Best Treatments for Insomnia

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Faculty/Presenter Disclosure

Relationships with for-profit or non-profit organizations:

- Employee of Régie de l'assurance du Québec
- Staff member of McGill University Health Centre
- Grant/Research Support: Montreal General Hospital Foundation, The Senator W. David Angus Award for Research into Major Psychiatric Diseases.

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Treatment of Insomnia Disorder

- All international guidelines recognize CBTi as first line treatment
  - NHS consensus 2005
  - European insomnia guideline 2017
  - American Academy of Sleep Medicine Clinical Practice Guideline 2017
  - World Sleep Society 2021
- Brief, GP delivered interventions and internet delivered CBTi may be just as effective *(Seyffert 16)*
- Pharmacotherapy is second line used when CBTi not possible or ineffective

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Key Learning Objectives

By the end of the session, participants will be able to:

1. Know factors causing and maintaining insomnia
2. Integrate effective elements of CBTi into routine care
3. Know how to safely prescribe the most appropriate medications different subtypes of insomnia

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When to use CBTi?

- first episode insomnia instead of medications
- asking for a med renewal
- asking for help to reduce medications in chronic insomnia

There are powerful behavioural techniques which can help you improve the quality and amount of your sleep now and over the long term. Interested?

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Diagnosis & Assessment

- sleep history
- assess for other sleep disorders, medical causes, co-morbidity
- sleep diary

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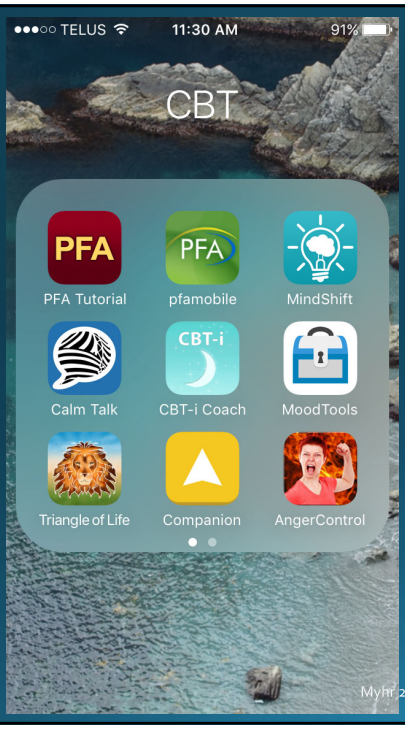

CBTi Coach: Collaboration:

- VA Centre for PTSD
- Stanford University Medical Center
- Dept of Defense National Center for Telehealth & Technology

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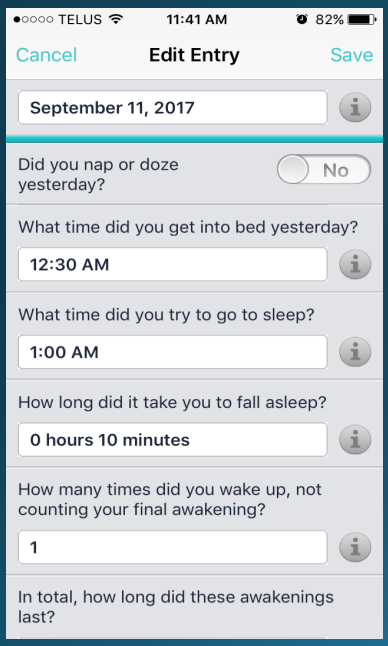

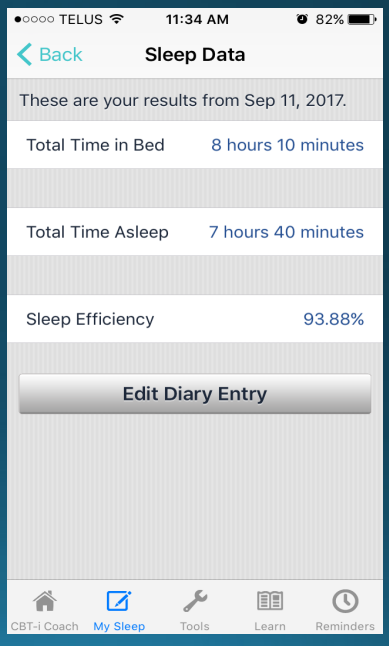

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CONSENSUS SLEEP DIARY-M (2011)	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
What time did you get into bed?							
What time did you try to go to sleep? (lights out)							
How long did it take you to fall asleep?							
How many times did you awaken, not counting final one?							
In total, how long did these awakenings last?							
What was your final awakening?							
After your final awakening, how long did you stay in bed?							
What time did you get out of bed for the day?							
How would you rate the quality of your sleep?							
How refreshed did you feel when you woke up?							
How many times did you nap or doze?							
In total, how long did you nap or doze?							
# caffeinated drinks? Time of last one?							
# alcoholic drinks? Time of last one?							
Medications, dose & time taken. (OTC & prescription)							

