

<b>Subject:</b>	<b>Appropriate Working Hours for Surgical Training in Australia and New Zealand</b>	<b>Ref. No.</b>	<b>ETA-SET-042</b>
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## POSITION STATEMENT

The Royal Australasian College of Surgeons (RACS) is committed to ensuring the highest standard of safe and comprehensive surgical care for the community we serve through excellence in surgical education, training, professional development and support.

Therefore the College is the primary qualified professional advocate to protect training of surgeons in order to continue the highest standards of surgical care for the community immediately and into the future.

The College has developed this statement on appropriate working hours for surgical training in response to concerns of the impact of the introduction of restricted working hours and shift-work in Australia and New Zealand (ANZ), since the initial College position statement on Standards for Safe Working Hours and Condition for Fellows, Surgical Trainees and international Medical Graduates in 2007.<sup>1</sup> These concerns are supported by the evidence of deterioration of surgical training with the commencement of restrictive work practices in the United Kingdom, Europe, United States and Canada.<sup>2 3 4 5</sup>

The statement was developed by the Safe Hours Working Party 2013 which included Assoc. Prof Deborah Bailey FRACS, Ms Lesley Chisholm, Ms Lynette Fergusson, Dr Grant Fraser-Kirk, Mr Sean Hamilton FRACS, Mr Lawrence Malisano FRACS, Dr Greg O'Grady and Mr Simon Williams FRACS

## PURPOSE

This statement and recommendations should be read in conjunction with the [2007 Position Statement for Safe Working Hours](#) and other College and College Training Boards' policies, guidelines and activities.

Although the recommendations made in this statement should be possible to be realised in a majority of surgical centres in Australia and New Zealand, the College acknowledges difficulties where it may not be tenable due to the realities of the size of the unit, particularly rural or regional centres and within specialities which have appropriately smaller numbers of trainees and surgeons per population base (for example Paediatric Surgery).

## BACKGROUND

Restricted working hours and shift work rostering in surgical training is a critical issue in surgical training programs throughout the world. There is evidence that fatigue leads to increased errors which can impact patient care and the health and safety of the fatigued practitioners.<sup>6 7 8 9</sup> However evidence for what constitutes "safe" working hours and levels of fatigue for trainees and surgeons is virtually non-existent. Indeed Desai et al have published on the effect of duty hour regulation compliant rostering models (80 hour working week) and found average sleep duration to be the same as other age matched young adults in USA.<sup>10</sup> Additionally there is insufficient data on the precise link between registrar hours and patient safety. Reduced hours have not, as previously presumed, improved patient safety in the UK and USA.<sup>4 5 11 12 13</sup> Analysts in a systematic review of resident trainee work hours on patient safety found insufficient evidence to inform the process of reducing work hours.<sup>14 15 16</sup> There is significant evidence that fatigue and the effects on mentation from night shift exceed that resultant from "long" or on-call shifts.<sup>17 18 19</sup> Workable levels of fatigue need to be accepted as there are no economies or health work forces that have the capacity in funding or personnel to support complete cover shift work and restricted hour rostering for the senior consultant surgical staff. Strategies to protect junior staff from long hours do not protect them from the eventual need to deal with decision making whilst fatigued in their careers as surgical consultants.

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Restricted work hours have been imposed on hospital medical staff in Europe and now in Australia, after blanket application of non-medical industrial awards and of research taken from factory assembly lines, the mining industry and other non-comparable work environments. Nonetheless there is vast variability in individuals' ability to perform competently under stress including fatigue, and there is no validation of how well models from non-medical industry apply in clinical workplaces. The possibility that there may be overriding negative effects from decreased continuity of care, increased hand-overs and decreased registrar training opportunities seems not to have been considered in the widespread introduction of shift work for surgical registrars.

Such considerations are particularly important to the surgical field which has primary responsibility for treating a large portion of in-hospital emergencies and trauma. Generalised recommendations around safe hours and night shift cannot be extrapolated to surgical care from emergency medicine, anaesthesia and radiological practice, which are specialities that provide acutely episodic care that do not require ongoing continuity of care within the hospital and in which shift scheduling may be appropriate.

## ISSUES

Restricted working hours and short shift work for surgical trainees has resulted in issues in training: patient safety; trainee and consultant fatigue; and, regional and sub-speciality provision of service.

