Clinical Practice Guideline
Adult Insomnia: Assessment to Diagnosis

This guideline was developed by a Clinical Practice Guidelines Working Group to assist physicians in the assessment of insomnia in adults. A companion guideline for the management of patients with insomnia accompanies this document. This guideline does not address the issue of excessive daytime sleepiness (EDS) or the management of other primary sleep disorders (ie; obstructive sleep apnea, movement disorders in sleep or parasomnias).

EXCLUSIONS

- Children under the age of 18.
- Pregnant and/or lactating women.
- Geriatric patients: While the general principles of the diagnosis and management of primary insomnia apply to all adult patients it is important to note that “late life insomnia” requires specific interventions not addressed in this guideline.1

DEFINITIONS

1 Acute Insomnia: duration of 4 weeks or less.2,3,4,5

2 Chronic Insomnia: duration of 4 weeks or more.2,3,4,5

3 Primary Sleep Disorder: a primary or intrinsic sleep disorder is one that arises out of the physiological processes of sleep. Examples of primary sleep disorders are obstructive sleep apnea, restless legs syndrome, periodic limb movement disorder or parasomnias.2

4 Secondary Insomnia: secondary insomnia refers to difficulty initiating and/or maintaining sleep that occurs as a result of or co-morbidly in conjunction with a medical, psychiatric or psychological process. Examples of secondary insomnia include: pain associated with rheumatoid arthritis that disrupts initiation and/or maintenance of sleep, insomnia co-morbidly associated with a major depressive episode, or insomnia associated with an acute emotional stressor.6,7

5 Primary Insomnia (also known as psychophysiological insomnia (PPI)): a disorder of somatized tension and learned sleep preventing associations that results in a complaint of insomnia and consequent daytime impairment. The conditioned negative associations regarding sleep tend to perpetuate the insomnia and are exacerbated by the patient’s obsessive concern about their sleep.2

6 Daytime Impairment: the daytime consequences of insomnia include: dysphoric states such as irritability, impaired cognition such as poor concentration and memory, and daytime fatigue. The daytime consequences of insomnia must have a substantial effect on the individual’s quality of life to be considered significant.2
RECOMMENDATIONS (see algorithm on page 8)

1 Acute Insomnia
- Identify and address trigger(s).
- Consider short-term pharmacotherapy with a sedative to prevent a chronic insomnia (nightly sedation for < 7 nights).
- Address sleep hygiene issues and advice.

2 Chronic Insomnia (see definitions on Page 1)
   - Without daytime impairment (refer to algorithm and background for management)
   - With daytime impairment (refer to algorithm and background for management)

3 Primary Sleep Disorder (refer to algorithm and background for management)

4 Secondary Sleep Disorder (refer to algorithm and background for information)

5 Primary insomnia (refer to algorithm and background. Refer to the Alberta Clinical Practice Guideline: Adult Conditioned Insomnia - Diagnosis to Management)

BACKGROUND

Introduction

Insomnia is a common complaint in the primary care setting. Morin and colleagues surveyed an adult French speaking population in Quebec in 2001-2002 regarding insomnia. They found that 25% of the randomly selected respondents were dissatisfied with their sleep and 13% had consulted a healthcare provider specifically for insomnia. General practitioners were identified as the most frequently consulted. This study revealed that symptoms of daytime fatigue, physical discomfort and psychological distress were the most common reasons for seeking help. Despite the prevalence of poor sleep quality and insomnia in the general population, people with sleep problems often go unnoticed in the health care system.

In the 2000 National Sleep Foundation Survey of Primary Care Physicians, almost all physician respondents agreed that a patient’s sleep experience should be an essential part of the routine visit, however only 52% of the physicians surveyed conducted regular sleep assessments. In response to this problem the sleep medicine community in Alberta, in collaboration with the Toward Optimized Practice (TOP) program, has developed an evaluation and treatment process that represents the best evidence and best practice available to guide the profession in managing this health issue.

