



Evaluation and diagnosis of insomnia in adults

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INTRODUCTION

Insomnia is one of the most common medical complaints. It frequently coexists with medical, psychiatric, sleep, or neurological disorders. It may also be associated with acute stress, medication or substance, poor sleep habits, or changes in the sleep environment. The diagnosis of insomnia requires three main components: persistent sleep difficulty, adequate sleep opportunity, and associated daytime dysfunction.

The clinical features, diagnosis, and differential diagnosis of insomnia are reviewed here. The epidemiology, consequences, and treatment of insomnia are discussed separately. (See "[Risk factors, comorbidities, and consequences of insomnia in adults](#)" and "[Overview of the treatment of insomnia in adults](#)" and "[Cognitive behavioral therapy for insomnia in adults](#)" and "[Pharmacotherapy for insomnia in adults](#)".)

TYPES OF INSOMNIA

Insomnia is described as short-term or chronic, depending on its duration [1].

Short-term insomnia — Short-term insomnia, also referred to as adjustment insomnia or acute insomnia, usually lasts a few days or weeks and occurs in response to an identifiable stressor. By definition, symptoms are present for less than three months [1].

Stressors can be physical, psychological, psychosocial, or interpersonal (eg, job loss, death of a loved one, divorce, argument). Symptoms usually resolve when the stressor is eliminated or resolved or when the individual adapts to the stressor. Occasionally, sleep problems persist and lead to chronic insomnia. This may occur due to the development of poor sleep habits during the acute insomnia period.

Chronic insomnia — Insomnia symptoms that occur at least three times per week and persist for at least three months are considered chronic insomnia ([table 1](#)) [1]. In practice, however, most individuals with chronic insomnia report symptoms for many years. Some individuals recall an initial stressful event that triggered insomnia, but others report nearly lifelong symptoms without an identifiable trigger. Night-to-night variability and a waxing and waning course related to psychosocial stressors and psychiatric or medical comorbidities are common.

Chronic insomnia subsumes alternate or historical terms including primary insomnia, secondary insomnia, and comorbid insomnia [1].

CLINICAL FEATURES

Patients with insomnia typically complain about difficulty falling asleep and/or staying asleep. Impaired daytime function must also be reported for a diagnosis of an insomnia disorder. In many cases, comorbid psychiatric or medical disorders, medications or substances, or other sleep disorders are also present. However, the presence of comorbid disorders does not preclude the diagnosis and treatment of insomnia.

Difficulty initiating or maintaining sleep — Patients with insomnia complain of poor sleep quality or insufficient quantity due to difficulty initiating sleep, difficulty maintaining sleep, or waking up too early. Importantly, insomnia differs from sleep deprivation in that it occurs despite adequate opportunity and circumstances for sleep.

Patients may describe variable sleep, with one or several nights of poor sleep followed by a night of better sleep. Occasionally, patients may report having minimal sleep for several consecutive nights.

Most well-rested adults fall asleep within about 10 to 20 minutes of attempting to sleep and spend less than 30 minutes awake during the night. By contrast, adult patients with insomnia usually report taking 30 minutes or more to fall asleep (for those with sleep initiation difficulties) or spending 30 minutes or more awake during the night (for those with sleep maintenance difficulties). Early morning awakening is defined as termination of sleep at least 30 minutes prior to the desired wake-up time.

Patients with insomnia tend to overestimate the amount of time it takes them to fall asleep and underestimate their total sleep time when compared with objective data from polysomnography (PSG) or actigraphy. Although objective measures are typically used in clinical trials of insomnia therapies, they are not used routinely in patient care, and ultimately the patient's perception of their sleep problem is the major factor in guiding the evaluation, diagnosis and treatment of insomnia. (See ['Additional testing'](#) below.)

