

## Submission to the Community Affairs Reference Committee On the factors affecting the supply of health services and medical professionals in rural areas.

General Practice Registrars Australia (GPRA) is the peak national representative body for GP registrars. We strive to improve the healthcare of all Australians through excellence in education and training, and ensure that general practice is the medical specialty of choice.

GPRA is a not-for-profit organisation run for registrars by registrars that provides quality representation on educational and policy issues to the federal government, General Practice Education and Training Ltd, regional training providers, and general practice stakeholder organisations including the Divisions of General Practice, Australian Medical Association, Royal Australian College of General Practitioners, Rural Doctors Association of Australia and Australian College of Rural and Remote Medicine.

### **Inquiry terms of reference**

The factors affecting the supply and distribution of health services and medical professionals in rural areas, with particular reference to:

- (a) the factors limiting the supply of health services and medical, nursing and allied health professionals to small regional communities as compared with major regional and metropolitan centres;
- (b) the effect of the introduction of Medicare Locals on the provision of medical services in rural areas;
- (c) current incentive programs for recruitment and retention of doctors and dentists, particularly in smaller rural communities, including:
  - (i) their role, structure and effectiveness,
  - (ii) the appropriateness of the delivery model, and
  - (iii) whether the application of the current Australian Standard Geographical Classification – Remoteness Areas classification scheme ensures appropriate distribution of funds and delivers intended outcomes; and
- (d) any other related matters.

## **Executive Summary**

*General Practice Registrars Australia (GPRRA) is the peak national representative body for GP registrars. GPRRA is a not-for-profit organisation run for registrars by registrars that provides quality representation on educational and policy issues to the federal government and other key stakeholders. GPRRA's submission will focus on general practice registrar issues, but with a broader focus at times recognising that registrars have experiences prior to being registrars that influence their decision to work or not to work rurally and also observe those professionals working in rural areas and make decisions on what their experiences are.*

*a) Factors limiting the supply of health services and medical, nursing, and allied health professionals to small regional communities as compared with major regional and metropolitan centres.*

*Various factors potentially limit the supply of medical professionals to regional communities. 'Supply' can be broadly split into the two linked but separate issues of recruitment and retention. Essentially this is an issue of getting enough of the right people with the right training to the right place and then keeping them there.*

### **Key Recommendations:**

- *Continue to support students of rural origin into medicine.*
- *Strengthen rural education in order to retain students within rural areas during their formative years, and supply medical professionals with appropriate educational choices for their children.*
- *Continue to support and improve positive rural medicine experiences for medical students and pre-vocational doctors.*
- *Appropriately remunerate teachers and supervisors taking students, PGPPPs, and registrars in rural practice.*
- *Adequate and appropriately supply training practices considering:*
  - *Junior doctor place availability in rural areas,*
  - *Core terms for general practice training (i.e. paediatrics and anaesthetics),*
  - *Advanced skills training opportunities.*
- *Appropriate incentive mechanisms to promote early, positive, and well-supported rural training experience to registrars so they may consider rural careers.*
- *Appropriate allocation of registrars to practices.*
- *Improvements to the support provided during the provision of after-hours and on-call healthcare.*
- *Access to professional development and continuing medical education.*
- *Leave cover via increasing access to locum support.*
- *Personal and community support for rural practitioners i.e. family, schooling, cultural, employment support for rural practitioners, and their families.*

*c) The role, structure, and effectiveness of current recruitment incentive programs, and the appropriateness of the delivery model of current recruitment incentive programs.*

*Monetary incentives are rarely the sole driver of a professional's decision to go or stay rural but they do act as an incentive by compensating for some of the direct and opportunity costs that can be incurred by working rurally or remotely compared with urban or regional practice. GRIPPS is a much-needed rural retention strategy but lacks the initial financial incentives available under RRIPS that would draw registrars to rural practice in the first instance.*

**Key Recommendations:**

- *GPRRA supports a greater focus on a combination of direct and non-direct financial incentives as a recruitment and retention strategy.*
- *GPRRA supports the review of the efficacy and outcomes of GRIPPS vs. RRIPS in both recruitment and retention of registrars and experienced GPs.*

*(iii) Whether the application of the current Australian Standard Geographical Classification – Remoteness Areas classification scheme ensures appropriate distribution of funds and delivers intended outcomes.*

*The feedback GPRRA has received relating to the ASGC RA classifications suggests that this scheme is possibly ineffective and counterproductive in certain areas. The RA classification means that many small rural towns are now classified the same as larger, better-serviced regional centres meaning that health professionals are entitled to the same incentives despite vastly different working situations. In some areas this is meaning a loss of registrars and GPs from smaller less well serviced to communities to larger centres of the same RA classification resulting in a loss of both clinical and teaching/supervision capacity.*

**Key Recommendations:**

- *GPRRA strongly suggests a review of the RA classification system and the linkage of incentives to this.*

*(d) Any other related matters.*

*GPRRA has concerns regarding the fairness and appropriateness of the ten-year moratorium. While many rural areas rely heavily on overseas-trained doctors for service provision, it is a 'bandaid' solution. As measured by retention time, the effectiveness of the ten-year moratorium seems to be limited.*

**Key Recommendations:**

- *GPRRA supports the abolishment of the ten-year moratorium and a review as to improved methods to promote appropriate workforce distribution.*

**(a) Factors limiting the supply of health services and medical, nursing, and allied health professionals to small regional communities as compared with major regional and metropolitan centres.**

Various factors potentially limit the supply of medical professionals to regional communities. 'Supply' can be broadly split into the two linked but separate issues of recruitment and retention. Factors influencing recruitment and retention can then be further divided into professional, personal (those factors relating to the personal characteristics of the individual and their family) and external (relating to the community and its geographical location)[1]. Essentially, this is an issue of getting enough of the right people with the right training to the right place and then keep them there.

Although GP registrars make up a significant proportion of the rural GP workforce, they are just one part of a continuum running from potential GP to experienced GP. This needs to be considered when addressing the issue of recruitment and retention of rural and regional GPs (and other medical professionals). Registrars require the adequate supply of other medical specialities, nurses, and allied health professionals who are vital to the effective provision of health services to rural communities. Issues affecting the retention of experienced registrars and fully qualified GPs are also influencing the recruitment of doctors to these areas. The observation rural doctors' experiences of by those considering rural practice can act as powerful incentives or disincentives to recruitment.

Compared to medical professionals with an urban origin, medical professionals with rural origins are more likely to go on to practice in rural areas [2, 3, 4, 5]. Therefore, it is clearly important that governments continue to support initiatives recognising this fact and continue to fund and support rurally located medical schools and priority admission for local rural origin students. The current Rural Clinical Training and Support program guidelines suggests University medical schools maintain an intake of students with a rural origin of greater than 25% for Commonwealth Supported Places. According to the Australian Bureau of Statistics, the percentage of the Australian population living in regional or remote settings was 32% in 2006.

