

The impact of restrictions in the hours of work of doctors in training on service delivery and education

Abstract

This paper examines Australia's response to safe hours of work for junior doctors and the perceived impact of changes. Although all stakeholders agree that better approaches to safe hours of work are both inevitable and desirable, consensus regarding what constitutes safe hours of work, and the impact of reduced hours on training and service delivery has not been reached. Current and future national and local initiatives implemented by medical colleges, hospitals and state health departments in response to the changes, are outlined.

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What is the policy position as regards junior doctors' hours of work in your country and what future changes are anticipated?

1. In Australia, the State and Territory governments have major responsibility for funding the provision of public health services, including public and psychiatric hospitals and public health via the Australian Health Care Agreements that exist between the jurisdictions and the Commonwealth. The Commonwealth Government funds medical services and pharmaceuticals via the Medicare Benefits Schedule and the Pharmaceutical Benefits Scheme, respectively.¹ Although hours of work for junior doctors is an issue that affects the whole country, unsafe working hours for junior doctors is a matter that is dealt with on a jurisdiction by jurisdiction basis. This facilitates policy development and implementation at the state/territory level that is responsive to regional and local issues and needs, and reflects the direct funding relationship that exists between the jurisdictions and the hospitals. However, work has been undertaken at the national level, by various government and non-government organisations, to address the issue of junior doctors' working hours and explore avenues for change and strategies to deal with these changes. Unless otherwise noted, for the purposes of this paper the term 'junior doctors' refers to doctors who have just completed university medical studies and are in their first (intern) and second year out, as well as doctors in vocational training programs.
2. In 1999 the Federal Council of the Australian Medical Association (AMA) adopted the voluntary National Code of Practice – Hours of Work, Shiftwork and Rostering for Hospital Doctors (the Code)². The Code provides guidance on how to eliminate or minimise risks from the hazards associated with shift work and extended working hours and sets out the requirements for shift lengths, breaks and days off in order to prevent doctors becoming fatigued from long work hours. Safe hours is not necessarily about a shorter working week but is about ensuring that risk from working extended hours is assessed and minimised. In keeping with national Occupational Health and Safety legislation, the Code provides a framework for hazard identification, risk assessment and risk control. In particular, it identifies a number of common hazards associated with shift work and extended hours that revolve around work scheduling, the relationship to circadian rhythms and other scheduling and organisational factors that exacerbate these situations such as:
 - excessive consecutive hours worked;
 - lack of rest within and between work periods;
 - inappropriate speed and direction of shift rotations;
 - irregular and unpredictable work schedules;
 - night shift or extended hours that lead into night shift;
 - type of work and additional workloads; and
 - potential exposure to other hazards.
3. The Code is part of the AMA's 'Safe Hours' campaign and is based on the link between doctor's hours of work, as a potential source of fatigue, with safety issues for patients. Individual jurisdictions have responded to the Code by implementing mechanisms to improve and enforce regulations with regard to junior doctors' working conditions. In Victoria, for example, an agreement has been reached, between the Australian Medical Association (AMA), Australian Salaried Medical Officers Federation (ASMOF), the Department of Human Services (DHS) and Victorian Hospital Industrial Association (VHIA), that acknowledges the Code as a suitable framework under which to consider safe working hours issues.

