Insomnia treatment

Improved access to effective nondrug options

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Insomnia is a common disorder managed in Australian general practice. The RACGP recommends cognitive and behavioural therapy for insomnia (CBTi) strategies as the first-line treatment. There are multiple simple and effective CBTi options accessible to Australian general practitioners and patients, but these are often underused.

Chronic insomnia is characterised by difficulties initiating or maintaining sleep, with associated daytime impairments, lasting for at least three months.[1] Insomnia is the most common sleep disorder and impairs the lives of 10 to 30% of the Australian population, which, at a conservative estimate, equates to 2.5 million people. It costs Australia $11 billion annually due to its negative impacts on physical and mental health, healthcare costs and reduced productivity.[2] Insomnia is a risk factor for depression and anxiety and contributes to 2.5- and twofold increases in motor vehicle and workplace accidents, respectively.[3,4]

Chronic insomnia is well recognised to be perpetuated by underlying psychological or behavioural causes. These require strategic behavioural and cognitive modifications to break the cycle of poor sleep habits and self-fulfilling worry about chronic poor sleep. However, 90% of patients presenting to general practice with insomnia are prescribed sedative-hypnotic medications, with a quarter of a million Australians consuming these medications each night, despite widespread recognition that this is suboptimal clinical practice.[5,6] Patients seeking treatment often expect to receive sedative-hypnotic medications (e.g. temazepam, diazepam, zolpidem, zopiclone), which are quick to prescribe but are associated with high rates of adverse cognitive and psychomotor side effects. These include

MedicineToday 2020; 21(11): 14-20

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KEY POINTS

- Insomnia is a common, debilitating and costly disorder managed in Australian general practice.
- Sedative-hypnotic medications are associated with potential side effects, adverse events and long-term dependence and are a suboptimal management strategy.
- The RACGP recommends cognitive and behavioural therapy for insomnia (CBTi) strategies as first-line treatment.
- Australian general practitioners can access multiple CBTi strategies, including effective self-administered, online, nurse- or GP-administered CBTi, or pathways for referral to a psychologist trained in treating insomnia.
- An NHMRC research program is underway to explore whether the management of insomnia in general practice can be improved in line with RACGP guidelines. GPs interested in participating in this research are encouraged to contact the authors (contact@ncshsr.com).

adverse physiological effects; a heightened risk of hepatic, renal, respiratory and cardiac disorders; daytime sedation; cognitive impairments; an increased risk of falls among the elderly; and the development of dependence and withdrawal effects after long-term use.[7,8]

Assessment of insomnia symptoms

Insomnia is diagnosed according to self-reported difficulties in falling asleep or maintaining sleep, or early morning awakenings, and associated daytime impairments.[1] Insomnia can be classified as acute (less than three months) or chronic (three months or longer). There are several simple self-report tools that can be used to screen for insomnia and related disorders or symptoms in general practice (Table 1).[9-17] When assessing a patient for insomnia, it is also important to consider the contribution of other co-occurring medical or psychiatric symptoms, medications, alcohol and recreational drug use and other lifestyle factors.

