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Joint Faculty of Intensive Care Medicine

The Royal Australasian
College *of* Physicians

HOURS OF SERVICE WORK RELATED TO SAFETY, LEARNING AND PRODUCTIVITY OF VOCATIONAL SPECIALIST TRAINEES IN MEDICINE

SUBMISSION TO PRODUCTIVITY COMMISSION
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EXECUTIVE SUMMARY

This submission comes from the **Joint Faculty of Intensive Care Medicine** (Australian and New Zealand College of Anaesthetists, and Royal Australasian College of Physicians), which is the body responsible for training intensive care medicine specialists.

The main thesis of the submission is that unreasonable restrictions around the hours of work and rostering practices of junior medical staff are causing major impacts on patient care, the ability to train specialists, and productivity of staff. These concerns are shared by many of the Colleges.

Continuity of care for patients has been reduced to the level where the major portion of this is now often provided by senior staff. Increasingly shorter hours of shift work makes the patient vulnerable because junior staff have a lack of knowledge of patient history and treatment. In patient areas where continuity of care is important, 8 hour shifts do not allow for this. Longer shifts, longer consecutive shift periods, and longer rest periods between the series of shifts, produce far better continuity of care, and are preferred by intensive care medicine trainees.

Ability to train specialists to an adequate level is being compromised by shortening working hours. The apprenticeship model of teaching which is the predominant learning mechanism in training to be a specialist, cannot be replaced by formal classroom teaching. Shortened hours per week, and short shift hours, make experience difficult to obtain, and the result is likely to be longer training time to achieve the necessary standards.

Productivity of junior staff is clearly being reduced by patterns of work and shift hours. This is likely to translate eventually into senior staff expectations.

Safe hours and sleep deprivation literature do not support many of the present negotiated work hours and shift patterns. Industrial awards are now disadvantaging both the trainees and the patients. These have also had a major effect in reducing productivity. Some of the evidence base from the “safe hours” literature is examined.

Introduction:

This submission comes from the Joint Faculty of Intensive Care Medicine (JFICM) which is the body responsible for training Intensive Care Specialists in Australia and in New Zealand. We feel that this issue is of major relevance to the Productivity Commission because it is associated with major changes in practice, both for junior doctors and for senior doctors. Many of the Colleges share the same concerns as the JFICM.

Our main thesis is that restrictions around the hours of work and rostering practices are progressing to an unsatisfactory level, impacting on patient care, training, and productivity. Many of the changes do not have a strong evidence base. We examine developments in hours of work, the impacts, and also the evidence base for the effect on safety.

Hours of work:

Over recent years there has been increasing pressure to reduce hours of work of junior medical staff. This has come from industrial, government, and professional organisations e.g. AMA Safe Hours Project, Occupational Health bodies, industrial negotiating bodies. At the same time Medical Councils, governments, trainees, and the professional Colleges themselves wish to avoid increases in training times, which may be required if training and service hours cannot be flexible.

Many areas where work can be of high intensity have moved to full shift work rosters e.g. emergency departments, intensive care departments. Other areas of less intensity have mixed patterns of work, but most have a variation on shift work. This is necessary because patient care is continuous over 24 hours. It is now clear that length of shifts, type of rotations, and allowable total hours worked per week are becoming increasingly restricted. Average hours of work (as distinct from being on call and not actually working on the floor) are now approaching 40-50 hours per week in many intensive care units.

Appendix 1 shows some recent awards and related documents. Of interest is the European Directive for doctors in training, which will restrict average work hours to 48 hrs/week by 2009 (including call). Night hours will be restricted to 8 hours. In Australian and New Zealand agreements, there is every indication we are moving in similar directions. Already, most intensive care units have mixtures of shift times – usually 8 and 13 - 14 hour shifts. The danger is that there will be a complete movement to 8 hr shifts.

The shortening hours of work mean that the number of junior doctors needed to cover the work will increase by between 50% and 100% in coming years. This has already partly occurred.
It is also worth noting that the hours that junior medical officers work are now often less than many other parts of the community, in direct contrast to hours which Senior Medical officers work. However it likely that as junior staff become seniors, the patterns of short hours and restricted call periods will move to that group. It is also interesting that nurses have been moving to longer shifts (12 hrs).

