AMA

Managing the Risks of Fatigue in the Medical Workforce

2016 AMA Safe Hours Audit

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The Australian Medical Association
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2016 AMA SAFE HOURS AUDIT BY NUMBERS

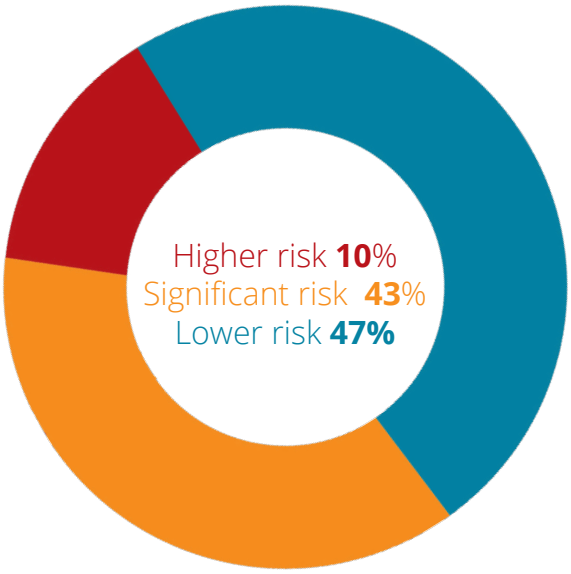
The **good news** is that fewer doctors are working shifts and rosters that put them at risk of fatigue than there were 15 years ago. The **bad news** is that extremes in working hours still persist and many hospital doctors continue to work rosters that place them at higher risk of fatigue.

1 IN 2 DOCTORS ARE WORKING UNSAFE HOURS

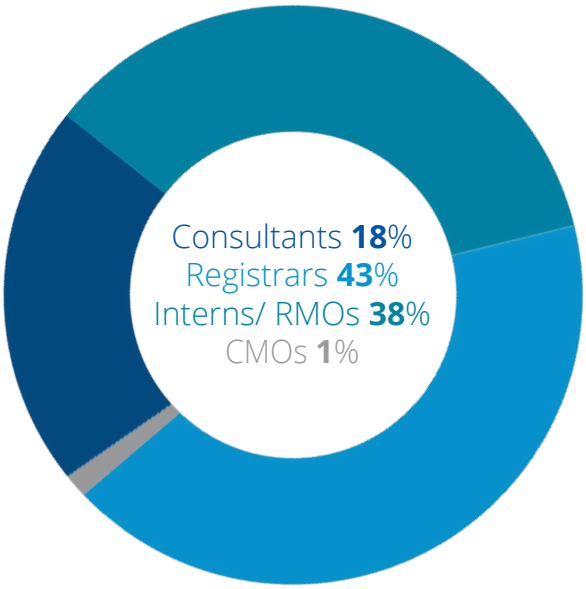
53%

One in two doctors are working hours that put them at significant or higher risk of fatigue.

RESPONDENTS BY RISK OF FATIGUE



4 OUT OF 5 RESPONDENTS WERE DOCTORS IN TRAINING



THE PROFILE OF DOCTORS AT HIGH RISK OF FATIGUE

118 hours
Longest total hours worked in a week

78 hours
Average hours worked in a week

76 hours
Longest hours worked in a shift

18 hours
Average hours worked in a shift

11%
had two full days free of work

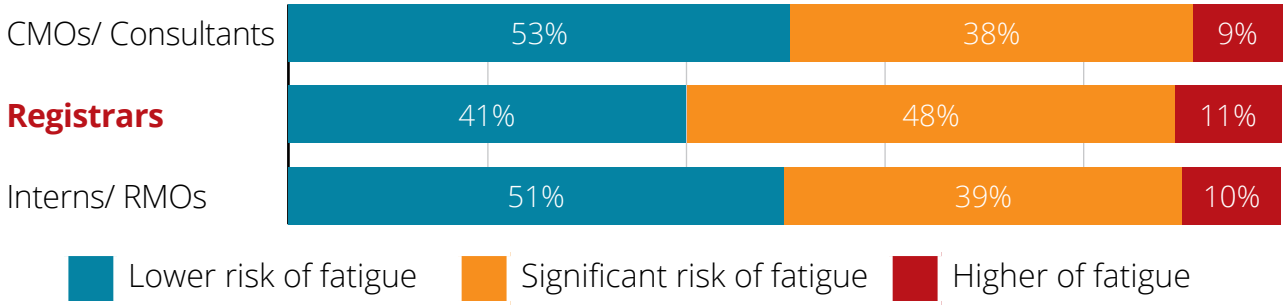
41%
were on call for three or more days

46%
worked three or more days without a meal break

WHO IS AT **RISK OF FATIGUE**?

Intensive Care	**75%**
Surgery	**73%**
Obstetrics & Gynaecology	**58%**
Medicine/ Physician	**54%**
Emergency Medicine	**38%**
Psychiatry	**34%**
Anaesthesia	**31%**
General Practice	**22%**

REGISTRARS ARE **MORE LIKELY TO BE WORKING RISKY HOURS**



WHAT HAS CHANGED SINCE **2001**?

↑114%

increase in the number of doctors working hours that place them at **lower risk of fatigue**

↓21%

decrease in the number of doctors working hours that place them at **significant risk of fatigue**

↓57%

decrease in the number of doctors working hours that place them at **higher risk of fatigue**

UPDATED 2016

AMA NATIONAL CODE OF PRACTICE HOURS OF WORK, SHIFTWORK AND ROSTERING FOR HOSPITAL DOCTORS

A practical guide to managing fatigue and reducing the risks associated with shiftwork and extended working hours.
https://ama.com.au/article/national-code-practice-hours-work-shiftwork-and-rostering-hospital-doctors

Read the 2016 AMA Safe Hours Audit Report at https://ama.com.au/article/2016-ama-safe-hours-audit

Executive Summary

Background

The AMA has conducted Safe Hours Audits of hospital-based doctors every five years since 2001. The 2016 Audit is the fourth nationwide AMA survey of doctors' working hours to assess the fatigue risks of their current working arrangements. The report of the 2016 AMA Safe Hours Audit provides contemporary insights into the working patterns and risk of fatigue for hospital-based doctors.

