



AMA

SAFE HOURS = SAFE PATIENTS

AMA SAFE HOURS AUDIT 2006

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Introduction

In May 2006, the AMA conducted a nationwide survey of hospital doctors' working hours to assess the fatigue risks of their current working arrangements. The on-line survey collected data on the hours of work, on-call hours, non-work hours, and sleep time of more than 550 doctors during the audit week. AMA members and non-members were able to participate in the survey.

This data was analysed against an established risk assessment model developed by the AMA in 2000 as part of its Safe Hours campaign. Survey participants are categorised into three different risk levels – lower risk, significant risk, and higher risk. In determining the level of risk, the model takes into account factors such as total weekly hours, the amount of night work, the length of shifts, the extent of on-call commitments, access to breaks, and the long term work pattern.

In 2001, the AMA conducted a similar survey, but it focussed only on junior doctors. The 2006 survey covers **all** doctors employed in public hospitals.

This paper reports on the findings of the 2006 survey, which confirm that the majority of hospital doctors continue to have working hours and work patterns that pose unsafe risks of fatigue.

While many hospitals and health departments claim to have taken measures to review rostering arrangements, it is clear that much more needs to be done to minimise the risks of doctor fatigue and performance impairment.

Summary

The AMA survey reveals that the hours and patterns of work for 62 per cent of hospital doctors fall into significant risk and higher risk categories.

The most stressed discipline is surgery, where 85 per cent of doctors fall into the significant risk and higher risk categories.

There are minor improvements over the 2001 survey results, where 78 per cent of respondents fell into the significant risk and higher risk categories.

Some other indicators show signs of improvement. For example, for doctors in the higher risk category the longest continuous period of work fell from 63 hours to 39 hours.

Doctors had more full days off work during the audit week and more opportunities for meal breaks when working.

However, the term “improvement” is probably a little too optimistic. In the main, some extremes have been moderated.

In the AMA’s view, shifts of 39 hours are no more acceptable than 63-hour shifts.

Even doctors in the lower risk category are working shifts of up to 18 hours, while the average longest periods of work at the significant risk and higher risk levels are the same or worse than before.

The average of total hours worked in the 2006 audit week was the same as in 2001. However, the longest hours worked by individuals during the audit week actually went up - to 91 (from 86) and 113 (from 106) for the significant risk and higher risk categories respectively. This indicates that the riskiest work patterns are still commonplace.

In any other industry or profession, these ‘improved’ figures would be cause for deep concern and immediate remedial action.

We now have awareness and recognition that the old culture of onerous hours has to change for the good of doctors and their patients. Translating this into practice remains a challenge.

The AMA will continue to take up the challenge of safe hours for doctors as a key patient safety issue at every opportunity and at Federal and State levels.

Detailed tables of the 2006 audit results are set out later in this report.

Background

For many years, there has been a tradition of onerous working hours in the medical profession. It was accepted and expected that doctors would work extended shifts and demanding on-call rosters, while always being able to apply their professional knowledge and skills to the highest standard.

Some in the profession believed that rigorous training systems for doctors ensured that they could continue to function effectively through 24 hour shifts, continuous on-call rosters, little sleep, and short breaks between episodes of work.

Little effort had been made to study the effects of punishing work schedules on the well being of doctors or the patients in their care.

In the 1990s, many doctors, along with people interested in safety and quality, began questioning the practice.

The AMA launched its Safe Hours campaign in the mid-1990s. It commissioned or gathered research into the material available internationally on the subject, the actual working hours of junior doctors, systems of work, and the effect of fatigue on learning and performance.

AMA National Code of Practice

In 1999, after a lengthy consultation process supported by the Federal Government, the AMA's *National Code of Practice - Hours of Work, Shiftwork and Rostering for Hospital Doctors* was issued. It is available on the AMA website at:

[http://www.ama.com.au/web.nsf/doc/WEEN-6NJBAY/\\$file/National_code_of_practice.pdf](http://www.ama.com.au/web.nsf/doc/WEEN-6NJBAY/$file/National_code_of_practice.pdf)

The Code does not contain absolute, enforceable limits on single elements such as the maximum length of a safe shift or the break required between episodes of work because the level of fatigue and the consequent effect on safety and work performance are more complicated than that, being the product of a range of factors.