Impacts of reduced hours of work:

Some correction has been necessary to remove the abuses of the past where junior staff worked excessive hours, and few would argue with that assertion. However, it is clear that

some of the restrictions starting to be placed on work hours and rostering practice are excessive, and are starting to have major impacts on continuity of care for patients, ability to train specialists to an adequate level, and productivity of junior staff.

1. Continuity of care for patients:

   This issue is well recognised by specialist staff and probably by many patients. It is less important where treatments are of an episodic nature e.g. emergency and anaesthesia departments, but highly important where continuing care is required e.g. typical hospital patient.
   Patients need to have the care of a knowledgable professional doctor who knows about their medical history and their treatment. Where this is lacking, the patient is likely to be unsafe. The subject is understudied, but at least one study of a "before and after the institution of short hours" scenario supported the possibility of decrease in safety of patient care as a result of short hours. (1)

   The practical scenario is that it will usually take 6-8 hours of the day for the junior staff to get to know the patients, and deal with their presenting issues. If only working 8 hours, the junior doctor is soon departing and handing over information to the next shift doctor. Even under the best circumstances all the information known cannot be transferred, and there is much anecdotal evidence and some literature to suggest that "handing over" is often done badly. (2) This leaves the patient vulnerable.

   There is a strong tendency in modern hospital practice for the junior staff not to know their patients properly. They "put out fires" and see the patient through until the end of the shift. With only brief encounters with patients, they do not know the patients in depth and nor do they have an overall picture of the treatment and progress of the individual patients. In the past, the junior staff were the doctors who knew their patients well, formulated treatment plans and actually looked after them, referring to the consultant staff for guidance and teaching. The situation has changed. The consultants are now the doctors responsible for continuity of care while the junior staff are becoming technicians responding to "on the spot problems", and who battle to formulate a holistic treatment plan. They are consequently ill prepared to assume responsibility for patient care when they emerge as specialist doctors.

   Obviously there is a balance between long and short shifts of work. We believe that 12-14 hour shifts in high intensity areas, for at least some of the staff, are compatible with much better continuity of care and are safe for both the patient and the doctor. The doctor carries the previously accessed knowledge about the patient during the last half of the shift. In low intensity environments, a 24 hour shift i.e. sleep time usually incorporated, may be preferable. Some shorter shifts e.g. 8 hours, where there is more than one person on duty, can be mixed with the longer shifts to help in situations where episodic interventions are required rather than continuity of care e.g. patient transports.

   Restrictions on the number of consecutive long shift work periods also mitigate against good continuity of care. Intensive care junior staff have indicated to the JFICM via their representative Trainee Committee, that they would prefer to work a series of long shifts e.g. 5 - 7 shifts of 14 hours, and have longer periods off between the series. This not only allows them to know the patients already when starting a successive shift, but also stops frequent rotations between night and day shifts. But it also means that they may work

long hours in any one seven day period, and very short hours in a succeeding week. Present industrial awards are starting to make this impossible.

2. Ability to train specialists to an adequate level:

For a long time we have considered the "apprenticeship" model of training to be the best for learning the practical skills of caring for patients. The shorter hours of work threaten this and many consultants are now worried that the trainees are going to be inadequately trained even if they pass their Fellowship examinations. Alternatively, because they work such short hours, they will not be able to accumulate the desired knowledge and maturity of judgement to pass the clinical examinations required. This is creating the possibility of longer training rather than shorter training which most bodies are advocating.

In apprenticeship learning the trainee is learning from seeing lots of patients, making many decisions and doing many procedures. This is clearly a very important aspect of learning that will almost certainly be reduced with shorter hours. It is also irreplaceable and cannot be taught in the class room. It includes modelling of practice on that of senior practitioners. This issue was examined in cardio-thoracic surgery trainees in Britain, examining experience on different rotas. The authors showed that training experience would be reduced hugely with the shorter hours being advocated (3). In 2005, UK surgeons reported that 90% of the senior house officers considered that revised working patterns had adversely affected their training by reducing their time in the operating theatre, contact with surgical trainers and time in the outpatient clinics. (4)

Formal teaching also contributes to learning. The findings of a few studies tend to indicate that a closely structured and well supervised working environment may offset the reduction in hours or a high work intensity. (5) However the evidence is not strong. Nevertheless the Colleges are developing these areas to try to compensate at least partly for work hour reductions.