An online tool was used to collect data on the hours of work, on-call hours, non-work hours, and the sleep time of doctors during the audit week from 31 October to 6 November 2016. Participants were then categorised into three different risk levels – lower, significant, and higher – to determine their risk of fatigue, based on 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 patterns.

General Trends – Hospital-based doctors

2001 – 2016

- In 2001, 78 per cent of doctors were working rosters that placed them at significant and higher risk of fatigue. In 2016, this figure has dropped to 53 per cent.
- Since 2001, there has been an increase in the number of doctors working in the lower risk of fatigue category (22 per cent in 2001 compared to 47 per cent in 2016) and a decrease in the number of doctors working in the significant (54 per cent in 2001 compared to 43 per cent in 2016) and higher risk (24 per cent in 2001 compared to 10 per cent in 2016) category of fatigue. This trend is evident across all classifications and disciplines.
- There has been little change in the range and total average of hours worked by doctors in each category since 2001. However doctors in the higher risk category are working longer shifts than they were 15 years ago (18 hours in 2016 compared to 16 hours in 2001).
- While there has been an increase in the number of doctors across all categories being able to access two or more full days free of work from 2001 to 2016, there has been a rise in the number of doctors in the higher risk category who work three or more consecutive days on call (31 per cent in 2001 compared to 41 per cent in 2016).

2011 – 2016

- In 2016, one in two doctors (53 per cent) continued to work rosters that put them at significant and higher risk of fatigue. This number has not changed since 2011.

Risk by classification

- There was an 11 per cent increase in the number of Interns/RMOs working in the higher risk category since 2011.
- While the number of Registrars whose working patterns place them at higher risk of fatigue has decreased since 2011, 59 per cent are still working shifts that place them at significant and higher risk of fatigue, higher than the percentage of Intern/RMOs (49 per cent) and CMO/Consultants (47 per cent).

Risk by discipline

- In 2016, 75 per cent of Intensivists, 73 per cent of Surgeons, 58 per cent of Obstetricians and Gynaecologists and 54 per cent of Physicians continued to work shifts and rosters that placed them in the significant/higher risk categories.
- While the general trend has seen fewer doctors in each discipline working rosters that expose them to higher risks of fatigue, the number of Obstetricians and Gynaecologists working in the higher risk category has almost doubled since 2011 (an increase of 98 per cent).

Working hours

- In 2016, the longest recorded shift for doctors in the higher risk group increased to 76 hours. This is almost double the longest shift recorded in 2011 of 43 hours.
- The number of work free days has increased across all risk categories since 2011. However only 11 per cent of doctors in the highest fatigue risk category reported they had two or more full days free of work during the audit period.
- The number of doctors working three or more days on call has decreased across all risk categories since 2011. In 2016, 41 per cent of doctors in the highest fatigue risk category reported they worked three or more days on call during the audit period compared to 49 per cent in 2011.
- While the number of doctors skipping meal breaks has decreased since 2011, 46 per cent of doctors in the higher risk category, 35 per cent of doctors in the significant risk category, and 20 per cent of doctors in the lower risk category reported to skip a meal break on three or more occasions in 2016.

1. Introduction

Over the last decade, the AMA has undertaken significant work to address the risks of fatigue for doctors, including the development of the AMA National Code of Practice on Hours of Work, Shiftwork and Rostering for Hospital Doctors. The AMA Federal Council adopted this code in 1999.

In 2001 the AMA conducted its first Safe Hours Audit of hospital-based doctors in training. This was followed by a second Safe Hours Audit in 2006 that was extended to cover salaried doctors. In 2011, the Audit was broadened to include general practitioners.

The 2016 AMA Safe Hours Audit is the fourth nationwide survey of hospital-based doctors' working hours conducted by the AMA to assess the fatigue risks of their current working arrangements. It provides insights into the working patterns and fatigue risks for hospital-based doctors for the period during which the survey was conducted. It also provides an additional data set to compare the results of the past three audits, and allows a longitudinal comparison of any changes in working patterns and risk of fatigue over that time.

2. Methodology

The 2016 Safe Hours Audit was conducted from 31 October to 6 November 2016 using an online tool that collected data on the hours of work, on-call hours, non-work hours, and sleep time of doctors in training (DiTs) and salaried doctors during the seven day audit period. An invitation to complete the survey was forwarded to doctors by e-mail, and AMA members and non-members were able to participate. Details of the audit were also published in Australian Medicine, State AMA publications, and the social media platforms, Twitter and Facebook.

Data was analysed against an established risk assessment model developed by the AMA in 2000. This model considered factors such as total weekly hours, the quantity of night work, the length of shifts, the extent of on-call commitments, access to breaks, and the long-term work pattern. Using a validated scoring system, the model categorised doctors into three different risk levels: lower, significant, and higher risk.

Risk assessment model

The model's scoring system is based on a simple points calculation. Twenty (20) points are added or subtracted for shifts that exceed 14 hours per day, where no work breaks are taken during shifts, for on-call commitments, where the doctor has no full day off in a week, and where the break between shifts is less than 10 hours. Points are weighted for hours worked at night because of the association with greater fatigue. They are also allocated on the basis of work schedules in the previous and forthcoming week.

While the AMA risk assessment audit methodology does not provide a precise measurement of fatigue and performance impairment, it is an indicator of the level of risk associated with specific work schedules.

3. Respondent profile

The audit had 716 valid responses. The majority (675) of these were from hospital-based doctors and form the basis of this report.[1] Of these, 38 per cent were Interns/Resident Medical Officers (RMOs), 43 per cent were Registrars, 1 per cent were Career Medical Officers (CMOs), and 18 per cent were Consultants. Thirty per cent of respondents were Physicians.