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CONSENSUS SLEEP DIARY-M (2011)	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
What time did you get into bed?							
What time did you try to go to sleep? (lights out)							
How long did it take you to fall asleep?	SOL						
How many times did you awaken, not counting final one?							
In total, how long did these awakenings last?	WASO						
What was your final awakening?							
After your final awakening, how long did you stay in bed?	"Bed Linger"						
What time did you get out of bed for the day?							
How would you rate the quality of your sleep?							
How refreshed did you feel when you woke up?							
How many times did you nap or doze?							
In total, how long did you nap or doze?							
# caffeinated drinks? Time of last one?							
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Medications, dose & time taken. (OTC & prescription)							

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Sleep Parameters Suggesting Insomnia

- SOL = greater than 30 minutes
- WASO = greater than 30 minutes
- TST = varies with age, individual.
  - older adults < 5 or 6 hrs
  - Teens < 7 hrs
- SE = <85%

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Elements of CBTi

1. Psychoeducation about sleep
2. Stimulus control
3. Sleep restriction
4. Cognitive restructuring (changing thinking about sleep)
5. Sleep hygiene

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Psychoeducation

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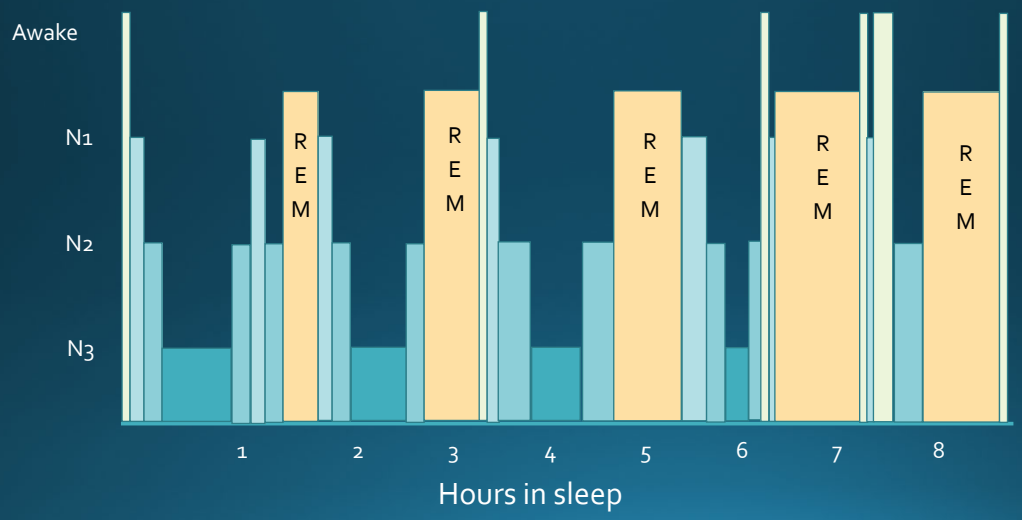
1. Sleep stages: Young Adult



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2. Sleep Drive = Pressure to Sleep

- lowest in the morning
- increases as the day progresses
- sleep drive reduced by:
  - napping – esp close to bedtime (e.g. in front of TV)
  - caffeine, nicotine

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3. Circadian Clock

- rhythm internally driven, but reset by daylight & activities
- irregularities disturb clock
  - jet lag
  - going to bed 2 hrs later, sleeping in on weekends = body travelling two time zones!

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4. Conditioning in Insomnia

(Classical Conditioning)

cause

(Operant Conditioning)

maintenance

Bed + Arousal ⟷ Sleepless in bed

Sleep in chair ⟷ Reduced Distress

(-) Reinforcement of avoidance.
Prevents extinction sleeplessness in bed.