Those factors are identified in the Code, which contains a *Risk Assessment Guide* and a *Risk Assessment Checklist* to help assess the risk level of an individual's working hours. Thus the Code provides the tools to identify unsafe working hours and reduce the associated risk levels.

The AMA Code now stands as the accepted standard for safe working hours for hospital doctors in Australia. It has been referenced by standards organisations such as the Australian Council for Safety and Quality in Health Care, the Australian Council on Healthcare Standards, and State Postgraduate Medical Councils.

Risk Assessment

In 2000, the AMA further developed from the Code a model that enabled an individual's working week to be assessed against the identified risk factors and reduced it to a numerical score, which could be set against a risk rating scale.

The AMA conducted a national audit of junior doctors' working hours using that model and published a report on the results in 2001. That report also included material on the effects of fatigue on performance. It is available on the AMA website at:

[http://www.ama.com.au/web.nsf/doc/SHED-5G3C2R/\\$file/wplace14_ve_shp%20risk%20assess%20audit%20report.pdf](http://www.ama.com.au/web.nsf/doc/SHED-5G3C2R/$file/wplace14_ve_shp%20risk%20assess%20audit%20report.pdf)

The 2001 survey found that 78 per cent of respondents fell into the significant risk or higher risk levels during the audit period. Total hours for some higher risk doctors exceeded 100 per week, with one doctor reporting a period of 63 hours of continuous hospital duty.

The 24 per cent of doctors in the higher risk category averaged 80 hours during the audit week, with 81 per cent of them not having a single full day free of work in that week.

The report also drew on studies that demonstrated, in a measured series of set tasks, the performance impairment of an individual after 18 hours of sustained wakefulness is equivalent to that of a person with a blood alcohol concentration greater than 0.05 per cent.

From that it could be inferred that the fatigue experienced by doctors because of the unsafe work schedules imposed on them by hospital employers could, at times, not only threaten their personal well-being but also impact on the quality and safety of the medical care provided to patients.

It was clear in 2001 that much remained to be done to tackle the entrenched culture of unsafe working hours. Not a lot has changed.

Overseas Experience

A 2004 report in the New England Journal of Medicine¹ showed that interns make substantially more serious medical errors when rostered for frequent shifts exceeding 24 hours.

The report concluded that interns working on these shifts made 35.9 per cent more serious medical errors than they did when working shorter shifts.

In 2005, the New England Journal of Medicine² also published a paper looking at the relationship between the risks of motor vehicle crashes and extended work shifts among interns in the United States. Researchers found that:

- The odds of an intern being involved in a motor vehicle crash after working an extended shift were more than double that for interns working non-extended shifts
- Near-miss accidents were more than five times more likely to occur after an extended work shift as they were after a non-extended shift
- In the months that interns worked five or more extended shifts, they were up to almost four times more likely to fall asleep while driving or stopped in traffic

In 2004, the Royal College of Physicians in the UK looked at the impact of night shift arrangements. The eight-week study³ examined specialist registrars working 13-hour night shifts over seven consecutive nights, with the results highlighting that:

- Participants reported excessive fatigue or tiredness during their shift on just over 50 per cent of shifts
- 65 per cent of participants felt that working an extended pattern of night shifts affected the quality of care provided to patients

¹ *Effect of Reducing Interns' Work Hours on Serious Medical Errors in Intensive Care Units* – New England Journal of Medicine Vol 351 No 18, October 28, 2004 pages 1838 - 1848

² *Extended Work Shifts and the Risk of Motor Vehicle Crashes among Interns* – New England Journal of Medicine Vol 352 No 2 January 13, 2005 pages 125 - 134

³ *Working the Night Shift An audit of the experiences and views of specialist registrars working a 13-hour night shift over 7 consecutive nights* - Nicholas Horrocks BSc and Roy Pounder MD DSc (Med) FRCP, Royal College of Physicians

- 74 per cent of participants felt that care in the hospital at night was ‘worse’ or ‘much worse’ than available during the day
- According to several different measures, participants were at their lowest ebb on nights four and five in the shift cycle

A 2001 study in New Zealand⁴ reported that 86 per cent of anaesthetists reported making a medical error during their career as a result of fatigue.

In 2003, the Australian Council for Safety and Quality in Health Care published a ‘Safe Staffing’ Discussion Paper⁵ that brought together much of the available overseas evidence on the risks of fatigue. This paper not only dealt with the health sector, but other sectors of the economy such as the airline industry.