Prevalence

Estimates of prevalence depend on the definition of insomnia used in the epidemiological research. The most common symptoms of insomnia are difficulty initiating sleep, difficulty maintaining sleep and waking up un-refreshed in the morning. Clinically significant insomnia is described as the “insomnia syndrome” which includes symptoms of insomnia associated with daytime impairment. While accurate estimates of prevalence and incidence are not available due to the limitations of the current epidemiological research, population surveys and cross sectional studies consistently estimate the prevalence of insomnia to range from 6-10% worldwide. Canadian data estimates the prevalence of insomnia in the general population to be 13.4% or 3.3 million Canadians. Morin and colleagues surveyed an adult French speaking population in Quebec and found a 9.5% prevalence of clinically significant insomnia based on the “insomnia syndrome”. According to the National

RED FLAGS

- Major Depressive Episode.
- Generalized Anxiety or Panic Disorder.
- Excessive daytime sleepiness (unexpected or irresistible sleepiness) resulting in imminent risk to the patient and/or society.
- Substance abuse.
Sleep Foundation 2005 “Sleep in America” Poll, 33% of respondents experience at least one symptom of insomnia almost every night of the week.\textsuperscript{12}

Credibility

The insomnia guideline working group was comprised of family physicians, sleep medicine specialists, general internists, a psychiatrist, and a clinical pharmacist. The Alberta Medical Association Toward Optimized Practice (TOP) program guided the development process using the Appraisal of Guidelines For Research and Evaluation (AGREE) Instrument to evaluate the quality of the guideline.\textsuperscript{13} An extensive review of the literature was performed and provided the following key documents as the foundation for the current state of the evidence:
1. “Current State Of The Science Of Chronic Insomnia”, National Institutes of Health.\textsuperscript{7}
2. “Manifestations and Management of Chronic Insomnia in Adults”, The Agency for Healthcare Research and Quality, University of Alberta, Evidence based Practice Center.\textsuperscript{14}
3. “Guidance on the use of Zaleplon, Zolpidem And Zopiclone For The Short-Term Management of Insomnia”, the British National Health Service, National Institute for Clinical Excellence.\textsuperscript{15}
4. “Insomnia”, Sleep Medicine Clinics, Volume 1, Number 3, September 2006.\textsuperscript{6}

The results and recommendations of these documents have been reviewed by the guideline committee and formed the basis of the evidence for the background material and recommendations. The clinical tools have been developed by the guideline committee based on Canadian expert and primary care physician consensus. Funding for this project has been provided by the TOP program and no members of the guideline committee have received pharmaceutical or industry funding or support in their role as a committee member.

Definition of Insomnia

Insomnia is defined as difficulty falling asleep, difficulty staying asleep, or non-refreshing sleep in a patient who has the opportunity to acquire a normal nights sleep of 7-8 hours. However, the insomnia is only clinically relevant if the patient presents with insomnia in combination with daytime dysfunction or distress such as fatigue, poor concentration and irritability.

Acute insomnia is an abrupt onset of difficulty initiating and maintaining sleep that is associated with an identifiable trigger. This type of insomnia is arbitrarily defined as less than four weeks in duration. Acute insomnia is most commonly the result of stressful event(s), environmental disturbances (such as noise, extreme temperatures or caring for a newborn), or a disruption of the sleep/wake cycle due to jet lag. In most cases, this type of insomnia can be relieved by addressing the trigger appropriately and with a short term prescription sedative. The sedative can minimize the anxiety over not sleeping and provides the patient with reassurance or a “back-up plan” if they cannot sleep.

Insomnia can be either secondary to, or co-morbid with a primary sleep disorder, medical or psychiatric disease. In a patient who presents with insomnia who has had an evaluation that excludes primary sleep disorders or other causes of insomnia this patient likely suffers from primary insomnia. Primary insomnia as described above is a conditioned state of hyperarousal that inhibits the sleep process. In some cases patients with primary sleep disorders and/or secondary insomnia will develop primary insomnia that requires management as outlined in this guideline.