FIGURE 1 Respondents by classification (2016)

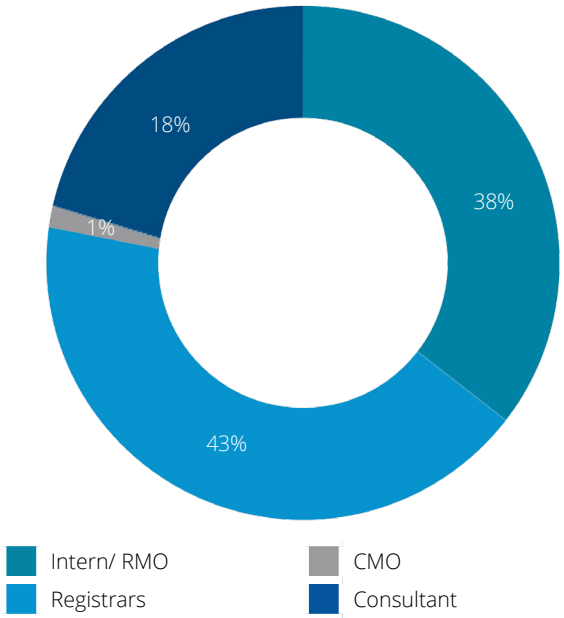
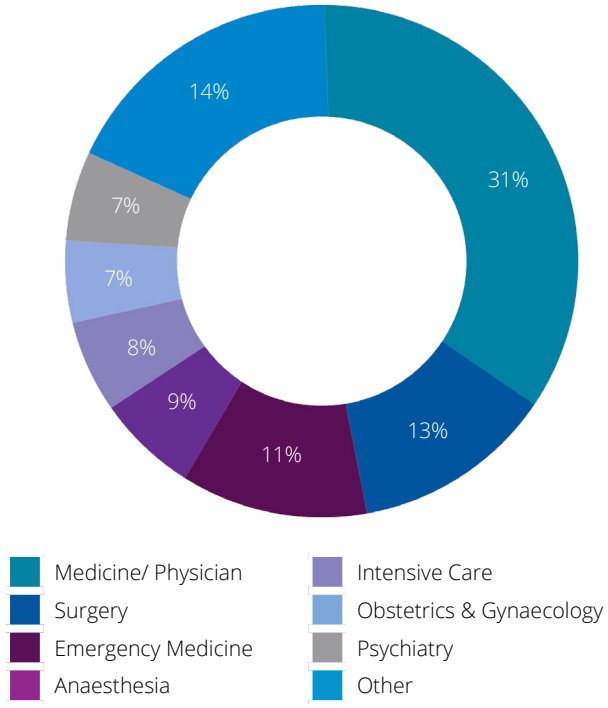


FIGURE 2 Respondents by clinical discipline (2016)



[1] A total of 37 General Practitioners (GPs)/GP registrars responded to the survey. There is a simple analysis of their risk profile at the end of this report. The AMA acknowledges that many GPs are working in hospitals on a part time or other basis. In this regard, GPs are acknowledged as being critical to the provision of hospital services in rural and remote areas.

4. Risk by classification

There has been a general increase in the number of doctors working in the lower risk categories and a corresponding decrease in the number of doctors working in the higher risk categories since 2011, with the exception of Interns/RMOs (Figure 3). Furthermore, Figure 4 shows there has been a marked improvement in the proportion of doctors in the significant and higher risk categories since the first audit was conducted in 2001.

However, 53 per cent of all doctors in 2016 continue to work rosters that place them in the significant and higher risk categories; this has not changed since 2011. Registrars appear to be at particular risk with 59 per cent working rosters that place them at significant and higher risk of fatigue compared to 49 per cent of Interns/RMOs and 47 per cent of CMO/ Consultants.

The number of Interns/RMOs working in the higher risk category increased by 11 per cent in 2016 compared with the 2011 report. This was accompanied by a 9 per cent decrease in numbers working in the significant risk category.

FIGURE 3 Respondents by classification and risk category (2016)

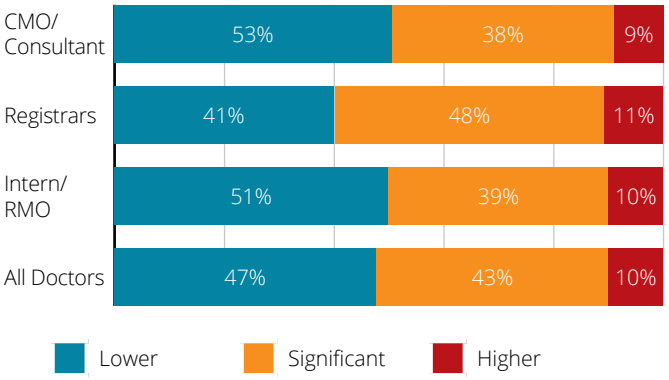
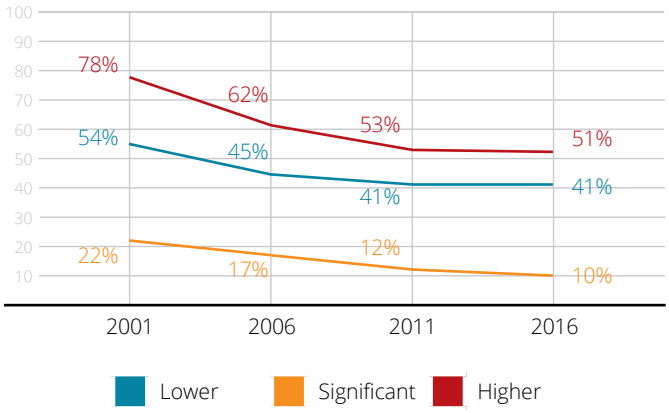


FIGURE 4 Trends in risk category 2001 – 2016



5. Risk by discipline

There was significant variation in risk categories within and between different clinical disciplines (Figure 5).

