

Treatment of Chronic Insomnia Disorder in Adults

Compromised sleep is an important medical problem that requires intervention. Untreated insomnia can exacerbate co-occurring mental or behavioral health disorders; likewise, untreated mental health disorders can exacerbate sleep disturbances.

Table 1. Clinical Features of Chronic Insomnia Disorder.

- Difficulty initiating sleep, maintaining sleep, or early-morning awakenings;
- Sleep disturbance causes clinically significant distress or impairment in important areas of functioning;
- Sleep difficulty occurs at least 3 nights per week;
- Sleep difficulty has been present for at least 3 months;
- Sleep difficulty occurs despite adequate opportunity for sleep; and
- Sleep difficulty is not better explained by:
 - A sleep-wake disorder (see Table 2);
 - Substance use (illicit or prescription drugs, alcohol; treat insomnia and substance use disorder); or
 - Mental health disorder or medical condition (treat insomnia and contributing co-occurring conditions)

Management of insomnia requires a stepwise approach, beginning with attempts to eliminate, or at least minimize, contributing factors and co-occurring disorders that can interfere with optimal sleep.¹

- The [Epworth Sleepiness Scale](#) may be helpful for someone who complains of daytime sleepiness.
- The [Insomnia Severity Index](#) may be helpful for someone who also complains of sleep disturbance.

Table 2. Differential Diagnoses.

Symptoms	Differential Diagnoses	Next Steps
Difficulty with sleep onset	Restless Leg Syndrome	Check iron stores and treat accordingly.
	Delayed sleep-wake phase disorder	Sleep log to review sleep-wake patterns on weekdays and weekends. Refer to sleep specialist. (actigraphy is not a covered benefit under the Oregon Health Plan)
Difficulty maintaining sleep	Obstructive sleep apnea	Calculate STOP-BANG score (and Epworth Sleepiness Scale if daytime sleepiness); confirm with home sleep apnea test or polysomnography.
	Perimenopause/menopause	Rule out other sleep pathologies (OSA, RLS, PLMD, depression) which may also emerge during menopause transition. Refer to North American Menopause Society position statements .
	Periodic limb movement disorder	Polysomnography (services for periodic limb movement disorder is not a covered benefit under the Oregon Health Plan)
	Nightmare disorder/PTSD	Consider completing PC-PTSD-5 screen: https://www.ptsd.va.gov/professional/assessment/screens/pc-ptsd.asp .
Early morning awakening	Advanced sleep-wake phase disorder	Sleep log to review sleep-wake patterns on weekdays and weekends. Refer to sleep specialist. (actigraphy is not a covered benefit under the Oregon Health Plan)
	Mood disorder*	Evaluate for mood disorder*; concomitant treatment for both the mood disorder and insomnia disorder is often necessary.
Decreased sleep quality	Insufficient sleep	Confirm absence of insomnia then emphasize sleep hygiene and lifestyle changes to promote adequate sleep. Components of cognitive behavioral therapy may help.
	Short sleep duration	Educate about range of normal sleep needs, revise expectations on duration of sleep.

*Although early morning awakening is a common symptom of depression, any insomnia complaint should trigger an evaluation for mood disorder.
Abbreviations: OSA = obstructive sleep apnea; PLMD = periodic limb movement disorder; PTSD = posttraumatic stress disorder; RLS = restless leg syndrome.

Due diligence is recommended to figure out why an individual has disordered sleep.

- Insomnia disorder may occur alongside other diagnoses like major depressive disorder. All contributing factors to insomnia should be investigated, including co-occurring mental health disorders, prescription medications and physical conditions.
- Treat insomnia as a comorbidity rather than a symptom of primary illness.
- Treatment should focus on achieving restorative sleep, and not simply to reduce latency of sleep onset. This can best be achieved without medications.

KEY POINT: Sleep disturbances are frequently reported by people during menopausal transition. Difficulty with sleep maintenance is the most common complaint. There may be multiple, and sometimes overlapping, causes of sleep disturbances which may require treatment of co-occurring conditions.²

Sleep Hygiene

Table 3 lists general recommendations about lifestyle practices (e.g., diet, exercise, substance use) and environmental factors (e.g., light, noise, temperature) that may enhance better sleep.

KEY POINT: Offering sleep hygiene recommendations alone is not an effective treatment for chronic insomnia disorder, but everyone with insomnia should be provided education on good sleep hygiene in combination with cognitive behavioral therapy for insomnia (CBT-I).

Table 3. Sleep Hygiene Recommendations.

