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**RACP Submission to Parliamentary Inquiry  
into Sleep Health Awareness in Australia**

**November 2018**

## About The Royal Australasian College of Physicians (RACP)

The RACP trains, educates and advocates on behalf of over 15,000 physicians and 7,000 trainee physicians, across Australia and New Zealand. The College represents a broad range of medical specialties including sleep health medicine, addiction medicine, general medicine, paediatrics and child health, cardiology, respiratory medicine, neurology, oncology, public health medicine, occupational and environmental medicine, palliative medicine, sexual health medicine, rehabilitation medicine, and geriatric medicine. Beyond the drive for medical excellence, the RACP is committed to developing health and social policies which bring vital improvements to the wellbeing of patients.

### Introduction

The Royal Australasian College of Physicians (RACP) welcomes the opportunity to provide a submission to the Inquiry into Sleep Health Awareness in Australia conducted by the Australian Parliament's House Standing Committee on Health, Aged Care and Sport (the Committee).

This submission addresses each of the Inquiry's Terms of Reference (TOR) and includes a list of recommendations for the Committee's consideration in the interests of public health.

The RACP trains and admits Fellows qualified as "qualified sleep medicine practitioners". The Royal Australasian College of Physicians recognizes Sleep Medicine as a subspecialty of internal medicine.<sup>1</sup> These experts provide treatment for which Medicare rebates apply. This involves post medical degree training for seven or more years, including a period of one to three years in full-time sleep medicine training.

Sleep affects all areas of our life. It is a fundamental building block of achieving and maintaining good health, along with good nutrition and adequate exercise. Yet it is often overlooked and ignored. Poor sleep experiences are relevant to be considered within many specialist areas dealing with patient conditions, for example, child health and adolescent medicine, occupational health medicine, cardiology, neurology, endocrinology, pharmacology, pain medicine, neurology, psychiatry and geriatric medicine. As a College that includes many of these specialty areas including the key expert specialty group, the Australasian Sleep Association, we recognise the importance of contributing to this Inquiry. This submission has benefited from the valued support of the Australasian Sleep Association.

Australia is a recognised world leader in sleep medicine and we have highly-developed skills in many of these areas. This leadership, which has the potential to be translated into economic impacts must be maintained and resourced.

With due recognition of the important role of sleep biologically and the need to create space for sufficient sleep in our modern demanding and often stressful lives, the positive message is that many sleep disorders and poor and inadequate sleep experiences are readily treatable by either behavioural modification or other therapies, which have been shown to be cost-effective.

The interaction between public health and inadequate sleep or sleep disorders are rarely overtly considered by policy makers, workplaces employers, schools, and other organisations in which people must perform.<sup>2</sup> Yet there is potential for health disparities to be better and more completely addressed if sleep is incorporated into public health research.

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<sup>1</sup> Flemons, W.W., Douglas, N.J., Kuna, S.T., Rodenstein, D.O. and Wheatley, J., 2004. Access to diagnosis and treatment of patients with suspected sleep apnea. *American journal of respiratory and critical care medicine*, 169(6), pp.668-672.

<sup>2</sup> Jackson, C.L., Redline, S. and Emmons, K.M., 2015. Sleep as a potential fundamental contributor to disparities in cardiovascular health. *Annual review of public health*, 36, pp.417-440.

## TOR 1:

### The potential and known causes, impacts and costs (economic and social) of inadequate sleep and sleep disorders on the community.

The extent to which Australian's experience of inadequate sleep and the impact it has on the Australian community can be better described in terms of several key domains - health, social, psychological and economic impact. In 2010, a Deloitte Access Economics report stated that more than 1.5 million Australian adults, or 9% of the adult population, suffered from sleep disorders<sup>3</sup>. The two most common sleep disorders are obstructive sleep apnoea (OSA) and insomnia<sup>4</sup>. Poor and inadequate sleep and sleep disorders are pervasive. In 2017 it was estimated that 39.8% of Australian adults experience some form of inadequate sleep<sup>5</sup>. Further, we note recent research into the significant extent to which young people and children experience the impacts of sleep impairment, and how this effects health. This is due in large part to lifestyle habits such as use of social media and gaming. This is described in the sub-section below.

#### Health Impact

Inadequate sleep is a substantial public health problem. Sleep disorders and reduced sleep impact people's health at all life stages, from childhood (including caregivers of children experiencing reduced sleep), to the working middle ages, and through to old age. Recent research suggests that the proportion of adults affected by inadequate sleep is increasing, affecting between 33% and 45% of Australian adults, depending on the methodology used to define inadequate<sup>6</sup>. When we consider both adolescents and adults (still not including children), poor or inadequate sleep affects over 20% of people on a daily or near-daily basis<sup>7</sup>. Children and their sleep have not been studied in large population-based studies in Australia and this is a major deficiency.

It is essential to this Inquiry that population sleep health responses are not limited to addressing diagnosed sleep disorders. Although partly related to clinical sleep disorders and other health complaints, sleep health issues can often be due to work or lifestyle-related factors. As a consequence, health, well-being, productivity, and safety suffer, which is substantiated in significant ways within the growing body of evidence referred to briefly below. Inadequate sleep impacts full and functioning healthy recovery from existing conditions, work productivity, mental functioning, exposure to accident risk, quality of life, and a range of health conditions. It is also associated with increased all-cause mortality.