4. The AMA has been exploring the scope for obtaining statutory recognition of the Code under State occupational health and safety legislation. This would make the Code legally enforceable, with penalties for non-compliance. Initially, the AMA preferred the path of consultation and cooperation, and expected that elements of the Code would be voluntarily implemented, but now considers that a legally enforceable directive is one of the necessary elements to further progress implementation. Discussions are under way with New South Wales Workcover in that regard and other State Occupational Health & Safety bodies have also shown an interest.
5. As the subject of safe hours is complex and often situational, individual cases are best dealt with by the parties involved within the accepted framework: the National Code of Practice - Hours of Work, Shiftwork and Rostering for Hospital Doctors. Safe working issues have been formally addressed and enshrined in the state and federal awards and industrial agreements that regulate matters involving hours of work and rostering for doctors in public hospitals. Most of the provisions in the agreements/awards include clauses covering maximum shift length, maximum hours, minimum breaks, rostered days off and clear on-call and overtime arrangements and specified hours of training. For example, the Victorian Multi-Employer Certified Agreement (MECA) 2002 includes specific clauses for doctors in training such as a minimum recall payment for a 3-hour period, irrespective of how short the time spent back at the hospital, and maximum hours of work. The Agreement specifies an average 38 hours of work per week (calculated over a maximum of four weeks) for all Hospital Medical Officers (HMO), Medical Officers (MO) and Senior Medical Officers (SMO). Ordinary hours of work for Registrars, Senior Registrars and Principal Registrars is restricted to 43 hours per week of which 5 hours must be free from service as a training component. Again, the 43 hours per week can be averaged up to a maximum of four weeks.
6. Hospitals and staff are expected to comply with the clauses specified in the MECA, and it is expected that hospitals enforce the requirements. The AMA and the ASMOF have stressed that they will pursue all possible legal avenues if non-observance of a certified agreement or award occurs. Employers, AMA and ASMOF have noted that doctors should not perform work outside of their principal employment such that it would result in an overall excessive or unsafe work pattern for the doctor, however this is difficult for employers to monitor and regulate.
7. The Australian Council for Safety and Quality in Health Care (the Council), a body established by the Australian Health Ministers to lead national efforts to improve the safety and quality of health care provision in Australia, has recently undertaken a number of initiatives around the issue of safe staffing. The Council has formed a Safe Staffing Taskforce to lead national efforts to improve patient outcomes through improved management of staffing variables.
8. The Taskforce commissioned a major literature review³ to ascertain the extent of the problem, effective strategies and opportunities to target future research. The literature review looked at the health sector as well as other sectors where some of these issues have been addressed - for example, fatigue in the transport industries. In addition, the Taskforce commissioned small-scale focus groups and in-depth interviews with a range of clinicians to canvas views about safe staffing⁴. Following this work, the Council developed a discussion paper, released in July 2003, to explore the concept of safe staffing, raise awareness of the issues and encourage debate. The discussion paper identifies seven priority areas that must be addressed if safe staffing systems are to be implemented⁵. These are:

- The reduction and management of fatigue and stress inducing factors in health workers.
- Improving the allocation of human resources in health.
- Improve the continuity of care by improving clinical handover.
- Improve the contribution of effective teamwork to safe staffing.
- Improve the governance surrounding safe staffing.
- Ensure appropriate education, communication and advocacy.
- Understand/improve the impact of skills mix, staffing and role delineation on patient safety.

What are the perceived impacts of these changes and what are the attitudes of the key interest groups involved?

9. Although all stakeholders agree that better approaches to safe hours of work are both inevitable and desirable, consensus regarding what constitutes safe hours of work, and the impact of reduced hours on training and service delivery has not been reached. Although the intention of changes to work hours is to promote safe staffing and therefore improve patient outcomes, the impact on learning for junior doctors is of concern to some Colleges and employers. Many of the Colleges are apprehensive that the reduction in hours of work will reduce exposure to clinical practice and therefore reduce learning opportunities. Within some specialities, demonstrated competence is based on a number of procedures or treatments undertaken. This has not been adjusted to account for the reduced number of working hours within which to meet the requirement.
10. The impact of fatigue on human performance has been well documented.^{6 7} It can impair doctors' judgement and competence, and may result in harm to both patients and doctors.⁸ Recognising the impact of long working hours on performance and that conditions for junior doctors were previously untenable, hospitals have endeavoured to comply with safe staffing principles. However the requirements of training programs means that safe staffing conditions are at times difficult to maintain. This has prompted some of the Colleges to actively address the issue by attempting to find workable solutions to the growing tension between training requirements and reduced working hours.
11. There is a perceived need for continuity of carer so that doctors can see the natural history of a medical condition develop over a patient's stay. Other developments in the health sector such as reduced length of stay, increased day procedures and increased throughput also restrict opportunities for clinical teaching and reduce the variety and availability of patients for teaching.
12. The purpose of the Code is to eliminate or minimise risks arising from the hazards associated with shift work and extended working hours. The impact of the Code on workforce numbers, funding of the hospital system and the provision of other resources is a concern for the sector. Increasing the number of doctors required is a common response, however, there is recognition that this is not a sustainable approach, especially in rural areas where the supply of doctors is limited. To address current and forecast workforce shortages, the possibility of workforce redesign is being canvassed in Victoria and in other jurisdictions, as the demand for health services continues to increase.
13. Despite the difficulties in reconciling hours of work and education, the AMA has been successful in garnering support for the Code from a range of key organisations and accreditation groups. The Code is now the accepted standard for safe working hours for hospital doctors in Australia. In 1998 the AMA