Regular sleep schedule	Consistent bedtimes and rise times lead to more regular sleep schedules and helps avoid periods of sleep deprivation or periods of extended wakefulness during the night.
Daytime naps	Limit naps to no more than 30-45 minutes; try to avoid late afternoon naps.
Limit caffeine	Avoid caffeine after lunch. The time between lunch and bedtime represents about 2 half-lives for caffeine, and this time window allows for most caffeine to be metabolized before bedtime.
Limit alcohol	Recommendations are typically focused on avoiding alcohol near bedtime. Alcohol is initially sedating, but it becomes an activating substance as it is metabolized. Alcohol also negatively impacts normal sleep patterns.
Avoid nicotine	Nicotine is a stimulant and should be avoided near bedtime and at night.
Medications	Medications are often overlooked as a contributing factor of insomnia. Stimulating medications and diuretics should be taken in the morning. Bronchodilator inhalers like albuterol should be administered with a spacer to minimize systemic absorption.
Exercise	Daytime physical activity is encouraged because it may facilitate sleep. However, it should be done at least 6 hours before bedtime. Exercise within 2 hours of bedtime is discouraged because it hinders sleep onset.
Keep bedroom quiet and dark	Noise and light exposure during the night can disrupt sleep. White noise or ear plugs are recommended to reduce noise. Blackout shades or an eye mask is recommended to reduce light.
Use of digital devices	Use of technology before bedtime impacts the circadian rhythm and makes it more difficult to fall asleep. Avoid use of electronic screens and digital devices (e.g., cell phones, computers, television, etc.) at least 1 hour before bedtime. If use is preferred, use night mode. For some people, the background noise of a television at bedtime may be preferred.
Bedroom clock	Avoid checking the time at night. Checking the time increases cognitive arousal and prolongs wakefulness.
Evening eating	Avoid a large meal close to bedtime. Eat a healthy and filling meal in the early evening.

Psychotherapy

It may be tempting to resort to medications to manage chronic insomnia, many of which can have harmful long-term effects and do not facilitate restorative sleep. While there may be pressure from some patients to resort to a medication-first strategy, a harm-reduction approach is recommended to steer people away from chronic use of insomnia medications whenever possible.

First-line psychotherapy options are provided in Table 4, which is part of the **Treatment Algorithm for Chronic Insomnia Disorder in Adults** provided in **Appendix 1**. A list of helpful books and videos are available in **Appendix 2: Resource Recommendations**.

Table 4. Psychotherapy for Adults with Chronic Insomnia Disorder.³⁻¹³

Cognitive Behavioral Therapy for Insomnia (CBT-I) (*multicomponent*)

- Treatment is usually 6 sessions, which can be provided in-person or via telemedicine. **A minimum of 4 sessions is needed for treatment response.**
- Upon course completion, CBT-I provides clinically meaningful long-term improvement in critical outcomes of remission, response, SOL, WASO and sleep quality (ISI, PSQI) (moderate quality evidence).
 - Multicomponent CBT-I will includes stimulus control therapy, sleep restriction therapy, and some form of cognitive therapy.
 - CBT-I can be tailored to match each individual's clinical presentation (e.g., relaxation therapy for anxiety or pain).
 - CBT-I has significant benefit in people with insomnia and co-occurring depression, PTSD, alcohol dependency or bipolar disorder.
- Providers play a large role helping set reasonable expectations for individuals:
 - Treatment adherence to CBT-I is correlated to treatment efficacy. Suboptimal adherence may reduce the impact of treatment.
 - CBT-I requires motivation and significant effort to change the behaviors and thinking patterns that contribute to and perpetuate insomnia.
 - Regularly follow up with individuals to address adherence and promote patient motivation.
- Medicaid covers in-person CBT-I and, with exceptions due to lack of access to CBT-I, requires completion of at least 4 sessions of CBT-I before attempting pharmacotherapy.

CBT-I Online Programs and Mobile Apps

There are several online programs and apps designed as CBT-I programs that have evidence for treatment of insomnia disorder. All of the programs/apps listed here include the most important components of CBT-I. However, they may differ in different ways. Providers are encouraged to explore these with their patients to find which ones are most appealing.

- Online CBT-I programs are not a covered benefit under the Oregon Health Plan but may be covered under some commercial health plans or may qualify for health savings plans.