TABLE 1. INSTRUMENTS TO ASSESS INSOMNIA AND RELATED SYMPTOMS IN GENERAL PRACTICE

Instrument	Description
One-week sleep diaries[9]	Sleep diaries allow patients to record perceived sleep–wake rhythms each night over the course of one week, to capture average sleep–wake parameters and sleep timing (see Box for a sleep diary template).
Sleep Condition Indicator[10]	An eight-item self-report measure of insomnia severity that reflects DSM-5 diagnostic criteria; a score of ≤16 indicates possible insomnia.
Insomnia Severity Index[11]	A seven-item self-report measure of global insomnia severity, which has been used extensively in insomnia research; a score of ≥15 is indicative of clinically significant insomnia.
Flinders Fatigue Scale[12]	A seven-item self-report measure of daytime fatigue; it is important to assess daytime impairments associated with nocturnal sleep complaints (e.g. concentration difficulties, physical or mental lethargy, poor mood or reduced motivation and energy), of which fatigue is a very common complaint.
Patient Health Questionnaire[13]	A nine-item self-report measure of depression symptoms, reflecting DSM-IV diagnostic criteria; mild, moderate, moderately severe and severe depression symptoms are indicated by a score of at least 5, 10, 15 and 20, respectively.
Generalized Anxiety Disorder questionnaire[14]	A seven-item self-report measure of anxiety symptoms; mild, moderate and severe anxiety symptoms are indicated by a score of at least 5, 10 and 15, respectively.
OSA50 questionnaire[15]	About 30 to 40% of patients with insomnia also experience OSA.[16] The OSA50 questionnaire is a brief self-report screen, suitable for general practice; a score of ≥5 indicates possible sleep apnoea.
Epworth Sleepiness Scale[17]	An eight-item self-report scale assessing the likelihood of falling asleep in different daytime situations. Although uncommon in patients with insomnia, elevated sleepiness (a score of ≥15) may be indicative of other comorbid sleep or medical conditions.

Abbreviations: DSM-IV and 5 = Diagnostic and Statistical Manual of Mental Disorders, fourth and fifth editions; OSA = obstructive sleep apnoea.

Recommended management of insomnia

The RACGP guidelines recommend that cognitive and behavioural therapy for insomnia (CBTi) strategies should be employed as the first-line treatment for both acute and chronic insomnia.[8] CBTi includes a suite of therapeutic strategies employed and modified over four to 12 consecutive weekly sessions to gradually target the maladaptive psychological, behavioural and physiological processes that underpin the patient's insomnia.[7,18,19]

Because CBTi targets the specific underlying causal factors of insomnia, this treatment is associated with minimal side effects, and improvements are sustained far beyond therapy cessation.[20-22] The most common side effect of CBTi is a small increase in feelings of daytime sleepiness during the initial one to two weeks of bedtime restriction therapy.[20] However, these feelings of sleepiness quickly dissipate as sleep is gradually consolidated and time in bed is extended after the first two weeks of restriction. CBTi is also effective in patients with comorbid medical or psychiatric symptoms, in older adults and when administered in general practice settings.[22-25]

Treatment options for insomnia

GPs, who are at the forefront of health service delivery, are ideally placed to manage insomnia. There are several evidence-based treatment approaches, including education about sleep, digital CBTi, CBTi administered in general practice and referral to a psychologist who specialises in CBTi (Figure).[26] Each treatment approach is described below. It is recommended that the GP and patient work in a collaborative manner to select the treatment option best suited to the individual patient, based on his or her clinical profile and personal preferences. Table 2 provides an overview of treatment components commonly included in CBTi programs.

Education about sleep

There are many myths and misconceptions about sleep that make patients vulnerable to the development and perpetuation of insomnia, such as preconceptions about the amount of sleep one should obtain and the notion that awakenings during the night are pathological.[27] Anecdotally, many individuals with symptoms of insomnia report education about sleep to be therapeutic. Education typically involves information about the cyclical nature of sleep, perpetuating causes of chronic insomnia and key remedies. Education about sleep is financially and time inexpensive for both practitioners and patients.[28]

A comprehensive eBook, *How to Sleep Better*, has been developed to assist GPs and patients with education and is freely available (see Box[8,29-31]). Although the efficacy of education as a standalone treatment for insomnia is inferior to that of more comprehensive treatment methods, such as CBTi, its relative efficacy when compared with the other methods more suitable for deployment in general practice is unknown.