undertook consultations with the health and hospital sector on the draft National Code. Feedback was positive with unanimous agreement that safe hours for doctors was an important issue and that action to deal with the issue was necessary. Workforce and resource issues together with training and medical education are the two main relevant themes identified by the consultations.⁹

What national initiatives are underway to measure the actual impact of reduction of working hours on resident learning?

14. Concern about the effect of the reduction of hours on training is based on the assumption that there is a direct relationship between exposure to clinical material and the training and learning process. The AMA commissioned a project in 2001 to explore the learning processes involved in hospital-based medical training and investigate the impact of fatigue on the learning processes involved.¹⁰ The literature reviewed as part of the project confirmed that the long hours and heavy workloads that characterise trainee positions are not conducive to high quality work or learning. Based on this, it is hypothesized that extended hours, sleep deprivation and fatigue would have a negative effect on hospital based medical training. The anticipated negative effect on learning would occur as a result of:

- less time available for self directed learning, an important technique for trainee hospital Medical Officers;
- a reduction in motivation for self-directed learning as a result of fatigue; and
- a lack of availability of coaching and feedback during the extended hours (outside normal hours).

15. It follows that a reduction to hours consistent with generally accepted working hours is more likely to have a positive (or neutral effect) on learning because more time is available for training activities and fatigue would be reduced.

16. Consultations with major teaching hospitals in Victoria has revealed that some hospitals have found that performance levels of young doctors have dropped since the introduction of reduced hours, but controlled studies have not been conducted in Australia. It is also suggested by employers that decreased hours may not necessarily result in more self-directed learning, as some doctors make use of the additional hours to undertake locum work outside their primary place of employment.

What national initiatives are underway to modify the structure and conduct of residency programmes to compensate?

17. Most of the clinical skills training for postgraduate education in Australia is delivered within the public health system. A reduction in hours of work of junior doctors means that the training system can no longer rely on the volume and range of cases that present to expose learners to the quantity and quality of clinical material required to gain the relevant skills. A far more formalised and planned approach to learning is necessary.

18. Simulation-based clinical skills teaching is an educational tool that can be used to compensate for the reduction in exposure. Simulation-based clinical skills teaching utilises a synthetic environment to replicate the clinical context or specific procedure, without direct involvement of patients. Simulation resources available include anatomical models, manikins, clinical skills centres, and high-fidelity simulation centres. Clinical skills centres with simulation resources are increasingly used for postgraduate training in a range of health science disciplines, including medicine.¹¹ A literature review of the use of simulation-based teaching in Australia and overseas explored the advantages

and effectiveness of simulation based clinical skills education. The findings support the use of simulation based teaching methods as they 'allow better integration of theoretical teaching and clinical experience, less reliance on serendipitous clinical exposure and increased emphasis on communication skills, teamwork, procedural skills and patient safety'.¹² However, the efficacy of simulation-based teaching has not been comprehensively evaluated as most studies analyse perceptions of the learner's experience, rather than measuring the learning outcomes.

19. Victoria currently has two high fidelity centres in operation, providing skills training in trauma management, emergency medicine and anaesthetics. A third high fidelity centre is being developed by the Royal Australasian College of Surgeons to meet the needs of junior doctors enrolled in the College's basic surgical training (BST) or advanced surgical training (AST) programs and courses relevant to surgical trainees. New South Wales, Perth and South Australia also have high fidelity simulation centres in use with another planned for Queensland when the Royal Brisbane Hospital is vacated this year. The Australian and New Zealand College of Anaesthetists, the Australasian College for Emergency Medicine and the Royal Australasian College of Surgeons are all using high fidelity simulation centres in programs for their trainees, and there is an expectation that use will increase to compensate for the reduction in training time.
20. The Australasian College of Surgeons has devised a Strategic Plan for Education¹³ to consolidate and integrate the education, training and professional development carried out by the College and the Specialist Societies and Associations in Australia and New Zealand. As part of its strategic goal to 'define and refine the curriculum', the College has identified 'formalising curriculum development' as a key issue. This will involve ascertaining the appropriate length of training based on attaining the appropriate levels of competence to be achieved by the introduction of a formalised personal learning programme for surgical registrars. This is in contrast to traditional time-and repetition-based definitions of competence that measure whether registrars have reached appropriate standards. Competency-based definitions require the colleges to accurately describe how performance is measured, using key learning objectives for each core criteria for each phase of training.