Free online programs/apps

Path to Better Sleep	CBT-I program designed by the VA for veterans but available for anyone to use. (free)
Insomnia Coach	CBT-I app designed by the VA for veterans but available for anyone to use. (free)
Sleep Ninja	App provides 6 sessions that have shown to benefit adolescents with sleep disturbances. ^{19,20} (free)

Online programs/apps that require payment

Go! to Sleep	6-week CBT-I program designed by the <i>Cleveland Clinic</i> ; has demonstrated clinically meaningful improvement in insomnia. ¹⁴ (\$40)
Conquering Insomnia	5-week CBT-I program that replicates a program shown to be more effective than zolpidem alone. ¹⁵ (\$50-70)
Sleepio	6-week CBT-I program available online or by mobile app; recommended as an alternative to in-person CBT-I based on evidence it provides clinically meaningful improvements in several sleep outcomes. ¹⁶⁻¹⁸ (only accessible as a health plan benefit)
Drug-Free Sleep	5-week CBT-I course with access to Sleep Coaches via email. (\$147)
Insomnia Solved	Self-guided educational CBT-I program. Telemedicine resources may be available in the future. (\$89)

Abbreviations: CBT-I = cognitive behavioral therapy for insomnia; ISI = Insomnia Severity Index; PSQI = Pittsburgh Sleep Quality Index; PTSD = post-traumatic stress disorder; SOL = sleep-onset latency; VA = US Veterans Affairs; WASO = wake after sleep onset.

Pharmacotherapy

Medication should be reserved after attempts to identify causes of insomnia disorder are identified and attempts to treat with CBT-I have been made.

Some of the most commonly prescribed medications do not promote restorative sleep through increased time in slow wave sleep

(deep sleep) and rapid eye movement (REM) sleep, which are often impaired in chronic insomnia disorder. Benzodiazepines and non-benzodiazepine sedatives decrease time in restorative sleep.

If medication is necessary, try to limit duration of use to no more than 4 weeks. Use low doses in elderly individuals who are much more sensitive to the adverse effects of these medications.

KEY POINT: The Oregon Health Plan typically requires prior authorization and engagement in a CBT-I program before a prescription claim for a sedative is approved. Use of a sedative beyond 30 days requires documentation of improvement in symptoms, function or quality of life, and a provider discussion with the patient about the long-term effects of ongoing medication use.

Table 5. Pharmacotherapy for Chronic Insomnia Disorder in Adults.

Drug Name	DEA CS	Recommendation	Evidence
Dual Orexin Receptor Antagonists (DORA) 3-5,21,22,29,33-35			
Daridorexant <i>Quviviq</i>	C-IV	No recommendation	New agent with more limited evidence compared to other DORAs.
Lemborexant <i>DayVigo</i>	C-IV	Sleep maintenance	- Improves short-term SOL and TST (moderate quality evidence). - May also be effective long-term (low quality evidence). - may improve time in slow wave sleep (deep sleep) and improve time in REM sleep in people with insomnia. - May be more effective than other DORAs (low quality evidence). - No evidence of detriment to next day memory or driving ability in older adults.
Suvorexant <i>Belsomra</i>	C-IV	Sleep maintenance	- Improves short-term SOL, TST and WASO (moderate quality evidence). - May improve time in slow wave sleep (deep sleep) and improve time in REM sleep in people with insomnia. - May have better safety profile than other DORAs. - No evidence of daytime residual or withdrawal symptoms
Sedating Antidepressants 2,19,35-37			
Doxepin <i>Silenor, generic</i>	--	Sleep maintenance	- Low dose tablet formulation has FDA-approved indication for insomnia (3-6 mg); however, doxepin is also available as a 10 mg generic capsule formulation that is much less expensive. - Most effective for sleep maintenance. Improves TST and WASO without impact on SOL (moderate quality evidence). - May also improve subjective sleep quality (low quality evidence). - Doxepin may decrease percent of time in REM sleep without improving time in slow wave sleep (deep sleep) in people with insomnia. - Low dose formulation well tolerated without effect on psychomotor function, alertness. - Avoid use in people with history of suicidal ideation due to risk of overdose and toxicity.
Trazodone <i>generic only</i>	--	Sleep maintenance	- Off-label use (50-100 mg) - Improves self-reported sleep quality (moderate quality evidence). - May improve TST and WASO with no impact on sleep efficiency or SOL (low quality evidence). - Trazodone may improve time in slow wave sleep (deep sleep) without