A range of sleep disorders (insomnia, restless legs syndrome (RLS) and obstructive sleep apnoea (OSA)) can contribute to heart disease, obesity, depression, early onset dementia and other serious health conditions<sup>8</sup>. There is evidence linking sleep and chronic diseases such as hypertension, weight gain, diabetes, cancer and mood disorders<sup>9</sup>. OSA is a disease characterised by repetitive periods of obstructed breathing during sleep (apnoea and hypopnoea). These episodes lead to reduction in oxygen levels, arousals, and also mechanical stresses on the heart and lungs. OSA is associated with symptoms of sleep disruption, snoring, and daytime sleepiness. Insomnia leads to either chronic difficulties in initiating or maintaining sleep, or frequent early, resulting in impairment of daytime functioning<sup>10</sup>.

Health research has demonstrated relationships between shortened sleep and a range of health problems such as hypertension<sup>11</sup>, type 2 diabetes<sup>12</sup>, obesity<sup>13</sup>, cardiovascular disease<sup>14</sup> and total mortality risk<sup>15</sup>. Sleep

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<sup>3</sup> Economics, D.A., 2011. Re-awakening Australia: The economic cost of sleep disorders in Australia, 2010. *Sleep Health Foundation*.

<sup>4</sup> Jackson, C.L., Redline, S. and Emmons, K.M., 2015. Sleep as a potential fundamental contributor to disparities in cardiovascular health. *Annual review of public health*, 36, pp.417-440.

<sup>5</sup> [https://www.sleephealthfoundation.org.au/files/Asleep\\_on\\_the\\_job/Asleep\\_on\\_the\\_Job\\_SHF\\_report-WEB\\_small.pdf](https://www.sleephealthfoundation.org.au/files/Asleep_on_the_job/Asleep_on_the_Job_SHF_report-WEB_small.pdf) [Accessed 17/10/2018]

<sup>6</sup> Adams, R.J., Appleton, S.L., Taylor, A.W., Gill, T.K., Lang, C., McEvoy, R.D. and Antic, N.A., 2017. Sleep health of Australian adults in 2016: results of the 2016 Sleep Health Foundation national survey. *Sleep health*, 3(1), pp.35-42.

<sup>7</sup> Hillman, D.R. and Lack, L.C., 2013. Public health implications of sleep loss: the community burden. *Med J Aust*, 199(8), pp.S7-S10.

<sup>8</sup> [https://www.sleephealthfoundation.org.au/files/Asleep\\_on\\_the\\_job/Asleep\\_on\\_the\\_Job\\_SHF\\_report-WEB\\_small.pdf](https://www.sleephealthfoundation.org.au/files/Asleep_on_the_job/Asleep_on_the_Job_SHF_report-WEB_small.pdf) [Accessed 17/10/2018]

<sup>9</sup> Jackson, C.L., Redline, S. and Emmons, K.M., 2015. Sleep as a potential fundamental contributor to disparities in cardiovascular health. *Annual review of public health*, 36, pp.417-440.

<sup>10</sup> Jackson, C.L., Redline, S. and Emmons, K.M., 2015. Sleep as a potential fundamental contributor to disparities in cardiovascular health. *Annual review of public health*, 36, pp.417-440.

<sup>11</sup> Vgontzas AN, Liao D, Bixler EO, et al. Insomnia with objective short sleep duration is associated with a high risk for hypertension. *Sleep* 2009; 32: 491-497

disorders such as insomnia<sup>16</sup>, obstructive sleep apnoea (OSA)<sup>17</sup> and restless leg syndrome<sup>18</sup> have also been associated with increased morbidity and mortality. It has been posited that cardiovascular disease (CVD) is a particularly underappreciated potential consequence of suboptimal sleep<sup>19</sup>.

Furthermore, short sleep has an adverse effect on physical health with small but measurable increases in risk of heart attacks, stroke, hypertension, obesity, diabetes, depression, and mortality. Sleep loss impairs cognition, psychomotor function, and mood. This can result in lapses in attention and clear focus; reduced motivation; compromised problem solving; confusion, irritability, and memory lapses; impaired communication; slowed or faulty information processing and judgment; diminished reaction times; and indifference and loss of empathy. Research has shown that even brief periods of sleep restriction can impair intellectual performance, psychomotor vigilance, memory, and mood and increase insulin resistance and inflammatory markers. Such physical and psychological changes adversely affect health, mood, safety, and productivity both in the workplace and there are impacts on health and well-being. It is important to appreciate that sleep disorders impact productivity and safety such as through 'presenteeism' (being present at work but operating in a sub optimal way). This is a difficult aspect to research.

Lack of sleep was estimated to result in 3,017 Australian deaths in 2016-17<sup>20</sup>. Deaths relating to lack of sleep can be due to accidents such as falling asleep at the wheel of a vehicle, or from industrial accidents due to lack of sleep, or due to sequelae such as heart diseases and diabetes. Fatigue is a major cause of road accidents<sup>21</sup>.

### **Sleep and young people**

Research by the University of Adelaide (2014) reported that more than 70% of South Australian teenagers experience insufficient sleep on every school night, with many reporting the overuse of electronic media (such as the internet, video games and mobile phones)<sup>22</sup>. It concluded that this delays the time teenagers go to bed, interrupts them during the night, and leads to longer times to achieve a deep sleep. The significant health and mental health effects on young people from lack of sleep can lead to problems with learning and concentration, poor eating habits, and a range of other behaviours that are either unhealthy or undesirable. Sleep is also important during periods of brain maturation, and there are significant biological and psychosocial changes in sleep and circadian regulation that exist across pubertal development<sup>23</sup>.