Clearly, it is time for Australia to review its own efforts. The AMA’s 2006 Safe Hours audit is part of that review process.

AMA 2006 Safe Hours Audit

The AMA’s risk assessment instrument has been further developed into an on-line tool. This enables doctors to input full details of a working week and receive an immediate risk rating.

Using this tool, the AMA conducted a nationwide audit of hospital doctors’ working hours.

This report covers risk assessment data collected from hospital doctors throughout Australia from the audit week of 8-14 May 2006. An invitation to complete the on-line form was forwarded to doctors by e-mail and posters were put up in hospitals. State AMAs also publicised the audit week.

Table 1 sets out the broad characteristics of the respondents. A total of 573 doctors completed usable risk assessments, of which 39 per cent were Interns or Resident Medical Officers (RMOs), 53 per cent Registrars and eight per cent were Consultants or Career Medical Officers (CMOs).

⁴*Errors Medicine and the Law* - Merry, A. and Smith, M. 2001, Cambridge University Press

⁵*Safe Staffing: Discussion Paper* - Australian Council for Safety and Quality in Health Care, July 2003

TABLE 1 - Respondents by Classification

	Number	%	% of Higher Risk Category
Intern/RMO	225	39%	28%
Registrars	303	53%	64%
CMO/Consultant	45	8%	8%
TOTAL	573	100%	100%

TABLE 2 - Respondents by Clinical Discipline

	Number	Percentage
Medicine/Physicians	283	49%
Surgery	73	13%
Emergency Medicine	52	9%
Obstetrics and Gynaecology	57	10%
Anaesthetics	25	4%
Other	83	15%
TOTAL	573	100%

TABLE 3 - Respondents by Classification and Risk Category

Risk Category	All Doctors	Intern/RMO	Registrars	CMO/Consultants
Lower	38%	39%	38%	33%
Significant	45%	48%	42%	49%
Higher	17%	13%	20%	18%
TOTAL	100%	100%	100%	100%

Table 3 indicates a general improvement in risk levels across the board. For all classifications, the proportion of doctors in the higher risk and significant risk categories fell against the 2001 report (from 78 per cent), with a corresponding rise in the lower risk category (from 22 per cent). While any improvement is good to see, the fact is that 62 per cent of hospital doctors are still in the significant risk and higher risk categories. Also, it is evident from other tables below that the overall result is not consistent across locations or disciplines, with some indicators actually going against the trend of improvement.

TABLE 4 - Clinical Discipline by Risk Category

Clinical discipline	Lower	Significant	Higher	Total
Surgery	15%	49%	36%	100%
Medicine/Physicians	36%	48%	16%	100%
Emergency Medicine	71%	27%	2%	100%
Obstetrics & Gynaecology	28%	51%	21%	100%
Anaesthetics	60%	36%	4%	100%
Other	43%	44%	12%	100%
All Respondents	38%	45%	17%	100%

Table 4 indicates substantial variation in the risk profile between clinical disciplines.

Emergency Medicine has improved markedly since 2001, when 59 per cent were in the significant risk and higher risk categories (now 29 per cent). Medicine/Physicians has also achieved an improved risk profile, with 36 per cent in the lower risk category (against 14 per cent in 2001), though this still leaves the majority at significant risk or higher risk. While still having a daunting risk profile, Obstetrics & Gynaecology has achieved a significant reduction in the higher risk category - down from 41 per cent in 2001, though it is still above the average.

With the exception of Surgery, which has the same risk profile as 2001, all medical disciplines have achieved a reduction in the higher risk category. As the AMA’s first aim was to identify and eliminate the highest risk work practices, this trend is encouraging. However, it is evident from the 2006 audit figures that there is still room for significant improvement.

The results in the Surgical category come as something of a surprise. In recent years, the Royal Australasian College of Surgeons (RACS) has publicly recognised the impact of fatigue and has tried to address cultural and systemic issues. Most recently, the College formally recognised the AMA Safe Hours Code in its accreditation guidelines.

Clearly, with more than twice the average in the higher risk category, Surgery still has a long way to go. That said, no specialty area can afford to relax its efforts to achieve safer working hours for doctors.