			improving time in REM sleep in people with insomnia. Limited by drug-drug interactions, concurrent use of other antidepressants, and adverse effects, such as morning grogginess, increased dry mouth and decreased appetite.
Mirtazapine <i>Remeron, generic</i>	--	No recommendation	- Off-label use (7.5-15 mg) - Antihistaminergic effect results in sedation but there is insufficient evidence to recommend for insomnia disorder.
Amitriptyline <i>generic only</i>	--	Caution use	- Off-label use (10-25 mg) - Antihistaminergic effect results in sedation but there is insufficient evidence to recommend for insomnia disorder. - Avoid use in people with history of suicidal ideation due to risk of overdose and toxicity.
Melatonin Agonists 3,20,21,39-41			
Ramelteon <i>Rozerem, generic</i>	--	No recommendation	- May modestly improve SOL, TST and WASO (low quality evidence). - Better relative tolerability to other insomnia medications must be balanced with likely poorer relative efficacy. - Ramelteon may decrease time in slow wave sleep (deep sleep) without improving time in REM sleep in people with insomnia.
Tasimelteon <i>Hetlioz, generic</i>	--	Avoid	FDA indication limited to non-24-hour sleep-wake disorder or nighttime sleep disturbances in Smith-Magenis syndrome.
Nonbenzodiazepine Hypnotic Sedatives 3-5,22-23,25,28,29,30-32			
Eszopiclone <i>Lunesta, generic</i>	C-IV	Sleep onset, sleep maintenance	- Eszopiclone improves SOL and TST and WASO; zolpidem improves SOL and TST (moderate quality evidence); all are effective when taken “as needed”. - Eszopiclone has more supporting evidence relative to others in this drug class and may have direct antidepressant and anxiolytic effects in people with co-occurring MDD or GAD (low quality evidence). - Non-benzodiazepines may have negative effects on the sleep architecture by decreasing time in slow wave sleep (deep sleep) and failing to improve REM sleep. - Generally, less abuse potential and risk for withdrawal than benzodiazepines. Tolerance may develop. - Long-term risks include dementia and fractures. - Rare risk for daytime memory and psychomotor impairment, abnormal thinking and behavioral changes, and complex behaviors (i.e., sleep driving, sleep walking).
Zaleplon <i>generic only</i>	C-IV	No recommendation	
Zolpidem <i>Ambien, generic</i>	C-IV	Sleep onset, sleep maintenance	
Benzodiazepine Hypnotic Sedatives 3,5,21-27			
Temazepam <i>Restoril, generic</i>	C-III	Sleep onset, sleep maintenance. Limit to 7-10 days PRN.	- Original studies were of poor quality of studies and provide low-quality evidence that short-term (<4 weeks) use improves sleep outcomes. - Lack evidence for long-term efficacy. - Drugs with shorter half-lives are preferred to reduce daytime sedation. - Unfavorable short-term tolerability and safety profiles. - Long-term risks include dementia and fractures; tolerance, dependence, addiction and withdrawal. - Benzodiazepines have negative effects on the sleep architecture by
Triazolam <i>Halcion, generic</i>	C-III	Sleep onset. Limit to 7-10 days PRN.	

			decreasing time in slow wave sleep (deep sleep) and REM sleep.
Over-the-Counter Agents and Supplements ^{4,5,21-23,42,43}			
Melatonin	--	No recommendation	• Dietary supplement, not regulated by FDA. Lack of oversight may lead to variability in the quality of melatonin. • Only controlled-release formulations studied. • Evidence in adults is mixed. Some studies showing improvement in sleep outcomes and other do not. May modestly improve SOL. In older adults, may also improve sleep efficiency (low quality evidence).
Diphenhydramine	--	Avoid	• Off-label use. • Effect on sleep outcomes not clinically significant (low quality evidence). • Increased risk of dementia in older adults.
Doxylamine	--	No recommendation	• May improve short-term sleep outcomes (low quality evidence). • More tolerable than prescription drugs with antihistamine properties that are used off-label for insomnia (e.g., quetiapine, doxepin, trazodone)
L-tryptophan	--	Avoid	• Essential amino acid dietary supplement, not regulated by FDA. • Evidence limited to patient reports of mild benefit (low quality evidence).
Antipsychotics ^{44,45}			
Quetiapine <i>Seroquel, generic</i>	--	Avoid	• Used off-label for its sedative effect. • May improve sleep quality and TST in adults, including people with GAD or MDD (low quality evidence). • Poorly tolerated with high incidence of discontinuation. • Potential for considerable harm, including increased risk of death, weight gain, diabetes, cerebrovascular AEs, gait disturbances and falls, somnolence, movement disorders. Risk is higher in older adults. • Deprescribe antipsychotic if being used for insomnia only.
Abbreviations: AE = adverse event; CS = controlled substance; DEA = U.S. Drug Enforcement Agency; FDA = US Food and Drug Administration; GAD = generalized anxiety disorder; MDD = major depressive disorder; PRN = as needed; REM = rapid eye movement; SOL = sleep onset latency; TST = total sleep time; WASO = wake after sleep onset.			

