PG43(A)BP Guideline on fatigue risk management in anaesthesia practice Background Paper 2020

Short title: Fatigue BP

1. Introduction

The provision of anaesthesia requires a high level of knowledge, sophisticated procedural skills, sound judgement, fast and accurate responses to clinical situations, and the capacity for extended periods of vigilance. The nature of these clinical requirements is such that there may be a necessity to provide anaesthesia out of hours for:

- Prolonged or complex elective procedures that were started during the day.
- Emergencies including life-, limb- and organ-threatening cases.
- Procedures where delay may result in significant morbidity or mortality.
- Obstetric procedures.

2. Background

PG43(A) Guideline on fatigue risk management in anaesthesia practice was last reviewed in 2007. The intent of that document was to make anaesthetists aware of the principles and their responsibilities with respect to working while fatigued.

The document was due for review and its timing was influenced by a growing body of evidence relating to the harmful effects of fatigue on clinical performance, patient safety and individual health. Concerns existed in Australia and New Zealand regarding unsafe working hours and a decline in or lack of appropriate mitigation of fatigue within the workplace. A campaign in the United Kingdom and Ireland was established after the tragic death of a trainee who fell asleep behind the wheel while driving home from a night shift,[1] a known hazard.[2] At the same time, a fatigue risk management toolkit was produced for residents, leaders and policy makers in Canadian Postgraduate Medical Education.[3]

The intent of this background paper is to briefly expand on the reasoning and principles behind the recommendations. For more detailed analysis and discussion, there are many in-depth reviews available in the literature[4] in addition to the toolkit resources in the appendices.

3. Review of issues

3.1 Title of the document

It was agreed by the document development group that the title of the document should be revised to ‘Guideline on fatigue risk management in anaesthesia practice’ in keeping with current practice and the scope of the document.

3.2 Purpose and scope

The scope of the document was expanded and emphasises the individual responsibility of each anaesthetist to manage their fatigue as well as the requirements of healthcare facilities to comply with occupational health/safety legislation.

Most of the studies on the impact of fatigue are based on observation of junior medical staff as this allows assessment of adequate numbers of individuals completing similar tasks with different scheduled hours. It is important that fatigue is not perceived as a problem isolated to

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shift work and junior medical staff - the impact of and potential for fatigue must recognised by all clinicians at all career stages, including both public and private practice.

3.3 Fatigue

Sleep deprivation induces fatigue, circadian rhythm disturbance, difficulty recovering sleep-debt, and sleep inertia.[4] Acutely this affects cognitive and psychomotor functions, and in the longer term can negatively affect physical and mental health.[5]

Vigilance is a critical component of anaesthesia care. Sleep deprivation is associated with an impairment in the performance of psychomotor tasks requiring vigilance.[6] The decrement in cognitive psychomotor performance after 17 hours of sustained wakefulness is equivalent to the performance impairment observed with a blood alcohol level of 0.05%,[7] and after 24 hours to a blood alcohol level of 0.1%.[8]

Fatigue may contribute to adverse events and critical incidents[4,9,10] because it affects judgement and decision making, task-related competence and team work.[4,11] It also affects the ability to learn and retain new information and thus impacts both clinical practice and training effectiveness.

The peak impact of fatigue has been shown, in other industries, to be commonest in a bimodal distribution between 3 and 7am and between 1 and 4pm, when circadian drowsiness is greatest.[3]

Ageing is associated with reduced sleep efficiency.[12] It also reduces the capacity to recover from fatigue.[13]

Individuals are often unable to recognise fatigue and their reduced capacity to continue working safely.[13] ‘Microsleeps’, a sign of extreme fatigue, may be equally unrecognised.[14]

Work practices and rosters that contribute to fatigue may put employees at risk of accidents to themselves, such as needle stick injuries, and their patients - while at work, and while travelling to and from work.[15,16]

Fatigue is associated with disruption to social and family life, and in the long term can have a detrimental effect on health. Poor sleep may increase the risk of cardiovascular disease, including coronary heart disease and stroke, and mental health problems.[17]

3.4 Recommendations

In proposing the recommendations in the accompanying guidelines, it is understood that both individuals and healthcare facilities play a role in contributing to fatigue and that both can take action to alleviate it.

From the individual’s perspective there may be challenges in addressing fatigue due to the nature and environment of their practice. The demands differ between public and private sectors. The workload and distribution of that load, taking into account after-hours emergency commitment, will also impact on any individual’s ability to mitigate fatigue. Nevertheless, individuals have a responsibility to ensure their own wellbeing and its impact on patient safety.

The use of stimulants or caffeine may combat fatigue; however, they do not prevent the problem and as such, are not recommended.