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Stimulus Control

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Stimulus Control Instructions

"Stimulus Control" will strengthen your bed as a cue for going to sleep by ensuring that you will be in bed only when asleep or very sleepy. Follow these five steps:

1. Wake up at same time each day, and get up within 15 minutes.
2. Go to bed when you are sleepy (not just fatigued)
3. Get out of bed if you are unable to sleep after 20 minutes, and go back to bed only when you are sleepy.
4. Use your bed only for sleep (or sex).
5. Do not nap.

After Manber & Carney 15

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Sleep Restriction

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Sleep Restriction Treatment (SRT)

- uses mild sleep deprivation to increase sleep drive and reduce sleep fragmentation
- limit time in bed to actual time asleep or 6–7 hours
- set wake-up time, and don't go to bed before this:
  - *if average sleep time is 6 hrs*
  - *set wake-up time e.g. 7 am*
  - *don't go to bed before 1 am.*
- increase time in bed by 20–30 minutes per week if sleep increasing, or decrease this if sleep still fragmented

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Sleep Hygiene Instructions

"Sleep hygiene" refers to general factors which can interfere with falling asleep and staying asleep.

1. Substances:
   - Caffeine is a stimulant, and should be avoided 4-6 hours before bedtime.
   - Nicotine is also a stimulant, and should be avoided near bedtime & during nighttime awakenings.
   - Alcohol, cannabis are depressants, which can help you fall asleep, but reduce dream sleep, and cause awakenings later in the night.
2. Food:
   - A light snack before bed can help you fall asleep.
   - A heavy meal before bed can interfere with falling asleep.
3. Exercise:
   - Exercise in late afternoon can deepen sleep
   - Exercise within 3-4 hours of bedtime can interfere with falling asleep.
4. Environment – noise, light, temperature:
   - Keep your bedroom comfortably cool, dark and quiet.
   - Use of eye masks might help.
   - Avoid using ipad or laptops right before bed as they increases light to the eye and can disrupt your sleep cycle.
   - Intermittent noises are harder to sleep through, so don't fall asleep with the TV or radio on.
   - If there is unavoidable noise in your environment, try masking this with "white noise".
     - fan
     - white noise machine or apps

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"Stimulus Control" will strengthen your bed as a cue for going to sleep by ensuring that you will be in bed only when asleep or very sleepy. Falling asleep should be effortless, so don't stay in bed "trying to sleep."

Follow these five steps:

1. Go to bed when you are sleepy (not just tired)
2. Get out of bed if you are unable to sleep, and go back to bed only when you are sleepy.
3. Use your bed only for sleep (or sex).
4. Wake up at same time each day, and get up within 15 minutes.
5. Do not nap.

Sleep Restriction Prescription

"Sleep Restriction" will help consolidate your sleep and improve its quality. Uninterrupted sleep periods are more refreshing than total sleep time. For this reason, we are limiting your Time in Bed to _____ hours. You may be sleepy for the first week, but for most patients, their sleep improves within two weeks. Depending on your sleep response, the time in bed will be adjusted in the upcoming weeks. For this reason, filling out your daily log is essential. Follow these steps:

1. Don't go to bed before _____ each night. If you not sleepy yet, stay up, and go to bed only when sleepy.
2. Get out of bed if you are unable to sleep, and go back to bed only when you are sleepy.
3. Wake up at _____each day, and get up within 15 minutes, regardless of how much you have slept in the night.
3. Do not nap. If you are too sleepy, don't drive or do other potentially dangerous activities (e.g. operate power tools). If you feel your sleepiness is dangerous, then nap for no more than an hour, before 3 pm.

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Targeting Sleep Beliefs

1. Keep realistic expectations
2. Do not blame insomnia for all daytime impairments
3. Do not catastrophize after a poor night's sleep
4. Do not give too much importance to sleep
5. Develop some tolerance to the effects of insomnia

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Internet-based CBti

- High cost: Haleo, Sleepio, Somryst
- Moderate cost: CBT for Insomnia, Go! to Sleep
- Free: CBT-I Coach, My Sleep Well

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Medications

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Health Canada–Approved Medications for Insomnia