Compromised daytime function — The diagnosis of insomnia disorder requires that sleep difficulties be accompanied by compromised daytime function related to one or more of the following [1]:

- Fatigue or malaise
- Poor attention or concentration
- Social or vocational/educational dysfunction
- Mood disturbance or irritability
- Daytime sleepiness
- Reduced motivation or energy
- Increased errors or accidents
- Behavioral problems such as hyperactivity, impulsivity or aggression
- Ongoing worry about sleep

Patients with chronic insomnia have often developed behavioral or adjustment issues associated with chronic poor sleep. They are often worried that their lack of adequate sleep will result in significant compromise of their ability to function during the day in both social and professional settings. This concern can create a cycle that worsens the insomnia. Specifically, when patients are unable to fall asleep rapidly, they worry about loss of sleep affecting their performance, and this concern increases with time awake and simultaneously decreases the likelihood of falling asleep, while further increasing stress.

Although severe fatigue is commonly reported by patients with chronic insomnia, actually falling asleep at unwanted or unintended times during the day (ie, excessive daytime sleepiness) is uncommon and may be a sign of an alternative or comorbid sleep disorder. (See ["Approach to the patient with excessive daytime sleepiness"](#).)

Common comorbidities — Insomnia commonly coexists with psychiatric or medical disorders, other sleep disorders, or use of certain medications or substances. At times, there is a clear temporal relationship between the insomnia and the condition that is known to disrupt sleep, whereas in many cases it is difficult to discern which condition came first ([table 2](#)).

Historically, a distinction was made between primary insomnia (ie, insomnia without comorbidities or existing independently from other disorders) and secondary insomnia (ie, associated with a comorbid condition such as depression) [2]. However, as it is often not possible to draw firm conclusions about the association or direction of causality between insomnia and co-occurring conditions, insomnia is no longer considered a secondary condition, and successful treatment requires attention to both insomnia and comorbidities.

Risk factors and common comorbidities of chronic insomnia are reviewed in detail separately. (See "[Risk factors, comorbidities, and consequences of insomnia in adults](#)".)

Natural history — Insomnia is often a persistent or recurrent condition, with exacerbations connected to medical, psychiatric, and psychosocial stressors [3-7]. The persistent nature of insomnia underscores the importance of interventions that teach patients ways to manage recurrent symptoms over the lifespan.

Insomnia exists throughout the lifespan. Incidence increases from childhood to adulthood and approaches adult prevalence levels in adolescence [3]. Risk factors for persistence include older age, female sex, low socioeconomic status, mood disorders (depression or anxiety), and increased severity of symptoms [3,6]. In a study of persistence of insomnia symptoms in over 3000 adults, 59 percent of patients with insomnia disorder consistently maintained that diagnosis for five years, while 26 percent of symptomatic patients consistently maintained that criterion for five years, and rates were higher in females [4]. In another cohort, among self-identified good sleepers aged 35 years and older, more than 25 percent reported at least one episode of acute insomnia per year, and 6 percent developed chronic insomnia during the following year [5,8]. Insomnia remitters had less severe symptoms initially, less depression, and less sleep preoccupation [8].

Insomnia has a strong genetic component with heritability of 40 percent, a range similar to major depression and other psychiatric disorders [9]. (See "[Risk factors, comorbidities, and consequences of insomnia in adults](#)", section on 'Intrinsic factors and genetics'.)

DIFFERENTIAL DIAGNOSIS

Insomnia should be distinguished clinically from several other common sleep complaints and conditions ([table 3](#)).

Short sleep duration — The amount of sleep required to support adequate alertness, performance, and health varies by age and among individuals ([figure 1](#)). While most adults require approximately seven to nine hours of sleep per night, some otherwise healthy people

regularly sleep less than seven hours per night without the need for catch-up sleep to feel refreshed. Such individuals often report a nearly lifelong and/or familial tendency for short sleep duration. Short sleep duration is distinguished from insomnia by the absence of daytime impairment. (See ["Insufficient sleep: Definition, epidemiology, and adverse outcomes"](#), section on 'How much sleep do we need?'.)