With regard to organisations and departments, a number of recommendations have been proposed including compliance with any applicable jurisdictional legislation, management of operating lists, rostering, and staffing, provision of rest facilities and safe commuting options, and

collection of data regarding critical incidents associated with fatigue to allow for analysis and subsequent action.

3.5 Toolkit resources

A toolkit to assist individuals to recognise fatigue in themselves or their colleagues is provided in appendices 1, 3 and 4, and suggestions for addressing risks associated with fatigue are provided in appendices 2, 5, 6 and 7. We thank the Association of Anaesthetists, the Royal College of Anaesthetists and the Faculty of Intensive Care Medicine for their permission to use the toolkit resources and modify them for the Australian and New Zealand context.

4. Summary

The accompanying guidelines represent a review of the previous statement with the intention of identifying the contemporary issues surrounding fatigue in order to facilitate clinicians and healthcare facilities taking the necessary actions to address them.

The literature on fatigue is extensive and now well recognised. International organisations have attempted to address the issues through recommendations and development of various toolkits.

Some of the recommendations may present a challenge, however, they are designed to assist in risk management of fatigue. Adoption of the recommendations should enhance patient safety and practitioner health and wellbeing.

References

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Related ANZCA documents

PS42(A) Position statement on staffing of accredited departments of anaesthesia

PS53(A) Position statement on the handover responsibilities of the anaesthetist

PS57(A) Position statement on duties of specialist anaesthetists

Further reading

Australian Medical Association Ltd. National code of practice - hours of work, shiftwork and rostering for hospital doctors. Kingston: Australian Medical Association Ltd; 2016 Aug. Available from: https://ama.com.au/sites/default/files/documents/FINAL_NCP_Hours_of_work_2016.pdf Accessed 1 May 2024.

Process of review

ANZCA Council approved the review of this professional document in April 2018. The Safety and Quality Committee approved the membership of the document development group in July 2018, comprising:

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ANZCA website: www.anzca.edu.au

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Fatigue: the facts

"Fatigue is the subjective feeling of the need to sleep, an increased physiological drive to fall asleep and a state of decreased alertness."[1]

1. Restorative sleep

Most adults require 7-8 hours of uninterrupted restorative sleep per night.

2. Sleep debt

A sleep debt occurs after restricted sleep for 2 or more nights.

3. Sleep restriction

Moderate sleep restriction to 6 hours per night for 2 weeks impairs performance equivalent to one night of complete sleep deprivation.

4. Wakefulness

Cognitive function is impaired after 16-18 hours of wakefulness.

5. Dangerous driving

17 hours of wakefulness can cause impairment of performance equivalent to a blood alcohol level of 0.05%.

6. Age

Sleep patterns are altered and the ability to recover from lack of sleep is reduced by age.

7. Microsleeps

Fatigue induces sleep lapses or microsleeps, which are spontaneous, uncontrolled and often go unrecognised.

8. Recovery

2 consecutive nights of restorative sleep are needed to recover from sleep loss.

The AAGBI guideline *Fatigue and Anaesthetists* 2014[1] includes information about good sleep habits and recommendations for individuals and departments about how they can mitigate the effects of fatigue.

Reference

1. Association of Anaesthetists of Great Britain and Ireland. Fatigue and Anaesthetists 2014. London: AAGBI, 2014 https://www.aagbi.org/sites/default/files/Fatigue%20Guideline%20web.pdf

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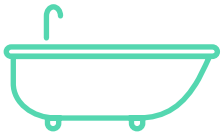
Useful tips to aid sleep

In order for sleep to occur, there needs to be deep relaxation. Focus on this first. Deep relaxation is very restorative. Sleep should follow, but if it doesn't, don't worry. Here are some tips that might help improve your sleep.

Unchallenge your brain

- The absence of light stimulates melatonin release; invest in an eye mask and blackout blinds or curtains.
- Avoid using electronic devices for 30-60 min before bed.
- Eliminate unwanted sound with earplugs.
- Consider listening to a podcast or hypnosis audio on a gentle volume to help you fall asleep.

Have a hot bath



- The drop in temperature the body undergoes after a hot bath or shower aids the onset of sleep.
- Bed socks encourage peripheral vasodilation and can help optimise body temperature. Keep your room cool and your bed warm.

Sleep in a way that works for you

Before the existence of artificial light, natural sleep was in two distinct phases, with a break of several hours in-between. Not everyone manages to sleep for a solid **8 hours**; it's what's right for you that matters.

Be prepared

Here are some suggestions to help reduce anxiety and cognitive load, facilitating relaxation.

- Exercise regularly, but not too close to bedtime.
- Download a yoga nidra or meditation audio and use it.
- Write a 'to do' list rather than inevitably thinking of one as you try to sleep.
- Accept help with tasks you can delegate.