Drug	Trade name	Class	Cost per 14 days	Dosage hs	Interactions	T/2 (Hrs)	Time to peak (Hrs)
temazepam	*Restoril*	BZD	<$5	15-30 mg	CYP 3A4	3.5-18.4	1.2-1.6
zopiclone	*Immovane*	Z-drug	<$5	3.75-7.5 mg	CYP3A4	5	<2
eszopiclone	*Lunesta*	Z-drug	$20-35	1-3 mg	CYP3A4	6	1
zolpidem	*Sublinox*	Z-Drug	$5-20	5-10 mg men **5 mg women**	CYP3A4	2.5*	1.6
lemborexant	*Dayvigo*	DORA	$20-35	5-**10 mg**	CYP3A4	17-19	1-3
doxepin	*Silenor*	TCA	$5-20	3-6 mg	CYP2D6 CYP2C19	15 (met 30-50)	3.5** (fasting)

*Women clear at lower rate
** Take on empty stomach

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Benzodiazepines

- mechanism of action:
  - binds at $GABA_A$ complex on postsynaptic membranes-> inhibits neuronal firing
  - sites in amygdala & reticular activating system
- therapeutic effect
  - decr SOL, inc TST, inc SE
- temazepam
- off label – oxazepam, lorazepam – not metabolized by the liver
- adverse effects
  - delirium, falls, motor vehicle accidents, respiratory depression, cognitive impairment, memory issues
  - rebound insomnia after long-term use
  - addiction

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Z-Drugs = Non-BZD ReceptorAgonist

- mechanism of action:
  - act on various subunits of $GABA_A$ complex
  - less affinity than BZD at many subunits
- therapeutic effect
  - decr SOL, inc TST, inc SE
- adverse effects
  - **3% incidence of complex sleep behaviours**
    - night eating, somnambulism -> immediate cessation
    - more common in women
    - highest with zolpidem
  - compared to BZD - less memory, cognitive difficulties, rebound insomnia, muscle relaxation
  - dose dependent dizziness, ataxia

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Doxepin

- mechanism of action:
  - selective antagonism of H1 receptors in wake system at low dose
- therapeutic effect
  - inc TST, inc SE
  - less effect on SOL? recent data suggest otherwise (Wang 21)
- adverse effects
  - **headache, somnolence**
  - no rebound, dependence

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DORA - lemborexant

- mechanism of action:
  - orexin neuropeptides A and B and their receptors promote wakefulness
  - dual OX1R/OX2R antagonist (DORAs) block receptors
  - suppress wakefulness and reduce unwanted transitions between wakefulness and sleep
- therapeutic effect
  - inc TST, inc SE
  - less effect on SOL? recent data suggest otherwise (Wang 21)
- adverse effects
  - sleep paralysis, hypnopompic/hypnogogic hallucinations, cataplexy symptoms
  - CONTRAINDICATED IN NARCOLEPSY
  - complex sleep behaviours
  - common - daytime somnolence, abnormal dreams, fatigue, dry mouth
  - no rebound, dependence

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American Academy of Sleep Medicine Clinical Practice Guidelines *(Sateia 17)*

- Sleep onset insomnia
  - Z-drugs
  - temazepam
- Sleep maintenance insomnia
  - DORA - lemborexant
  - Z-drugs
  - temazepam
  - doxepin

J Clin Sleep Med. 2017;13(2):307–349

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Considerations from recent Meta-analysis *(Wang 21)*

- Sleep onset insomnia
  - Z-drugs
  - temazepam
  - DORA
  - doxepin
- Sleep maintenance insomnia
  - DORA
  - Z-drugs
  - temazepam
  - doxepin

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Prescribing Hypnotic Agents

- lowest effective dose for the shortest duration
- "7–10 days up to a maximum of 1 month" supply
  - arbitrarily determined, potentially damaging and not evidence-based
- follow-up 3–6 weeks
- long term use to be avoided
- safety and efficacy of eszopiclone, zolpidem and lemborexant up to 12 mon

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Why not the off-label medications?

- trazodone
  - effect on SOL, TST, WASO- not clinically significant
  - side effects, potential harms greater than benefits
- pregabalin, gabapentin
  - excess daytime somnolence, weight gain, CNS dep
- first generation anti-psychotics
  - neurological, anticholinergic toxicity
- second generation anti-psychotics
  - wt gain, metabolic effects
- OTC – diphenhydramine, dimenhydrinate etc
  - anticholinergic effects, falls, delirium, cognitive effects

harm > benefit

- CAM – tryptophan, valerian, melatonin

harm = benefit

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Hypnotic Reduction and CBTi

- best done during CBTi rather than after or before *(Espie 88)*
- reduce by no more than one "therapeutic dose" per week
- make medication "time-contingent" not "insomnia contingent"

