undergraduate, not a postgraduate course. Postgraduate courses should be wound back and stopped within five years.

2. University

The university processes of appointment and training must become transparent and reflect the needs of the workforce, not the academic research reputation of the university. There may in fact need to be developed a new series of training institutions which could be labelled postgraduate training institutes, which would develop the expertise to undertake that basic postgraduate training common to many specialties and subspecialties, and a large part of the specialty training and assessment. This must be independent of the colleges.

3. Colleges

The colleges need to be recognised as branding organisations who have some role in setting standards for both education and practice. They must not be allowed to continue as the educational training and assessment and standard setting organisations that they are. Colleges should be exclusive elite organisations. They are not equipped or able to be universal providers of education, training, assessment and standards. Colleges should

acknowledge these deficiencies and move to support the development of postgraduate training institutes. They may have some input into such institutes but ultimately responsibility for these institutes should rest with the Federal Government. The college processes themselves, like university appointment processes, must become more transparent and professional. The college structures themselves should reflect the membership and needs of the community more than they currently do. Special interest groups within the colleges should have less power.

4. New Classes of Workers

New classes of workers need to be developed and fostered. There should be competency based training and assessment, and would include areas such as theatre technicians, endoscopists, mammography screen readers, operating room assistants and technicians.

5. Technology

As a matter of crucial national importance unique patient identifiers need to be developed. Association with this an electronic medical record which is a total medical record, not an edited medical record, needs to be developed. The opportunity to leverage off technology such as ViCCU and VisICU and robotic assistance should be taken up as a matter of urgency. Government directed skills centres which are set up and able to train across the entire health workforce, need to be established as a matter of urgency. Simulator based non human training should be at their heart. Newer technologies such as Penelope, the robotic operating room nurse being developed in the United States, need to be explored and their introduction facilitates.

Processes such as that being developed by C.S.I.R.O. for continuous monitoring of patients both in hospital and at home need to be fostered and encouraged, and the systems to support them developed. Products such as the da Vinci robotic system for interventional procedures will need to be again developed over time. The Federal Government needs to establish a new Technologies Committee which would be different to and independent from the ASERNIP S which effectively only assesses developed interventional procedures. Large systems and technology based systems improvements need their own assessment and verification mechanisms, which also would then enhance their introduction into the medical workforce to supplement human systems.