Risk Factors

The following represent potential risk factors for insomnia based on evidence that supports a strong association between the complaint of insomnia and a specific factor:

Age: Older age is associated with insomnia and is, in part, due to the increased prevalence of other medical problems that disrupt sleep. In addition there are normal, age related changes in sleep that predispose older individuals to insomnia.\textsuperscript{1}

Gender: Gender studies provide evidence that females are 1.2 to 1.5 times more likely to report insomnia than males.\textsuperscript{8}

Socioeconomic Status: Unemployed people and those with less education are at higher risk for insomnia.\textsuperscript{16}

Other: People who are separated or divorced; the medically ill; and those with depression, anxiety, or substance abuse problems are also reported to have a higher prevalence of insomnia.\textsuperscript{16}
Morbidities
Psychiatric disorders

The co-morbid relationship between insomnia, major depression, generalized anxiety disorder and substance abuse is complex and as yet poorly understood. It has been established, however, that the persistent complaint of insomnia in conjunction with the above conditions is associated with an increased risk of the recurrence of depression, risk for post-traumatic stress disorder and relapse in recovering alcoholics. The NIH document also notes the importance of viewing insomnia as a co-morbid condition that should be addressed independently to improve the overall outcome for the patient suffering from these psychiatric conditions.7

Pain Perception

Human studies have demonstrated that the perception of pain can be altered by sleep quality. Disrupted sleep lowers pain thresholds. In addition, sleep disruption leads to higher pain and stiffness ratings in arthritis patients the following day.17, 18

Consequences (The Iceberg Effect)
**DIAGNOSIS**

The physician should have a high index of suspicion of insomnia or sleep difficulty when patients present with the following symptoms:

- Fatigue
- Excessive Daytime Sleepiness
- Major and/or Minor Depressive Episode
- Generalized Anxiety Disorder
- Memory/Concentration
- Pain

The diagnosis of insomnia is made clinically and is dependant on the following criteria: the complaint of difficulty in initiating sleep and/or maintaining sleep or non-restorative sleep that results in daytime impairment. The *Insomnia Algorithm* (Page 8) provides an organized approach to the assessment of insomnia and will assist the clinician in sorting out the possibility of a primary sleep disorder and/or causes of secondary/co-morbid insomnia.

**Primary Sleep Disorders**

- **Obstructive sleep apnea/sleep disordered breathing**
  Common symptoms of sleep apnea are loud snoring, choking or gasping episodes during sleep, and excessive daytime sleepiness that the patient may attribute to poor sleep. Insomnia is not a common complaint in patients with obstructive sleep apnea. However, if the suspicion of sleep apnea is high, the patient should be further investigated.

- **Movement disorders in sleep**
  - Periodic limb movements in sleep (PLMS)
    PLMS can occur at any age but are more common in persons over 45 years of age. Although these limb movements are often associated with brief arousals, many patients have no sleep complaints or daytime impairment. When these limb movements are associated with insomnia or daytime sleepiness, periodic limb movement disorder may be diagnosed.
  - Restless legs syndrome
    Patients with restless legs syndrome experience a difficult to describe, uncomfortable sensation of the limbs that comes on at rest and is relieved by movement such as walking. This restlessness occurs during a waking state and causes a delay in sleep onset. Periodic leg movement disorder commonly coexists with restless legs syndrome. Iron deficiency, renal failure, pregnancy, and SSRI antidepressants are commonly associated with restless legs syndrome.

- **Circadian rhythm disorders**
  Delayed and advanced Sleep Phase, shift work sleep disorder and jetlag are the most common circadian rhythm sleep disorders. Delayed sleep phase (DSP) results in difficulty falling asleep at a normal time and difficulty waking up in the morning. This commonly occurs in teenagers and can cause significant distress for the individual and the parents. Advanced sleep phase (ASP) occurs in the elderly and is associated with an abnormally early bedtime and difficulty with early morning awakening. Adolescents tend to have a natural sleep phase delay, so there is a greater biologic tendency to be a “night owl” during puberty. Behavioural issues (computer gaming, instant messaging, music etc.) can certainly worsen this transient predisposition. The elderly tend to have a natural phase advance, and thus there is a tendency to become a “lark” with advancing age. Jetlag and shift work sleep disorders are complex, multi-factorial problems that are outside the realm of this guideline. Effective management of circadian rhythm sleep disorders is achieved with behavioral strategies, light therapy and the appropriate use of melatonin.