### **Financial impact**

Estimates of how sleep and sleep disorders impact the Australian economy are substantial. According to the most recent estimate by Deloitte Access Economics the economic cost (financial and nonfinancial) of inadequate sleep in Australia for the 2016–2017 financial year was \$66.3 billion<sup>24</sup>. This equates to approximately \$8,968 per person affected in both financial and wellbeing costs.

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<sup>12</sup> Spiegel K, Knutson K, Leproult R, et al. Sleep loss: a novel risk factor for insulin resistance and type 2 diabetes. *J Appl Physiol* 2005; 99: 2008-2019.

<sup>13</sup> Watanabe M, Kikuchi H, Tanaka K, Takahashi M. Association of short sleep duration with weight gain and obesity at 1-year follow-up: a large-scale prospective study. *Sleep* 2010; 33: 161-167

<sup>14</sup> Bagai K. Obstructive sleep apnea, stroke, and cardiovascular diseases. *Neurologist* 2010; 16: 329-339

<sup>15</sup> Grandner MA, Hale L, Moore M, Patel NP. Mortality associated with short sleep duration: the evidence, the possible mechanisms, and the future. *Sleep Med Rev* 2009; 14: 191-203.

<sup>16</sup> Léger D, Guilleminault C, Bader G, et al. Medical and socio-professional impact of insomnia. *Sleep* 2002; 25: 625-629

<sup>17</sup> Bagai K. Obstructive sleep apnea, stroke, and cardiovascular diseases. *Neurologist* 2010; 16: 329-339.

<sup>18</sup> Garcia-Borreguero D, Egatz R, Winkelmann J, Berger K. Epidemiology of restless legs syndrome: the current status. *Sleep Med Rev* 2006; 10: 153-167.

<sup>19</sup> Jackson, C.L., Redline, S. and Emmons, K.M., 2015. Sleep as a potential fundamental contributor to disparities in cardiovascular health. *Annual review of public health*, 36, pp.417-440.

<sup>20</sup> Sleep Health Foundation and Deloitte Access Economics 2017 Asleep on the job: costs of inadequate sleep in Australia

<sup>21</sup> <https://www.sleep.org.au/documents/item/68> [accessed 17/10/2018]

<sup>22</sup> King, D.L., Delfabbro, P.H., Zwaans, T. and Kaptsis, D., 2014. Sleep interference effects of pathological electronic media use during adolescence. *International Journal of Mental Health and Addiction*, 12(1), pp.21-35.

<sup>23</sup> Dahl, R.E. and Lewin, D.S., 2002. Pathways to adolescent health sleep regulation and behavior. *Journal of adolescent health*, 31(6), pp.175-184.

<sup>24</sup> Hillman, D., Mitchell, S., Streatfeild, J., Burns, C., Bruck, D. and Pezzullo, L., 2018. The economic cost of inadequate sleep. Sleep. Analysis was undertaken using prevalence, financial, and nonfinancial cost data derived from national surveys and databases.

The financial cost component was \$26.2 billion in financial costs (comprising health system, lost productivity and other costs in terms of resources). Nonfinancial costs in terms of loss of wellbeing (as measured by Disability Adjusted Life Years) was estimated at \$40.1 billion, which equates to 4.6% of the total Australian burden of disease for the year.

The components of the \$26.2 billion in financial costs comprised:

- health system costs of \$1.8 billion, or \$246 per person with inadequate sleep;
- productivity losses of \$17.9 billion, or \$2,418 per person with inadequate sleep;
- informal care costs of \$0.6 billion, or \$82 per person with inadequate sleep; and
- other financial costs, including deadweight losses (i.e. reduced taxation revenues and increased welfare payments), of \$5.9 billion, or \$802 per person with inadequate sleep.

Within the \$1.8 billion health system costs component, the shares of these costs that are attributable to different diseases resulting from inadequate sleep are as follows:

- sleep disorders (12.8%)
- congestive cardiac failure (0.7%)
- coronary artery disease (6.3%)
- stroke (3.8%)
- type 2 diabetes (1%)
- depression (21.9%)
- medical costs of workplace injuries (34.2%)
- and medical costs of motor vehicle accidents (19.3%)<sup>25</sup>.

Reports such as the one cited above have recognised that estimated costs, while sizeable are likely to significantly underestimate the total cost to the community of sleep-related problems<sup>26</sup>.

## **TOR 2:**

### **Access to, support and treatment available for individuals experiencing inadequate sleep and sleep disorders, including those who are: children and adolescents, from culturally and linguistically diverse backgrounds, living in rural, regional and remote areas, Aboriginal and Torres Strait Islander.**

#### **The importance of clinical education and health provider awareness**

Poor sleep and sleep disorders are common but may be under-reported and inadequately addressed by primary health providers<sup>27</sup>. There is a need for much greater awareness of the importance of sleep health at all ages, and the availability of support and treatment, especially non-pharmacological treatment. One in twenty Australians experience significant insomnia<sup>28</sup>. They have reported an experience of diminished functioning and life dissatisfaction independent of other physical and psychiatric conditions. People with insomnia are more frequent users of medications and healthcare services than those without insomnia even after accounting for comorbidities. This study concludes there is a need to improve public and clinical awareness of the burden associated with insomnia and the availability of treatment options<sup>29</sup>.