3. Productivity of junior staff

Productivity is clearly reduced in the following respects:

a) 50-100% extra staff will be required to perform the same duties as previously
b) the contribution of junior staff as a result of shorter hours is reduced in quality as explained under "Continuity of Care". Many aspects of continuity of care have had to be taken up by Senior Staff.
c) Increased time is wasted in "hand overs" with shorter shifts
d) Because junior staff are working shorter shifts, they take longer to become useful when on a clinical attachment. There is always a lag period until they become confident and experienced e.g. 2 months in a 6 month attachment. The time to become competent and work more independently is now increased to the point that it may not have arrived even before the junior staff move to their next position.
e) More staff involve more expense, even if initially the shorter hours mean lower salaries for the junior staff.
f) It is almost certain that shorter apprenticeship training time will result in longer training periods to reach adequate standard
g) Although not directly related to junior staff productivity, the expectations of junior staff are likely to translate into senior positions when they become specialists.

Safe hours and sleep deprivation:

Apart from simple industrial drivers i.e. more money for the same amount of work, the arguments used for shortening hours and adjusting to various roster profiles have centred around sleep deprivation, health and social well-being of the trainee, and safety of the patient. In spite of the many assumptions by well meaning people including such prestigious bodies as the Australian Medical Association, there is no hard evidence to suggest compromise of patient safety where junior staff are working less than 15 hour shifts. There is a lot written about the effects of long hours, shift rotation and sleep deprivation on health and well being of junior staff. Long term health problems have not been shown. However, there is a recognised spectrum of short-term effects thought to be from working against circadian rhythms, some of which can be ameliorated by adjusting roster patterns. Some of these simply cannot be avoided, if patients are to be cared for out of normal hours.

A brief summary of the evidence base around these concerns is provided:

a) length of trainee working hours and sleep deprivation related to safety of patient:

Because long work hours often mean a lack of sleep as well, these two factors – hours of work and sleep deprivation are mixed in many studies. However, although long hours and sleep deprivation have often gone together, they are in fact separate issues.

A number of extensive reviews now exist. (6,7,8,9)

Most studies addressing this topic use a repeated measures design in which a group of Medical Officers are studied under both sleep deprived and rested conditions. They focus on:

a) mood or affective state as measured by questionnaire
b) performance as measured by psychometric tests, assessment or examination-type tests and simulated or actual work measures.

Mood: virtually all studies show statistically significant effects of sleep loss on mood - may depress or elevate.

Sleep loss and fatigue and safety: the effect of sleep loss and fatigue on patient safety has been very been difficult to document. Certainly there is no convincing evidence anywhere of compromise to patient safety in shifts of less than 13-14 hours which is a common “long day” or “night shift” length in intensive care rosters in Australia and New Zealand. Evidence from the existing literature is equivocal, perhaps because there has been great variability about how researchers have addressed the question. There are many factors involved in these studies which make them difficult to interpret, including sensitivity of the tests, test length, performance compensation during an acute crisis for the effects of sleep loss, effects of non-blinded subjects, sample size etc. Much of the literature on the subject is anecdotal and sometimes emotive.
However, a recent good scientific study in intensive care units, in the USA, provided evidence that reducing Interns hours of work, reduced serious medical errors. (2) They studied the impact of reducing from shifts which were 24-34 hrs down to 15-16 hours.

Unfortunately, this does not help us as the hours in Australian intensive care are already shorter than even the shorter hour cohort in the study. Furthermore, the outcomes from the errors were no different in the two groups i.e. there was no difference in preventable adverse events. Also the staff were more junior than normally employed in local intensive care units.

It is certainly possible that issues around continuity of care may outweigh any negative effects from long hours or sleep deprivation.

b) length of working hours and sleep deprivation related to health and social well being of trainee

Specific evidence on the effects of long working hours as distinct from shift work on health is not available from the Medical Officer literature. Some have argued that higher rates of suicide, mental distress and use of social drugs such as alcohol may be a result, but this is conjecture. Other literature suggests that long hours act indirectly as a "stressor" in that staff are subjected to other work place stresses for longer periods. Individuals also often find themselves doing domestic chores as well as long hours. However, lack of sleep as within the Australian and New Zealand spectrum of intensive care rosters has not been shown to cause general ill health.