### 1. Training

Surgical practice has been described by the nine competencies of the Royal Australasian College of Surgeons. It is demarcated from medical specialities in its inherent required technical competency. New training methods including simulation training have yet to supersede the need for repetitive clinical practice of technical skills to learn and maintain procedural competency. Some technical performance can be learnt on simulators but simulated environments cannot be fully substituted for operative care of actual patients. Friable, variable, emotional, individually complex human bodies and their complex health teams are not planes or machines. A fundamental principle of surgical care is that the surgeon makes the diagnosis, formulates the correct management plan, performs the operation, and, administers preoperative and postoperative care. For this reason surgery has had a long established apprenticeship model of training. Time spent operating is a critical component of surgical education but the trainee must also learn to decide who needs operation, study variations of operative technique and become skilled at routine & complicated postoperative care.

It has been propounded by educationalists that it takes 10000 hours to reach an elite level of expertise or performance in any professional field and that this time is possibly longer in surgery due to its dual technical and cognitive aspects. Analysis of logbooks before working hour restriction in the USA shows that trainees trained for 15000 hours over 5 years and spent 20% of that time in operating (3025 hours).<sup>20</sup> UK trainees have had a 20% decrease in operative index cases going from working 65 to 58 hours per week.<sup>5 21</sup> Following the onset of working hour restrictions in both the USA and UK, time spent operating decreased and importantly there was a change in the types of operating at different levels of training.<sup>22</sup>

After 10 years of restricted working hours in Europe (European Working Time Directive) there has been a 30-35% reduction of clinical experience in training.<sup>21</sup> Therefore the European Union of Medical Specialists (EUMS) representing the 80000 European Union surgeons in the fields of neurosurgery, vascular, cardiothoracic, orthopaedic, otolaryngology, paediatric, plastic and reconstructive have called for an immediate exemption from the European Working Time Directive for all doctors whilst in surgical training as they can no longer provide safe patient care and train competent surgical specialists.<sup>5</sup> Sir John Tooke educationalist has recommended to the UK government not to include training time in work hour restrictions in view of the special educational needs of a procedural

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speciality like surgery.<sup>23</sup> EUMS also directed that if working time restrictions are enforced, resulting in reducing trainees from 60 hours per week to 48 hours, training program time will be prolonged or increased by 2 years.<sup>5</sup>

The current proposals to enforce thirty eight hour weeks for Australian surgical trainees will result in a fifty per cent drop in operative hour experience to approximately 1000 hours over five years. Physician trainees during their thirty-eight hour week assess, admit and undertake ongoing inpatient care as well as attend quality assurance and multidisciplinary meetings and ambulatory care clinics. Surgical trainees do all of this as well as attend at least three operating sessions per week, which is impossible to fit into a 38 hour week.

The Royal Australasian College of Surgeons has established seven core standards for training and education which are used by the Training Boards in accreditation of hospital posts for surgical training.<sup>24</sup> Current shift rostering practices impact six of these core areas through its impact on educational, supervision and caseload provision for trainees.

**a. Impact of restricted hours on Educational provision in training**

<p><b>Standard 1 – Educational facilities and systems required</b>  <i>All trainees must have access to the appropriate educational facilities and systems required to undertake training</i></p> <p><b>Standard 2 – Quality of education, training and learning</b>  <i>Trainees will have opportunities to participate in a range of desirable activities, the focus of which is inclusive of their educational requirements</i></p> <p><b>Standard 4 - Support services for trainees</b>  <i>Hospitals and their networks committed to the education training learning and well being of trainees who in turn acknowledge their professional responsibilities</i></p> <p><b>Standard 7 – Clinical governance, quality and safety</b>  <i>A hospital involved in surgical training must be fully accredited and have the governance structure to deliver and monitor safe surgical practices including experience in surgical audit, peer-review programme and root cause analysis.<sup>24</sup></i></p>
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The effect of the replacement of long shifts and on-call rosters by short shift rostering and decreased overall working week on surgical trainees has been identified in a landmark study examining the effects one year after the work hour restrictions introduced in USA: consultant surgeons perceived their junior surgical staff had “less technical skill, less clinical judgment, less sense of responsibility for the patient, less preparedness for cases, and less efficiency compared with before the work hour changes.”<sup>13</sup> Educationally valuable clinical care opportunities for registrars were being lost during the day because those registrars are not available due to work hour restrictions. Similarly a survey conducted by the Royal College of Surgeons of England (RCS) on the effect of the European Working Time Directive (EWTD) on surgical training, found issues with UK consultants being unsupported whilst operating due to increasing lack of trainee presence in theatre because of the EWTD.<sup>3</sup>