INSOMNIA TREATMENT OPTIONS IN AUSTRALIAN GENERAL PRACTICE

COGNITIVE BEHAVIOURAL THERAPY FOR INSOMNIA (CBTi) IS THE MOST EFFECTIVE TREATMENT FOR INSOMNIA

Poor

Moderate

Good





	Sedative-hypnotic medication	CBTi eBook	Online CBTi program	Brief GP/nurse CBTi	Psychologist CBTi
Description	Benzodiazepines, 'z-drugs',* and melatonin	Self-administered comprehensive CBTi	4–6 sessions, self-administered comprehensive CBTi	4 sessions, GP/nurse-administered, behavioural components	6–12 sessions, psychologist-administered comprehensive CBTi
Effectiveness	Moderate in short term	Moderate	Good, but limited by adherence issues	Good	Good
Limitations Side effects, access, adherence difficulties	Poor; side effects and dependence	Moderate; adherence and efficacy issues	Moderate; adherence issues	Access issues	Good adherence, but limited access
Cost	Low initially, but moderate if long term	Free	Free to $250	Depends on practice	Free to $300 gap payment
How long do improvements last?	< 4 weeks	Long term (years)	Long term (years)	Long term (years)	Long term (years)
Recommendation	Low recommendation due to high risks	Moderate effectiveness, patient must be motivated	Moderately good effectiveness, patient must be motivated	High effectiveness, access issues	Best-practice treatment, can incur higher cost

Figure. Overview of insomnia management options in Australian general practice. The authors are conducting research to investigate the feasibility of these treatment approaches in Australian general practice and welcome contact from interested GPs (contact@ncshsr.com).

* z-drugs include zolpidem and zopiclone.

Digital CBTi

With the rise in popularity of technology and portable devices, a range of digital sleep improvement programs have been developed, which may be suitable for use in general practice. These programs are delivered via the internet and mobile devices, whereby the user participates in four to six interactive weekly sessions. The efficacy of these programs relative to credible placebo programs of similar duration has been shown, with the magnitude of reductions in insomnia symptoms akin to those observed after CBTi delivered in person.[32-34] The ease of accessibility of digital programs promotes CBTi-based treatment throughout the community.

Although the most widely investigated digital CBTi programs (Sleepio and SHUTi) are not currently available in Australia, other digital programs based on the same CBTi evidence and strategies are available (see Box). Digital CBTi programs are highly effective among patients who complete the full four- to six-week course, but about 40 to 60% of patients do not complete the full program. These patients may either require motivational support or contact to encourage adherence or may be more suitable for a face-to-face CBTi option.[35]

CBTi administered in general practice

CBTi is the gold-standard treatment for insomnia and has great potential for insomnia management in general practice. Although CBTi produces robust and durable improvements in sleep, it is traditionally administered over six to 12 weeks on an individual basis, with consultations varying from 15 to 50 minutes. This limits its feasibility for use in general practice, particularly given the significant time and financial costs for both the patient and clinician.[36]

A step-by-step approach for GPs to manage insomnia using a brief CBTi program, tailored to the Australian general practice

time and funding model, has recently been developed.[29] Our group has also shown the clinical efficacy of a brief, group-based treatment program, conducted over four weekly sessions, whereby improvements in sleep and daytime functioning were notably superior to those of some longer, one-on-one programs.[21,24,37] This program is the shortest face-to-face CBTi program to date, and the standardised nature of the treatment program ensures effective administration by individuals who are not extensively trained. This program is ideally suited for administration by upskilled GPs, practice nurses or other healthcare workers (an important component to ensure delivery to rural and remote patients who are unable to access intensive clinical services).

Referral to a psychologist for CBTi

Referral to a psychologist who specialises in CBTi is best practice for insomnia management.[38] The Australian Psychological Society 'Find a Psychologist' search tool may be used to find local psychologists who specialise in CBTi and the management of insomnia (see Box).