References

www.sleepcouncil.org.uk

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Farquhar M. Fifteen-minute consultation on problems in the healthy paediatrician: managing the effects of shiftwork on your health. *Arch Dis Child Educ Pract Ed* 2016; 0: 1-6

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I'm safe

A checklist adapted for clinicians to assess fatigue and fitness to work.

Illness

- Have you been unwell or suffering from symptoms of pregnancy?
- Has your health been put at risk by clinical work; e.g. needle-stick injury, or risk of exposure to infectious disease?
- Do you need to talk to the Occupational Health team?

Medication

- Are you taking prescribed or over-the-counter medication that might be affecting you?

Stress

- Are there work or non-work related factors that might affect your performance?
- Do you need to speak to someone before going on or off shift?
- Does the team need to debrief / give feedback?

Alcohol

- Could there still be alcohol in your system?
- Consider your consumption in the last 24 hours, not just the last 8 hours.

Fatigue

- Have you had restricted sleep* in the last 2 weeks?
- Do you have a sleep debt*?
- Have you had trouble speaking coherently or keeping your eyes open?
- Would a short sleep make you safer?

*Please see 'Fatigue: the Facts' poster for more information about these.

Eating

- Have you had something to eat or drink? Do you need to?

References

"Flight Fitness: The "I'm Safe" Checklist". FAA Medical Certification. Pilot Medical Solutions, Incorporated. Retrieved 20 Dec 2011

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Fatigue tool

Make sure your colleagues get home safely.

S Do they feel SLEEPY?

L Has it been a LONG shift?*

E Are they relying on caffeine or ENERGY drinks to stay awake?

P Do they need a POWER nap?

T Do they look TIRED? Are they finding it hard to concentrate?

If the answer to any of these is "YES" Take Action! Don't let them NOD off!

N NAP before driving home; miss rush hour & feel more alert.

O Are there OTHER ways to get home than driving? Train, taxi, bus, tram, walk, get a lift?

D DRIVING when tired is DANGEROUS!

*Remember to make a report using your facility's risk management system if work hours exceed 12 hours.

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Working well at night

Before nights

- Make sure you usually have a good sleep routine.
- Get extra sleep before your shift. An afternoon nap is ideal as it reduces the length of time you have been continuously awake. A lie-in is an alternative.
- Plan how you will get home. Is there an option other than driving?
- Will you need to rest before driving home?

During nights

- Keep well hydrated and eat healthy snacks. Calories on nights DO count; they contribute to the adverse health effects of night working.
- Maximise exposure to bright lights in non-clinical areas.
- Breaks are essential: work as a team to cover each other for these.
- A **15-20 min** nap can significantly improve alertness.
- Longer naps may result in sleep inertia.
- Be vigilant for the 04:00 dip: your lowest physiological point.
- Work as a team to check calculations and be aware of the effects of fatigue on decision making.
- If you can, a consistent routine during shifts can help.

Between nights

- If you are too tired to drive, have a short nap before leaving work.
- Have a snack before sleeping so you don't wake up hungry.
- Go to bed as soon as possible to maximise the amount of sleep you will get.
- Do not plan deliveries or daytime activities for the days between night shifts. Warn your housemates that you need to sleep.

Recovery after nights

- Have a short sleep in the morning and then get up.
- Aim to go to bed at your usual time; avoid a long lie in the next day.
- You'll need at least 2 normal nights sleep to reset your sleep routine.

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On shift rest facilities

The on-shift rest facilities available are:

Location, keys, details of access codes:

Upkeep of the facilities is the responsibility of:

Post shift rest facilities

The post-shift rest facilities available are:

Instructions for access, time limits for use:

Upkeep of the facilities is the responsibility of:

Please appraise both your own fatigue levels and those of your colleagues on a regular basis.

If you are in any doubt as to your ability to drive home, please do NOT take the risk with your life and that of others. Remember that driving when fatigued has similar physiological legal consequences to driving when drunk.

The recommended taxi number is:

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A rested doctor is safer

1. Arrange pager cover
2. Consider a caffeinated drink before you rest
3. Find a quiet, dark room to lie down in
4. Set your alarm
5. Close your eyes
6. Just rest...*

* even if you can't sleep, resting is still beneficial

"The perfect nap: sleeping is a mix of art and science."

The Wall Street Journal. September 2013

10 - 20 MIN NAP (IDEAL)

Early stages of non-rapid eye movement sleep. This is optimal to improve mental alertness and ensure you wake up feeling sharper.

30 - 40 MIN NAP

Restorative BUT may result in sleep inertia (feeling groggy and slowed-down) upon waking before improved mental alertness is apparent.

60 MIN NAP

Recall of facts and faces improves. It includes the deepest type of sleep BUT you may feel groggy when you wake up.

90 MIN NAP

This constitutes a full sleep cycle. Your memory will be greatly improved and you'll avoid feeling groggy BUT it may impair your sleep post-shift.