References

1. UpToDate online. Waltham, MA: UpToDate, Inc.; 2024. <https://www.uptodate-com.liboff.ohsu.edu>. Accessed 1 April 2024.
2. Baker FC, Lampio L, Saaresranta T, Polo-Kantola P. Sleep and Sleep Disorders in the Menopausal Transition. *Sleep Med Clin*. 2018 Sep;13(3):443-456. doi: 10.1016/j.jsmc.2018.04.011.
3. AHRQ Systematic Review: Management of Insomnia Disorder. Content last reviewed December 2019. Effective Health Care Program, Agency for Healthcare Research and Quality, Rockville, MD. <https://effectivehealthcare.ahrq.gov/products/insomnia/research>
4. Qaseem A, Kansagara D, Forcica MA, Cooke M, Denberg TD; Clinical Guidelines Committee of the American College of Physicians. Management of Chronic Insomnia Disorder in Adults: A Clinical Practice Guideline from the American College of Physicians. *Ann Intern Med*. 2016 Jul 19;165(2):125-33. doi: 10.7326/M15-2175.
5. Wilt TJ, MacDonald R, Brasure M, Olson CM, Carlyle M, et al. Pharmacologic Treatment of Insomnia Disorder: An Evidence Report for a Clinical Practice Guideline by the American College of Physicians. *Ann Intern Med*. 2016 Jul 19;165(2):103-12. doi: 10.7326/M15-1781.
6. Edinger JD, Arnedt JT, Bertisch SM, et al. Behavioral and psychological treatments for chronic insomnia disorder in adults: an American Academy of Sleep Medicine clinical practice guideline. *J Clin Sleep Med*. 2021;17(2):255-262.
7. Mysliwiec V, Martin JL, Ulmer CS, Chowdhuri S, Brock MS, et al. The Management of Chronic Insomnia Disorder and Obstructive Sleep Apnea: Synopsis of the 2019 U.S. Department of Veterans Affairs and U.S. Department of Defense Clinical Practice Guidelines. *Ann Intern Med*. 2020 Mar 3;172(5):325-336. doi: 10.7326/M19-3575.
8. Schutte-Rodin S, Broch L, Buysse D, Dorsey C, Sateia M. Clinical guideline for the evaluation and management of chronic insomnia in adults. *J Clin Sleep Med*. 2008 Oct 15;4(5):487-504.
9. Jansson-Fröjmark M, Norell-Clarke A. The cognitive treatment components and therapies of cognitive behavioral therapy for insomnia: A