TABLE 5 - Range of Total Hours Worked by Risk Category - Seven Day Audit Period

Risk category	Range (hours)	Average (hours)	Median (hours)
Lower	0-62	45	47
Significant	9-91	60	60
Higher	50-113	78	79

Table 5 indicates that there was overlap in the range of total hours worked between the lower risk, significant risk, and higher risk groups of doctors.

This illustrates the point that other variables, along with the total number of hours worked in a week, are likely to have an impact on the final risk rating of the work schedule.

These variables include whether the work was performed in the day or at night, the frequency of on-call commitments, access to rest breaks, and the other variables identified in the risk assessment guide of the Code as contributing to the risk associated with specific rostering practices.

There has been no change in the average or median total weekly hours at all risk levels from 2001.

The extremes in 2006 for the significant risk and higher risk levels are actually worse than in the 2001 report (86 and 106 respectively).

TABLE 6 - Longest Continuous Period of Work by Risk Category - Seven Day Audit Period

Risk category	Range (hours)	Average (hours)	Median (hours)
Lower	0-18	12	12
Significant	9-35	15	15
Higher	10-39	16	15

Table 6 indicates that, among the higher risk group, the extremes appear to be moderating. While the longest continuous shift in the 2006 survey was 39 hours, it is well down on the 63 hours recorded in 2001, but a serious concern nevertheless. There was also a reduction in the longest continuous period of work for the lower risk category (down from 21 hours).

However, the maximum figure actually increased to 35 hours in the significant risk category (from 24 hours in 2001).

Moreover, the average longest period of work recorded by all doctors at the lower risk and significant risk levels increased slightly (from 11 and 13 hours respectively). There was no change in that figure for the higher risk category.

TABLE 7 - Full Days Free of Work by Risk Category - Seven Day Audit Period

Risk Category	Days Free of Work		
	None	One	Two or more
Lower	4%	16%	80%
Significant	24%	38%	38%
Higher	72%	17%	11%

Table 7 indicates that 72 per cent of doctors in the higher risk group had no day free of work during the seven-day audit period. This is actually an improvement over 2001 (81 per cent), as are all the figures in this table. Still, nearly a quarter of all doctors surveyed did not have a single day free of work during the audit week.

TABLE 8 - Days On-call by Risk Category - Seven Day Audit Period

Risk Category	Number of Days		
	None	One or Two	Three or More
Lower	68%	28%	4%
Significant	48%	36%	16%
Higher	35%	26%	39%

Table 8 indicates the significant on-call commitments of hospital doctors. For those in the lower risk and significant risk categories, the figures for three or more days on-call are comparable to 2001 (five per cent and 18 per cent respectively).

For those in the higher risk category, only 35 per cent had no on-call commitments during the audit week, against 50 per cent in 2001.

On-call commitments are a factor in fatigue and risk levels. On this indicator, the situation is worse.

TABLE 9 - Days Without a Meal Break by Risk Category - Seven Day Audit Period

Risk Category	Number of Days		
	None	One or Two	Three or More
Lower	93%	7%	0%
Significant	83%	16%	1%
Higher	75%	18%	7%

Table 9 indicates that doctors are better able to take a meal break than they were in 2001. For those in the lower risk category, only 49 per cent had a meal break every day in 2001 (now 93 per cent) and no respondent missed out on their meal break for three or more days (32 per cent did miss that many in 2001). The trend was similar for the significant risk and higher risk categories. This is a welcome development.

TABLE 10 - Hours Worked Last Week, the Seven Day Audit Period, and Rostered Next Week

Risk category	Last week		Seven day period		Next week	
	Range	Median	Range	Median	Range	Median
Lower	0-84	45	0-62	47	0-91	44
Significant	0-98	55	9-91	60	0-91	48
Higher	0-115	64	50-113	79	0-110	50

Table 10 indicates the range of total hours actually worked by doctors in the week before the audit period against the hours worked during the audit week and the rostered hours for the following week. The range of total hours for each week was much the same as 2001, as were the median total hours for all risk categories.

Consultants and CMOs

For the first time, the AMA’s 2006 audit collected data from Consultants and Career Medical Officers (CMOs) employed in hospitals.

There were 45 returns lodged nationally by this group, which means the results should be treated with some care. That said, the degree of consistency with the overall survey outcomes indicates that the results paint a reliable picture.