The availability of high quality primary and secondary education in rural areas serves to attract medical (and other) professionals to regional communities. The secondary effect of this is children spending their formative educational years as members of a rural community, and resultant increased likelihood that these children may be retained within rural communities throughout their future careers.

Exposure to rural practice during medical school is also positively correlated with eventual rural place of practice[6]. This evidence has been extrapolated into the Post Graduate Practice Placement Program (PGPPP) setting, and vocational training years. However, this exposure must be positive in nature, or it runs the risk of negatively influencing potential rural practitioners. GPRA would advocate for the ongoing support and strengthening of these 'early experience' programs, but caution that there must not be undue pressure put on to teaching practices in rural areas to take an excessive number of students at any level (medical student, PGPPPs and registrars).

Capacity and remuneration issues are limiting the supply of supervising GPs and teachers. Current levels of remuneration paid to teachers and GP supervisors is insufficient, and effectively disincentivises these activities, as the loss of clinical time that is a consequence of teaching or supervising is inadequately recompensed. Thought also needs to be given to the recruitment of more supervisors and/or teachers in rural areas in order to address the capacity issues that currently face training in general practice. GP trainees need to be mentored by happy GPs within a professional environment that is both satisfying and sustainable. In order to achieve this, teachers and supervising GPs need to be suitably remunerated, supported, and encouraged to provide high quality education and experience to their students; the future healthcare workforce.

Rural practitioners require appropriate training to work safely and sustainably in rural practice. There is a lack of sufficient permanent training positions in rural areas for specialities beyond the most junior doctor years, although this varies by state. Generally, specialities tend to have a strong, city based focus in terms of leadership, research, and important networking. These factors can become critical to the satisfactory progression of a career, and continually draw doctors away from rural communities and back into state capitals. There are reports from Tasmania that economic constraints mean that junior doctor training places are not keeping pace with the numbers needed. This means that many local graduates have to leave the state for work, running the risk that they do not return.

GPRA is receiving reports describing registrars' difficulties in accessing both core-training terms, and advanced training. The core terms of paediatrics and anaesthetics (a mandatory requirement of the ACRRM training) seem particularly difficult to access, and increasingly so considering the competition from increasing numbers of medical graduates. This may lead to a 'bottle neck' in trainees getting into rural areas, as these posts need to be completed prior to commencing in community practice

GP registrars' advanced procedural training (particularly in anaesthetics, obstetrics and surgery) is becoming increasingly difficult to access in many jurisdictions due to competition with specialist trainees, also increasing in numbers. Similarly, registrars also lack opportunities to gain diplomas from other colleges such as dermatology, ED, or psychiatry due to geographical issues. Registrars require support to access high quality training in procedural and other advanced skills in order to provide the variety and complexity of care that rural communities demand. Registrars that stay rural may have to forgo many career opportunities freely afforded to their urban counterparts despite generally positive in-practice learning experiences

Once in general practice training it is important to support both registrars who have made the decision to work rurally, and those who have not but may be encouraged, induced or forced to rotate into rural practice. It is of paramount importance that registrars are matched to practices in order to meet their learning needs. Registrars should not be put in situations that are beyond their competence. Registrars who have had a negative rural training experience, depending on the level of trauma, may either leave rural practice, or general practice altogether [7]. There is work underway by the Adelaide to Outback GP

Training consortium attempting to better identify doctors/registrars who or are particularly suited to rural practice.

Of the professional factors influencing the retention of registrars and GPs working in rural areas, after hours and on call arrangements are the most important. This has been identified not only in numerous anecdotal reports to GPRA, but also in Australian scientific literature[8]. GPRA has released a discussion paper on the issue of safe working hours in general practice training [Appendix A]. While the challenges of providing 24 hour care to one's patients is an issue for all rural GPs, registrars are arguably more affected than their more senior colleagues as a consequence of their inexperience in both the work, and the community. Unsupported after hours work was a major contributing experience to those registrars reporting trauma from their rural training experiences[7].

Other professional issues affecting the retention and recruitment of GPs to rural areas include issues of access to high quality continuing medical education (CME), up-skilling, and further training. This is both an issue of access (many CME opportunities are located in cities), and finding temporary cover for patient care while the doctor is away attending these educational opportunities. While this is less of an issue for registrars who are within a well-supported and clearly defined training environment, these are certainly an issue for experienced GPs working in rural areas. As professional variety and the opportunity to have a broader and more advanced scope of practice is highly regarded by rural practitioners, it is vital to actively support the opportunities for GPs to gain these skills and remain up-to-date.

The issue of coverage for GPs taking up professional development opportunities leads to the broader issue of coverage for leave. The importance of being able to take an extended break to compensate for the increased on call/after hours commitments of many rural practitioners has been identified by the Rural Doctors Association of Australia[9]. Unfortunately, many practitioners report great difficulty being able to access leave due to difficulties in accessing appropriate, cost effective locum services. This may result in other doctors in the practice having to take on the extra work and associated pressures, or a community being left without cover in a 'one doctor' town. Some doctors report pressure not to utilize their leave entitlements, and feelings of guilt or unease when they do. Even some registrars with mandated leave entitlements have reported pressure not to take leave due to workforce pressures.

Registrars have also commented on a feeling of isolation when working rurally with a general lack of support resulting in the feeling that an individual is on their own. This perhaps originates from relatively reduced levels of support originating from hospitals, allied health, and social and personal support. The GP/registrar often ends up being the counsellor, mental health nurse, social worker, physiotherapist, dietician etc. These are areas that require time that a busy rural GP/registrar has not got the luxury to be able to offer, but has to as there is no one else. Government should invest in a holistic approach to improve access to services. Relying just on basic services, will drive the basic service away due to overload.

Personal and external issues also impact on the recruitment and retention of rural health professionals and need to be addressed. These include

- access to quality schooling whilst potentially having to relocate children to alternative educational facilities,
- employment and related career opportunities for partners or spouses,
- limited access to cultural and other events of interest.

Incentives for rural practice are useful tools for both recruitment and retention and are discussed in Section C.