- systematic review. *Sleep Med Rev*. 2018 Dec;42:19-36. doi: 10.1016/j.smr.2018.05.001.
10. Jansson-Fröjmark M, Nordenstam L, Alfnsson S, Bohman B, Rozental A, et al. Stimulus control for insomnia: A systematic review and meta-analysis. *J Sleep Res*. 2024 Feb;33(1):e14002. doi: 10.1111/jsr.14002.
 11. Morin CM, Bei B, Bjorvatn B, Poyares D, Spiegelhalter K, et al; Governing Council of the World Sleep Society. World sleep society international sleep medicine guidelines position statement endorsement of "behavioral and psychological treatments for chronic insomnia disorder in adults: An American Academy of sleep medicine clinical practice guidelines". *Sleep Med*. 2023 Sep;109:164-169. doi: 10.1016/j.sleep.2023.07.001.
 12. Seyffert M, Lagisetty P, Landgraf J, Chopra V, Pfeiffer PN, et al. Internet-Delivered Cognitive Behavioral Therapy to Treat Insomnia: A Systematic Review and Meta-Analysis. *PLoS One*. 2016 Feb 11;11(2):e0149139. doi: 10.1371/journal.pone.0149139.
 13. 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 Dec;30:1-10. doi: 10.1016/j.smr.2015.10.004.
 14. Bernstein AM, Alexandre D, Bena J, Doyle J, Gendy G, et al. "Go! to Sleep": A Web-Based Therapy for Insomnia. *Telemed J E Health*. 2017 Jul;23(7):590-599. doi: 10.1089/tmj.2016.0208.
 15. Jacobs GD, Pace-Schott EF, Stickgold R, Otto MW. Cognitive behavior therapy and pharmacotherapy for insomnia: a randomized controlled trial and direct comparison. *Arch Intern Med*. 2004 Sep 27;164(17):1888-96. doi: 10.1001/archinte.164.17.1888.
 16. National Institute for Health and Care Excellence (NICE). Sleepio to treat insomnia and insomnia symptoms [Medical technologies guidance], May 2022. www.nice.org.uk/guidance/mtg70
 17. Espie CA, Emsley R, Kyle SD, Gordon C, Drake CL, et al. Effect of Digital Cognitive Behavioral Therapy for Insomnia on Health, Psychological Well-being, and Sleep-Related Quality of Life: A Randomized Clinical Trial. *JAMA Psychiatry*. 2019 Jan 1;76(1):21-30. doi: 10.1001/jamapsychiatry.2018.2745.
 18. Espie CA, Kyle SD, Williams C, Ong JC, Douglas NJ, 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 Jun 1;35(6):769-81. doi: 10.5665/sleep.1872.
 19. Werner-Seidler A, O'Dea B, Shand F, Johnston L, Frayne A, et al. A Smartphone App for Adolescents With Sleep Disturbance: Development of the Sleep Ninja. *JMIR Ment Health*. 2017 Jul 28;4(3):e28. doi: 10.2196/mental.7614.
 20. Werner-Seidler A, Wong Q, Johnston L, O'Dea B, Torok M, et al. Pilot evaluation of the Sleep Ninja: a smartphone application for adolescent insomnia symptoms. *BMJ Open*. 2019 May 27;9(5):e026502. doi: 10.1136/bmjopen-2018-026502.
 21. Sateia MJ, Buysse DJ, Krystal AD, Neubauer DN, Heald JL. Clinical Practice Guideline for the Pharmacologic Treatment of Chronic Insomnia in Adults: An American Academy of Sleep Medicine Clinical Practice Guideline. *J Clin Sleep Med*. 2017 Feb 15;13(2):307-349. doi: 10.5664/jcsm.6470.
 22. De Crescenzo F, D'Alò GL, Ostinelli EG, Ciabattini M, Di Franco V, et al. Comparative effects of pharmacological interventions for the acute and long-term management of insomnia disorder in adults: a systematic review and network meta-analysis. *Lancet*. 2022 Jul 16;400(10347):170-184. doi: 10.1016/S0140-6736(22)00878-9.
 23. Riemann D, Baglioni C, Bassetti C, Bjorvatn B, Dolenc Groselj L, et al. European guideline for the diagnosis and treatment of insomnia. *J Sleep Res*. 2017 Dec;26(6):675-700. doi: 10.1111/jsr.12594.
 24. Restoril™ (temazepam) capsules [Prescribing Information]. Webster Groves, MO: Mallinckrodt Pharmaceuticals, January 2023.
 25. Arbon EL, Knuruwska M, Dijk DJ. Randomised clinical trial of the effects of prolonged-release melatonin, temazepam and zolpidem on slow-wave activity during sleep in healthy people. *J Psychopharmacol*. 2015 Jul;29(7):764-76. doi: 10.1177/0269881115581963.
 26. Mazza M, Losurdo A, Testani E, Marano G, Di Nicola M, et al. Polysomnographic findings in a cohort of chronic insomnia patients with benzodiazepine abuse. *J Clin Sleep Med*. 2014 Jan 15;10(1):35-42. doi: 10.5664/jcsm.3354.
 27. de Mendonça FMR, de Mendonça GPRR, Souza LC, Galvão LP, Paiva HS, et al. Benzodiazepines and Sleep Architecture: A Systematic Review. *CNS Neurol Disord Drug Targets*. 2023;22(2):172-179. doi: 10.2174/1871527320666210618103344.
 28. FDA Safety Communication [04/30/2019]. FDA adds Boxed Warning for risk of serious injuries caused by sleepwalking with certain prescription insomnia medication. Available at: <https://www.fda.gov/drugs/drug-safety-and-availability/fda-adds-boxed-warning-risk-serious-injuries-caused-sleepwalking-certain-prescription-insomnia>. Accessed 28 Feb 2024.
 29. Moline M, Zammit G, Cheng JY, Perdomo C, Kumar D, Mayleben D. Comparison of the effect of lemborexant with placebo and zolpidem tartrate extended release on sleep architecture in older adults with insomnia disorder. *J Clin Sleep Med*. 2021 Jun 1;17(6):1167-1174. doi: 10.5664/jcsm.9150.
 30. Fava M, McCall WV, Krystal A, Rubens R, Caron J, et al. Eszopiclone co-administered with fluoxetine in patients with insomnia co-existing with major depressive disorder. *Biol Psychiatry*. 2006;59:1052-60.
 31. Krystal AD, Fava M, Rubens R, Wesel T, Caron J, et al. Evaluation of eszopiclone discontinuation after co-therapy with fluoxetine for insomnia with co-existing depression. *J Clin Sleep Med*. 2007;3:48-55.
 32. Pollack M, Kinrys G, Krystal A, McCall WV, Roth T, et al. Eszopiclone coadministered with escitalopram in patients with insomnia and comorbid generalized anxiety disorder. *Arch Gen Psychiatry*. 2008;65:551-62.
 33. Clark JW, Brian ML, Drummond SPA, Hoyer D, Jacobson LH. Effects of orexin receptor antagonism on human sleep architecture: A systematic review. *Sleep Med Rev*. 2020 Oct;53:101332. doi: 10.1016/j.smr.2020.101332.