Trainees on night shift and rotating weekday shifts off duty do not have access to any of the coordinated schedule of learning experiences including grand rounds, lectures, tutorials, small group learning, teaching ward rounds, formal presentations, audit meetings, departmental peer review meetings, radiology meetings, pathology meetings and multi-disciplinary clinical care meetings. Time spent in night shift or compulsory weekdays off duty are part of the overall duration of training and therefore will impact on training opportunities. Loss of week day training and decrease in overall length of training due to restricted hours has occurred when the complexity of the knowledge base and skill levels for surgical training has historically increased.<sup>23</sup>

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***b. Impact of restricted hours on Caseload provision for training***

*Standard 5 - Clinical Load and theatre sessions*

*Trainees must have access to a range and volume of clinical and operative experience, which will enable them to acquire the competencies required to be a surgeon including: supervised consultative ambulatory clinics in consultative practice; consultant-led ward rounds with educational as well as clinical goals; access to ambulatory care surgical practice, caseload and case-mix; and experience in perioperative care.<sup>24</sup>*

Caseload numbers and depth of exposure remains fundamental to surgical training programmes. Night shift as currently existent in Australia and New Zealand (ANZ) fundamentally limits both these aspects. Caseload decreases at night due to presentation patterns and work-practices. No elective work is done. There is no ambulatory care. Only emergencies of “life and limb” are taken to the operating theatre. Emergency after-hours surgical trainee work is completely different in nature to that experienced “in hours” thus cannot be compared to the night shift experience from the other medical training colleges. A trainee doing night shift has limitations in caseload and numbers. Alternatively a trainee never experiencing afterhours work will have limitations in their exposure to emergency surgery cases.

Apart from the obvious decrease in training hours consequent on decreasing the working week there are changes in the nature of surgical experience. Although in some studies from America the total number of operations may not have changed, with the onset of restricted hours there were marked changes in the role the trainee had in surgery (from operator to assistant) and changes in types of cases experienced. Senior trainees recorded a 40% reduction in technically advanced abdominal emergency surgery and a compensatory increase in minor abdominal procedures.<sup>23</sup> Senior trainees also assisted less in major emergency operations and the junior trainee was often not present in these cases at all. The shift away from trainees operating on emergencies to consultants operating without any trainees present has also been noted in the UK in the recent national enquiry into patient outcome and death.<sup>25 26</sup> This raises the questions: whether the surgical trainees are getting sufficient exposure and training in the management of surgical emergencies; about levels of assistance available for consultants operating without any trainees in theatre; and, who maintains trainee continuity of care before and after surgery?

Rare diagnosis, complex cases, complications providing vital educational lessons cannot be scheduled.<sup>20</sup> Advanced technical procedures such as cancer resections and reconstruction of congenital abnormalities cannot be condensed into a limited shift. Surgical trainees need to have experience with the challenging and unfamiliar as well as adequate exposure to the routine. Flexible approaches to rostering are therefore crucial to sufficient breadth of cases throughout training.

Sixty six per cent of trainees surveyed by the Royal College Surgeons of England after the introduction of the EWTD said their surgical training had deteriorated with many admitting the system was supported by a “grey” medical workforce staying back covertly to maintain training experience and perform patient care.<sup>3 27 28 29</sup>

Technical competency is essential to surgery, but is only one of the surgical clinical competencies. Surgeons do not rely solely on investigations for diagnosis. Investigation orientated diagnostic protocols are expensive, wasteful of resources, non-definitive and not commensurate with the facilities and reality of most of Australian and New Zealand surgical practice. Clinical examination and history taking is core to surgical diagnosis, the majority of these skills are used and learnt in the ambulatory and non-critical (ward based in-hours) settings.