Thus there is a need for a greater focus on sleep medicine in medical schools and during General Practice training to support less prescribing of sedatives for insomnia for example, in favour of cognitive behaviour

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<sup>25</sup> Hillman, D., Mitchell, S., Streatfeild, J., Burns, C., Bruck, D. and Pezzullo, L., 2018. The economic cost of inadequate sleep. Sleep. Analysis was undertaken using prevalence, financial, and nonfinancial cost data derived from national surveys and databases.

<sup>26</sup> Hillman, D.R. and Lack, L.C., 2013. Public health implications of sleep loss: the community burden. Med J Aust, 199(8), pp.S7-S10.

<sup>27</sup> Miller, J.N. and Berger, A.M., 2016. Screening and assessment for obstructive sleep apnea in primary care. Sleep medicine reviews, 29, pp.41-51.

<sup>28</sup> Bin, Y.S., Marshall, N.S. and Glozier, N., 2012. The burden of insomnia on individual function and healthcare consumption in Australia. Australian and New Zealand Journal of Public Health, 36(5), pp.462-468.

<sup>29</sup> Bin, Y.S., Marshall, N.S. and Glozier, N., 2012. The burden of insomnia on individual function and healthcare consumption in Australia. Australian and New Zealand Journal of Public Health, 36(5), pp.462-468.

therapy. Research and the experience of sleep specialists show that referral of patients with insomnia to sleep clinics is relatively rare<sup>30</sup>.

Health professionals need to be equipped with more knowledge about sleep and its health impacts, but importantly they should be sufficiently familiar with the field and the practical application of each of the available OSA investigations and treatment options. The specialty of sleep medicine now has a robust curriculum, encompassing both respiratory and non-respiratory sleep disorders, and requires a full year of dedicated training. This will see larger numbers of specialists with sufficient skills to assist with managing the public health burden of OSA<sup>31</sup>.

There needs to be increased awareness about clinical assessment, goals of OSA treatment and the various available treatment options. Patient access to specialist sleep services has been limited and this strategy alone will not be able to cope with the evidently large burden of disease. It is possible for there to be suitable training and support from a specialist sleep centre to upscale sleep service delivery at the primary care level and translate validated simplified models of care for OSA into routine care. It is preferable that the large burden of disease be best served in the long term by an expanded trained pool of primary care and other health care providers working alongside sleep and respiratory specialists.

### **The importance of public education in facilitating access**

For the general population without mental illness, it is important to consider what is non-pathological in terms of poor sleep. Recognition and awareness of the underlying cause or contributing factors to health conditions and behaviours facilitates early diagnosis and treatment. Education is a key strategy and we support education campaigns directed to both the public and to health practitioners. For the public we advocate the introduction of a wide scale education program in schools. This could have a similar design to the successful uptake of 'slip, slop, slap' campaign messages.

Community-based primary health care professionals, including GPs, nurses, Aboriginal health care workers, pharmacists, dentists and psychologists must be made familiar with signs and risks of potential poor sleep health and sleep disorders and be able to suggest appropriate referrals.

The College strongly recommends that there be national support for and resourcing for all individuals with sleep disorders to have these issues identified and to have access to timely and appropriate care. Interventions should be able to be personalised and include lifestyle programs to improve sleep quality and reduce sleep deprivation.

### **The importance of appropriate prescribing practices**

The management rate for OSA tripled from 2000 to 2014, illustrating the significant rise in patients seeking treatment for the sleep disorder<sup>32</sup>. Primary care treatment trends were assessed for patients older than fifteen years where insomnia or difficulty sleeping was managed using Bettering the Evaluation And Care of Health (BEACH) data<sup>33</sup>. Trends in these encounters from 2000–2015 showed that pharmacotherapy was used in approximately 90% of encounters; nonpharmacological advice was given at approximately 20%; and onward referral at approximately 1% of encounters<sup>34</sup>.

We are concerned with more common approaches to sleep disorders, insomnia and inadequate sleep leaning towards prescribed medications. For example, Australian data shows that 96% of insomnia presentations

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<sup>30</sup> Cheung, J.M., Atternäs, K., Melchior, M., Marshall, N.S., Fois, R.A. and Saini, B., 2014. Primary health care practitioner perspectives on the management of insomnia: a pilot study. *Australian journal of primary health*, 20(1), pp.103-112.

<sup>31</sup> Mansfield, D.R., Antic, N.A. and McEvoy, R.D., 2013. How to assess, diagnose, refer and treat adult obstructive sleep apnoea: a commentary on the choices. *Med J Aust*, 199(8), pp.S21-S26.

<sup>32</sup> Cross, N.E., Harrison, C.M., Yee, B.J., Grunstein, R.R., Wong, K.K., Britt, H.C. and Marshall, N.S., 2016. Management of snoring and sleep apnea in Australian primary care: the BEACH study (2000–2014). *Journal of Clinical Sleep Medicine*, 12(08), pp.1167-1173.

<sup>33</sup> a nationally representative cross-sectional survey of 1,000 newly randomly sampled family physicians' activity in Australia per year (now discontinued)

<sup>34</sup> Miller, C.B., Valenti, L., Harrison, C.M., Bartlett, D.J., Glozier, N., Cross, N.E., Grunstein, R.R., Britt, H.C. and Marshall, N.S., 2017. Time trends in the family physician management of insomnia: the Australian experience (2000–2015). *Journal of Clinical Sleep Medicine*, 13(06), pp.785-790.

result in prescribed medications<sup>35</sup>. The majority (nearly 85%) of the prescribed medications are sedative-hypnotics (benzodiazepine derivatives and benzodiazepine related drugs), and 5% are mainly antidepressants. The reasons given by GPs are being time poor, not knowing clear referral paths, experiencing a shortage of Cognitive Behavioural Therapy for Insomnia (CBTi) providers and having a lack of skills in behavioural treatment provision for patients with insomnia.<sup>36</sup>

GPs and pharmacists can have difficulty translating evidence into routine insomnia management because of pressure to prescribe 'quick-fix' pharmacotherapy solutions, sometimes a reluctance to engage in non-pharmacological interventions, pressure coming from patients (such as shift workers), the need for the fast flow of patients in the fee for service system, and pharmacists' pressure to generate pharmacological sales<sup>37</sup>.