FIGURE 5 Clinical discipline by risk category – seven day audit period (2016)

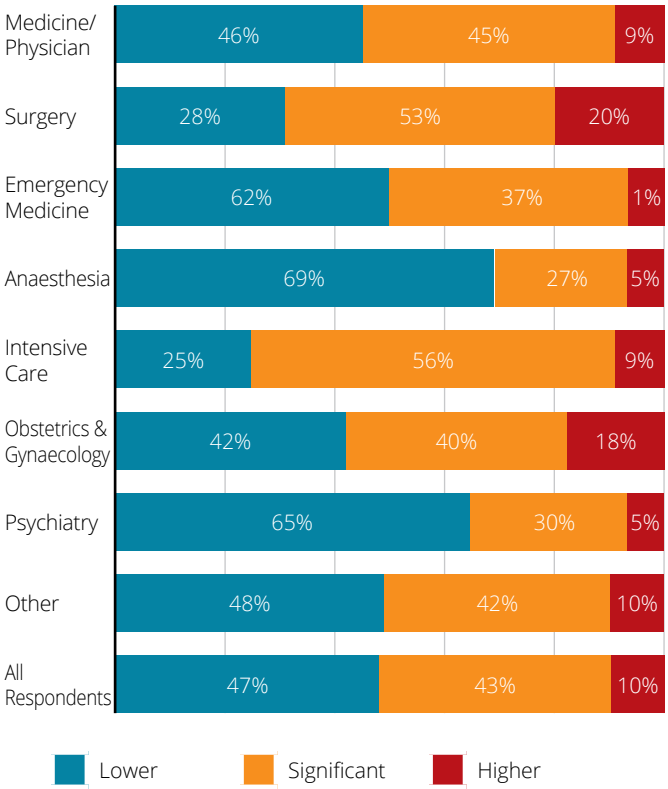


Table 1 suggests that the risk profile of most disciplines has continued to improve since the 2011 audit. Surgery, Emergency Medicine and Anaesthetics have achieved further improvement in their risk profile, with greater numbers in the lower risk category and/or fewer number in the higher risk category. However three out of four Surgeons (73 per cent) and Intensivists (75 per cent) reported to work rosters that place them at significant and higher risk of fatigue, significantly more than the 53 per cent reported by all doctors.

With the exception of Obstetrics and Gynaecology and Anaesthetics, all medical disciplines saw a reduction in numbers in the higher risk category. For Anaesthetics, the number of doctors working in the higher risk category increased marginally from 4 per cent to 5 per cent from 2011. However, Obstetrics and Gynaecology recorded a substantial increase in the number of doctors working in significant (40 per cent compared in 2016 to 17 per cent in 2011) and higher risk categories (18 per cent compared in 2016 to 9 per cent in 2011). This corresponded with a decrease in number in the lower risk category (42 percent in 2016 compared to 74 per cent in 2011).

The shift in risk profile for Obstetrics and Gynaecology warrants further evaluation, noting that doctors can still work significant hours provided appropriate arrangements are in place to manage the risk of fatigue.

TABLE 1 Clinical discipline by risk category 2016 – 2011

	Lower		Significant		Highest	
	2016	2011	2016	2011	2016	2011
Medicine/ Physician	46%	46%	45%	45%	9%	9%
Surgery	28%	23%	53%	51%	20%	26%
Emergency Medicine	62%	66%	37%	27%	1%	6%
Anaesthetics	69%	62%	27%	34%	5%	4%
Intensive Care	25%	NA	56%	NA	19%	NA
Obstetrics & Gynaecology	42%	74%	40%	17%	18%	9%
Psychiatry	65%	NA	30%	NA	4%	NA
Other	48%	52%	42%	35%	10%	13%
All respondents	**47%**	**47%**	**43%**	**41%**	**10%**	**12%**

6. Working hours

There was significant overlap in the range of total hours worked between the lower, significant, and higher risk groups (Table 2). This illustrates the point that other variables, along with the total number of hours worked in a week, influence the final risk rating of the work schedule. These include whether the work was performed in the day or at night, the frequency of on-call commitments, opportunities for 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 a slight reduction in the average hours worked by doctors in lower and significant risk categories since 2011. The higher risk category remains unchanged since 2011 (Figure 6). The average total hours worked by doctors in 2016 was 52.5 hours per week, down from 55.1 hours in 2011.

TABLE 2 Average total hours worked by risk category (2016)

Risk Category	Range (hours)	Average hours	
	2016	2016	2011
Lower	1 – 60	43	44
Significant	5 – 88	57	60
Higher	42 – 118	78	78

FIGURE 6 Range of total hours worked by risk category 2001–2016

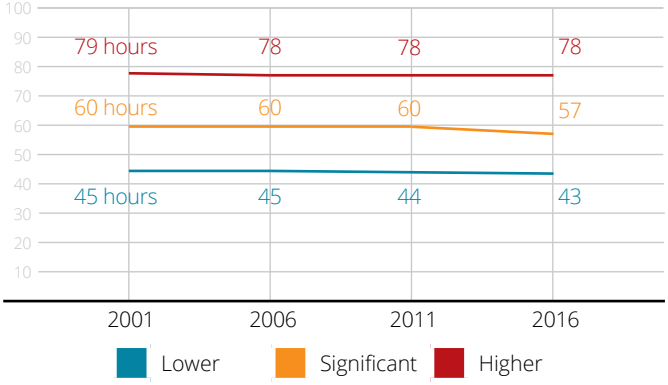


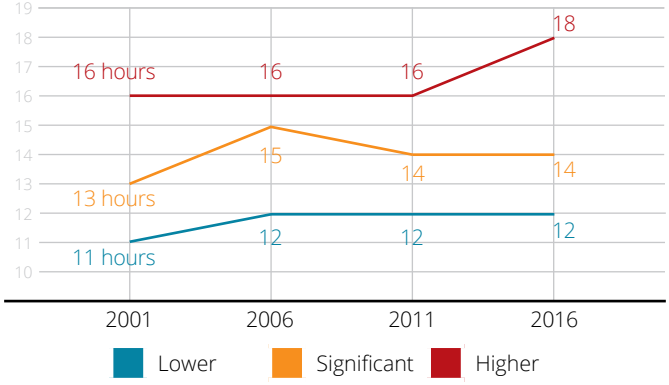
Table 3 indicates that the longest recorded continuous period of work has increased for all doctors. This increase is particularly marked for doctors in the higher risk group where the longest recorded continuous period of work was 76 hours in 2016, significantly longer than the 43 hours recorded in 2011, and exceeds the longest shift recorded in the 2001 audit of 63 hours.

The audit found that the average shift length for doctors working in the lower and significant risk categories was similar to the average length recorded in 2011. The average shift length for doctors in the higher risk category has increased by two hours to 18 hours in 2016, compared to 16 hours in 2011.