Sedative-hypnotic withdrawal

Sedative-hypnotic medications increase sleep time initially but are associated with increasing risks of cognitive and psychomotor side effects, serious adverse events, patterns of long-term dependence and mortality when used for longer periods.[8,39-41] Furthermore, the rapid development of pharmacological tolerance results in reduced effectiveness and a tendency for dose escalation, while attempts to reduce the dose lead to rapid onset of withdrawal and rebound symptoms.[8,40] Many patients with insomnia managed in general practice may require support in withdrawing from sedative-hypnotic medications. Gradual withdrawal from these medications may reduce withdrawal or rebound symptoms, and NPS MedicineWise has developed a gradual withdrawal plan to assist with this (see Box).[8]

CBTi facilitates successful withdrawal from sedative-hypnotic medications in general practice patients.[42,43] For example, CBTi may facilitate withdrawal by reducing withdrawal or rebound symptoms that often complicate the withdrawal process, providing patients with the initial confidence to withdraw from sedative-hypnotics, or resulting in sustained reduction in insomnia after withdrawal to help prevent relapse of sedative-hypnotic use. A recent review of 95 studies including over 10,000 patients supports the use of digital, nurse-administered and psychologist-administered CBTi strategies in facilitating sedative-hypnotic withdrawal.[44] CBTi may be initiated in combination with sedative-hypnotic medications, to improve sleep and prevent rebound or withdrawal symptoms, as patients are

TABLE 2. COMPONENTS COMMONLY INCLUDED IN COGNITIVE AND BEHAVIOURAL THERAPY FOR INSOMNIA (CBTi) PROGRAMS

Component	Description
Education about sleep	• Providing evidence-based information about sleep can be useful in correcting common myths and misconceptions about sleep that often lead to sleep-related concern, worry and distress and perpetuate the insomnia condition • Many CBTi programs commence with sleep education to ensure that patients understand and engage with the subsequent behavioural and cognitive treatment components
Bedtime restriction therapy	• Bedtime restriction therapy is one of the most effective treatment components of CBTi • It aims to temporarily reduce the amount of time a patient spends in bed over a week or two, to gradually increase homeostatic sleep pressure and to reduce the time it initially takes to fall asleep and the duration of night-time awakenings • When sleep has become better consolidated, according to sleep diaries, time in bed can be gradually lengthened to ameliorate daytime sleepiness from the initial bedtime restriction
Stimulus control therapy	• Stimulus control therapy aims to re-establish the association between the bedroom environment and a state of rest and relaxation • Patients are provided with simple instructions: 1. Only use the bed for sleeping and sexual activity 2. Get out of bed at the same time each morning 3. Only go to bed when feeling sleepy 4. If not asleep within about 15 minutes, get out of bed and go to another room until feeling sleepy 5. Repeat Step 4 as many times as necessary, until you fall asleep within 15 minutes 6. Avoid long daytime naps (which reduce sleep pressure on the subsequent night) 7. Follow these steps for several weeks to establish a better sleeping pattern
Relaxation therapy	• Relaxation therapy techniques aim to reduce cognitive and physiological arousal symptoms (anxiety, distress, tension, etc.), which are incompatible with initiating or resuming sleep • Examples include progressive muscle relaxation, breathing exercises and mindfulness meditation
Cognitive strategies	• Cognitive therapy aims to identify and challenge common sleep-related misconceptions and beliefs that can contribute to increased concern, distress or worry about sleep and the impacts of sleep on health and daytime functioning