### Access and timeliness

Recent data is hard to obtain but previous research stated that patients wait an average of 9 (range, 1–32) weeks for initial consultation after being referred<sup>38</sup>. Sleep specialists request diagnostic polysomnography (PSG) resulting in an additional wait of 21 (4–68) weeks in the public sector and 4 (1–12) weeks in the private sector. After completion of the diagnostic study, the time lapse until therapy is started is highly variable with some centres starting patients immediately and others waiting up to 40 weeks for a continuous positive air pressure (CPAP) titration study. Most laboratories will prioritize studies on the basis of clinical urgency that is decided by the referring physician and some will also use clinical prediction rules<sup>39</sup>. After 1 November 2018, changes to MBS items for sleep studies are expected to better ensure patients with proven sleep disorders are identified and appropriately managed. For example, the wait time to diagnostic PSG may well improve after this time, because the new item number allows GPs to refer directly to the laboratory for a PSG, thus avoiding the wait time for sleep physician assessment prior.

More recent data still suggests delayed access to treatment, especially within the public system. For example:

- In 2013 the Children's Hospital at Westmead reported wait times for the sleep and respiratory clinic of up to twelve months to see specialists<sup>40</sup>.
- The Sleep Clinic in Queensland reports a wait time of six to eight months<sup>41</sup>.
- SA Health Metropolitan Specialist Outpatient Clinics reported in July 2018 the median wait time for sleep disorders is between 3.5 and 7 months<sup>42</sup>.

Better use of telehealth has an important role to play in enabling sleep specialists to assist health care practitioners and patients in rural and regional communities<sup>43</sup>. There is also a case for expanding the availability of limited channel sleep testing whether through amendments to the MBS or through other means. Currently, this type of testing tends to be offered directly to the patient at various outlets and pharmacies linked to the potential sale of CPAP and other therapeutic devices but may not include the medical profession at all.

### Services and facilities for children and young people

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<sup>35</sup> J.M.Y. Cheung, K. Atternas, M. Melchior, et al. Primary health care practitioner perspectives on the management of insomnia: a pilot study *Aust J Prim Health*, 20 (2014), pp. 103-112

<sup>36</sup> Wong, K., Bartlett, D.J. and Saini, B., 2018. Integrated primary care insomnia management in Australia. *Research in Social and Administrative Pharmacy*, 14(2), pp.170-179.

<sup>37</sup> Cheung, J.M., Atternäs, K., Melchior, M., Marshall, N.S., Fois, R.A. and Saini, B., 2014. Primary health care practitioner perspectives on the management of insomnia: a pilot study. *Australian journal of primary health*, 20(1), pp.103-112.

<sup>38</sup> Flemons, W.W., Douglas, N.J., Kuna, S.T., Rodenstein, D.O. and Wheatley, J., 2004. Access to diagnosis and treatment of patients with suspected sleep apnea. *American journal of respiratory and critical care medicine*, 169(6), pp.668-672.

<sup>39</sup> Flemons, W.W., Douglas, N.J., Kuna, S.T., Rodenstein, D.O. and Wheatley, J., 2004. Access to diagnosis and treatment of patients with suspected sleep apnea. *American journal of respiratory and critical care medicine*, 169(6), pp.668-672.

<sup>40</sup> <https://www.smh.com.au/national/nsw/children-wait-two-years-for-sleep-study-20130406-2hdjz.html> (accessed 18/10/2018)

<sup>41</sup> <https://www.goldcoast.health.qld.gov.au/our-services/sleep-studies> [accessed 18/10/2018]

<sup>42</sup> [SA Health Metropolitan Specialist Outpatient Clinics](https://www.sahealth.gov.au/our-services/sleep-studies) July 2018

<sup>43</sup> Mansfield, D.R., Antic, N.A. and McEvoy, R.D., 2013. How to assess, diagnose, refer and treat adult obstructive sleep apnoea: a commentary on the choices. *Med J Aust*, 199(8), pp.S21-S26.

There are prolonged waiting lists to address paediatric sleep issues. Current waiting lists are a year in the public centres, which at present are restricted to tertiary hospitals in major cities of each state<sup>44</sup>. The reasons for this are:

- All paediatric studies are done in a hospital sleep lab
- There is no funding for home studies for children.
- There is no funding for unattended paediatric studies, largely because of safety concerns about the need to monitor use of devices with children (for example, to ensure use of 'leads' do not get entangled).
- In the past decade all the expansion in paediatric sleep services has largely been in the private health sector, focusing on diagnostic studies in children age >3 years. This leads to a disproportionate increase in demand for public facilities from those children with increased complexity (more medical comorbidities, more likelihood of using or needing to use CPAP or Bilevel).

The outcome of these circumstances has been extremely long and impractical waiting lists for these paediatric (under 18) studies, of more than one year in some centres. The only real way to address this is to increase the capacity of the public health system for paediatric sleep studies. However, it is important that any increase in capacity is supported by:

- a) funded training positions
- b) staff to analyse studies
- c) staff to commence and oversee treatment with CPAP or BiLevel
- d) administrative support (for example, to manage bookings, type and send reports).