### **Key Recommendations:**

- Continue to support students of rural origin into medicine.
- Strengthen rural education in order to retain students within rural areas during their formative years, and supply medical professionals with appropriate educational choices for their children.
- Continue to support and improve positive rural medicine experiences for medical students and pre-vocational doctors.
- Appropriately remunerate teachers and supervisors taking students, PGPPPs, and registrars in rural practice.
- Adequate and appropriately supply training practices considering:
  - Junior doctor place availability in rural areas,
  - Core terms for general practice training (i.e. paediatrics and anaesthetics),
  - Advanced skills training opportunities.
- Appropriate incentive mechanisms to allow registrars to have early, positive and well-supported rural training exposure so they may consider rural careers.
- Appropriate allocation of registrars to practices.
- Improvements to the support provided during the provision of after-hours and on-call healthcare.
- Access to professional development and continuing medical education.
- Leave cover via increasing access to locum support.
- Personal and community support for rural practitioners i.e. family, schooling, cultural, employment support for rural practitioners, and their families.

(b) The effect of the introduction of Medicare Locals on the provision of medical services in rural areas.

At the time of writing, GPRA had not received sufficient feedback to comment on the effect of Medicare Locals on the provision of medical services in rural areas.



(c)

- (i) The role, structure, and effectiveness of current recruitment incentive programs, and
- (ii) The appropriateness of the delivery model of current recruitment incentive programs.

Monetary incentives are rarely the sole driver of a professionals' decision to relocate rurally, however, they do act as an incentive by compensating for some of the direct and opportunity costs incurred by working rurally or remotely compared with urban or regional practice. Broadly speaking, there have been three types of financial incentive program active at one time or another within general practice. These are direct, indirect, and bonded or return of service. Direct payments can also be seen as a financial recognition of the more complex care often provided in a less supported environment.

Direct "cash" incentives (such as the recently discontinued RRIPS) seem to have been effective in attracting registrars to work in remote areas. The complication with this particular scheme may have involved some registrars working in RA4 or RA5 locations potentially earning more than GP's within these same locations. This scheme has recently been replaced with GPRIPS.

Although both RRIPS and GPRIPS operate using a direct incentive model, their targets seem to differ. RRIPS was perhaps designed to attract new registrars to remote locations. Although it is debatable as to whether these registrars remained in these locations long-term, the incentives provided were such that these RRIPS supported places were financially attractive enough for registrars to 'rotate' through the available positions.

GPRIPS seems to be structured as a retention scheme, progressively increasing financial rewards according to years of rural service combined with RA classification. Although GPRIPS therefore avoids the issue of a registrar's remuneration exceeding that of a GP's within the same practice, arguably GPRIPS lacks the initial financial incentives available under RRIPS that would initially draw registrars to rural practice. GPRA supports the review of the efficacy and outcomes of GPRIPS vs. RRIPS in both recruitment and retention of registrars and experienced GPs. As mentioned below, GPRA feels that the use of RA classifications on which to base incentives is inequitable and actually may be influencing the doctors to leave smaller towns for larger regional centres with the same RA classifications.

The second type of incentive program involves supporting registrars or GP's via methods not directly financial. This would include such things as support for relocation, employment services for spouses, etc. Accommodation in rural areas can be difficult to source, particularly considering registrars on short-term rotations. Increasingly, towns in close proximity to mining industries are seeing rental prices soar, thereby becoming a barrier to recruitment and retention of rural health professionals. GPRA supports a greater focus on non-direct financial incentives as a recruitment and retention strategy.

The third type of incentive involved a bonded, return-of-service arrangement where, for example, a scholarship is provided in exchange for a minimum term of service in a rural location. These types of incentives seem to be the least effective. The participants

involved often attempt to shortcut their bonded service, and retention following terms of service is poorer than the other two models.

**Key Recommendations:**

- GPRA supports a greater focus on a combination of direct and non-direct financial incentives as a recruitment and retention strategy.
- GPRA supports the review of the efficacy and outcomes of GRIPPS vs. RRIPS in both recruitment and retention of registrars and experienced GPs.

(iii) Whether the application of the current Australian Standard Geographical Classification – Remoteness Areas classification scheme ensures appropriate distribution of funds and delivers intended outcomes.

The feedback GPRA has received relating to the ASGC RA classifications suggests that this scheme is possibly ineffective and in certain areas counterproductive. Much has been written on this issue within the medical media. The RA classification means that many small rural towns are now classified the same as larger, better-served regional centres resulting in health professionals that are entitled to the same incentives despite vastly different working situations.

There are many examples where rural areas are losing registrars and GPs to regional areas with the same RA classification, or in the case of Tasmania and the Northern Territory losing registrars/GPs from rural or regional areas to 'city' areas. It is clearly inequitable that registrars choose to work in more regional towns over well-served regional centres when both share the same RA classification. The movement of experienced GPs also means a movement in the supervision and teaching capacity within the general practice environment in addition to the loss of clinical services. The reduction in supervision and training capacity effectively amplifies the workforce shortage in affected areas as the registrar workforce naturally follows their supervisors and teachers.

Whilst the ASGC – RA scheme would seem to be effective on a macro scale, the lack of distinction between essentially rural and urban environments (as a function of services) may be leading to unintended consequences, particularly in areas such as Tasmania. Some regional training providers of vocational GP training are introducing their own policies to ensure workforce distribution of their registrars in an effort to overcome the unintended effects of the RA classification. Unfortunately, these registrars 'forced' to go more rural are not eligible for any increased incentives.

**Recommendations:**

- GPRA strongly suggests a review of the RA classification system and the linkage of incentives to this.

(d) Any other related matters.

GPRA has concerns regarding the fairness and appropriateness of the ten-year moratorium. While many rural areas rely heavily on overseas-trained doctors for service provision, it is a 'bandaid' solution and its effectiveness in terms of retention seems to be limited. These doctors may not have had access to what would be considered the appropriate training for a local graduate, particularly if they are not or have not had the benefit of the vocational training in Australia (via the Australian General Practice Training Program). In combination with the possible language and cultural differences, this may result in these doctors becoming vulnerable in potentially isolated work and social settings. There are increasing concerns regarding the lack of appropriate supervision for overseas-trained doctors who do not have their full AMC accreditation receiving sub-standard supervision. Whilst the ten-year moratorium is effective in redistributing the overseas trained doctor workforce to rural areas, its overall utility as a long-term solution to rural workforce capacity is questionable with some practitioners affected by this seeing the experience as 'doing time' rather than a permanent solution.

**Recommendation:**

- GPRA supports the abolishment of the ten-year moratorium and a review as to improved methods to promote appropriate workforce distribution.