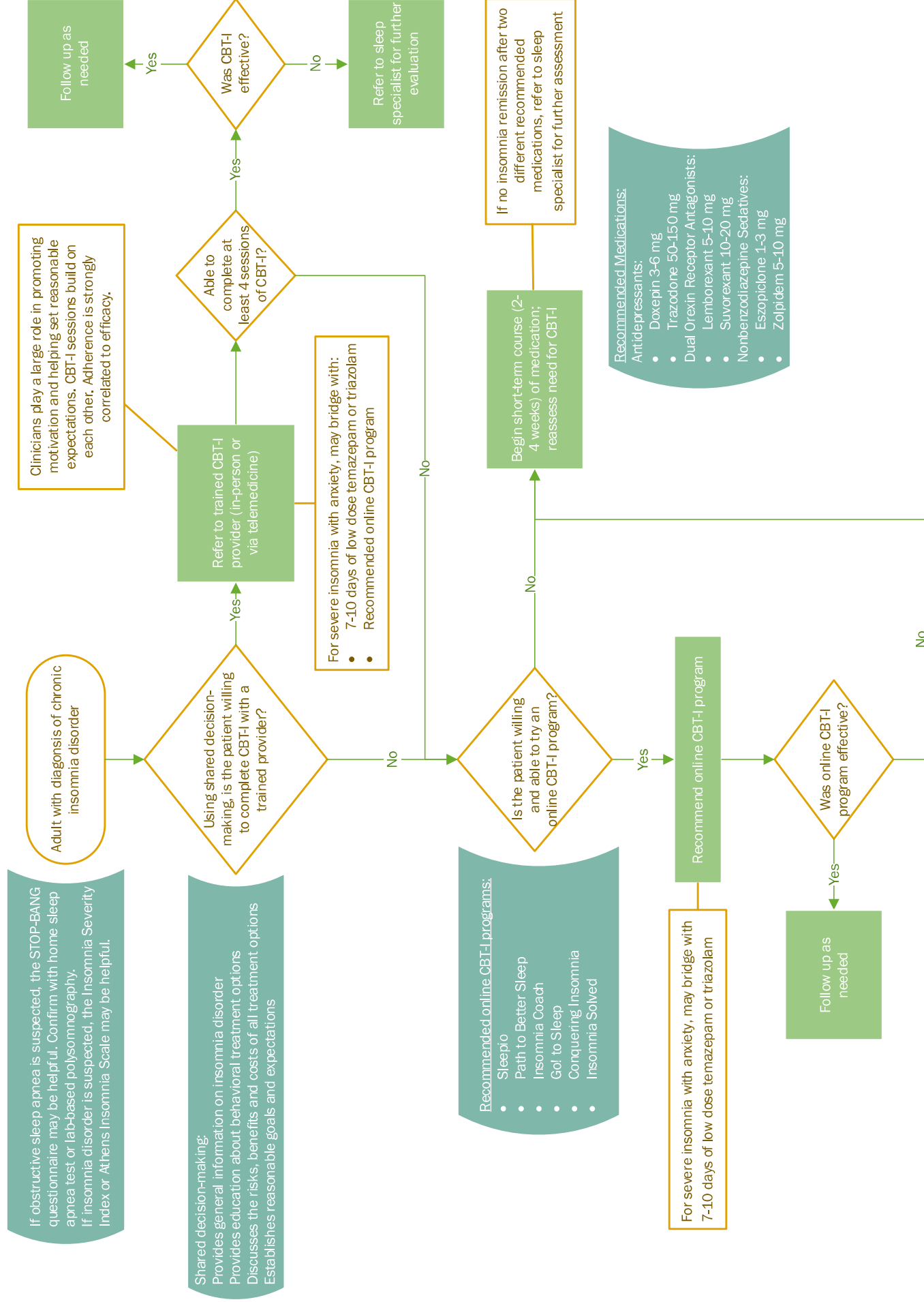
34. Snyder E, Ma J, Svetnik V, Connor KM, Lines C, Michelson D, Herring WJ. Effects of suvorexant on sleep architecture and power spectral profile in patients with insomnia: analysis of pooled phase 3 data. *Sleep Med.* 2016 Mar;19:93-100. doi: 10.1016/j.sleep.2015.10.007.
35. Herring WJ, Snyder E, Budd K, Hutzelmann J, Snively D, et al. Orexin receptor antagonism for treatment of insomnia: a randomized clinical trial of suvorexant. *Neurology.* 2012 Dec 4;79(23):2265-74. doi: 10.1212/WNL.0b013e31827688ee.
36. Everitt H, Baldwin DS, Stuart B, Lipinska G, Mayers A, et al. Antidepressants for insomnia in adults. *Cochrane Database of Systematic Reviews* 2018, Issue 5. Art. No.: CD010753. DOI: 10.1002/14651858.CD010753.pub2.
37. Roth T, Rogowski R, Hull S, Schwartz H, Koshorek G, et al. Efficacy and safety of doxepin 1 mg, 3 mg, and 6 mg in adults with primary insomnia. *Sleep.* 2007 Nov;30(11):1555-61. doi: 10.1093/sleep/30.11.1555.
38. Zheng Y, Lv T, Wu J, Lyu Y. Trazodone changed the polysomnographic sleep architecture in insomnia disorder: a systematic review and meta-analysis. *Sci Rep.* 2022 Aug 24;12(1):14453. doi: 10.1038/s41598-022-18776-7.
39. Hettioz® (tasimelteon) capsules [Prescribing Information]. Washington D.C.: Vanda Pharmaceuticals, December 2020.
40. Maruani J, Reynaud E, Chambe J, Palagini L, Bourgin P, et al. Efficacy of melatonin and ramelteon for the acute and long-term management of insomnia disorder in adults: A systematic review and meta-analysis. *J Sleep Res.* 2023 Dec;32(6):e13939. doi: 10.1111/jsr.13939.
41. Zammit G, Erman M, Wang-Weigand S, Sainati S, Zhang J, Roth T. Evaluation of the efficacy and safety of ramelteon in subjects with chronic insomnia. *J Clin Sleep Med.* 2007 Aug 15;3(5):495-504.
42. Ell J, Schmid SR, Benz F, Spille L. Complementary and alternative treatments for insomnia disorder: a systematic umbrella review. *J Sleep Res.* 2023 Dec;32(6):e13979. doi: 10.1111/jsr.13979.
43. Harmel C, Horton J. Melatonin for the treatment of insomnia: a 2022 update [CADTH Health Technology Review]. *Canadian Journal of Health Technologies.* 2022;2(5). Available at: <https://www.cadth.ca/melatonin-treatment-insomnia-2022-update>
44. Lin CY, Chiang CH, Tseng MM, Tam KW, Loh EW. Effects of quetiapine on sleep: A systematic review and meta-analysis of clinical trials. *Eur Neuropsychopharmacol.* 2023 Feb;67:22-36. doi: 10.1016/j.euroneuro.2022.11.008.
45. Bjerre LM, Farrell B, Hogel M, Graham L, Lemay G, et al. Deprescribing antipsychotics for behavioural and psychological symptoms of dementia and insomnia: Evidence-based clinical practice guideline. *Can Fam Physician.* 2018 Jan;64(1):17-27.