### **The relationship between sleep health and chronic disease**

Different sleep problems often coexist, potentially complicating diagnosis and management. A recent Australian study based on a national survey of Australian adults showed how common clinical sleep conditions are and importantly, are associated with a considerable burden on health. This was a cross-sectional national online survey that assessed diagnosed OSA, OSA symptoms, insomnia symptoms, sleep problems, excessive daytime sleepiness, and physician-diagnosed health conditions (heart disease, diabetes, hypertension, reflux disease, lung disease, depression, anxiety/panic disorder, arthritis)<sup>45</sup>. This study concluded that OSA remains unsuccessfully managed for most people with frequent, ongoing symptoms among those with diagnosed OSA. The study also noted a large group of participants with likely undiagnosed, symptomatic OSA who were younger than the diagnosed and potentially at higher risk of cardiometabolic problems.

Given that OSA is an emerging cardiovascular risk factor<sup>46</sup>, it is important that patients have access to timely treatment so that other chronic conditions can be identified and managed concurrently, and preventative measures be taken. The Inquiry Committee will be aware of the increasing proportion of the Australian population with multimorbid chronic conditions, and this includes the increasing proportion of children and adults who are obese and have cardiovascular related diseases<sup>47</sup>.

Research elsewhere has shown that individuals, notably studies of elderly patients, with chronic OSA are more likely to have diagnoses of congestive heart failure (CHF), pulmonary circulation disorders, COPD, and obesity<sup>48</sup>. Diagnosed OSA was significantly associated with  $\geq 1$  cardiometabolic condition and arthritis. The Epworth Sleepiness Scale (ESS) was associated with diagnosed and undiagnosed OSA, insomnia symptoms and restless legs, and these sleep conditions were also significantly associated with  $\geq 2$  diagnosed medical problems<sup>49</sup>.

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<sup>44</sup> Personal communication with Professor Karen Waters, University of Sydney (1/11/2018) based on her own research and knowledge

<sup>45</sup> Appleton, S.L., Gill, T.K., Lang, C.J., Taylor, A.W., McEvoy, R.D., Stocks, N.P., González-Chica, D.A. and Adams, R.J., 2018. Prevalence and comorbidity of sleep conditions in Australian adults: 2016 Sleep Health Foundation national survey. *Sleep health*, 4(1), pp.13-19.

<sup>46</sup> Costa, L.E., Uchôa, C.H.G., Harmon, R.R., Bortolotto, L.A., Lorenzi-Filho, G. and Drager, L.F., 2015. Potential underdiagnosis of obstructive sleep apnoea in the cardiology outpatient setting. *Heart*, pp.heartjnl-2014.

<sup>47</sup> Sanders, R.H., Han, A., Baker, J.S. and Copley, S., 2015. Childhood obesity and its physical and psychological co-morbidities: a systematic review of Australian children and adolescents. *European journal of pediatrics*, 174(6), pp.715-746.

<sup>48</sup> Diaz, K., Faverio, P., Hospenthal, A., Restrepo, M.I., Amuan, M.E. and Pugh, M.J.V., 2014. Obstructive sleep apnea is associated with higher healthcare utilization in elderly patients. *Annals of thoracic medicine*, 9(2), p.92.

<sup>49</sup> Appleton, S.L., Gill, T.K., Lang, C.J., Taylor, A.W., McEvoy, R.D., Stocks, N.P., González-Chica, D.A. and Adams, R.J., 2018. Prevalence and comorbidity of sleep conditions in Australian adults: 2016 Sleep Health Foundation national survey. *Sleep health*, 4(1), pp.13-19.

OSA is also a common condition that has been associated with atrial fibrillation (AF), but there is a paucity of data from large longitudinal cohorts to establish whether OSA is a risk factor for AF independent of obesity and other established risk factors<sup>50</sup>.

### Vulnerable population groups

We would like to draw attention to the need for timely treatment for people in more vulnerable groups. These include people with mental health issues, people with disability and persistent pain, and people with intellectual disability. People with mental health issues may also excessively use pharmacological means for sleep compared to other means of treating sleep disturbances.

People with intellectual disability can suffer chronic poor sleep and have a high prevalence of sleep disorders. This has significant ramifications, and sometimes additional (sedative) drugs are prescribed.

Sleep apnoea and other sleep disorders are common in people with a variety of disabilities including stroke, spinal cord injury<sup>51 52</sup>, traumatic brain injury<sup>53</sup>, multiple sclerosis<sup>54</sup> and many others. Diagnosis may be difficult or delayed due to lack of awareness or accompanying physical and cognitive impairment. Reduced mobility and cognition may limit access to specialist sleep assessment and treatment and established treatments e.g. continuous positive airway pressure (CPAP) may be even more difficult for people with disability to tolerate than the general population. Sleep disorders may reduce the individuals' ability to participate in rehabilitation programs and impact on quality of life.

We would also like to draw the Committee's attention to the importance of addressing sleep disorders for people with disabilities. For instance, we note that untreated OSA can exacerbate post-stroke prognosis, as it may also influence rehabilitation efforts and functional outcomes such as cognitive function after a stroke<sup>55</sup>. Obstructive sleep apnoea directly and indirectly increases risk of stroke through a variety of autonomic, chemical, and inflammatory mechanisms and vascular risk factors such as hypertension, obesity, and diabetes mellitus<sup>56</sup>.