TABLE 3 Longest continuous period of work by risk category – seven day audit period (2016)

Risk Category	Range (hours)		Average hours	
	2016	2011	2016	2011
Lower	37	19	12	12
Significant	59	34	14	14
Higher	76	43	18	16

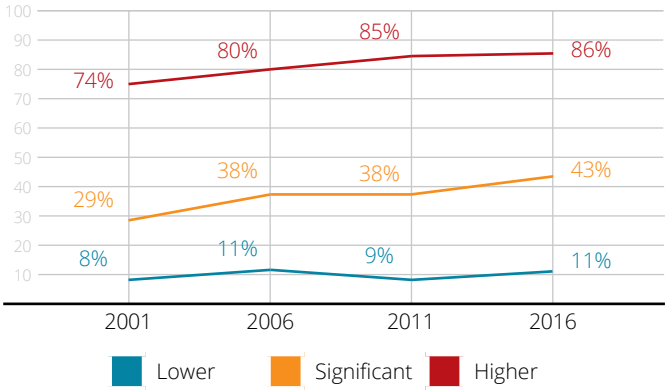
FIGURE 7 Longest continuous period of work by risk category 2001 – 2016



7. Other indicators

The results of the 2016 audit indicate that 86 per cent of doctors in the lower risk and 43 per cent of doctors in the significant risk category have two or more days free of work. This compares to only 11 per cent of doctors in the higher risk category (Figure 8).

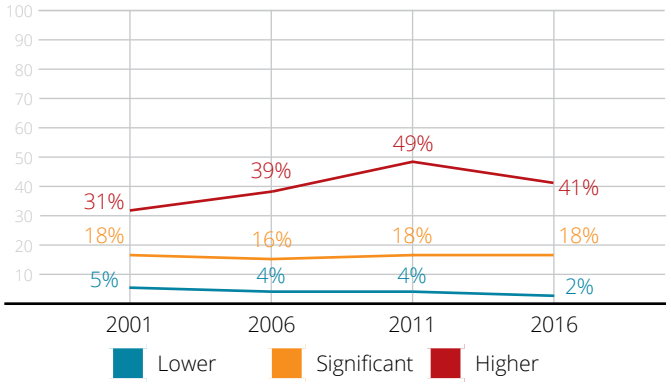
FIGURE 8 Two or more full days free of work by risk category 2001 – 2016



Considerably more doctors in the significant risk category had no work free days during the seven day audit period – this has decreased only slightly from the 2011 audit results (70 per cent in 2016 versus 72 per cent in 2011).

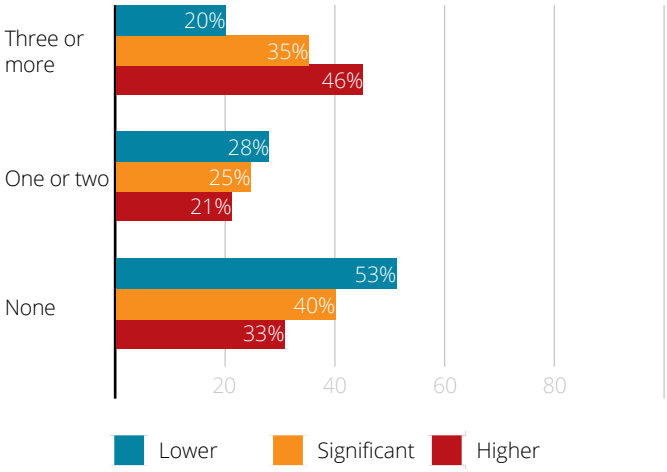
Figure 9 indicates that fewer doctors in the higher risk category are working rosters where they have three or more days on-call (41 per cent in 2016 down from 49 per cent in 2011); this has been coupled by an increase in the number of days with no on-call commitments (47 per cent in 2016 against 32 per cent in 2011). By contrast, the number of doctors working three or more days on-call in the significant risk category did not change; the number of doctors in the lower risk category decreased slightly.

FIGURE 9 Three or more days on-call by risk category 2001 – 2016



While the number of doctors skipping meal breaks has decreased since 2011, 46 per cent of doctors in the higher risk category, 35 per cent of doctors in the significant risk category, and 20 per cent of doctors in the lower risk category reported to skip a meal break on three or more occasions in 2016 (Figure 10).

FIGURE 10 Days without a meal break by risk category – seven day audit period (2016)

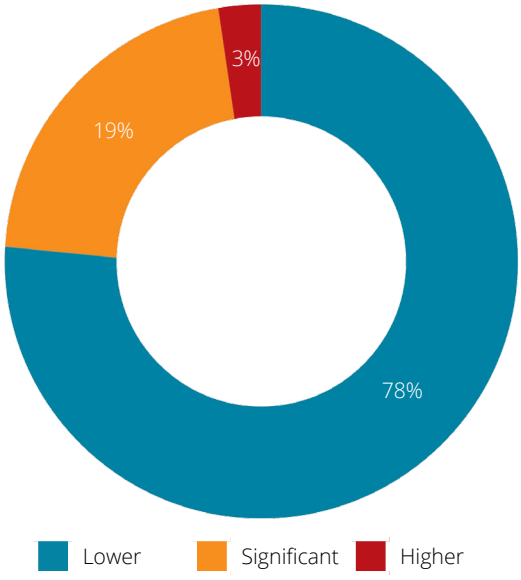


8. General Practice

The AMA recognises that the risks of fatigue are not just an issue for doctors working in the hospital sector, but for General Practice also.

The risk profile of General Practice has continued to improve since the 2011 audit. In 2016, 78 per cent of General Practitioners (GPs) who responded worked hours that placed them in the lower risk category, compared to 35 per cent in 2011 (Figure 12).

FIGURE 12 Risk profile of General Practice 2016



Only 37 GPs/GP registrars participated in the Audit, which means the results should be treated with caution. However, it would appear that the risks of fatigue for GPs working in community settings are lower than most hospital-based doctors. Seventy eight (78) per cent of respondents were classified as being at a lower risk of fatigue, which compares favourably to 47 per cent of hospital doctors.