There are complex differences between surgical practice and other hospital based medical care including general medicine. These intrinsic differences lie in the determination and performance of procedural intervention and the subsequent in-hospital care that follows. Continuity of care, where

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ongoing thorough monitoring of patients preoperatively, intra-operatively and postoperatively is performed by the surgeon, is essential to learning the safe practice of surgery and is tied to surgical proficiency and competence. The extended hours inherent to such treatment are integral to the provision of surgical care. Registrars who are not trained in and do not develop an understanding of the realities of surgical care during training are poorly prepared to meet patient’s needs in practice. Moreover College certification of training standards, establishes an educational environment that produces competent surgeons who can safely treat patients under real life pressures. Obligatory restricted hours shift work reduces involvement and responsibility for postoperative care and elective work long term follow-up.

In the UK the ICP intercollegiate surgical curriculum program and in ANZ the SET (Surgical Education and Training) programs reflect principles of the CanMEDS framework where the surgeon is a medical expert with more than technical competency. Just as the surgical training curriculum reflects the importance of acquiring nontechnical competencies; so does the research resulting in the development of such RACS courses such as Training in Professional Skills (TIPS) and Non-technical Skills for Surgeons (NOTSS).<sup>30 31 32 33 34</sup> Competency in the surgical nontechnical domains such as situation awareness, teamwork and communication are vital to ensuring the highest levels of patient safety and quality of care. The interactions and coordination of the network of different medical, surgical, allied health and multidisciplinary members of the health team cannot be learnt from simulation. High order team work cannot be experienced or taught whilst on night shift or working discontinuous day shifts and their characteristic disjointed care and responsibility to the individual patients.<sup>25 26</sup>

Counting hours of training does not simply correlate to the quality of the clinical training experience. Direct feedback is the most essential tool to increasing competence.<sup>35</sup> The direct feedback after surgery in the postoperative clinical course must be assimilated by the trainee directly. Worryingly in the US, 60% trainees participated in the second “take-back” operation after an initial emergency procedure prior to working hour restrictions, whilst only 29% do so afterwards.<sup>22</sup>

Continuity of care is therefore critical to surgical training so that the surgical trainee understands the natural course of disease, learns signs of complications and experiences the consequences of decisions. These lessons cannot be learnt through brief glimpses of the clinical course of a patient.<sup>20</sup> The chief tacit but unanswered question becomes does a poorly trained surgeon do more harm than one working 65 hours under direction in training?

**c. Impact of restricted hours on Supervision provision in training**

*Standard 3 – Surgical Supervisors and staff*  
*Programme managed by appropriate and accessible supervisor supported by the institution and committed surgeons, delivering regular education, training and feedback.*<sup>24</sup>

There are virtually no ANZ hospitals that have surgical consultant night shift rosters, unlike physicians who often have a presence within the larger hospitals due to Emergency and Intensive/Critical Care department rostering. When a surgical trainee requires assistance in the operating room at night, the consultant in order to manage their own fatigue, will limit time spent in hospital by performing the operation without formal teaching or allowing trainees to perform the case. In addition there is little opportunity to complete any of the surgical training mandatory work-based formative assessments on nightshift, particularly those related to elective procedures (DOPS/MOUSE) and perioperative clinical skills (mini-CEX).

Multiple reviews from the USA and UK since the start of working hour restrictions in those countries discuss the lack of the traditional “firm” structure. In other words the change in working patterns including shift work, crossover between clinical teams and thus reduction in direct contact between

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trainees and consultants during the working week, contribute to less efficient communication between those health care professionals involved in the care of a single patient. As clinicians become transient acquaintances during a patient's illness rather than having responsibility for continuity of care, not only can there be a loss of clear management plan, there is loss of continuity of trainer and trainee.<sup>25 26</sup> Formative feedback, where a supervisor assesses work-based performance, gives appropriate input and then reassesses progress, occurs when the trainee and trainer have frequent contact doing the same tasks. In a situation where the consultants, registrars and interns rarely work together regularly, then there is loss of supervisory teaching from consultant to registrar and registrar to intern.<sup>13 23</sup>

**2. Safety**

**a. Handover and Continuity of Care Aspects**

One of the keystones of surgical care is continual assessment and reassessment of critically ill patients to monitor: patient progress; the accuracy and veracity of one's working diagnosis and management plan; and perceptions gained from the eventual outcome. Subtleties of a surgeon's examination and the gradations of his/her observations of critically ill patients cannot be easily handed over. Developing improved systems for data transfer fundamentally misses the fact that dozens of clinical observations are qualitative and subjective.