What specific local initiatives are there that have been demonstrated to reconcile reduced hours of work, including shift work, with the provision of high quality education?

21. A number of initiatives have been implemented to improve the quality of education and training for junior doctors, but not as a direct result of reduced hours. A formal structured educational framework for junior doctors has been developed, facilitated by the establishment in Australia of Postgraduate Medical Councils (PMCs) in each state and the national Confederate of Postgraduate Medical Education Council (CPMEC). These bodies play a key role in coordinating, planning, resourcing and accrediting the training of intern and Postgraduate Year 2 (PGY2) doctors. The CPMEC and the Australian Medical Council (AMC) have developed National Training and Assessment Guidelines for Junior Medical Officers that outline training and assessment requirements and general principles in relation to training. The general principles are used by hospitals and PMCs to help them achieve the stated aims and objectives for the prevocational years.¹⁴
22. The CPMEC/AMC assessment guidelines state that junior medical staff must be provided with appropriate formal education opportunities which are relevant to their clinical needs, based on adult learning principles.¹⁵ A study conducted in

- 2001 found that formal instruction is a more effective method of instruction compared with traditional bedside ward teaching.¹⁶ The study found that formal instruction in neurological examination resulted in significant increase in the end of year neurology OSCE station scores compared to traditional heterogeneous teaching methods. Although this study was conducted with medical school students, not intern or PGY2 doctors, it highlights the effectiveness of formal instruction as a teaching method. The CPMEC/AMC national guidelines suggest that formal teaching sessions of about 3 hrs per week for PGY 1 and 1-2 hrs for PGY 2 should take place within rostered hours.
23. Medical Education Officers (MEOs) have been introduced in Victorian hospitals and hospitals in other states to assist in the transition from university to the intern year and Postgraduate Year 2 (PGY2). This initiative provides hospitals with a grant to assist with innovative education programs for junior medical staff. MEOs work with senior medical staff to deliver a continuing education program for prevocational doctors. The senior medical staff are responsible for the supervision and education of prevocational medical staff. Some hospitals have undertaken to formalise the training program for prevocational doctors by introducing learning portfolios to provide a learning framework for the doctors to monitor the training delivered. Within the portfolio, learning objectives are identified, progress is monitored and evaluated and training activities are documented. The explicitly documented learning objectives ensure the junior doctor is aware of and understands the requirements, entitlements and expectations of the post at the onset. The portfolio system is an effective way to manage the supervision and monitor the training outcomes of these doctors.
 24. Directors of Clinical Training (DCT), with a responsibility for developing, coordinating and promoting the clinical training of junior medical officers, have been appointed at the major hospitals. The DCT plans, delivers and evaluates education for junior medical officers and facilitates feedback on performance with Term Supervisors regarding junior medical officer issues¹⁷.
 25. Other successful initiatives to reconcile reduced hours of work with quality education include the protection of doctor's training time. This has been achieved in some hospitals by implementing organisational changes such as not scheduling ward rounds during training sessions, consigning beepers to other staff so that the junior doctor is not called away during training, and insisting on comprehensive handovers for all staff, facilitated by overlapping shifts.
 26. The Victorian Department of Human Services is developing an integrated human service workforce planning methodology that will be applied across the health system. One of the results of the workforce program will be workforce redesign tools based on an understanding of the competencies required to meet service needs. Understanding the skill mix required and identifying the professions best able to provide a service may result in realignment of existing roles. Part of this approach includes exploring possibilities for workforce redesign through a range of pilot programs that aim to develop innovative approaches to workforce supply and development in service areas already experiencing considerable pressure. In contrast to a broad reform process, the pilot projects are expected to be relatively small scale, initiated by the sector and cover a range of approaches to addressing workforce issues.
 27. Clinical staff across all disciplines spend considerable amounts of time performing administrative tasks as well as locating, collating, extracting and transcribing data for the paper medical record. Case studies have shown that junior medical staff across a number of clinical units in a typical large hospital spend an average of 1 hour per shift per day just locating x-ray films required

for ward rounds. This can be as high as 3 hours per junior medical staff member per shift per day for some specialty areas.