Chronic sleep insufficiency — Chronic sleep insufficiency or sleep restriction is due to volitional sleep restriction or insufficient opportunity to sleep, whereas insomnia exists despite adequate opportunity and conditions for sleep ([table 4](#)). People with sleep restriction accumulate sleep debt over time and will rapidly fall asleep if given the opportunity. This distinguishes them from most patients with insomnia, who may feel fatigued during the day, but are typically unable to fall asleep if given a chance to take a nap. (See ["Insufficient sleep: Definition, epidemiology, and adverse outcomes"](#) and ["Insufficient sleep: Evaluation and management"](#).)

Circadian rhythm sleep-wake disorders

- **Delayed sleep-wake phase disorder** – Delayed sleep-wake phase disorder (DSWPD) is one of the most common revised diagnoses given to patients referred to sleep specialists for chronic insomnia, especially those with difficulties falling asleep. DSWPD is a circadian sleep-wake rhythm disorder that can be thought of as a pronounced "night owl" circadian preference. The peak prevalence is in adolescence.

Patients with DSWPD have difficulty initiating sleep at conventional or desired times necessary to obtain sufficient nighttime sleep because their circadian phase is delayed, often by several hours, in relation to the environmental light-dark cycle. In addition to difficulty falling asleep at night, they experience difficulty awakening in the morning at conventional times.

Patients with prominent sleep initiation complaints should be asked to describe what happens when they are allowed to sleep according to their desired sleep-wake schedule (eg, on weekends or vacations). Individuals with DSWPD will fall asleep and sleep normally if they wait to go to bed until the correct point in their circadian rhythm (often midnight or later). By contrast, patients with sleep onset insomnia typically describe difficulty falling asleep at any time of night.

DSWPD can be confirmed by sleep logs or actigraphy showing a persistently delayed sleep-wake schedule on weekdays and weekends, with curtailment of total sleep time during periods of enforced morning awakenings. (See ["Delayed sleep-wake phase disorder"](#).)

- **Advanced sleep-wake phase disorder** – Patients with difficulty maintaining sleep or early morning awakening associated with insomnia should be differentiated from patients with advanced sleep-wake phase disorder (ASWPD). Patients with ASWPD have a circadian phase that is advanced or shifted earlier relative to the environmental light-dark cycle so that they tend to fall asleep in the early evening (eg, by 7:00 PM) and wake up in the early morning hours (eg, 3:00 to 4:00 AM), even if they have forced themselves to stay awake until the late evening. ASWPD primarily affects older adults.

ASWPD can usually be distinguished from chronic insomnia by asking patients what happens if they allow themselves to go to bed early. While patients with ASWPD fall asleep easily at this time, those with chronic insomnia typically have difficulty sleeping regardless of the time. Patients with insomnia are also more likely than those with ASWPD to report multiple night awakenings, rather than a specific early morning awakening. (See ["Advanced sleep-wake phase disorder"](#).)

Restless legs syndrome — Restless legs syndrome (RLS) can make it difficult to fall asleep. Patients with sleep-onset complaints should be asked whether they have unpleasant, restless feelings in their legs when they try to relax or sleep at night ([table 5](#)). RLS is a clinical diagnosis made by history and does not require additional testing, except for an assessment of iron stores. (See ["Clinical features and diagnosis of restless legs syndrome and periodic limb movement disorder in adults"](#), section on 'Clinical features'.)

Sleep-related breathing disorders — Some patients with sleep-related breathing disorders (eg, obstructive or central sleep apnea) may complain that they wake up frequently during the night, unaware that the awakening was preceded by a pause in breathing. Sleep disruption due to obstructive apneas throughout the night often results in significant daytime sleepiness, which is uncommon in patients with insomnia alone. By contrast, central apneas often occur at sleep onset, resulting in reports of difficulty falling asleep or returning to sleep. Central apneas occurring at the transition to sleep may not continue throughout the night and therefore may produce less daytime sleepiness than obstructive apneas. Insomnia and sleep apnea can coexist, with 30 to 40 percent of chronic insomnia patients having comorbid obstructive sleep apnea [10].

Diagnostic sleep testing should be pursued in patients with suspected obstructive sleep apnea ([table 6](#)), as insomnia may resolve with successful treatment of the sleep apnea. (See ["Clinical presentation and diagnosis of obstructive sleep apnea in adults"](#), section on 'Diagnostic evaluation'.)