This submission to the Community Affairs Reference Committee has been authorised by:

**Dr Emily Farrell**  
Chair

**Amit Vohra**  
CEO

### **References**

1. Humphreys, J.J., M. Jones, J. Mara, P., Workforce retention in rural and remote Australia: determining the factors that influence length of practice. *Med J Aust*, 2002. 176: p. 472-476.
2. Dunbabin, J.S. and L. Levitt, Rural origin and rural medical exposure: their impact on the rural and remote medical workforce in Australia. *Rural Remote Health*, 2003. 3(1): p. 212.
3. Australian Medical Workforce Advisory Committee (2002). Career decision making by doctors in their postgraduate years: A literature review. AMWAC report 2002.1, Sydney
4. | World Health Organisation (2010), Increasing access to health workers in remote and rural areas through improved retention: Global policy recommendations. Geneva: World Health Organisation
5. | Rabinowitz, J. Diamond, Markham F & Paynter N (2001), Critical Factors for Designing Programs to Increase the Supply and Retention of Rural Primary Care Physicians, *JAMA* Vol. 286, No. 9. pp. 1041-1048
6. Stagg, P., J. Greenhill, and P.S. Worley, A new model to understand the career choice and practice location decisions of medical graduates. *Rural Remote Health*, 2009. 9(4): p. 1245.
7. Bayley, S.A., et al., Effects of compulsory rural vocational training for Australian general practitioners: a qualitative study. *Aust Health Rev*, 2011. 35(1): p. 81-5.
8. Humphreys, J., et al., A critical review of rural medical workforce retention in Australia. *Aust Health Rev*, 2001. 24(4): p. 91-102.
9. Rural Doctors Association of Australia, After Hours and Emergency Care, Rural Doctors of Association, Editor 2010.



# Safe Work Hours: A discussion paper

GENERAL PRACTICE REGISTRARS AUSTRALIA LIMITED



# Safe Work Hours: a discussion paper



<b>EXECUTIVE SUMMARY</b>	<b>2</b>
<b>INTRODUCTION</b>	<b>3</b>
<b>PURPOSE OF THE CONSULTATION DISCUSSION PAPER</b>	<b>4</b>
<b>STATEMENT OF GOODWILL</b>	<b>4</b>
<b>WHY DO WE NEED A SAFE WORK HOURS POLICY IN GENERAL PRACTICE TRAINING?</b>	<b>5</b>
THE SETTING	5
INDUSTRY STANDARDS	6
EFFECTS OF UNSAFE WORK HOURS	8
IMPACT ON PATIENTS	8
IMPACT ON DOCTORS	9
IMPACT ON TRAINING	10
<b>DISCUSSION</b>	<b>11</b>
<b>SUGGESTED POLICY DIRECTION BY GPRA</b>	<b>13</b>
<b>PRINCIPLES UNDERLYING THE SAFE WORK HOURS POLICY</b>	<b>13</b>
<b>DEVELOPMENT OF THE SAFE WORK HOURS POLICY</b>	<b>14</b>
CONSULTATION PROCESS	14
FEEDBACK MECHANISM	14
<b>REFERENCES</b>	<b>15</b>

# Safe Work Hours: a discussion paper



## Executive Summary

GPRRA is concerned regarding reports by some registrars that they are being expected to work unsafe hours. Registrars in rural and remote areas seem to be particularly at risk due to the challenge of providing 24 hour care in the setting of workforce shortages. By collaboratively developing guidelines regarding safe work hours in vocational general practice training, General Practice Registrars Australia (GPRRA) seeks to encourage a mutual attitude of goodwill between registrars, supervisors and practices. A whole of industry approach is needed to meet the challenge of providing safe work hours for registrars and experienced general practitioners (GPs) while providing comprehensive care in a high-quality training environment.

The most concerning reports are of registrars consulting in normal hours - often also managing hospital or emergency presentations during this time - being 'on call' over night (managing hospital patients and frequent emergency presentations of high acuity) and then continuing to consult the next day with minimal recovery time.

The quality of patient care needs to be safeguarded. Doctors' problem solving abilities and memory become impaired with prolonged working hours and those who are fatigued are unable to gauge their own level of impairment. Patient deaths have resulted from the action or inaction of fatigued doctors and there are potential legal implications due to fatigue and its sequelae.

Fatigue and sleep deprivation have short-term and long-term consequences for the health of the individual, and for family harmony and satisfaction. Fatigue also impacts on a registrar's ability to learn and participate fully in training. Exposure to new situations, patients and practices, inherent to the training program, puts added strain on a registrar. Recent studies suggest that expectations of fatigue-inducing work hours are dissuading registrars from working in rural and remote areas.

The opportunity to acquire procedural and or emergency skills is highly regarded by most registrars, and rural and remote training practices, in particular, provide unique and valuable learning and working environments. GPRRA believes registrars should have the opportunity to participate in the breadth of general practice, including on-call, after hours and hospital work in a safe, supported and sustainable manner. Registrars primarily seek transparency in work hour expectations and the fatigue mitigation strategies of their assigned practices.



# Safe Work Hours: a discussion paper



Currently a number of policies and standards from key organisations such as General Practice Education and Training (GPET), The Australian Medical Association (AMA), Royal Australian College of General Practitioners (RACGP) and Rural Doctors Association Australia (RDAA) recognise the importance of safe working hours, but there are no clear definitions or guidelines for how these may be implemented in practice.

Individuals will be affected to differing extents depending on the situation, past experiences, tolerance to sleep deprivation, type of service demand and other support. Registrars are at increased risk of workplace fatigue and need particular protection. GPRRA calls for a move away from the attitude that some registrars 'can't cut it', or that excessive work hours and fatigue is inevitable; instead seeking a whole of industry approach to identify a model of change for the better and for the benefit of all. The discussion paper will be circulated amongst key stakeholders for comment and feedback. A policy will be developed to address these issues in response to this feedback.

*They also encouraged me to remember that the rest of Australia would not consider my work hours safe or acceptable. I couldn't have pulled through without them [family and friends].* Female

30's

## Introduction

GPRRA is concerned regarding reports by some registrars that they are being expected to work unsafe hours. Fatigue and particularly workplace fatigue has consequences for patient care, quality of training and the health of the doctor. General practitioners (GPs) and especially registrars in rural and remote areas seem to be particularly at risk due to the challenges of providing comprehensive, 24-hour care to patients in a setting of workforce shortage. These conditions have an impact on rural recruitment and retention by deterring registrars from continuing to work in rural and remote areas. While the affects of fatigue are well known and some policies exist to try and manage the situation, unsafe work hours continue, arguably in a culture of 'toughening up'. A whole of industry approach is needed to combat this problem; providing safe working hours for registrars and experienced GPs while continuing to provide comprehensive patient care in a high quality training environment.

# Safe Work Hours: a discussion paper



## Purpose of the consultation discussion paper

This consultation discussion paper has been developed to provide background information and promote discussion about safe work hours in general practice and in particular safe work hours for those registrars in vocational general practice training. While GP registrars work in a variety of different settings during their training, this discussion paper will expressly concern both Royal Australian College of General Practitioners (RACGP) and Australian College of Rural and Remote Medicine (ACRRM) registrars working in the general practice setting.