28. These non-productive non-clinical activities all detract from the amount of time the clinicians have to provide care to their patients and undertake educational activities and adds to the frustration and dissatisfaction felt by these staff. Additionally, there is an expectation that clinical staff will stay abreast of all developments within their field of specialisation. The abundance of available literature means this is an extremely time consuming activity if there is no structured approach to reduce the "information overload".
29. Freeing doctors' time for quality educational activities can be assisted by:
- Efficient utilisation of resources (eg removal of the unnecessary administrative burdens, particularly for clinical staff);
 - Easy and pervasive availability of information at the right location, at the right time and in the right form to support decisions and associated activities; and
 - Transparent continuity of care underpinned by appropriate communication between discrete service providers.
30. Implementation of this depends on access to Information and Communication Technology (ICT). In Victoria, for example, the Whole of Health ICT Strategic Plan provides direction for the development, utilisation and provision of ICT across the whole of the Public Health System in the state. This aims to:
- Automate administrative activities where appropriate
 - Streamline administration of patient data – particularly transcription of results, location of x-ray films etc.
 - Make data available at points of care rather than the clinician having to "go to" the physical paper records.
 - Support evidence based care through systems actively supporting clinical protocols & pathways
 - Automate staff rostering
 - Improve accuracy and efficiency by reducing reliance on paper records

A number of projects are being established within a four-year framework to realise the outcomes of the ICT strategy.

31. All States and Territories in Australia are grappling with the need to replace old administrative systems (particularly the hospital patient administration systems (PAS)) and the desire to implement clinical systems that will support the transformation of healthcare delivery. In most States, Government Health Departments have assumed central policy and governance roles, and are purchasing ICT centrally, either through establishment and management of panels or by purchasing directly.

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² Australian Medical Association (1999) *National Code of Practice- Hours of Work, Shiftwork and Rostering for Hospital Doctors*. AMA Canberra.

³ Australian Resource Centre for Hospital Innovations (2003) *Safe staffing and patient safety literature review*. The Australian Council for Quality and Safety in Health Care

⁴ NFO Donovan Research (2002) *Safe staffing: Qualitative research into staffing variables and patient safety*. The Australian Council for Quality and Safety in Health Care & NSW Health

⁵ Australian Safety and Quality Council (2003) *Safe Staffing: Discussion Paper*. Commonwealth Department of Health and Ageing

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- ⁸ Nocera, A & Khursandi, D S (1998) *Doctors' working hours: can the medical professional afford to let the courts decide what is reasonable?* *Medical Journal of Australia* 186: 616-618.
- ⁹ Australian Medical Association (1998) *Overview of Consultations on the Draft National Code of Practice – Hours of Work, Shift Work and rostering for Hospital Doctors*.
- ¹⁰ Niki Ellis and Associates (2001) *Extended learning hours*. Australian Medical Association
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- ¹² Postgraduate Medical Council of Victoria (2003) *Clinical skills education requirements of the health professions in Victoria*.
- ¹³ Royal Australasian College of Surgeons cited at http://www.racs.edu.au/cgi-bin/a_z.cgi, 17/6/03
- ¹⁴ CPMEC & AMC 2003 National Training and Assessment Guidelines for Junior Medical Officers (PGY 1&2)
- ¹⁵ *ibid*
- ¹⁶ Fox, R., Dacre, J., McLure, C. (2001) *The impact of formal instruction in clinical examination on medical student performance – the example of peripheral nervous system examination*. *Medical Education* 35 (4): 371-373
- ¹⁷ CPMEC & AMC 2003 National Training and Assessment Guidelines for Junior Medical Officers (PGY 1&2)