RESOURCES FOR PRACTITIONERS

- **RACGP, *Prescribing drugs of dependence in general practice, Part B: benzodiazepines*[8]** (www.racgp.org.au/clinical-resources/clinical-guidelines/key-racgp-guidelines/view-all-racgp-guidelines/drugs-of-dependence/part-b)
- **Drug and Alcohol Services South Australia, Sleep Diary** (www.sahealth.sa.gov.au/wps/wcm/connect/a466c4804033fb25998cbbd30eb2c8cd/3+-+Sleep+Diary+2017.pdf)
- ***How to Sleep Better*, free CBTi eBook** (www.re-timer.com/the-product/how-to-sleep-better/)
- **SA Health Insomnia Management Kit** (www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/clinical+resources/clinical+programs+and+practice+guidelines/substance+misuse+and+dependence/sleep+problems+-+insomnia+management+kit)
- **Australian Psychological Society 'Find a Psychologist' search tool,** to find local psychologists specialising in sleep disorders; search by general health, sleeping disorders (www.psychology.org.au/Find-a-Psychologist)
- **Digital CBTi programs available in Australia:**
  - Managing Insomnia Course (https://thiswayup.org.au/courses/managing-insomnia-course/)
  - A Mindful Way to Healthy Sleep (www.amindfulway.com.au/bettersleep)
- **BBTi materials:**
  - A step-by-step approach to BBTi[29]
  - RACGP HANDI Interventions: Brief behavioural therapy: insomnia in adults (www.racgp.org.au/clinical-resources/clinical-guidelines/handi/handi-interventions/mental-health/brief-behavioural-therapy-insomnia-in-adults)
  - Buysse DJ, et al. Arch Intern Med 2011; 171: 887-895[30]
  - Troxel WM, et al. Behav Sleep Med 2012; 10: 266-279[31]
- **NPS MedicineWise:**
  - Sedative-hypnotic information (www.nps.org.au/news/managing-benzodiazepine-dependence-in-primary-care)
  - Gradual sedative-hypnotic withdrawal plan (www.stayonyourfeet.com.au/wp-content/uploads/2015/03/ A-Reduction-Plan-for-Sleeping-Tablets.pdf)

Abbreviations: BBTi = brief behavioral treatment for insomnia; CBTi = cognitive and behavioural therapy for insomnia.

provided with support to gradually reduce medication use over the course of several weeks.

Research opportunity

The translation of best-practice management of insomnia to the general practice setting is the basis of an NHMRC-funded National Centre for Sleep Health Services Research Excellence program: Positioning Primary Care at the Centre of Sleep Health Management (2018–2022). GPs who are interested in becoming involved in this research program or in research outputs from the program, or who would like to contribute any feedback on this article or experiences from their own practice, are invited to contact the authors at www.ncshsr.com/contact.

Conclusion

As the most common sleep disorder and one with significant associated health risks, reduced quality of life and economic burden, insomnia is problematic for general practice. Pharmacotherapy continues to be the default treatment because it is simple, quick and can be prescribed in the most common 15-minute consultations. However, its limited symptomatic relief rarely provides long-term remission, and it is associated with significant adverse side effects, including drug dependence. RACGP guidelines have recognised this problem and recommend the use of CBTi as first-line treatment, instead of drugs.[8]

Many GPs also recognise the need for effective nondrug therapies but lack the training and time needed to administer CBTi.[36] However, there are a variety of CBTi options, ranging in cost, availability and evidence-based effectiveness, that can be used by GPs. These include sources of useful educational information about sleep and insomnia, online or digital CBTi programs, brief behavioural therapies that can be administered in general practice settings and referral pathways to registered psychologists experienced in CBTi. MT

References

A list of references is included in the online version of this article (www.medicinetoday.com.au).

COMPETING INTERESTS: None.