**Secondary/Co-morbid Insomnia**

- **Psychiatric disorders**
  Approximately 40% of outpatients who complain of insomnia have it on the basis of a psychiatric disorder.19 Psychiatric disorders are most commonly associated with co-morbid insomnia. The relationship is poorly understood and likely “bi-directional” therefore the clinician should not expect that management of the psychiatric illness will resolve the insomnia.19,20,21,22,23,24 The NIH consensus document emphasizes the importance of treating insomnia independently in patients suffering from psychiatric illness.

A significant body of literature has examined the sleep disturbance of patients with major depression. Antidepressants (SSRIs and SNRIs) used to treat such patients may have a direct effect on the sleep pattern. One condition that can be exacerbated by SSRI and SNRI antidepressants is the restless legs syndrome. These medications are known to increase motor activity during sleep, and this effect can last up to one year after discontinuation of treatment.25
• Medical disorders
Many medical conditions disrupt sleep through a variety of mechanisms. Some of the common conditions that cause secondary insomnia are:
- Chronic Pain Syndromes
- Menopause
- Gastroesophageal Reflux and Peptic Ulcer Disease
- COPD/Asthma
- Benign Prostatic Hyperplasia

• Medications
Alerting or stimulating drugs taken late in the day will often contribute to poor sleep. Examples include:
- Nicotine, nicotine patches
- Caffeine, caffeine containing medications (eg Anacin)
- Antidepressants (SSRIs, SNRIs, bupropion, opiates)
- Corticosteroids
- Central nervous system stimulants and related drugs
  - dextroamphetamine
  - methylphenidate
  - atomoxetine
- Bronchodilators
- Pseudoephedrine

Alcohol and stimulants such as nicotine and caffeine may cause poor sleep. While consumption of alcohol before bedtime promotes sleep onset, alcohol tends to shorten total sleep time and can exacerbate other conditions such as gastroesophageal reflux and sleep apnea. Alcohol withdrawal in a heavy drinker may be associated with restlessness or tremor. Objective alterations in sleep architecture have been observed in alcoholics following 12 months of abstinence. Diagnosis and management of the primary sleep disorder and/or secondary cause of the insomnia is critical to the overall management of the patient who presents with the complaint of insomnia. Primary insomnia that occurs subsequent to and associated with a primary sleep disorder or co-morbidly with a medical or psychiatric disorder is difficult to manage. In this case the clinician is faced with the difficult task of preventing a chronic primary insomnia. The companion guideline focuses on the management of conditioned insomnia.

REFERENCES
TOWARD OPTIMIZED PRACTICE (TOP) PROGRAM

The TOP Program is an initiative directed jointly by the Alberta Medical Association, Alberta Health and Wellness, the College of Physicians and Surgeons, and Alberta’s Health Regions. The TOP Program promotes appropriate, effective and quality medical care in Alberta by supporting the use of evidence-based medicine.

TOP Leadership Committee
Alberta Health and Wellness
Alberta Medical Association
Regional Health Authorities
College of Physicians and Surgeons of Alberta

To Provide Feedback
The Guideline Working Group for Insomnia is a multi-disciplinary team composed of family physicians, sleep medicine specialists, a pharmacist, psychiatrist and a psychologist.