The limited data provided does show that GPs/GP registrars can still work similar hours to hospital-based doctors, despite being at a lower fatigue risk. The average of total hours worked in the 2016 audit week was 57 hours for hospital doctors in the significant risk category, whereas it was 55 hours for GPs/GP registrars. It would appear that the lower risks of fatigue for GPs/GP registrars is a product of different rostering arrangements in community settings, with the survey data showing that they do not appear to face the same extremes in shift lengths that are encountered when working in the hospital system. The maximum length of shift for GPs/GP registrars was 24 hours compared to 48 hours for hospital doctors. Due to the small sample size, the other data collected in relation to GP registrars is not discussed here.

9. Conclusion

Since the AMA embarked on its safe working hours campaign in the mid-1990s, there has been a significant reduction in the number of doctors whose working hours expose them to higher risks of fatigue.

While the trend towards hospital-based doctors working hours and rosters that reduce the risks of fatigue has continued in 2016, the rate of improvement appears to have plateaued. One in two doctors (53 per cent) are still working rosters that put them at significant and higher risk of fatigue to the extent that it could impair performance, and affect the health of the doctor and the safety of the patient.

The 2016 Audit revealed that three out of four Intensivists (75 per cent) and Surgeons (73 per cent) reported to work rosters that place them at significant and higher risk of fatigue, significantly more than the 53 per cent reported by all doctors. Further, there is evidence that extreme rostering practices remain with shifts of up to 76 hours and working weeks of 118 hours reported amongst doctors at higher risk of fatigue.

Other findings that warrant further investigation include the increase in number of Interns/RMOs in the 2016 Audit who are working rosters that place them at higher risk of fatigue. Evidence suggests that many medical students find the transition to the intern year stressful, and working long hours with fewer breaks is not conducive to doctor health and wellbeing, patient safety and quality of care.

The disproportionate number of Registrars working shifts that place them at significant and higher risk of fatigue is also of note. This highlights the imperative for Medical Colleges, in conjunction with hospitals, to review training and service requirements, and to implement systems that help doctors at this stage of their career to balance training and service requirements with personal health and wellbeing.

Similarly, while the profile of doctors working longer hours has decreased across medical disciplines since 2001, many procedural specialties are still working long hours with fewer breaks. In particular, doctors in the specialty of Obstetrics and Gynaecology reported an almost 100 per cent increase in the proportion of doctors in the high risk of fatigue category in this audit. While these findings are not definitive, this result warrants further evaluation, noting that doctors can still work significant hours provided appropriate arrangements are in place to manage the risk of fatigue.

The 2016 Audit confirms that doctors at higher risk of fatigue and impaired performance typically work longer hours, longer shifts, have more days on call, less days off and are more likely to skip a meal break. These triggers should be used by hospitals, training providers, clinical safety and quality organisations, professional associations and doctors as red flags for fatigue and steps taken to manage that risk accordingly. This could include revising work and rostering practices, job redesign, revised training practices and better use of technology, specific workplace initiatives, and educational programs aimed at improving the work and training environment.

Along with changing attitudes to safe hours, increasing numbers of prevocational and vocational trainees, and a growing emphasis on efficiency within the hospital sector, the AMA's work on fatigue management to date including the development of an AMA National Code of Practice on Hours of Work, Shiftwork and Rostering for Hospital Doctors, has been instrumental in shifting workplace practice. This has been achieved without the need for the rigid restrictions on working hours that have been introduced in Europe and the United States. The results of this audit reiterate the value of organisations adopting the principles set out in the Code as formal policy and in engaging resources to undertake a cultural change program on work and training practices within their sphere of influence.

There is now a bank of research that links the effects of fatigue to a greater risk of human error and harm to both patients and doctors. While there has been an improvement in the risk profile of doctors since 2001, the 2016 Audit suggests that extremes in hospital doctor working hours still persist, and many hospital doctors continue to work rosters that place them at higher risk of fatigue. Particular attention must be paid to provide all doctors at all stages of their career with a safe working environment. Research shows that this not only benefits the health and wellbeing of doctors but contributes to higher quality care, patient safety, and health outcomes.

As the evidence regarding doctor fatigue and patient safety accumulates, achieving safe working hours will require intelligent solutions beyond a simple restriction in working hours. The challenge in the Australian context is how to balance this with the demands of training and service delivery, in an environment where long working hours are no longer synonymous with professionalism, and there is a growing emphasis on achieving a healthy work-life balance.

The AMA Safe Hours Audit series is one part of a broader education and awareness program to improve understanding about the risks fatigue creates for individual health and safety and quality of patient care. The results of the audit should be used to assess individual and organisational practice, beliefs and culture, and to implement strategies that support safer working hours, patterns and environments for hospital doctors and doctors in training.

Appendix

APPENDIX 1 Respondents by classification

	Percentage				
	2016	2011	2006	2001	Change (2016-2001)
Interns/ RMOs	38%	46%	39%	56%	**-32%**
Registrars	43%	33%	53%	36%	**19%**
CMOs	1%	2%	–	–	**N/A**
Consultants	18%	20%	8%	8%	**126%**
Total	**100%**	**100%**	**100%**	**100%**	

Note: In 2006, CMOs and Consultants were grouped together.