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References

1. American Academy of Sleep Medicine. International Classification of Sleep Disorders (ICSD-3), Diagnostic and coding manual. 3rd ed. Westchester, Ill: American Academy of Sleep Medicine; 2014.
2. Adams RJ, Appleton SL, Taylor AW, et al. Sleep health of Australian adults in 2016: results of the 2016 Sleep Health Foundation national survey. Sleep Health 2017; 3: 35-42.
3. Leger D, Massuel MA, Metlaine A; SISYPHE Study Group. Professional correlates of insomnia. Sleep 2006; 29: 171-178.
4. Reynolds AC, Appleton SL, Gill TK, et al. Sickness absenteeism is associated with sleep problems independent of sleep disorders: results of the 2016 Sleep Health Foundation national survey. Sleep Health 2017; 3: 357-361.
5. Hollingworth SA, Siskind DJ. Anxiolytic, hypnotic and sedative medication use in Australia. Pharmacoepidemiol Drug Saf 2010; 19: 280-288.
6. Miller CB, Valenti L, Harrison CM, et al. Time trends in the family physician management of insomnia: the Australian experience (2000–2015). J Clin Sleep Med 2017; 13: 785-790.
7. Morin AK, Jarvis CI, Lynch AM. Therapeutic options for sleep-maintenance and sleep-onset insomnia. Pharmacotherapy 2007; 27: 89-110.
8. Royal Australian College of General Practitioners. Prescribing drugs of dependence in general practice, Part B: Benzodiazepines. Melbourne: RACGP; 2015.
9. Carney CE, Buysse DJ, Ancoli-Israel S, et al. The consensus sleep diary: standardizing prospective sleep self-monitoring. Sleep 2012; 35: 287-302.
10. Espie CA, Kyle SD, Hames P, Gardani M, Fleming L, Cape J. The Sleep Condition Indicator: a clinical screening tool to evaluate insomnia disorder. BMJ Open 2014; 4: e004183.
11. Bastien CH, Vallières A, Morin CM. Validation of the insomnia severity index as an outcome measure for insomnia research. Sleep Med 2001; 2: 297-307.
12. Gradisar M, Lack L, Harris J, et al. The Flinders Fatigue Scale: preliminary psychometric properties and clinical sensitivity of a new scale for measuring daytime fatigue associated with insomnia. J Clin Sleep Med 2007; 3: 722-728.
13. Kroenke K, Spitzer RL. The PHQ-9: a new depression diagnostic and severity measure. Psychiatr Ann 2002; 32: 509-515.
14. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med 2006; 166: 1092-1097.
15. Chai-Coetzer CL, Antic NA, Rowland LS, et al. A simplified model of screening questionnaire and home monitoring for obstructive sleep apnoea in primary care. Thorax 2011; 66: 213-219.
16. Sweetman A, Lack LC, Catcheside PG, et al. Developing a successful treatment for co-morbid insomnia and sleep apnoea. Sleep Med Rev 2017; 33: 28-38.
17. Johns MW. A new method for measuring daytime sleepiness: The Epworth Sleepiness Scale. Sleep 1991; 14: 540-545.
18. Bonnet MH, Arand DL. Hyperarousal and insomnia. Sleep Med Rev 1997; 1(2): 97-108.
19. Riemann D, Spiegelhalder K, Feige B, et al. The hyperarousal model of insomnia: a review of the concept and its evidence. Sleep Med Rev 2010; 14: 19-31.
20. Sweetman A, McEvoy RD, Smith S, et al. The effect of cognitive and behavioral therapy for insomnia on week-to-week changes in sleepiness and sleep parameters in patients with comorbid insomnia and sleep apnea: a randomized controlled trial. Sleep 2020; 43: zsaa002.
21. Sweetman A, Lack LC, Lambert S, Gradisar M, Harris J. Does comorbid obstructive sleep apnea impair the effectiveness of cognitive and behavioral therapy for insomnia? Sleep Med 2017; 39: 38-46.
22. Blom K, Jernelöv S, Rück C, Lindefors N, Kaldo V. Three-year follow-up comparing cognitive behavioral therapy for depression to cognitive behavioral therapy for insomnia, for patients with both diagnoses. Sleep 2017; 40: zsx108.
23. Wu JQ, Appleman ER, Salazar RD, Ong JC. Cognitive behavioral therapy for insomnia comorbid with psychiatric and medical conditions: a meta-analysis. JAMA Intern Med 2015; 175: 1461-1472.
24. Lovato N, Lack L, Wright H, Kennaway DJ. Evaluation of a brief treatment program of cognitive behavior therapy for insomnia in older adults. Sleep 2014; 37: 117-126.
25. Espie CA, MacMahon KMA, Kelly H-L, et al. Randomized clinical effectiveness trial of nurse-administered small-group cognitive behavior therapy for persistent insomnia in general practice. Sleep 2007; 30: 574-584.
26. Lack L. Treating insomnia: alternatives to drug therapies. Med Today 2016; 17(10): 41-48.
27. Bruck D, Dolan CL, Lack LC. Beliefs about the 'shape' and continuity of healthy sleep as a function of age. J Psychosom Res 2015; 78: 39-44.
28. Chung K-F, Lee C-T, Yeung W-F, Chan M-S, Chung EW-Y, Lin W-L. Sleep hygiene education as a treatment of insomnia: a systematic review and meta-analysis. Fam Pract 2018; 35: 365-375.
29. Sweetman A, Zwar N, Grivell N, Lovato N, Lack L. A step-by-step model for a brief behavioural treatment for insomnia in Australian general practice. Aust J Gen Pract 2020. In press.
30. Buysse DJ, Germain A, Moul DE, et al. Efficacy of brief behavioral treatment for chronic insomnia in older adults. Arch Intern Med 2011; 171: 887-895.
31. Troxel WM, Germain A, Buysse DJ. Clinical management of insomnia with brief behavioral treatment (BBTI). Behav Sleep Med 2012; 10: 266-279.
32. Espie CA, Kyle SD, Williams C, et al. A randomized, placebo-controlled trial of online cognitive behavioral therapy for chronic insomnia disorder delivered via an automated media-rich web application. Sleep 2012; 35: 769-781.
33. Ritterband LM, Thorndike FP, Gonder-Frederick LA, et al. Efficacy of an Internet-based behavioral intervention for adults with insomnia. Arch Gen Psychiatry 2009; 66: 692-698.
34. Zachariae R, Lyby MS, Ritterband LM, O'Toole MS. Efficacy of internet-delivered cognitive-behavioral therapy for insomnia – a systematic review and meta-analysis of randomized controlled trials. Sleep Med Rev 2016; 30: 1-10.
35. Forsell E, Jernelöv S, Blom K, et al. Proof of concept for an adaptive treatment strategy to prevent failures in internet-delivered CBT: a single-blind randomized