There is however, considerable evidence for short term health disturbance related to rotating shift work, with some shifts being at night. This is thought to be partly due to the effect of disturbed circadian rhythms, or working when the rhythms would normally be attuned to the person sleeping. (10)

There are also a number of complicating factors including individual behaviour patterns and disposition e.g. if workers choose to work long hours they seem to suffer less. This is relevant to the amount of voluntary "moonlighting" which is done. The above aspects have been well reviewed by the Health Policy and Research Unit of the BMA. (8)

Although not related to Medical Officers, an interesting experiment was done where male construction workers worked a rotation of 84 hours (seven 12 hr shifts in a row) followed by one week's leave. This was compared with an ordinary 40 hour week. There was no reduced test performance or elevated fatigue and sleepiness. (11) This is interesting in the climate of resistance to "long days" for medical officers often, with significant periods of leave time between duties.

c) does lack of sleep and working against normal circadian rhythms make learning difficult?

There appear to be many experiments trying to relate sleep deprivation to decreased ability to remember, including the acquisition of motor skills. As a body of evidence the findings are inconclusive and contradictory (12-21). Often it appears that certain aspects of memory are affected while others are not affected. One particularly interesting study was a comparison in surgical residents and students, between rested and sleep deprived states, who were asked to read surgical journals and later answer questions regarding their content. There was no difference between the groups, and the conclusion was "residents whether sleep deprived or not, obtain comparable scores on objective tests measuring both short-term and long-term retention of newly learned material" (22).

There is also a significant literature which suggests that adequate sleep soon after learning allows the brain to organise previous input and aids in memory (23,24). The studies do not address the issue of fatigue induced de-motivation and alteration of mood which may affect the desire to try to learn!

Conclusions

Increasingly short working hours and restrictions on rostering practice for junior medical staff are becoming unreasonable, and have reached levels where they are not supported by hard evidence.

The trends are beginning to have major impacts on:

a) continuity of care, and as a consequence, quality of care, of patients
b) ability to train specialists to an adequate level within the present training time spans
c) productivity of junior staff

The results of the above factors have major ramifications for the future costs and quality of the Australian health service.

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APPENDIX 1
INDUSTRIAL AWARDS AND CODES OF PRACTICE

The following examples show where expectations have arrived. It is apparent that aims are the same in both Australia and NZ, but whereas the shorter hours etc are now becoming mandatory in NZ, States of Australia are following more slowly the non-mandatory Code of Practice as per the Australian Medical Association. One would assume however that with time the shorter hours will become mandatory in Australia. In the UK and across Europe the "New Deal" mandates similar work patterns. They will be further affected by the "European Directive on Working Hours" which will drive hours and conditions down to that of very restricted working patterns. The USA is also following the trend somewhat reluctantly and this is partly being driven by medico-legal and associated legislative considerations.

a) Example of industrial award - Collective Agreement 2002 – 2004, NZ Resident Doctors' Association. This includes all the major training hospitals in NZ.

Working Hours : the main relevant requirements are outlined in pages 15-25.

These include:

i) penalty payments for an employee rostered on duty in excess of 72 hours in any seven day period
ii) a period on duty shall not exceed 16 consecutive hours
iii) a period of "on call" and "on duty" may exceed 16 hours by agreement
iv) employees shall not be rostered on duty for more than 2 long days in 7. For the purposes of this clause, a "long day" shall be hours worked in excess of 10 hours.
v) employees shall not be rostered on duty for more than 12 consecutive days without a rostered rest period officially off duty of at least 48 hours..
vi) employees shall have every second weekend completely free from duties
vii) the parties agree within 3 months of settlement to find alternatives to 7 consecutive night shifts
viii) on runs where shifts are being worked there shall be no more than 4 shift start times provided that where 2 shifts commence within 30 mins of each other to provide for handover this shall be deemed to be one shift start time and no employee shall be required to change shifts (e.g.moving from day shift to night shift) more than once per week
ix) leave abutting weekends – when an RMO is on leave on the days immediately before or after a weekend she/he cannot be required to work the weekend(s) For the purpose of this clause a weekend shall be deemed to commence at the completion of the rostered Friday duty including long days. Where night shift is concerned the Friday night duty shall be deemed to be part of the weekend.
x) the rosters worked by most intensive care registrar trainees fulfills the definition of a "shift work"category