There has to date been little attention to the nature and burden of sleep related breathing disorders among Australia's adult Aboriginal and Torres Strait Islanders<sup>57</sup>. One of the very few studies in northern and central Australia shows that Aboriginal and Torres Strait Islander peoples have a reduced rate of use of diagnostic sleep services. This study highlights the significant difficulties in providing follow-up and ensuring treatment is implemented. In summary Aboriginal and Torres Strait Islander people are impacted by Indigeneity, remote residence, environmental factors, and low awareness of sleep health when it comes to service accessibility and support following a diagnosis. It is important there is education provided on the health risks of untreated OSA and the benefits of treatment<sup>58</sup>. Part of the solution is to better understand the enablers and barriers to care in more remote and rural areas<sup>59</sup>.

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<sup>50</sup> Cadby, G., McArdle, N., Briffa, T., Hillman, D.R., Simpson, L., Knuiam, M. and Hung, J., 2015. Severity of OSA is an independent predictor of incident atrial fibrillation hospitalization in a large sleep-clinic cohort. *Chest*, 148(4), pp.945-952.

<sup>51</sup> Proserpio, P., Lanza, A., Sambusida, K., Fratticci, L., Frigerio, P., Sommariva, M., Stagni, E.G., Redaelli, T., De Carli, F. and Nobili, L., 2015. Sleep apnea and periodic leg movements in the first year after spinal cord injury. *Sleep medicine*, 16(1), pp.59-66.

<sup>52</sup> Sankari, A., Martin, J.L., Bascom, A.T., Mitchell, M.N. and Badr, M.S., 2015. Identification and treatment of sleep-disordered breathing in chronic spinal cord injury. *Spinal cord*, 53(2), p.145.

<sup>53</sup> Imbach, L.L., Büchele, F., Valko, P.O., Li, T., Maric, A., Stover, J.F., Bassetti, C.L., Mica, L., Werth, E. and Baumann, C.R., 2016. Sleep-wake disorders persist 18 months after traumatic brain injury but remain underrecognized. *Neurology*, 86(21), pp.1945-1949.

<sup>54</sup> Hughes, A.J., Dunn, K.M. and Chaffee, T., 2018. Sleep disturbance and cognitive dysfunction in multiple sclerosis: a systematic review. *Current neurology and neuroscience reports*, 18(1), p.2.

<sup>55</sup> Ramos, A.R., Seixas, A. and Dib, S.I., 2015. Obstructive sleep apnea and stroke: links to health disparities. *Sleep health*, 1(4), pp.244-248.

<sup>56</sup> Ramos, A.R., Seixas, A. and Dib, S.I., 2015. Obstructive sleep apnea and stroke: links to health disparities. *Sleep health*, 1(4), pp.244-248.

<sup>57</sup> Woods CE, McPherson K, Tikoft E, Usher K, Hosseini F, Ferns J, Jersmann H, Antic R, Maguire GP. Sleep disorders in Aboriginal and Torres Strait Islander people and residents of regional and remote Australia. *J Clin Sleep Med* 2015;11(11):1263–1271.

<sup>58</sup> Woods CE, McPherson K, Tikoft E, Usher K, Hosseini F, Ferns J, Jersmann H, Antic R, Maguire GP. Sleep disorders in Aboriginal and Torres Strait Islander people and residents of regional and remote Australia. *J Clin Sleep Med* 2015;11(11):1263–1271.

<sup>59</sup> Woods CE, McPherson K, Tikoft E, Usher K, Hosseini F, Ferns J, Jersmann H, Antic R, Maguire GP. Sleep disorders in Aboriginal and Torres Strait Islander people and residents of regional and remote Australia. *J Clin Sleep Med* 2015;11(11):1263–1271.

## **Prevention**

The College places emphasis on prevention because preventative strategies make better use of limited resources for exacerbated conditions and co-morbidities. Therefore, it is sensible for both individuals and for the wider community to support exploration of preventative approaches to stop temporary “physiological poor sleep” becoming a chronic problem where possible.

## **TOR 3:**

### **Education, training and professional development available to healthcare workers in the diagnosis, treatment and management of individuals experiencing inadequate sleep and sleep disorders.**

The College would like to see value placed on proper sleep as an essential part of living for better mental health and physical health. We support the ASA in advocating for a national sleep health awareness campaign.

Sleep related content must be specifically and overtly included into the education and training curricula of undergraduate medicine, nursing and allied health programs including continuing education programs for health professionals and community health workers.

### **Regulation and appropriate treatment – assurance for patients**

Sleep physicians encounter patients who receive incorrect advice and inappropriate therapy and this can result in poor outcomes. This can be as a result of industry driven sleep services which encourage patients to purchase CPAP devices in the absence of sleep physician oversight. We have been advised anecdotally of patients having been told they have sleep apnoea and being told of alarming consequences such as it “could kill them overnight”. This may be followed with the patient being asked to purchase an expensive CPAP machine. When such patients consult a sleep physician and the test is repeated they may find they actually have very mild sleep apnoea which could be treated with weight loss, sleeping on their sides or dental appliances and did not require CPAP therapy. The CPAP devices cost between \$1000- \$2500 and Bilevel devices are around \$5000. Our members are aware of other patients who have been told they have obstructive sleep apnoea and were advised to buy a CPAP pump, when other serious sleep disorders such as narcolepsy were not identified. This is the kind of risk and result when a health professional trained in the management of sleep disorders is not involved.