An example used in a recent paper from the American Board of Surgery is the surgeon's evaluation of an acute abdomen which often involves considerable nuance in the physical findings.<sup>4</sup> The specific description of the location and degree of tenderness and/or guarding cannot be accurately conveyed to another surgeon by verbal or written description. These details, and their significance in the subsequent evolution of the disease process, are certain to be lost when surgical care becomes discontinuous.

A major activity of health care workers has always being the need to anticipate, identify and bridge discontinuity of care. Loss of continuity in care appears as losses of information, or momentum or interruptions in delivery of care; and rarely overt failure.<sup>36 36</sup> A predictable consequence of decreasing hours is that multiple doctors now care for each individual patient. Time in handover itself is often a gap in care with the incoming and outgoing staff "off the floor". Certainly a lack of dedicated time for handover results in poor outcomes.<sup>25</sup>

There appear significant questions on the issues of ensuring safe handover and being able to instill the ultimate responsibility of patient care in trainees in a shift work environment.<sup>14</sup> Numerous papers and anecdotal evidence on the dangers of trainee shift work handovers in patient care are being presented from those countries with restrictive working hour legislation. Problems identified resulting in increased poor patient outcome, when there is multiple medical staff shift handovers occurring over each twenty four period are: prolonged decision making, omissions, translation errors, failure in triage and failure to modulate management in response to situational fluctuations.<sup>3 25 26 37</sup>

Similarly Lofgren et al found substantial financial and clinical implications of fragmented care where there was not continuous cover by the registrar or handover from admitting registrars to a different team. There were significantly higher numbers of investigations ordered (40% increase laboratory tests overall), a 20% increase per day in tests ordered and a 33% increase in duration median stay. The authors surmised that as previous studies report that in 60 -75% cases the correct diagnosis can be formulated from history & examination alone, the repeated transfer of history and findings was detrimental to management. Further the initial physician patient relationship with follow-up of clinical progress by the same initial medical team enabled more rapid resolution and discharge compared to those with handover of care.<sup>16</sup>

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Work hour limit restrictions in New York using concurrent control groups have not been shown to improve surgical patient safety with some worsening trends. 12 Petersen et al reported preventable adverse effects (defined as unexpected complications of medical therapy that resulted in increased length of stay or disability at discharge) were 3.5 times more likely to occur when patients were under the care of a “cross covering” team as compared with patients under a primary physician and was related to the increase in the number of informational exchanges by caregivers.<sup>38</sup> Laine et al described increased complications and delays in test ordering after the initial introduction of restricted work hours in New York.<sup>15</sup>

Lastly a major proportion of practicing surgeons in regional and rural areas in ANZ are in solo practice and do not have the luxury of signing out to some else. Trainees taught that care occurs in shifts, will be ill prepared for these realities, will be unwilling to take on practice in such locales and less likely to make themselves available for emergency or on-call practice in any area once in consultant practice.

### ***b. Safe Hours, Night Shift and Fatigue.***

Night shift has been introduced apparently to comply with safe hours with the underlying principle of increasing patient and doctor safety through reduction of fatigue. Fatigue can increase error. Fatigue can directly impact doctor health including increasing driving related accidents post shift and decreasing immunity.<sup>39</sup> However there is evidence that night shift has deleterious effects from progressive sleep deficits and disruption of circadian rhythms when compared to temporary sleep deficits incurred during on-call shifts alternating with off-call shifts, providing overall rostering allows for recovery periods from on call shifts.<sup>17 18 19 21 40</sup> Several review articles have failed to find evidence that working 60 to 65 hours a week in surgical training causes increased fatigue related issues.<sup>13 15</sup>

Recent surveys by the Royal College of Surgeons of England and in the US have found the majority of surgical trainees stated their work/life balance had deteriorated or remained unchanged despite a decrease in their working hours.<sup>3 41 42</sup>

In fact by way of large surveys and by their training associations, surgical trainees are demanding a sixty to sixty five hour working week to best protect training opportunities and quality service provision both now and into the future.<sup>28 43</sup>