Medical Education: see pg 30 – 31

i) in recognition of the importance of ongoing medical education a minimum number of hour's rostered duty per week will be set aside for the purpose of medical learning which is not directly derived from clinical work. The number of hours of rostered duty per week in each DHB shall be set out in Schedule 3. (these vary between DHBs and the hours vary between 2 and 4 hours)
ii) all employees in their second and subsequent years of service shall be entitled to 5 days of medical education leave in each full year of service for the purposes of study towards their vocational training
iii) employees undertaking college or university (medically related) courses of study, examinations or the equivalent qualification related papers, shall be entitled to a maximum of 6 weeks medical education leave per annum inclusive of the provisions of above (ii) for the purposes of attending courses, conferences, studying towards and sitting examinations or the equivalent qualification related papers relevant to the course of study, examinations or the equivalent in respect to obtaining vocational registration.

iv) employees shall be entitled to a maximum of 12 weeks medical education leave per vocational training program in NZ

v) where a Senior Registrar (5th or higher years in the salary scale) has exhausted their entitlements as above, they shall be granted a total of 6 days additional leave to attend conferences within Australasia.

vi) entitlements are portable between DHBs – there are some minor variations on leave for very Senior Registrars

b) Letter from concerned Director of Intensive Care Unit re above Award

"As you know, I raised concerns with you over the limitation of registrar working hours imposed on us by the Collective Agreement signed by New Zealand Resident Doctors' Association on behalf of the resident medical officers and various health boards. While most of the issues to arise out of this document are likely to be of little interest to the College, I do feel that some of the restrictions imposed on us by the document do impact on registrar training. Many of the clauses contained in the document (see section 13.0 Limits on Hours - attached) are reasonable and endeavour to protect the quality of life of the trainees and have positive safely implications. The stringent limitation on hours with the requirement for dedicated external leave cover however results on the need for numerous registrars to cover a service which dilutes patient contact time and procedural experience.

Of greatest concern to me is the clause 13.3.7 which states that "Employees shall not be rostered on duty for more than 2 long days in 7. For the purposes of this clause, a "long day" shall be hours worked in excess of 10 hours". Clearly the thrust of this clause is to force units to adopt an 8 hour shift system.

We roster our ICU registrars on for 14 hours during the day with a 13 hour night shift. This allows us to have a comprehensive morning teaching ward round with a briefer update round in the evening and then a formal hand over round to the night registrar at 9pm. These are all consultant led rounds. Intensive care requires doctors to have a detailed knowledge of their patients and that there is continuity of care. To facilitate an in-depth hand over, our morning ward round is a long round and involves a detailed discussion of each patient with bedside teaching. Following this, there is a daily X-ray review round and frequently other meetings (including mortality/morbidity, journal club, teaching, microbiology review etc.). I believe that all these activities are central to registrar teaching. Working a 14-hour shift allows the registrars to become familiar with the patients during the first half of the shift and then frees them up to care for patients during the remainder of the period. It is not only easier, but important for the registrar to do successive shifts. Not only do they then already know the patients from the previous day, thereby removing the need for them to become familiar with a new group of patients every day, but it allows them to follow up on the treatments that they instituted and the investigations already performed. Under the current contact, if we run a 2 shift a day system, registrars will only be able to work 2 x 10 hour shifts in any 7 day period. This makes it impossible for the trainees to have any continuity of care – they only see "snapshots" of the patient while in the unit. It also makes it very difficult to teach registrars if they are only caring for patients 2 days a week.

Forcing us to adopt an 8 hour shift roster would mean that large portions of the day would be taken up with hand overs and getting to know the patients. As the unit is a busy place, this would inevitably result in a more cursory hand over between shifts. I have noticed a strong trend in all services in the hospital for the registrars not to know their patients. They "put out fires" and see the patient through to the end of the shift. With only brief encounters with patients, they do not know the patients in depth and nor do they have an overall picture of the treatment and progress of individual patients. Whereas in the past, the registrars were the doctors that knew the patients well, formulated treatment plans and actually looked after them, looking to the consultant staff for guidance and teaching, the situation has changed. The consultants are now the doctors responsible for continuity of care while the registrars are becoming technicians responding to "on the spot problems", and who battle to formulate a holistic treatment plan. They are consequently ill prepared to assume responsibility for patient care when they emerge as specialist doctors.