You can get this document in other languages, large print, braille or a format you prefer.
 Contact Andrew Gibler, PharmD, at 503-878-1395 or email andrew.n.gibler@oha.oregon.gov
 We accept all relay calls or you can dial 711.

(07//2024)

Appendix 1. MHCAG Treatment Algorithm for Insomnia Disorder.

Treatment Algorithm for Insomnia Disorder in Adults



Appendix 2. MHCAG Resource Recommendations.

Overview of CBT-I for Providers

- CBT-I [Information Sheet](#) for Behavioral Health Providers in Primary Care (VA)
- Insomnia and CBT-I [community education videos](#) (*Society of Behavioral Sleep Medicine*)
- What is [Behavioral Sleep Medicine?](#) (*Society of Behavioral Sleep Medicine*)

Books

Several books have been published to guide individuals through CBT-I without a health care provider. Similar to apps and online courses, the books listed include the most important components of CBT-I. However, they also vary in a number of ways. Providers are encouraged to review them to see which books may be most helpful. Individual publisher's website are provided when available or go to Bookshop.org, which connects readers with independent bookstores. Used copies of older books are often available at lower cost and many are available at local libraries. No links are affiliate links. No compensation is received for any purchases made.

- [Hello Sleep](#) by Jade Wu
- [The One-Week Insomnia Cure](#) by Jason Ellis
- [Goodnight Mind](#) by Colleen Carney and Rachel Manber
- [Goodnight Mind for Teens](#) by Colleen Carney and Rachel Manber
- [Sleep Through Insomnia](#) by Brandon Peters
- [The Sleep Fix](#) by Diane Macedo
- [The Women's Guide to Overcoming Insomnia](#) by Shelby Harris
- [Mindfulness for Insomnia](#) by Catherine Polan Orzech and William H. Moorcroft
- [Sound Sleep, Sound Mind](#) by Barry Krakow
- [The Insomnia Answer](#) by Paul Glovinsky and Arthur Spielman
- [Quiet Your Mind and Get to Sleep](#) by Colleen Carney and Rachel Manber
- [Say Good Night to Insomnia](#) by Greg Jacobs
- [No More Sleepless Nights](#) by Peter Hauri and Shirley Linde
- [Conquering Bad Dreams and Nightmares](#) by Barry Krakow - used copies available, focused on treating nightmares
- [Turning Nightmares into Dreams](#) by Barry Krakow - digital download, focused on treating nightmares
- "The Sleep Book: How to Sleep Well Every Night" by Dr. Guy Meadows. This book uses 'acceptance and commitment therapy' (ACT) techniques to help with insomnia.

Delayed School Start Time

Go to <https://www.startschoolater.net/>