The paper provides an overview of the issues surrounding the safe work hours in general practice and general practice training and discusses the current situation and the implications for registrars, established GPs and their practices, the patients and the community as a whole. In addition to the use of peer reviewed literature and official policy documents, illustrative de-identified comments by some concerned registrars will be used to illuminate important concepts.

GPR will undertake consultations with registrars, supervisors via the National General Practice Supervisors Association (NGPSA), General Practice Education and Training (GPET) the RACGP, ACRRM and other interested parties such as the Rural Doctors Association Australia (RDAA) to ensure that the policy meets the needs of the broader general practice community while still safeguarding the training, health and personal needs of registrars.

## Statement of Goodwill

By collaboratively developing guidelines regarding safe work hours in vocational general practice training, GPR seeks to encourage a mutual attitude of goodwill between registrars, supervisors and practices. After hours work is integral to general practice in Australia and all reasonable efforts should be made to work and learn together in a spirit of mutual trust and goodwill to provide high quality after hours care to the Australian public, while safeguarding the training, health and personal needs of the registrar and other doctors in the training practice.

# Safe Work Hours: a discussion paper



## Why do we need a safe work hours policy in general practice training?

### The setting

GPRA is concerned about reports from registrars in the AGPT program about what they consider unsafe work hours adversely affecting their health and wellbeing, relationships, education experiences and the health of their patients. A number of registrars also report being deterred from continuing to work in these settings. While the Australian Medical Association (AMA) provides a resource for measuring risk of fatigue in general practice[1], there is currently no consensus as to what constitutes safe or unsafe work hours in the general practice setting, nor any measure as to the magnitude of this problem as experienced by GPs and or registrars in the Australian (or even world-wide) context.

Consulting in normal hours while possibly also managing hospital or emergency presentations, being 'on call' over night (in some situations managing hospital patients and frequent emergency presentations of high acuity with minimal back up) and then continuing to see a full load the next day without break seems to be the most concerning situation experienced by registrars. Being on call and involved in emergency work is a known stressor for GPs; with these GPs having higher rates of stress and stress related illnesses than those not working in this capacity [2] [3].

*I work 36 hours in the clinic and 24 hours in the hospital for my on call every week. When you are on call for the hospital, there are not enough nurses in emergency and the supervisors are so stretched themselves. Some nights you have an AMI in the first cubicle, an anaphylaxis next to that and a flat kid in the third and only one nurse. And there are four more patients waiting outside as well. Male early 40's*

*I raised a concern I had with the 24 hours shift for the hospital. This was 'back to back with consulting in the clinic. Male 30s significant ED experience*

The culture of expectation of long work hours as a 'right of passage' or 'toughening up' process, has been well described in the hospital system [4]. There is evidence from recent qualitative studies [5] [6] that this culture exists in the Australian general practice training environment also. Registrars reporting issues of unsafe work hours to GPRA also strongly expressed their frustration at this culture and lack of support or understanding by the practices and sometimes by their RTPs.



# Safe Work Hours: a discussion paper

*I called the stand-in supervisor and told him I found the length of time on call exhausting because of the amount of work and that I was concerned that I'd make a serious mistake. The stand-in supervisor though I was trying to get out of being on call and told me it was my responsibility to the other GPs and my patients to provide 24 hour care to the town. But at what price? The RTP agreed my position wasn't a good one, but didn't give me any practical help. Female 30's*

*I have epilepsy and knew that despite anti-epileptics the lack of sleep would lower my seizure threshold, placing me and my patients at risk. I was taken aback that the practice didn't share my concern. Male 30's significant ED experience*

While the work hour expectations in these practices can put unsafe demands on registrars and experienced GPs alike, these practices do provide unique and valuable learning environments. The opportunity to learn in this environment (procedural skills, emergency, anaesthetics etc) was valued by the registrars who reported unsafe work hours, but they felt that this experience - their ability to learn and or provide high quality care to their patients - was compromised by the work hours. Any policy direction resulting from the discussion paper would need to safeguard the unique and valuable learning and teaching environment these practices can provide.

*I wanted to work in [X] because it would be an opportunity to incorporate my emergency skills into general practice. The supervisors were energetic, inspirational and motivated teachers and I look forward to working with them. Male 30s significant ED experience*

Long work hours and the potential sequelae can affect all GPs. Registrars, both RACGP and ACRRM pathway registrars in GP placements, are particularly vulnerable. This would seem to affect those in rural and remote area more than urban based GPs due to the increased likelihood of after hours care being provided by the patient's own GP [3]. This is also recognised by the RACGP in their Occupational Health and Safety statement within the 4<sup>th</sup> Edition of the Standards (4.1.2), noting that fatigue and related factors, also known as human factors, are associated with harm to patients and that these are particularly of note in areas of workforce shortage[7].

## Industry Standards

There are a number of relevant standards, statements and policies from appropriate industry bodies such as GPRRA, GPET, RDAA, RACGP and ACRRM. While these statements provide some support to the provision of safe work hours for general practice registrars, none deals with this

# Safe Work Hours: a discussion paper

issue explicitly or in sufficient detail to provide guidance or protection for registrars being expected to work what they feel are unsafe hours.

## ***National Minimum Terms and Conditions***

The National Minimum Terms and Conditions is a document mediated by the AMA and agreed upon by GPRA on behalf of registrars and the NGPSA on behalf of supervisors. This document, as the title suggests, sets out the minimum terms and conditions to be afforded to a registrar in their first 12 months full-time-equivalent (FTE) of training in the general practice setting; it covers such issues as pay, work hours and education release time. Though a 38-hour working week is expressly referred to as a full-time load, there are no statements regarding the maximum consecutive or total hours a registrar can or should work. A recent GPRA survey found that 82% of rural registrars and 43% of urban based registrars were working in excess of the 38 hour per week nominal full time load [8]. The document does however protect the registrar from taking on a greater load of after hours work than the others in their practice and confirms the need for accessible supervision after hours.

## ***RACGP***

Provision of 24-hour care is considered to be 'part' of general practice and is upheld in the RACGP Standards. The provision of this care, however, can be in a variety of modes. Registrars are also expected to "participate fully in the breadth of general practice including after hours and off site care" [9]. The learning and personal needs of the registrar however are recognised by the statement that "the service demands of the training post must not be excessive and the structure of duty hours and 'on-call' schedules consider the needs of patients, continuity of care and the educational needs of the registrar". The companion to the Training and Training Post Standards further clarify this to mean that service demands should not impinge on registrar education and registrars should not be seeing more patients than other GPs in the practice [10].