Evidence from a prospective shift model multi-centre study comparing two long shifts per twenty fours to a three shift roster in surgical intensive care units found increased hospital stay by 2.3 days and increased ICU stay for 1.6 days in those patients treated on the three shift roster. This was associated with increased complications, reintervention and readmissions to ICU.<sup>44</sup>

Furthermore the preferred trainee roster work pattern is that of on-call or “long” shift (less than three shifts per twenty four hours) as the optimal balance for exposure to day time training, continuity and emergency clinical experiences.<sup>21 28</sup> The stance by the surgical trainees associations in the UK and Europe has been mirrored by all the surgical speciality associations.<sup>4 5</sup>

### ***c. Consultant fatigue***

There is universal agreement so far that senior surgical trainees should not be placed on formal night rosters. Senior trainees by virtue of the orderly progression of training are learning to perform the most complex of elective surgeries in their specialities and developing leadership roles in case management. This cannot occur if they are on night shift. This leaves the junior trainees or non-trainees on the nights. The immediate effect is an exponential increase in consultants being contacted during the night for both off site advice and onsite operating. Consultant surgeons have noted this also minimises costs of patient care for hospitals as unlike registrars there are no fatigue leave payments for surgical specialists and often salary awards do not recompense for off-site consultations despite sleep loss and/or pay less for consultant call-ins than registrars. Surgical consultants are thus bearing the burden of increased fatigue and frustration. These human factors in consultant staff

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affecting patient safety have not been analysed in relation to patient care in hospitals with introduction of trainee night rosters.

### **3. Speciality specific and Regional issues**

There will be optimum average surgical trainee weekly hours and recommendations appropriate for each surgical speciality training program, and these may differ for different speciality groups for both educational and practical reasons. Regional areas will always require consideration of manpower and access in roster design.

The statement from the American College of Surgeons, which is the umbrella organisation for general surgery, cardiothoracic surgery, gynaecology and obstetrics, neurosurgery, ophthalmology, otolaryngology, head and neck surgery, orthopaedic surgery, paediatric surgery, plastic, urology and vascular surgery, found restrictive working hour regulations impeded the progressive transfer of responsibility from consultant trainers to registrars due to loss of clinical experience and trainer continuity.<sup>4</sup> Surgical trainees graduating from work hour restricted training are concerned about their readiness for practice and are selecting sub specialist fellowship training to de facto increase clinical training time.<sup>23 45</sup> Restricting working hours results in both lengthening training programs making surgery a less attractive career, and increased subspecialisation means increasing difficulty for patients finding local surgeon on call now and in the future.

This impact on surgical workforce from restrictions to working hours is seen already in the eight year training program in the UK and the already burgeoning Fellows numbers in Australia.

## **DISCUSSION**

The reduction of fatigue related errors and health effects is supported by the College. However the widespread introduction of surgical registrar shift rostering and decreased overall working week hours have impacted on clinical surgical training, patient safety, health costs and consultant surgical staff.

Although night shift rosters can be entirely appropriate in large metropolitan hospitals with high surgical registrar numbers and workloads that mitigate the effects of shift rostering on caseload and education due to minimisation of individual exposure in training duration spent on night shift; use of shift rostering in smaller institutions and in other surgical speciality groups is particularly problematical. Possible solutions to counteract the effect of night shift on education and training include surgical departments changing all their schedules in order to facilitate education access and handover. Changing formal educational sessions to late afternoon for access by nights shift registrars engenders significant changes in sessional arrangements for consultants, departments and clinical scheduling. Theatre and outpatients start and finish times for example, may be influenced.

The analysis of the complexities of continuity of care and fatigued providers on patient safety is complex. Restrictions attempting to reduce fatigue in registrars often result in increasing discontinuity of patient care and this has been noted to increase patient harm. Finding the balance point at which the benefits of continuity of care derived from working longer hours becomes overridden by the dangers of fatigue must be addressed when recommending reforms to trainee working hours.