Does the College have a view with regard to minimum patient "contact time" and requirements for continuity of care? While I realise that the College would be reluctant to mandate working hours, it would be useful if there was a position statement that could be used in negotiations with the union when formulating our rosters, because, as I have pointed out, this does impact on the training".

c) National Code of Practice – Hours of Work, Shiftwork and Rostering for Hospital Doctors - Australian Medical Association 1999

This code was developed in response to long standing concerns about the impact of shift work and extended hours on hospital doctors, particularly junior doctors. The risks that fatigue and sleep deprivation create for both the individual health and safety of the doctor and for the quality of care afforded to patients are addressed. It is intended to be a voluntary code.

RISK ASSESSMENT CHECKLIST

1 Are doctors regularly scheduled to work more than 10-hour shifts?

2 Do doctors work through a full shift cycle (ie. 24 hours or more) at least once in a 7-day period?

3 Do doctors work more than 14 consecutive hours in any one period (including overtime and recalls) at least twice a week?

4 Is the minimum period of rest between scheduled work less than 10 hours?

5 Are the total hours worked
- in a 7-day period more than 70 hours (including overtime and recalls)?
- in a 14-day period more than 140 hours?
- in a 28-day period more than 280 hours?

6 Is the minimum non-work time
- in a 7-day period less than 88 hours?
- in a 14-day period less than 176 hours?
- in a 28-day period less than 352 hours?

7 Is there less than a 24-hour break free of work in a 7-day period?

8 Are there less than two 24-hour breaks free from work in a 14-day period?

9 Are there less than eight 24-hour periods free from work in a 28-day period?

10 Are doctors rostered for on call duty more than once every three days?

11 Does the shift rotation move anti-clockwise?

12 Does the shift rotation change direction and speed over a 28-day period?

13 Have the actual hours worked and the times at which they have been worked in the last 28 days varied from the posted roster by more than 25%?

14 Is a doctor scheduled for more than three night shifts in a 7-day period?

15 Is a doctor rostered for on call duty comprising more than 24 hours of the minimum 88 hours free from work in a 7-day period?

16 Is a doctor scheduled to work night shifts whilst peak educational and training requirements have to be met?

RISK ASSESSMENT GUIDE BASED ON 7 DAY PERIOD

Lower risk (score 1) :

i) less than 50 hours worked

ii) no more than 10 consecutive hours in any one period
iii) scheduled shift hours worked
iv) 3 or more short breaks taken during shift
v) little or no overtime
vi) rostered on call less than 3 days in 7
vii) no night shift or extended hours into night shift
viii) minimum 10 hour breaks between work periods and 2 days free of work
ix) forward shift rotation and predictable cycle
x) no changes to roster without notice
xi) max opportunity for sleep to be taken at night including 2 full nights of sleep

Significant risk (score 2):

i) 50 –70 hrs worked
ii) up to 14 hrs consecutive hours in any one period
iii) scheduled shift plus part of next shift workload
iv) one or two short breaks taken during shift
v) more than 10 hrs overtime
vi) rostered on call duty 3 days or more in 7 day period
vii) at least 2 night shifts or extended hours into night shift
viii) minimum 10 hr breaks between work periods and 1 day free of work
ix) forward shift rotation but changed cycle
x) changes to roster through overtime and recalls worked
xi) about two thirds of sleep to be taken at night including 1 full night of sleep

Higher risk (score 3):

i) more than 70 hrs worked
ii) 14 or more consecutive hrs worked at least twice
iii) a full shift cycle worked of at least 24 hrs
iv) no short breaks during shift
v) more than 20 hrs overtime
vi) rostered on call continuously for more than a 7 day period
vii) at least 3 night shifts or extended hrs into night shift
viii) less than minimum 10 hr break on at least 2 work periods and no full day free of work
ix) no stable direction or speed of rotation of shifts
x) roster changed so much because of overtime and recalls so as to be unpredictable
xi) less than half of sleep taken at night and no opportunity for one full night of sleep

The guide is based on a 7-day cycle but as the hazards of shiftwork and extended hours are cumulative, this model should be applied to a 14-day period and a 28-day period as the items in the higher risk column create a greater risk the longer they are present. For example, if less than half of any sleep is able to be taken at night over a long period then the effects of sleep deprivation may be evident in work performance and on individual health.