The team encourages your feedback. If you have difficulty applying this guideline, if you find the recommendations problematic, or if you need more information on this guideline, please contact:

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Website: www.topalbertadoctors.org

ALGORITHM: INSOMNIA DIAGNOSIS

Insomnia (difficulty initiating and/or maintaining sleep associated with daytime consequences)

1. Acute Insomnia (≤4 weeks)
   - Identify trigger
     - recent death
     - loss of job
     - marital break-up
   - Address trigger and consider short term sedative
   - YES
   - NO

2. Chronic Insomnia (>4 weeks)
   - Daytime impairment
   - YES
   - NO
     - Monitor/reassure
     - Insomnia Screening Questionnaire Page 3

3. Primary Sleep Disorder
   - Treat or Refer

4. Secondary Insomnia
   - Optimize treatment of primary disease
   - Address sleep hygiene
   - Prevent co-morbid primary insomnia
   - YES
   - NO

5. Primary Insomnia
   - Refer to: Primary Insomnia Evaluation (page 5) and Clinical Practice Guideline Adult Primary Insomnia: Diagnosis to Management

SECONDARY CAUSES OF INSOMNIA
- C: Circadian rhythm: night owl/shift work
- A: Sleep Apnea: snoring, gasping
- L: Restless legs, abnormal movement and/or behaviour in sleep

- M: Mood disorders (MDD/GAD)
- M: Medical disorders
- M: Medications. Consider timing and dosing
- S: Substance abuse
The **INSOMNIA SCREENING QUESTIONNAIRE** is an optional tool that can be used by the clinician to assist in the diagnosis of a primary sleep disorder or secondary causes of insomnia. See next page for guidelines for interpreting the **INSOMNIA SCREENING QUESTIONNAIRE**.

<table>
<thead>
<tr>
<th>Over the past month:</th>
<th>Circle the best answer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
</tr>
<tr>
<td>1 Do you have trouble falling asleep?</td>
<td>1</td>
</tr>
<tr>
<td>2 Do you have trouble staying asleep?</td>
<td>1</td>
</tr>
<tr>
<td>3 Do you wake up un-refreshed?</td>
<td>1</td>
</tr>
<tr>
<td>4 Do you take anything to help you sleep?</td>
<td>1</td>
</tr>
<tr>
<td>5 Do you use alcohol to help you sleep?</td>
<td>1</td>
</tr>
<tr>
<td>6 Do you have any medical condition that disrupts your sleep?</td>
<td>1</td>
</tr>
<tr>
<td>7 Have you lost interest in hobbies or activities?</td>
<td>1</td>
</tr>
<tr>
<td>8 Do you feel sad, irritable, or hopeless?</td>
<td>1</td>
</tr>
<tr>
<td>9 Do you feel nervous or worried?</td>
<td>1</td>
</tr>
<tr>
<td>10 Do you think something is wrong with your body?</td>
<td>1</td>
</tr>
<tr>
<td>11 Are you a shift worker or is your sleep schedule irregular?</td>
<td>1</td>
</tr>
<tr>
<td>12 Are your legs restless and/or uncomfortable before bed?</td>
<td>1</td>
</tr>
<tr>
<td>13 Have you been told that you are restless or that you kick your legs in your sleep?</td>
<td>1</td>
</tr>
<tr>
<td>14 Do you have any unusual behaviours or movements during sleep?</td>
<td>1</td>
</tr>
<tr>
<td>15 Do you snore?</td>
<td>1</td>
</tr>
<tr>
<td>16 Has anyone said that you stop breathing, gasp, snort, or choke in your sleep?</td>
<td>1</td>
</tr>
<tr>
<td>17 Do you have difficulty staying awake during the day?</td>
<td>1</td>
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</tbody>
</table>
The INSOMNIA SCREENING QUESTIONNAIRE is a screening tool used to guide the physician in the clinical evaluation of insomnia. It is used to screen for a primary sleep disorder as indicated in the Insomnia Algorithm. Based on the general rules below the physician should perform a more detailed clinical evaluation and/or refer where he/she feels it is appropriate.