APPENDIX 2 Respondents by clinical discipline

	Percentage				
	2016	2011	2006	2001	Change (2016-2001)
Medicine/ Physician	32%	32%	49%	19%	**66%**
Surgery	13%	17%	13%	20%	**-35%**
Emergency Medicine	11%	12%	9%	13%	**-17%**
Anaesthesia	10%	8%	4%	7%	**36%**
Intensive Care	8%	N/A	N/A	N/A	**N/A**
O&G	7%	7%	10%	7%	**-4%**
Psychiatry	7%	N/A	N/A	N/A	**N/A**
Other	14%	23%	15%	34%	**-59%**
Total	**100%**	**99%**	**100%**	**100%**	

APPENDIX 3 Respondents by classification and risk category

	All Doctors					Interns/ RMOs				
	2016	2011	2006	2001	Change (2016-2001)	2016	2011	2006	2001	Change (2016-2001)
Lower	47%	47%	38%	22%	**114%**	51%	48%	39%	20%	**155%**
Significant	43%	41%	45%	54%	**-21%**	39%	43%	48%	57%	**-32%**
Higher	10%	12%	17%	24%	**-57%**	10%	9%	13%	23%	**-57%**
Total	**100%**	**100%**	**100%**	**100%**		**100%**	**100%**	**100%**	**100%**	

	Registrars					Consultants/ CMOs				
	2016	2011	2006	2001	Change (2016-2001)	2016	2011	2006	2001	Change (2016-2001)
Lower	41%	42%	38%	25%	**63%**	53%	53%	33%	24%	**121%**
Significant	48%	40%	42%	48%	**1%**	38%	36%	49%	58%	**-35%**
Higher	11%	18%	20%	27%	**-59%**	9%	11%	18%	18%	**-48%**
Total	**100%**	**100%**	**100%**	**100%**		**100%**	**100%**	**100%**	**100%**	

	All Doctors	Interns/ RMOs	Registrars	Consultants/ CMOs
	2016 - 2011 Change	2016 - 2011 Change	2016 - 2011 Change	2016 - 2011 Change
Lower	0%	6%	-3%	0%
Significant	4%	-9%	21%	4%
Higher	-13%	11%	-39%	-15%

NOTE: All data excludes General Practice data.

APPENDIX 4 Trends by risk categories

	2016	2011	2006	2001	Change (2016-2001)	Change (2016-2011)
Lower	47%	47%	38%	22%	**114%**	**0%**
Significant	43%	41%	45%	54%	**-21%**	**4%**
Higher	10%	12%	17%	24%	**-57%**	**-13%**
Higher + Significant	**53%**	**53%**	**62%**	**78%**	**-32%**	
Total	**100%**	**100%**	**100%**	**100%**		

	2016			
	All Doctors	Interns/ Residents	Registrars	CMOs/ Consultants
Lower	47%	51%	41%	53%
Significant	43%	39%	48%	38%
Higher	10%	10%	11%	9%
Higher + Significant	**53%**	**49%**	**59%**	**47%**
Total	**100%**	**100%**	**100%**	**100%**

APPENDIX 5 Trends in clinical discipline by risk category

	Lower Risk					Significant Risk				
	2016	2011	2006	2001	Change (2016-2001)	2016	2011	2006	2001	Change (2016-2001)
Medicine/ Physician	46%	46%	36%	14%	**229%**	45%	45%	48%	51%	**-12%**
Surgery	28%	23%	15%	14%	**96%**	53%	51%	49%	51%	**4%**
Emergency Medicine	62%	66%	71%	41%	**50%**	37%	27%	27%	45%	**-18%**
Anaesthesia	69%	62%	60%	32%	**115%**	27%	34%	36%	54%	**-51%**
Intensive Care	25%	N/A	N/A	N/A	**N/A**	56%	N/A	N/A	N/A	**N/A**
O&G	42%	74%	28%	7%	**503%**	40%	17%	51%	52%	**-23%**
Psychiatry	65%	N/A	N/A	N/A	**N/A**	30%	N/A	N/A	N/A	**N/A**
Other	48%	52%	43%	25%	**92%**	42%	35%	45%	53%	**-21%**
All Respondents	47%	47%	38%	22%	**114%**	43%	41%	45%	54%	**-21%**

	Higher Risk					Lower Risk	Sig. Risk	Higher Risk
	2016	2011	2006	2001	Change (2016-2001)	Change (2016 - 2011)		
Medicine/ Physician	9%	9%	16%	35%	**-75%**	0%	0%	-1%
Surgery	20%	26%	36%	35%	**-43%**	20%	4%	-24%
Emergency Medicine	1%	6%	2%	14%	**-90%**	-7%	37%	-77%
Anaesthesia	5%	4%	4%	14%	**-66%**	11%	-22%	18%
Intensive Care	19%	N/A	N/A	N/A	**N/A**	N/A	N/A	N/A
O&G	18%	9%	21%	41%	**-57%**	-43%	135%	98%
Psychiatry	4%	N/A	N/A	N/A	**N/A**	N/A	N/A	N/A
Other	10%	13%	12%	22%	**-54%**	-8%	19%	-22%
All Respondents	10%	12%	17%	24%	**-57%**	0%	4%	-13%

APPENDIX 6 Range of total hours worked by risk category - seven day audit period

	Longest Shift (Hours)				Average Hours					
	2016	2011	2006	2001	2016	2011	2006	2011	Change (2016-2001)	Change (2016-2011)
Lower	1 to 60	0 to 62	0 to 62	10 to 74	43	44	45	45	**-5%**	**-3%**
Significant	5 to 88	3 to 85	9 to 91	34 to 86	57	60	60	60	**-5%**	**-5%**
Higher	49 to 118	46 to 120	50 to 113	45 to 106	78	78	78	79	**-1%**	**0%**

NOTE: All data excludes General Practice data.

APPENDIX 7 Longest continuous period of work by risk category - seven day audit period

	Longest Shift (Hours)				Average Hours					
	2016	2011	2006	2001	2016	2011	2006	2011	Change (2016-2001)	Change (2016-2011)
Lower	37	0 to 19	0 to 18	5 to 21	12	12	12	11	**5%**	**-4%**
Significant	59	0 to 34	9 to 35	5 to 24	14	14	15	13	**4%**	**-4%**
Higher	76	9 to 43	10 to 39	7 to 63	18	16	16	16	**14%**	**14%**

APPENDIX 8 Full days free of work by risk category – seven day audit period

	No days free of work					One day free of work					Two or more days free of work				
	2016	2011	2006	2001	Change (2016-2001)	2016	2011	2006	2001	Change (2016-2001)	2016	2011	2006	2001	Change (2016-2001)
Lower	2%	2%	4%	9%	**-82%**	13%	22%	16%	17%	**-24%**	86%	85%	80%	74%	**16%**
Significant	22%	28%	24%	32%	**-31%**	35%	35%	38%	39%	**-11%**	43%	38%	38%	29%	**49%**
Higher	71%	72%	72%	81%	**-12%**	17%	19%	17%	11%	**55%**	11%	9%	11%	8%	**43%**