## ***ACRRM standards***

There do not appear to be any ACRRM guidelines as to appropriate work hours for registrars nor any comment as to safe or unsafe work hours.

## ***AMA***

The AMA has two statements particularly relevant to this issue. The 'Safe working hours – doctors in training a best practice issue' by Andrew Lewis [11] addresses the issues generally for doctors in

# Safe Work Hours: a discussion paper

training, though from a hospital based trainee point of view and 'Managing the Risks of Fatigue' [1] provides a general practice based tool for measuring one's risk of fatigue.

## **GPET**

In the Registrar Guide 2011 the AMA safe work hours documents are expressly referred to and registrars are directed to this information[12]. This can be taken as GPET's tacit support and approval for these policies.

## **Rural Doctors Association of Australia**

The RDAA currently advocates for a not more than one in four on call roster [13] and in a recent statement at the GPRA Breathing New Life into General Practice Conference Dr Paul Mara (RDAA President) called for no more than one in four on call, time off the day after a night on call and increased holiday allowances to compensate for weekends on call [14].

## **Effects of Unsafe Work Hours**

Prolonged working hours and disturbed sleep can be detrimental to doctors and their patients. Compelling evidence for this exists from both the medical and non-medical fields. The physical, emotional and educational impacts are outlined below. These issues can combine to have an impact on retention and recruitment of general practitioners to rural and remote areas.

### **Impact on patients**

Those who are fatigued are less able to think clearly and are unable to gauge their own level of impairment [15] and this has obvious implications for patients. Memory is impaired as are doctors' problem solving abilities when they are fatigued [16]. Decreased vigilance, and resulting medical errors both diagnostic and procedural have been observed [17-19]. Short cuts are common in times of fatigue and stress [20] and there are significantly increased prescribing errors after a night on call [21]. Ultimately fatigue and lack of sleep in medical officers has been linked to patient deaths [17, 22, 23]. Issues of fatigue and the resultant sequelae have potential legal implications. Fatigue-related medical errors have resulted in legal action and fatigue is not considered a defense for negligence if an action is brought by a patient against a doctor [22].

*I noticed I was starting to 'hit the wall' around midnight when on call and make little mistakes of being more inefficient the next day.*

*I remember being awakened early one morning to manage a woman who was seizing, who may have had a head injury. I had only gotten to sleep at 3am because of the number of cases the*

# Safe Work Hours: a discussion paper

*night before. On the way down the stairs I realised I couldn't think of anything, anything at all to do for her because I was so tired.*

Female 30's

## Impact on doctors

Fatigue and sleep deprivation have short-term and long-term consequences for the health of the individual. Staying awake for 17 hours has the same affect on performance as having a blood alcohol context of 0.05% and 21 hours awake is equivalent to 0.1% [15]. Working a period great than nine consecutive hours, has been linked exponentially to increased workplace accidents [24]. Fatigued doctors are at increased risk of accidents both at work, such as sharps injuries [17] and outside of work including traffic accidents [17, 18].

*I stayed at the hospital overnight when on call because I didn't want to risk an accident driving the six minutes to my home. I know several doctors who have crashed or been injured after falling asleep at the wheel because of work.*

Female 30's

Lack of sleep has been associated with longer-term physical affects such as heart disease, hypertension, stomach disorders, lower fertility and mental illness [25]. Even in the short-term, fatigue and long work hours (especially if these are unsupervised) are linked to anxiety [16] and eventually significant workplace stress resulting in irritability with colleagues and patients, increased alcohol use, reduced standards of care of patients and short cuts [20]. If left untreated, doctors are at risk of burnout, depression, anxiety, alcohol and drug use [26]. Doctors' families are not immune from the stresses of fatigue and on call with studies documenting increased family disharmony and dissatisfaction with these working conditions [27, 28].

*It was my loved ones – family and friends – who pitched in, they cooked meals in bulk, dropped off lunch when I forgot to take it, made as few demands on me as possible and generally put up with a person who was easily snappy, neglecting of them and too tired to meaningfully engage.*

Female 30's

Increased stress is causative for poor sleep quality [29] and so an unhelpful cycle of poor sleep and fatigue leading to stress and increased stress impacting on quality of sleep. Overnight and on call work are stressors for GPs, independent of fatigue [2] and can expose doctors to increased occupational violence [5].

# Safe Work Hours: a discussion paper

## Impact on training

Unfavorable work schedules can also impact on the ability of the registrar to engage fully in training. Not only can fatigue impair memory and recall and problem solving abilities [16], fatigue and sleep loss are known to have a direct impact on one's ability to learn by inhibiting the formation of new memories [30, 31]. Stress at work (of which prolonged work hours and fatigue are known to be a cause of) can lead to irritability towards colleagues and patients [20], which can in turn negatively impact on the registrar's interactions with their patients and supervisors. Control of work hours and less out of hours work is highly regarded by junior doctors when choosing a career path [32]. Recent studies would suggest that expectations of fatigue-inducing work hours are dissuading registrars from working in rural and remote areas [6].

*I wasn't learning very much emergency medicine or in a position to because the fact of it was I was too tired to learn and so I worked off what I knew before I got there. Female 30's*

*You need to have the skills before you get to a town like this and have experience working alone or else you can't learn when you are here. Male 40's*

*I see other new registrars come and leave and they've been scarred forever because their first experience is a bad one and they go back to the city practices straight away. Male 40's*

Both GPs and doctors in training have been identified at risk of workplace fatigue and stress: general practice registrars are likely to be at particular risk due to the cumulative affects of their situation. In addition to the affects of fatigue and workplace stress felt by all GPs working extended hours, registrars are also in a demanding and steep learning curve, trying to establish working relationships with new medical and nursing colleagues and new patients, trying to understand the complexities of a new working environment and, in comparison to more senior colleagues, still trying to learn how to balance working, home and personal life [11]. The effects of fatigue and workplace stress are known to lessen the more experienced a doctor becomes in a role [33].

*If you are a GP registrar here, you feel like the other GPs think, 'Ah, you are here, you can come and help in the work'. They don't realise you are not fully trained; you can't do everything like them. Male 30's overseas trained*



# Safe Work Hours: a discussion paper



*There was also new medical software, an unfamiliar system of referrals and so many new protocols to remember: a lot of things to adjust to at once. Female 30's*

*I can see why most of the GPTIs get so stressed. I also have the skills: something that takes me twenty minutes takes them three hours to do. Male early 40s*

Compared with hospital-based doctors in training, GP registrars are more likely to be working alone either as the doctor on call for their practice, doing home visits or seeing patients in the practice or being the only doctor in a small country hospital overnight. Registrars working in rural and remote areas are most likely to be exposed to this style of practice. This lack of on-site supervision and support and lack of familiarity with the town, the patients and the system has been shown by Magin et al [5] to be a significant stressor for registrars in rural placements and in some instances enough to prompt a decision to quit the training program.