A simple scoring system may assist in assessing risks for doctors. Lower Risk Elements are worth 1 point, Significant Risk 2 points and Higher Risk 3 points and when a Significant or Higher Risk Element is present for consecutive 7 day periods the points should be doubled on a rolling basis and then returned to normal points when the cycle is broken.
For example,a doctor who worked more than 70 hours a week for 4 weeks would be scored at 24 points in the final week. Conversely, if the 70-hour week was a one off then the score at the end of the 4-week period would be between 6-9 points.
Another example would be where at least two night shifts are worked in a week but breaks are taken within shifts, the minimum break between shifts is maintained and the shift cycle is predictable. In this case a potential high risk is balanced by other measures and the overall profile may be kept at the lower risk end of the scale.
The purpose of scoring is to provide a crude but simple way of highlighting risks to doctors, to the hospital and to those dependent on both. The profile can be adjusted to add specific risk factors relevant to the type of hospital and used to establish a preferred profile that meets patient and doctor needs as well as obligations to provide and maintain a safe and healthy workplace.

a) Guidance on Working Patterns for Junior Doctors. A documents produced jointly by the Dept of Health, the National Assembly of Wales, the NHS Confederation and the British Medical Association (Nov 2002).
See Appendix 3

Pg 29

On call rota (OCR)
Definition
In this working pattern, doctors work a 'normal working day' on weekdays from Monday to Friday. Under the new banded contract, the normal working day can be structured between the hours of 7am and 7pm
The remainder of the weekly hours, over and above the normal working week, is known as the 'out of hours period' **(OO**H). This is covered by doctors being 'on call' in rotation. Juniors rostered for duty periods that are greater than 24 hours will be working an on-call rota.
The rotation frequency is defined by the frequency of on call episodes in the rota. This frequency is expressed as, for an example with 6 doctors covering, a '1 in 6'. The rota description should also include definition of levels of Prospective Cover.
New deal requirements:
Maximum hours of Duty: **72 hours per week**
Minimum Period off Between Duty: **12 hours**
Minimum Continuous Period off Duty: **One 48 hour period and**
One 62 hour period in every 21 days
Maximum Continuous Duty Days: **13, followed by minimum 48 hours**
off duty
Maximum Continuous Period of Duty: Weekdays: **32 hrs** Weekends: **56 hrs**
Minimum Rest Period: **Greater than or equal to one-half of**
OOH period on 75% of occasions
(e.g. for a 32 hour on-call duty this
would be 8 hours)
Therefore: Weekdays: **8 hours** Weekends: **12 hours**
per day
Total actual weekly hours of work must
not exceed 56
Minimum Continuous Rest Period: **5 hours between 2200 and 0800 on**
75% of occasions
The rationale behind these limits is that if the doctor has achieved a regular expectation of the equivalent of half the OOH period resting with a minimum continuous period of 5 hrs rest between 10pm and 8am, it is acceptable to work on the following day. A working pattern that does not achieve these levels of rest due to intensity of overnight work is inappropriate for an OCR pattern.

Full Shifts pg 34

Definition
A Full Shift divides the total working week of 168 hours into definitive time blocks, with doctors rotating around the shift pattern. Doctors can be expected to be working for the whole duty period apart from 'natural breaks', e.g. a minimum thirty-minute break after approximately four hours of continuous duty.
Doctors will be rostered for periods no greater than 14 hours.
New deal requirements
Maximum hours of Duty: **56 hours per week**
Minimum Period off Between Duty: **8 hours**
Minimum Continuous Period off Duty: **One 48 hour period and**
One 62 hour period in every 28 days
Maximum Continuous Duty Days: **13, followed by minimum 48 hours**

off duty
Maximum Continuous Period of Duty: **14 hours**
Minimum Rest Period: **Natural breaks**
Minimum Continuous Rest Period: **minimum of 30 minutes rest after approximately 4 hours continuous duty**

b) The European directive for doctors in training:

On 1 August the junior doctors in National Health Service in Britain will no longer be excluded from the provisions of the European Working Time Directive. There will be an interim limit of an average 58 hours per working week which will reduce to 56 hours in 2007 and to 48 hours in 2009.
The directive differs from the New Deal in Britain in that it includes "call" in the working hours. The rules include 11 hours of continuous rest in each 24 hour period, and a maximum of 8 hours in 24 for night workers (25).