EVALUATION

Insomnia is a clinical diagnosis established by history and patient report [11,12]. The goals of the evaluation are to characterize the nature and severity of the sleep problem and identify contributing factors and comorbidities that may be relevant to successful treatment (☞ table 3).

Sleep history and sleep diary — The sleep history should elicit a detailed description of the sleep problem (ie, number of awakenings, duration of awakenings, duration of the problem) and sleep times (ie, bedtime, duration until sleep onset, final awakening time, nap times, and nap lengths) over both a 24-hour period and week. It also includes an assessment of any symptoms of disturbed sleep (eg, daytime sleepiness, fatigue), the duration of the symptoms (ie, acute or chronic), and the sleep environment.

Patients who cannot provide an adequate sleep history or who report considerable day-to-day or night-to-night variability should be asked to complete a daily sleep diary for one or two weeks (☞ table 7 and ☞ table 8). Sleep diaries record sleep times, sleep problems, and subjective sleep quality, so that the clinician may review the information for diagnosis and to evaluate treatment efficacy without being misled by recall errors.

The sleep history may provide clues about the cause of the insomnia or factors contributing to the insomnia. It can be helpful to ask patients why they feel it is hard to fall asleep or why they wake up, as these questions often elicit important factors such as "not sleepy," pain, or anxiety. Patients with poor sleep hygiene may describe irregular bedtimes and waking times, while patients whose lifestyle is contributing to their insomnia may report exercising, smoking, or drinking alcohol or caffeine shortly before bedtime. When the bedroom environment is responsible for the insomnia, patients may describe recent changes in light, noise, or other distractions in the bedroom. Patients whose insomnia is due to a primary sleep disorder may report symptoms or signs of the sleep disorder (eg, loud resuscitative snoring in obstructive sleep apnea).

Self-report screening tools — Tracking changes in the chronic insomnia diagnostic items (☞ table 1) or with the sleep diary (☞ table 7 and ☞ table 8) can be used to characterize insomnia symptom severity and follow symptoms over time.

Alternatively, validated questionnaires can be completed by patients, acknowledging the limitation that these scales and their resulting cut-off values may not always agree with formal diagnostic criteria.

- Pittsburgh Sleep Quality Index ([table 9](#) and [table 10](#)) [13]. A global score of more than 5 out of 21 points indicates significant sleep disturbance.
- Sleep problems questionnaire ([calculator 1](#)) [14]. Total scores range from 0 to 20, with higher scores indicating more severe sleep disturbances, and scores of 4 or 5 on any single item indicative of clinically significant sleep disturbance.

Contributing factors — Although not required to confirm or exclude a diagnosis of insomnia, all patients should undergo additional evaluation to determine whether the insomnia is associated with another condition, medication, or substance, since these may also need to be a focus of treatment for the sleep complaint ([table 2](#)).

Because depression and anxiety in particular are highly comorbid with insomnia, patients should be screened as part of the routine evaluation. The self-report, two-item Patient Health Questionnaire (PHQ-2) ([table 11](#)) can be used as a depression screen, and those who screen positive should be interviewed for depression. The interview can be facilitated with the self-administered PHQ-9 ([table 12](#)). (See "[Screening for depression in adults](#)", section on '[Screening instruments](#)' and "[Unipolar depression in adults: Assessment and diagnosis](#)".)

The generalized anxiety disorder seven-item (GAD-7) scale ([table 13](#)) or the State-Trait Anxiety Inventory can be used to screen for anxiety in primary care. (See "[Generalized anxiety disorder in adults: Epidemiology, pathogenesis, clinical manifestations, course, assessment, and diagnosis](#)", section on '[Screening, assessment, and diagnosis](#)'.)

The history should also probe for symptoms of comorbid sleep disorders, such as sleep-related breathing disorders and restless legs syndrome. Positive responses about loud or habitual snoring and witnessed pauses in breathing during sleep raise suspicion for obstructive sleep apnea. A single question, "When you try to relax in the evening or sleep at night, do you ever have unpleasant, restless feelings in your legs that can be relieved by walking or movement?" has good predictive power for the diagnosis of restless legs syndrome. (See "[Clinical features and diagnosis of restless legs syndrome and periodic limb movement disorder in adults](#)" and "[Clinical presentation and diagnosis of obstructive sleep apnea in adults](#)".)