## Discussion

While the importance of safe work hours is recognised within the GP standards, what this means in practice is not clearly defined and to a certain extent differs for person to person and situation to situation depending on an individual's past experience, their tolerance to sleep deprivation, the type of service demand and other support given. This of course makes it hard to formulate a one size fits all policy. More than just the impact of long work hours, the problem needs to be seen in context of general quality of sleep and overall work hours. It is recognised that sleep loss in the clinical setting is usually sleep deprivation superimposed on chronic sleep loss [23]. Quality of sleep [33] and when hours are worked also impact on fatigue with night work and schedule instability being independently associated with fatigue for doctors [18]. Anxiety about the on call has a significant impact on quality of sleep and can result in fatigue, even if the workload is minimal [6].

The AMA provides a statement on safe work hours for doctors in training [34] but the document is focused on practical solutions for hospital-based systems. The AMA statement on managing fatigue in the general practice setting is more relevant to the context and provides a useful tool for practices, supervisors, registrars and RTPs to measure an individual's fatigue risk and for practices to examine work patterns as a whole. While it also appreciates that workplace fatigue needs to be seen in the broader context of the whole week, not just a particular day with long

# Safe Work Hours: a discussion paper

work hours, this document is aimed at experienced practicing GPs and does not appreciate the particularly vulnerable situation of registrars.

While some practices and communities are reportedly trying to tackle this issue with such models as deputising services, co-operatives, telephone triage and advice services, there is little evidence to suggest that one model offers significant benefits over another [35]; thus reinforcing that a one-size fits all model is unlikely to be the answer. Some registrars report that they have individually initiated coping strategies such as cancelling patients the morning after a busy on call, or sharing a 24-hour on call with a colleague. Unfortunately other registrars do not feel empowered to make these changes and leave the practice as soon as possible; while others have had to get support from such organisations as GPRRA to influence change.

*When on call, if I got a call from the hospital after midnight I would ring the next day and cancel my morning appointments. Male 30's significant ED experience*

*After GPRRA became involved my weekly 24 hour shift was broken into two 12 hours blocks on different days of the week, shared with another GP in the practice. This was more sustainable..... One GP – who had worked in the town for 20 years – later thanked me for making the change. He said he found the 12 hours shifts 'a lot more civilised' and hoped to find someone else to share 12 hours shifts with after I'd gone. Female 30's*

*I'd just call and say, 'This is when I am coming in' and that is that. Sometimes there is conflict because of this. Male early 40's*

*You don't know who will tell who and when you may need them to help you. So we just try to get along with everybody. Male 30's overseas trained*

*I knew I couldn't raise working fewer hours at the hospital or modifying the roster with them: it would have caused so much resentment with the other GPs and I didn't want to lose that relationship with them. With much regret, I have returned to [state capital] and am working here now. Male 30s significant ED experience*

# Safe Work Hours: a discussion paper



## Suggested Policy Direction by GPRRA

GPRRA supports the principle that registrars should be involved in all facets of general practice as part of their training. GPRRA also support the principle that registrars' health or education should not be adversely affected by on call or other work hour expectations. GPRRA also recognises that the unique and valuable learning experiences that can be provided by practices personally providing 24-hour care to their patients need to be available to registrars who seek this. The affects of fatigue and after hours work on doctors, patients, education and in some cases rural workforce recruitment and retention are real. As are the potential legal implications for individual doctors or possibly even practices under workplace health and safety legislations. As a profession we also have an obligation to strive to deliver the best quality care to our patients and a fatigue affected doctor is unlikely to be best placed to do this.

Individuals will be affected to differing extents depending on the situation, past experiences, tolerance to sleep deprivation, type of service demand and other support given. While potentially affecting all GPs, there needs to be an understanding that registrars are at increased risk of workplace fatigue compared to their more senior colleagues for similar hours and patient loads. These registrars are also in an unequal power relationship with their employers and have less scope for negotiation of appropriate work hours for themselves. While the individual circumstances of a registrar should be taken in to account and should not be used to penalise a registrar in any way; registrars enrolled in the AGPT and working in general practice as part of their training need to be in a position to fully engage in that training and should not be engaging in work outside of the AGPT if it impinges on their ability to do so.

GPRRA calls for a move away from the attitude that these registrars 'can't cut it' and rather a whole of industry approach is needed to identify a model of change for the better and for the benefit of all. This is likely to take time but registrars need to be protected in the interval. Registrars primarily seek transparency in the work hour expectation and fatigue mitigation strategies of their assigned practices.

## Principles underlying the safe work hours policy

Any policy adopted within general practice training in Australia would need to adhere to the principles of fairness, equity and most of all safety. While these principles should protect the interests of all parties including registrars, supervisors, RTPs and the community/patients, it is

# Safe Work Hours: a discussion paper



important to remember that registrars are part of the training program and are in an unequal power relationship with their supervisors and require extra protection as such.

## Development of the safe work hours policy

### Consultation process

This discussion paper will be circulated amongst key stakeholders in general practice training. The GPR Advisory Council (AC) will provide the main input for the voice of registrars, though all interested registrars will be given the opportunity to comment. GPET, RACGP, ACRRM, NGPSA, RDAA, RTPs and other stakeholders will be forwarded the documents for comment. It is hoped that these electronic communications and face-to-face interactions will continue to progress the issue of safe work hours for all GPs and lead to a collaborative approach with all key stakeholders working together to safe-guard registrars, and experienced GPs while still providing care to the community. It is hoped that GPET will be particularly supportive of this initiative with their regulatory ability. If a whole of industry approach is not possible at this time the discussion and consultation process will inform GPR to develop a draft policy document on safe work hours for registrars which will again be circulated amongst stakeholders for consultation.

### Feedback mechanism

Individuals or groups wishing to comment or engage in discussion regarding the GPR safe work hours discussion paper, a policy on safe work hours for GP registrars or more generally on safe work hours in primary care, are invited to contact either Dr Emily Farrell, Policy Director GPR or Mr Amit Vohra, Managing Director GPR. If an anonymous submission or comment would be more appropriate we invite you to do so via a survey monkey link.