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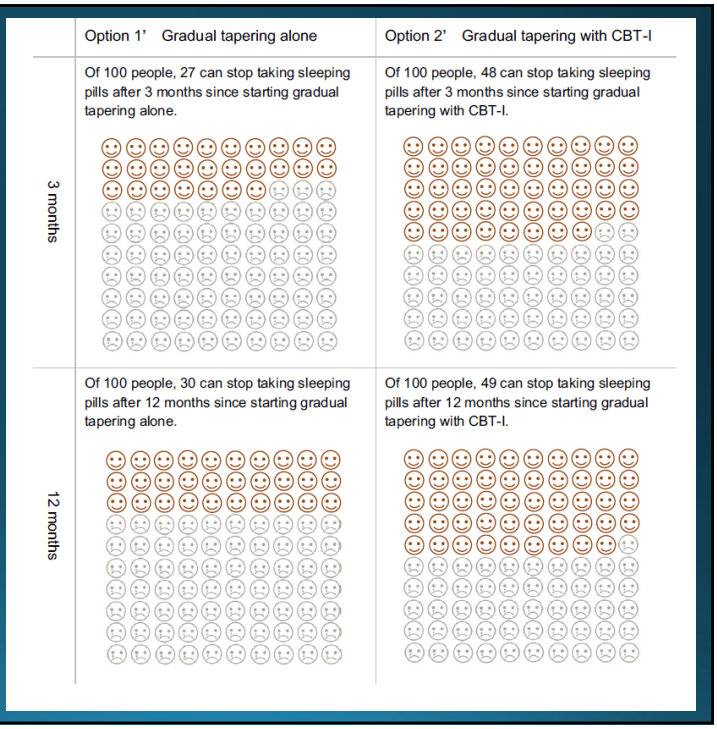
Stopping BZDs with or without CBT-I

Aoki et al 21. Neuropsychopharmacology Reports. 2022;42:10–20

- decision aid for people taking BZD > 3 mon
- weighing advantages and disadvantages of continuing or discontinuing BZD
- taper of 10-25% /week over 8-10 weeks
- meta-analysis results show difference at 3 months, but not one year



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Summary

- pts should know about factors maintaining their insomnia and be familiar with CBTi strategies
- CBT-I involves psychoeducational and behavioural components related to sleep drive & circadian clock
- medications are second line interventions
- BZDs have addiction potential but are effective in the short-term
- Z-drugs have less addiction potential, adverse effects, but may produce complex sleep behaviours
- doxepin and lemborexant are particularly effective in sleep maintenance disorders with little addiction potential

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- Management of Chronic Insomnia: Ontario. Toronto: Centre for Effective Practice. (January 2017)
- Pigeon & Funderbunk (2013). Delivering a Brief Insomnia Intervention to Depressed VA Primary Care Patients. *Cognitive and Behavioral Practice*, 21, 252-260. Especially Appendix A.
- Manber & Carney. (2015) *Treatment Plans and Interventions for Insomnia, A Case Formulation Approach*. New York, Guilford.

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EXTRA SLIDES

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Special Populations

- Elderly
  - melatonin *(Wang 21)*
  - doxepin
  - lemborexant
- Pregnancy
  - zopiclone, eszopiclone
  - BZD? *(Grigoriadis 19 – no increased cleft palate?)*
- Breast feeding
  - temazepam
  - Z-drugs

Khullar 22, CPhA

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Resources: Top Sleep Apps

- CBT-i Coach (VA National Centre for PTSD, Stanford University)
  - Information and sleep diary
- Sleep Cycle
  - Estimation of sleep stages by smartphones by the bed
- Snorelab
  - Snore recorder and sleep tracking

- Expert evaluation of mental health apps:
  - https://apps.digitalpsych.org/
  - https://onemindpsyberguide.org/

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Online CBT Programs for Insomnia

CBT for Insomnia.
- 5-session on-line CBT program for insomnia. Cost $24.95 US to $49.95 US.
- http://www.cbtforinsomnia.com

Sleepio
- An evidence-based CBT-I online and mobile app programme.
- Cost is $300 US for a 12-month subscription.
- https://www.sleepio.com/

SlumberPro
- self-help program based out of Queensland Australia
- Requires 30-60 min/day. Program lasts 4-8 weeks. Cost $39 AUS.
- http://www.sleeptherapy.com.au/index.php?page=6

Centre for Effective Practice: Chronic Insomnia Tool . Toronto. Jan 2017.