The effect of restrictive working hours on surgical training and surgical care is not speculative as the effect on increasing duration of training, longer hospital stays and poorer patient outcomes is apparent after a decade in UK, Europe and USA. Educationalists are now recommending to governments to not include training time in work hour restrictions in view of the special educational needs of procedural specialities

The working week for surgical trainees should be under a different award structure than for other medical trainees with the recommendation of a sixty to seventy hour week, which although this will

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have a concomitant increase in base salaries, may result in more functional rostering solutions and lower overtime payments.

The College welcomes all recommendations to improve surgical patient outcomes that are based on sound rationales and grounded in objective measurable evidence. However this evidence cannot be imprecise data or research papers from nonmedical or nonsurgical fields that have been transplanted without substantiation of their relevance or applicability into surgery.

The consequences of restrictive work hours and shift rostering in training will extend into the future of surgical care delivery in both countries. Maintaining the highest surgical standards and the values of professionalism, which place the primacy of patient welfare above the interests of surgeons has been the overarching goal of the College since its foundation. Therefore the College urgently addresses the issues around safe hours shift rostering and reduction of overall working hours as it applies to surgical training and to surgical care in advocating the following recommendations to salaried medical officer associations and jurisdictions in Australia and New Zealand.

Principles as recommended in this College position paper would help each specialty and individual department negotiate with their jurisdictions and governments to produce strategies to minimise fatigue whilst maintaining standards of surgical training and competency.

**1. Key points**

- Shift work for surgical trainees (38 hour week) leads to more complications, longer median hospital stays, more investigations and more expensive health care
- There is compelling evidence from USA, UK and Europe that the ideal working week for surgical trainees is 65 hours to maintain training and safe patient quality care.
- Surgical training will be increased by at least 2 years if working week hours are enforced by decreasing to 38hours per week from the ideal of 65 hours.
- Less quality training and shift work during training leads to less generalist surgeons as more graduates take up sub-speciality Fellowships as de-facto extensions of training. This leads to fewer future surgeons to work on call and fewer surgeons to work in regional areas
- That despite supporting a sixty five hour working week the College continues to endorse the principles of fatigue minimisation in rostering practices and within the surgical work place.

**RECOMMENDATIONS**

1. Robust mechanisms must be implemented in all surgical units to monitor and minimise fatigue in consultant and trainee staff
2. Each surgical work place should foster an environment where concerns regarding fatigue and rostering are addressed without prejudice
3. Mechanisms to ameliorate the effects of fatigue should be implemented including but not limited to safe transport to trainees residence once fatigue is identified; secure trainee rest and/or sleep areas within the hospital campus, and intervention to decrease, cease or oversight fatigued trainees' clinical workload.
4. All future Public Service Medical Practitioner Enterprise Agreements or equivalent medical practitioner contracts in Australia should have the flexibility to provide for a minimum sixty hours week plus five hours handover and educational / quality assurance activities for all surgical trainees. The structure of this award would include ordinary hours and "exempt" clinical contact hours which have an appropriate hourly loading payment.

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5. Rostering practices reflect the principles of the 2007 Position Statement for Safe Working Hours and evidence based practice around fatigue minimisation rosters:
  - a. Aim for minimum 12 hour continuous break in any 48 hour period, and
  - b. Avoid work periods greater than 12 hours for more than 2 sequential days, and
  - c. Aim minimum of 24 hours continuous period per week where the trainee is not working (or two full days per fortnight)
  - d. Cease on-call rosters that are less than one in 3, and, working hours week of greater than 75 hours unless exceptional circumstances which have been investigated and managed to minimise occurrence and ameliorate effects.
6. Within the sixty five hour working week there is rostered time for Education and quality assurance activities such as audit, peer review and College proscribed work place assessment to meet the requirements of the standards of the Surgical Education and Training programs of the Royal Australasian College of Surgeons.
7. Strongly recommend immediate development and application of guidelines to minimise non-urgent after-hours referrals to surgical units from those hospital services whose work practices take place on a shift work basis within forty hour work weeks. It is necessary that surgical, medical and emergency units within each hospital campus establish protocols for investigation, early management and admission of patients to surgical units after-hours that allow application of NEAT objectives, smooth transition into surgical wards and maintain highest standards of patient care and safety.
8. To allow effective safe handover for patient care at least one hour of overlapping shift rostering should occur in those hospitals that have surgical registrar shift work for each change of shift with provision for longer handover if surgical emergencies interfere with safe handover.

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