**Diagnostic Domains:**

1) Insomnia: Q1-6
2) Psychiatric Disorders: Q7-10
3) Circadian Rhythm Disorder: Q11
4) Movement Disorders: Q12-13
5) Parasomnias Q14
6) Sleep Disordered Breathing (Sleep Apnea): Q15-17

**General Guidelines for interpretation of the insomnia screening questionnaire:**

1: Patients who answer 3, 4 or 5 on any question likely suffer from insomnia. If they answer 3, 4 or 5 to two or more items and have significant daytime impairment the insomnia requires further evaluation and management. If there is no evidence of a primary sleep disorder and/or no identifiable secondary cause of insomnia, this is conditioned insomnia.

2: Patients who answer 4 or 5 on questions 6-9 should be further screened for psychiatric disorders as you would in your practice. Question 9 refers to somatization which is commonly associated with insomnia and may reflect an underlying somatoform disorder which requires specific treatment.

3: Patients who answer 4 or 5 on question 11 likely have a circadian rhythm disorder. Further questioning about shift work or a preference for a delayed sleep phase should be done.

4: An answer of 4 or 5 on either item is significant and likely contributing to the patient’s symptoms of insomnia or non-restorative sleep. Question 12 refers to restless legs syndrome and question 13 refers to periodic limb movement disorder.

5: An answer of 2 - 5 on question 14 should raise concern especially if the event or movement is violent or potentially injurious to the patient or bed partner.

6: Answering 4 or 5 on questions 15 or 16 alone requires further clinical evaluation for sleep apnea. An answer of above 3 on questions 15 and 16 or 15 and 17 is also suspicious for sleep apnea and further evaluation should be done.
The primary insomnia evaluation provides the clinician with a structured approach to the clinical evaluation of the patient’s sleep. The sample questions can be used to characterize those aspects of the patients sleep behaviour that contribute to the insomnia.

<table>
<thead>
<tr>
<th>Sample Questions</th>
</tr>
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<tbody>
<tr>
<td><strong>1. What is the nature and severity of the problem?</strong></td>
</tr>
<tr>
<td>- Do you have difficulty falling asleep?</td>
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<tr>
<td>- Do you have difficulty staying asleep?</td>
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<tr>
<td>- When you wake during the night do you have trouble getting back to sleep?</td>
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<tr>
<td>- Do you take anything to help you sleep?</td>
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<td>- Does your sleep difficulty affect your ability to function through the day?</td>
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<tr>
<td><strong>2. Is the patient’s sleep environment hostile to sleep?</strong></td>
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<tr>
<td>- Is there anything in your home that disrupts your sleep such as infant(s), noise, lights, partner snoring, TV, pets?</td>
</tr>
<tr>
<td>- Do you feel safe in your sleep environment?</td>
</tr>
<tr>
<td><strong>3. Does the patient’s sleep routine perpetuate their conditioned insomnia?</strong></td>
</tr>
<tr>
<td>- What time do you get in to bed and try to sleep?</td>
</tr>
<tr>
<td>- What time in the morning do you get out of bed for the day?</td>
</tr>
<tr>
<td>- So you are spending xx hours in bed trying to sleep, is that correct?</td>
</tr>
<tr>
<td>- Out of the xx hours in bed, how many are you actually sleeping?</td>
</tr>
<tr>
<td>- Do you go to bed and get up at the same time every day including holidays and weekends? - how does it differ?</td>
</tr>
<tr>
<td>- Do you sleep during the day or evening (watching TV, after eating)</td>
</tr>
<tr>
<td><strong>4. Does the patient have maladaptive behaviours and/or beliefs that perpetuate a state of heightened arousal?</strong></td>
</tr>
<tr>
<td>- Do you use/consume nicotine, caffeine, alcohol or other stimulants (i.e., Ginseng or Sudafed) prior to bedtime?</td>
</tr>
<tr>
<td>- When you wake up in the night do you eat or smoke?</td>
</tr>
<tr>
<td>- What is your pre-bedtime routine? (For example, exercise, computer use, eating)</td>
</tr>
<tr>
<td>- When you wake up at night do you watch/check the clock?</td>
</tr>
<tr>
<td>- How much sleep do you believe you need per night?</td>
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</table>