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Online CBT Programs for Insomnia

Go! To Sleep

- A 6-week CBT-I program available through Cleveland Clinic of Wellness.
- A mobile app is also available. Cost $3.99 US for app or $40 US for web.
- http://www.clevelandclinicwellness.com/Programs/Pages/Sleep.aspx

SHUTi

- A 6-week CBT-I program
- 2 randomized trials involving adults with insomnia and cancer survivors.
- $135 US for 16 weeks access or $156 US for 20 weeks access.
- http://www.myshuti.com/

Centre for Effective Practice: Chronic Insomnia Tool . Toronto. Jan 2017.

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Online CBT Programs for Insomnia

Restore CBT-I

- 6-week CBT-I program evaluated in a randomized trial (developed by Canadian psychologist, Dr. Norah Vincent).
- Price varies from £99 to £199.
- http://restore.cbtprogram.com/

- **A Sleep Training System**
  - 6-week on-line CBT-I program with money-back guarantee and personalized feedback.
  - Cost $29.95 US.
  - http://www.sleeptrainingsystem.com/index.php

Centre for Effective Practice: Chronic Insomnia Tool . Toronto. Jan 2017.

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Resources: Websites

ENGLISH

- https://www.cci.health.wa.gov.au/Resources/Overview
  - Excellent for clinician and patient help for sleep and many other emotional disorders

FRENCH:

- https://tccmontreal.com/section-grand-public/
  - Excellent website with client manual, thought records and many resources.

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CEP | Providers

Management of Chronic Insomnia

This clinical tool guides primary care providers to assess and manage chronic insomnia and pharmacological options in the general adult population. An estimated 3.3 million Canadians aged 15 years or older (about one in every seven Canadians) have difficulty going to sleep or staying asleep.[1] This can impact both daily functioning and quality of life. Appropriate management options, such as cognitive behaviour therapy for insomnia (CBT-I) and pharmacotherapy regimens, are discussed in the tool to support primary care providers in their approach.[2,3,4] Considerations and instructions for initiating a benzodiazepine taper are also addressed within the tool.

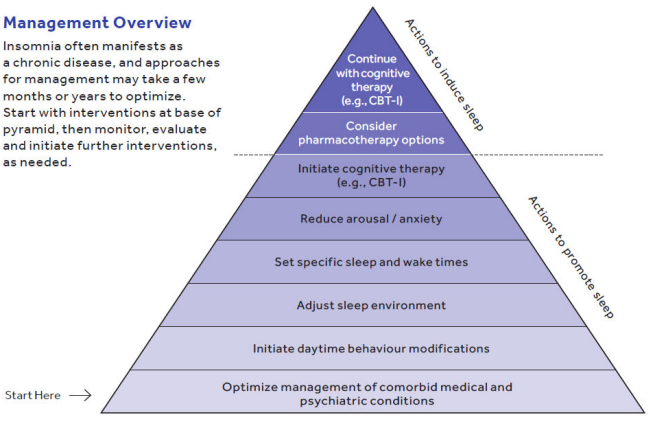
What to do when a patient is concerned about not sleeping:

Assessment

1. Consider using a sleep disorder questionnaire[i]
2. Instruct patient to complete a sleep diary[ii]
3. Assess severity of insomnia using one or more of the following:
   - Insomnia Severity Index[iii]
   - Epworth Sleepiness Scale[iv]
   - STOPBANG[v]
4. Refer to a sleep clinic[vi] for further investigation if necessary (e.g., circadian rhythm disorder, sleep apnea/snoring, movement disorder, or parasomnia)

Management Overview

Insomnia often manifests as a chronic disease, and approaches for management may take a few months or years to optimize. Start with interventions at base of pyramid, then monitor, evaluate and initiate further interventions, as needed.



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Consensus Sleep Diary-M

Please Complete Upon Awakening

TODAY'S DATE							
What time did you get into bed?							
What time did you try to go to sleep? (lights out)							
How long did it take you to fall asleep?							
How many times did you awaken, not counting final one?							
In total, how long did these awakenings last?							
What was your final awakening?							
After your final awakening, how long did you stay in bed?							
What time did you get out of bed for the day?							
How would you rate the quality of your sleep?							
How refreshed did you feel when you woke up?							
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Myhr 2016