clinical trial with insomnia patients. Am J Psychiatry 2019; 176: 315-323.
36. Hoon E, Grivell N, Haycock J, et al. Managing sleep disorders: a qualitative study exploring current practices, knowledge and attitudes of general practitioners [abstract P058]. J Sleep Res 2019; 28 Suppl 1: 29.
37. Sweetman A, Lack L, Catcheside PG, et al. Cognitive and behavioral therapy for insomnia increases the use of continuous positive airway pressure therapy in obstructive sleep apnea participants with comorbid insomnia: a randomized clinical trial. Sleep 2019; 42: zsz178.
38. Charles J, Harrison C, Britt H. Insomnia. Aust Fam Physician 2009; 38: 283.
39. Glass J, Lanctôt KL, Herrmann N, Sproule BA, Busto UE. Sedative hypnotics in older people with insomnia: meta-analysis of risks and benefits. BMJ 2005; 331: 1169.
40. Ashton H. Protracted withdrawal syndromes from benzodiazepines. J Subst Abuse Treat 1991; 8: 19-28.
41. Kripke DF. Hypnotic drug risks of mortality, infection, depression, and cancer: but lack of benefit. F1000Res 2016; 5: 918.
42. Morin CM, Bastien C, Guay B, Radouco-Thomas M, Leblanc J, Vallières A. Randomized clinical trial of supervised training and cognitive behavior therapy to facilitate benzodiazepine discontinuation in older adults with chronic insomnia. Am J Psychiatry 2004; 161: 332-342.
43. Takaesu Y, Utsumi T, Okajima I, et al. Psychosocial intervention for discontinuing benzodiazepine hypnotics in patients with chronic insomnia: a systematic review and meta-analysis. Sleep Med Rev 2019; 48: 101214.
44. Sweetman A, Putland S, Lack L, McEvoy D, et al. The effect of cognitive behavioural therapy for insomnia on sedative-hypnotic use: a narrative review. Sleep Med Rev 2020. In press.