<https://www.surveymonkey.com/s/safeworkhours>

Dr Emily Farrell  
Policy Director GPR

Mr Amit Vohra  
Managing Director GPR

# Safe Work Hours: a discussion paper



## References

1. Australian Medical Association, *Managing the Risks of Fatigue*, Australian Medical Association.
2. Iliffe, S. and U. Haug, *Out of hours work in general practice*. *BMJ*, 1991. **302**(6792): p. 1584-6.
3. Dua, J., *Level of occupational stress in male and female rural general practitioners*. *Australian Journal of Rural Health*, 1997. **5**: p. 97-102.
4. Holmes, G., *Junior doctors' working hours: an unhealthy tradition?* *Med J Aust*, 1998. **168**(12): p. 587-8.
5. Magin, P., et al., *GP rural registrars' experiences of occupational violence: a qualitative study*. *Aust J Rural Health*, 2010. **18**(6): p. 249-50.
6. Bayley, S.A., et al., *Effects of compulsory rural vocational training for Australian general practitioners: a qualitative study*. *Aust Health Rev*, 2011. **35**(1): p. 81-5.
7. Royal Australian College of General Practitioners, *RACGP Standards for general practice 4th edition*, in *Criterion 4.1.2 Occupational health and safety* 2010, Royal Australian College of General Practitioners: Melbourne.
8. General Practice Registrars Australia, *Gpra's Terms and Conditions Benchmarking Survey Report 2010*, 2010, General Practice Registrars Australia Limited: Melbourne.
9. Royal Australian College of General Practitioners, *Standards for General Practice Education and Training*, in *Trainers and Training Posts* 2005, Royal Australian College of General Practitioners: Melbourne.
10. Royal Australian College of General Practitioners, *Companion for Standards for General Practice Education and Training*, in *Trainers and Training Posts Version 22005*, Royal Australian College of General Practitioners: Melbourne.
11. Lewis, A., *Safe working hours--doctors in training a best practice issue*. *Aust Health Rev*, 2002. **25**(6): p. 100-8.
12. General Practice Education and Training, *Guide for Registrars*, G.P.E.a. Training, Editor 2011, General Practice Education and Training: Canberra.
13. Rural Doctors Association of Australia, *After Hours and Emergency Care*, Rural Doctors of Association, Editor 2010.
14. Mara, P. *President's Forum*. in *Breathing New Life into General Practice*. 2011. Parliament House Canberra.
15. QLD Government. *Fatigue: work performance*. Workplace Health and Safety 2009 24/11/10 [cited 2010 7/3/11]; Available from: <http://www.deir.qld.gov.au/workplace/subjects/fatigue/effects/performance/index.htm>.
16. Howard, S.K., et al., *Fatigue in anesthesia: implications and strategies for patient and provider safety*. *Anesthesiology*, 2002. **97**(5): p. 1281-94.
17. Lockley, S.W., et al., *Effects of health care provider work hours and sleep deprivation on safety and performance*. *Jt Comm J Qual Patient Saf*, 2007. **33**(11 Suppl): p. 7-18.
18. Gander, P., et al., *Work patterns and fatigue-related risk among junior doctors*. *Occup Environ Med*, 2007. **64**(11): p. 733-8.
19. Landrigan, C.P., et al., *Effect of reducing interns' work hours on serious medical errors in intensive care units*. *N Engl J Med*, 2004. **351**(18): p. 1838-48.
20. Taylor, C., et al., *Impact of hospital consultants' poor mental health on patient care*. *Br J Psychiatry*, 2007. **190**: p. 268-9.
21. Tully, M.P., et al., *The causes of and factors associated with prescribing errors in hospital inpatients: a systematic review*. *Drug Saf*, 2009. **32**(10): p. 819-36.

# Safe Work Hours: a discussion paper



22. Nocera, A. and D.S. Khursandi, *Doctors' working hours: can the medical profession afford to let the courts decide what is reasonable?* Med J Aust, 1998. **168**(12): p. 616-8.
23. Kramer, M., *Sleep loss in resident physicians: the cause of medical errors?* Front Neurol, 2010. **1**: p. 128.
24. Hanecke, K.T., S. Nachreiner, F. Grzech-Sukalo, H., *Accident risk as a function of hour at work and time of day as determined from accident data and exposure models for the German working population/*. Scandinavian Journal of Work and Environmental Health, 1998. **24**(supplement 3): p. 43-48.
25. QLD Government. *Health effects of fatigue*. 2009 24/11/10 [cited 2010 7/3/11]; Available from: <http://www.deir.qld.gov.au/workplace/subjects/fatigue/effects/health/index.htm>.
26. Ghodse, H., *Doctors and Their Health - who heals the healer?*, in *Doctors and Their Health*, J.M.S.J. Ghodes, P., Editor 2000, Reed Healthcare Limited: Sutton.
27. O'Brien, N.A., P. McLoughlin, M. Byrne, M. Murphy, AW., *A comparative study on attitudes, towards the provision of out-of-hours care, of spouses of general practitioners participating or not in a rural out-of-hours co-op*. Irish Medical Journal, 2005. **98**(9): p. 267-269.
28. Cuddy, N.K., AM. Murphy, AW., *Rural general practitioners' experiences of the provision of out-of-hours care: a qualitative study*. British Journal of General Practice, 2001. **51**(465): p. 286-289.
29. Vela-Bueno, A.M.-J., B. Rodriguez-Munoz, A. Olavarrieta-Bernardino, A. Fernandez-Mendoza, J. De la Cruz-Troca, J. Bixler, E. Vgontzas, A., *Insomnia and sleep quality among primary care physicians with low and high burnout levels*. Journal of Psychosomatic Research, 2008. **64**: p. 435-442.
30. Huber, R., *Memory formation: sleep enough before learning*. Curr Biol, 2007. **17**(10): p. R367-8.
31. Yoo, S.S., et al., *A deficit in the ability to form new human memories without sleep*. Nat Neurosci, 2007. **10**(3): p. 385-92.
32. Sivey, P.S., A. Witt, J. Joyce, C and Humphreys, J., *Why Junior Doctors Don't Want to Become General Practitioners: A Discrete Choice Experiment from the MABEL Longitudinal Study of Doctor*, in *Melbourne Institute Working Paper Series 2010*, Melbourne University Faculty of Business and Economics: Melbourne.
33. Stucky, E.R., et al., *Intern to attending: assessing stress among physicians*. Acad Med, 2009. **84**(2): p. 251-7.
34. Australian Medical Association, *National Code of Practice - Hours of Work, Shiftwork and Rostering for Hospital Doctors*, 2005, Australian Medical Association: Melbourne.
35. Leibowitz, R., S. Day, and D. Dunt, *A systematic review of the effect of different models of after-hours primary medical care services on clinical outcome, medical workload, and patient and GP satisfaction*. Fam Pract, 2003. **20**(3): p. 311-7.