	No days free of work	One day free of work	Two or more days free of work
	Change (2016 - 2011)	Change (2016 - 2011)	Change (2016 - 2011)
Lower	-20%	-41%	1%
Significant	-21%	-1%	14%
Higher	-1%	-10%	27%

APPENDIX 9 Days on-call by risk category - seven day audit period

	None					One or two days					Three or more days				
	2016	2011	2006	2001	Change (2016-2001)	2016	2011	2006	2001	Change (2016-2001)	2016	2011	2006	2001	Change (2016-2001)
Lower	73%	74%	68%	70%	**4%**	25%	22%	28%	25%	**-1%**	2%	4%	4%	5%	**-56%**
Significant	55%	52%	48%	52%	**5%**	27%	30%	36%	30%	**-9%**	18%	18%	16%	18%	**1%**
Higher	47%	32%	35%	50%	**-6%**	11%	18%	26%	19%	**-40%**	41%	49%	39%	31%	**34%**

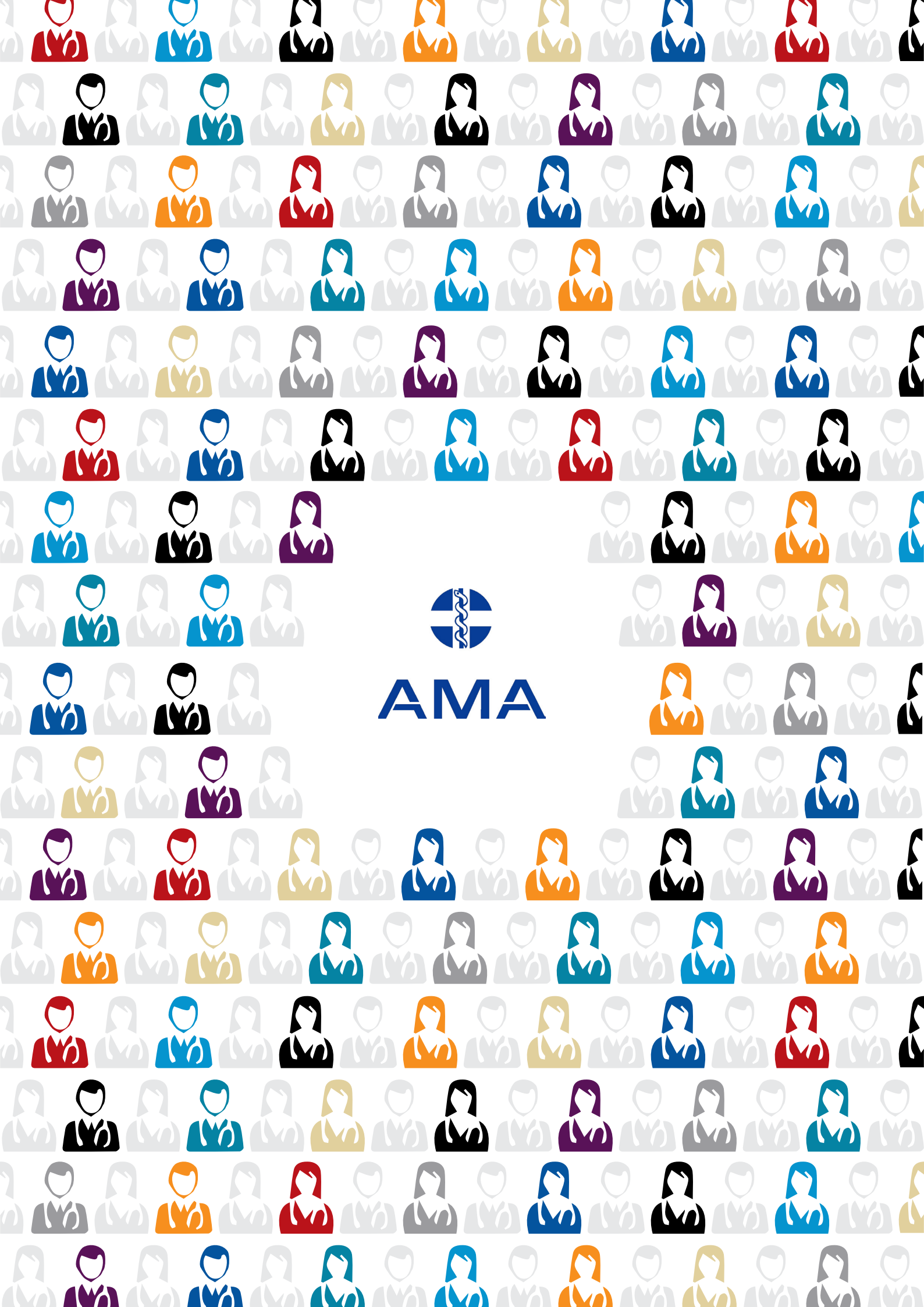
	None	One or two days	Three or more days
	Change (2016 - 2011)	Change (2016 - 2011)	Change (2016 - 2011)
Lower	-1%	13%	-45%
Significant	5%	-9%	1%
Higher	47%	-37%	-16%

APPENDIX 10 Days without a meal break by risk category - seven day audit period

	None					One or two days					Three or more days				
	2016	2011	2006	2001	Change (2016-2001)	2016	2011	2006	2001	Change (2016-2001)	2016	2011	2006	2001	Change (2016-2001)
Lower	53%	47%	93%	49%	**7%**	28%	28%	7%	19%	**47%**	20%	25%	0%	32%	**-39%**
Significant	40%	26%	83%	30%	**32%**	25%	25%	16%	26%	**-2%**	35%	50%	1%	44%	**-21%**
Higher	33%	21%	75%	31%	**6%**	21%	21%	18%	25%	**-14%**	46%	58%	7%	44%	**4%**

	None	One or two days	Three or more days
	Change (2016 - 2011)	Change (2016 - 2011)	Change (2016 - 2011)
Lower	0%	0%	0%
Significant	12%	0%	-22%
Higher	53%	2%	-30%

NOTE: All data excludes General Practice data.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