The College highlights to this Inquiry that the provision of CPAP/BiPAP is not regulated by any government body and is not considered a medication. This means anyone can provide diagnostic testing for sleep apnoea (which may/may not be billed to Medicare) and subsequently advise people to purchase and use CPAP.

To protect the public, the provision of CPAP and bi-level therapy should be regulated and only occur with sleep or respiratory physician prescription. Further, there should also be a mechanism to report adverse outcomes such as that for medication adverse outcomes.

## **TOR 4:**

### **Workplace awareness, practices and assistance available to those who may be impacted by inadequate sleep or sleep disorders, with a focus on: rostering practices for shift workers, heavy-work requirements, and the transport industry as compared to international best practice.**

The RACP supports the availability of targeted programs in industries and workplaces that use rostering and shift work of employees.

Fatigue should be deemed a high consequence risk hazard, and management must be encouraged to undertake remedial action where possible. This applies equally to physical and non-physical workplaces. For example, fatigue in the health industry can have detrimental impacts on patient care (errors and adverse

events) for nurses who are shift workers, and other medical practitioners who may be on call. This may be especially important in rural and remote areas where there are medical team shortages.

The RACP therefore supports education and awareness programs that recognise the risks and manage risks associated with the hazard of fatigue, not only to individuals but in terms of the potential risks to others. To this end, the RACP supports the availability of targeted programs in industries and workplaces that require periods of extended working hours (such as the police, fire and emergency services, typically in response to specific events), and well as those who are routinely engaged in evening and overnight shift work, such as the mining (such as Fly-In / Fly Out workers) transport (including those engaged in road, rail, maritime and/or air transport), and hospitality industries.

## **TOR 5:**

### **Current national research and investment into sleep health and sleeping disorders.**

Australia is a recognised world leader in sleep health, and we have highly-developed skills in many of these areas. For example, Professor Colin Sullivan, an RACP Fellow, invented the CPAP device in 1983, which is the worldwide gold standard treatment for sleep apnoea.

As the prevalence of fatigue and poor sleep and sleep disorders increases, the imperative for research and the development of a current evidence base is strengthened. For example, we need long term studies, particularly in relation to associations with chronic conditions. Therefore, the RACP calls for targeted research into sleep health and sleep disorders.

We would like to see more research encouraged in children with sleep disorders or sleep loss, because there is limited research in this area. One earlier study shows that short sleep duration is associated with increased obesity in children aged 5-15 years living in South Australia, especially among younger age groups and boys<sup>60</sup>. We know that sleep serves an important role in the growth, maturation, and health of the child and adolescent, and that short sleep durations are related to decreased levels of leptin, glucose tolerance, insulin sensitivity, and increased levels of ghrelin, hunger and appetite. Therefore, targeting short sleep duration may offer a novel and effective method of preventing and treating obesity.

We support further research into links between sleep disorders and chronic conditions (for example, cardiac diseases and glucose tolerance), multi morbidity, and dementia, relevant to neurology and geriatrics.

Due the severe consequences and often low recognition of the association between poor sleep and health and adverse events, the RACP supports the Sleep Foundation's proposal that sleep health be responded to at a national level similarly to campaigns for diabetes and smoking, with attention on prevention. It has been stated that while reports cited in this submission present significant cost estimates of the economic impact of poor sleep health, yet the issues of education, learning, intellectual development, and behaviour in children and adolescents have not been considered<sup>61</sup>. These are aspects that can have future impacts on our economic status.

Research investment that includes strong surveillance and monitoring system for sleep disorders is also suggested.

We note the absence of NHMRC clinical guidelines or any factsheet available for health workers. The College strongly recommends the development of standard best practice national guidelines, to describe appropriate recognition of sleep in the primary sector as the gatekeepers to referrals to sleep specialists. Closer collaboration between the ASA and NHMRC would be essential in developing this.

## **Recommendations**

The College recommends (in no order of significance):

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<sup>60</sup> Shi, Z., Taylor, A.W., Gill, T.K., Tuckerman, J., Adams, R. and Martin, J., 2010. Short sleep duration and obesity among Australian children. *BMC Public Health*, 10(1), p.609.

<sup>61</sup> Hillman, D., Mitchell, S., Streatfeild, J., Burns, C., Bruck, D. and Pezzullo, L., 2018. The economic cost of inadequate sleep. *Sleep*.

- 1) More investment in preventive health measures to address sleep health through public education campaigns and regulation
- 2) The implementation of a national strategy to address the hazards of poor sleep, recognising that the risk to others can be as severe as drink driving
- 3) A greater focus on sleep medicine in medical schools and also during General Practice training to support less prescribing of sedatives for insomnia for example, in favour of behavioural approaches. This should include further training of GPs to better support the sleep related health care needs of adults in primary care under the expert support of a sleep medicine practitioner
- 4) Stronger regulation of the provision of CPAP and bi-level therapy – ideally provision of these therapies should require sleep or respiratory physician prescription
- 5) The establishment of a regulatory mechanism to report adverse outcomes from the use of CPAP devices similar to that for adverse outcomes from medication
- 6) Increased resourcing of capacity for paediatric sleep testing in public hospitals to address the long waiting times for paediatric sleep services, including through the provision of more paediatric sleep laboratory beds and associated resources.
- 7) Funding more research to investigate the association between sleep health, sleep disorders and chronic conditions, especially long-term studies
- 8) Funding more research to determine effective ways to support Aboriginal and Torres Strait Islander people experiencing sleep disorders and inadequate sleep, with a special focus on rural and remote areas