TABLE 5A - Range of Total Hours Worked by Risk Category - Seven Day Audit Period

Risk category	Range (hours)	Average (hours)	Median (hours)
Lower	11-49	37	42
Significant	42-80	58	57
Higher	65-92	77	75

Referring back to Table 3, 67 per cent of Consultants and CMOs were in the significant risk and higher risk categories. In other words, two-thirds of these doctors are working an average of 58 to 75 hours per week.

While working hours are slightly less than for the overall results, these limited responses suggest that senior doctors are not spared the burden of unsafe hours.

TABLE 6A - Longest Continuous Period of Work by Risk Category - Seven Day Audit Period

Risk category	Range (hours)	Average (hours)	Median (hours)
Lower	6-18	12	12
Significant	9-21	14	13
Higher	10-30	16	14

The extremes are moderated for Consultants and CMOs in the significant risk and higher risk categories, but the average and median figures for the longest continuous work period are similar to the overall results. Again, 18-hour shifts are a fact of life even for those in the lower risk category.

TABLE 7A - Full Days Free of Work by Risk Category - Seven Day Audit Period

Risk Category	Days Free of Work		
	None	One	Two or more
Lower	0%	13%	87%
Significant	23%	23%	54%
Higher	75%	13%	12%

Senior hospital doctors may have more scope to plan their work schedules. A reasonable proportion is able to have two or more days free of work each week.

TABLE 8A - Days On-Call by Risk Category - Seven Day Audit Period

Risk Category	Number of Days		
	None	One or Two	Three or More
Lower	40%	47%	13%
Significant	9%	41%	50%
Higher	12%	38%	50%

While senior doctors in the lower risk category have moderate on-call demands, on-call requirements are more onerous than average for those in the significant risk and higher risk categories. Many are on-call for three or more days per week.

TABLE 10A - Hours Worked Last Week, the Seven Day Audit Period, and Rostered Next Week

Risk category	Last week		Seven day period		Next week	
	Range	Median	Range	Median	Range	Median
Lower	24-51	39	11-49	42	20-55	40
Significant	0-67	50	42-80	57	6-69	45
Higher	50-96	66	65-92	75	42-75	54

Total hours worked for senior doctors are consistent with those for all hospital doctors.

Conclusion

There is a need to refresh awareness of safe hours for doctors and to regain momentum towards eliminating the extremes that impose serious fatigue, and implement safe and sensible working hours and practices for all doctors.

This will benefit the health and well-being of doctors, and encourage them to commit to full-time work in the profession. It will also benefit the community with consistent quality patient care.

These survey results should act as a wake-up call for health departments and Governments across the country.

During a disciplinary hearing before the Queensland Health Practitioners Tribunal in 2004, Judge Richards, who was hearing the case, made the following observations in her decision stating that the doctor:

“must have been fatigued by the hours he was working. It seems extraordinary in this day and age that anyone, let alone someone in a position of such responsibility, should be asked to work such long hours.

One does not need medical evidence to know that anyone who is in the 20th hour of continuous duty must have reduced capacity to assess the situation when it presents itself. In the view of the Tribunal, this factor must have contributed - not only to the registrant's ability to properly manage the patient's condition - but also to his lack of attention to the details which may have led to the patient's Glasgow Coma Score being reviewed.*

If this tragedy leads to nothing else, it should lead to the abolition of such brutally long shift hours, which must in itself reduce the standard of care available to patients.”

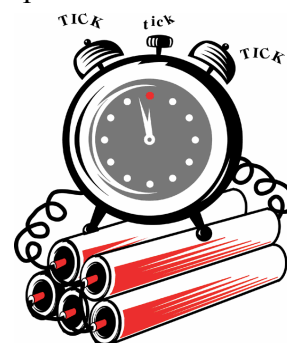
* The patient's name has been deleted by the AMA

The clock is still ticking and the 2006 AMA Safe Hours survey results show that health departments and Governments have failed to hear Judge Richards' plea.

Safe Hours = Safe Patients - and the AMA will continue to raise the awareness of this critical patient safety issue.

The AMA's first practical response to these survey results will be the establishment of an AMA website that will allow doctors to obtain an instant on-line assessment of their fatigue risks.

This site will be available before the end of 2006 and will be an important step in empowering individual doctors to look after their own well-being and that of their patients.



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