The medication list, including timing of administration, should be reviewed for contributory agents ([table 2](#)). Patients should be asked about habits including caffeine intake, tobacco before bed, drug use, marijuana, and alcohol.

Physical examination — Physical examination of patients with insomnia may reveal medical problems such as hypertension that are associated with insomnia. Other examples include excessive oropharyngeal tissue in obstructive sleep apnea, lower extremity swelling in heart

failure, and an abnormal mental status in dementia. In many cases, the physical examination will be normal even if the patient has a medical or psychiatric condition that is associated with insomnia (eg, asthma, ischemic heart disease, gastroesophageal reflux, and menopause).

Laboratories — No routine laboratory studies are necessary in the evaluation of chronic insomnia. Selected tests may be indicated based on clinical suspicion of an important comorbidity. As examples, echocardiography, thyroid function tests, blood glucose and hemoglobin A1C measurements, blood urea nitrogen and creatinine levels, or iron studies may be performed if heart failure, hyperthyroidism, diabetes mellitus, renal disease, or restless legs syndrome is suspected, respectively.

Diagnostic criteria — According to the third edition of the International Classification of Sleep Disorders Text Revision (ICSD-3-TR), insomnia is confirmed when all four of the following criteria are met ([table 1](#)) [1]:

- The patient reports difficulty initiating asleep, difficulty maintaining asleep, or final waking earlier than desired. In children or individuals with dementia, the sleep disturbance may manifest as resistance to going to bed at the appropriate time or difficulty in sleeping without caregiver assistance.
- Sleep difficulties occur despite adequate opportunity and circumstances for sleep.
- The patient describes daytime impairment that is attributable to the sleep difficulties. This may include fatigue or malaise; attention, concentration, or memory impairment; social dysfunction, family dysfunction, vocational dysfunction, or poor school performance; mood disturbance or irritability; daytime sleepiness; motivation, energy, or initiative reduction; errors or accidents at work or while driving; and concerns or worries about sleep.
- The sleep-wake difficulty is not solely explained by a current sleep disorder, medical disorder, mental disorder, or medication/substance use.

Chronic insomnia is differentiated from short-term insomnia if the sleep disturbance and the associated daytime dysfunction has existed for three months or longer and occurs at least three nights per week. Chronic insomnia may also be diagnosed in individuals who report a pattern of repeated occurrence for weeks at a time over several years, even though an individual episode may not last a full three months. A diagnosis of "Other Insomnia" is used for patients who complain of difficulty initiating or maintaining sleep but do not meet all of the criteria for either short-term or chronic insomnia. (See '[Types of insomnia](#)' above.)

The degree of sleep disturbance required to assign an insomnia disorder diagnosis is somewhat arbitrary, in that it relies primarily on individuals' subjective sleep complaints [1]. In addition, the degree of sleep disturbance required to cause daytime impairment varies among individuals and across age groups. In general, among adults, the degree of sleep disturbance should include either a sleep latency of >30 minutes or wake periods of >30 minutes. Complaints of early morning awakening are substantiated by termination of sleep at least 30 minutes prior to the desired wake-up time and a concomitant reduction in total sleep time compared with the premorbid sleep pattern.

ADDITIONAL TESTING

Additional diagnostic testing is not required in most patients. Polysomnography, home sleep apnea testing, or actigraphy may be performed in selected patients based upon the history and physical. In particular, patients who report excessive daytime sleepiness in association with sleep difficulties should be further evaluated for an alternative or comorbid sleep disorder.

Role of polysomnography — Polysomnography is only indicated for an insomnia complaint if another sleep disorder, such as obstructive sleep apnea, is suspected. Clinicians should have a high index of suspicion for comorbid sleep-disordered breathing disorders in patients with chronic, treatment-refractory insomnia and daytime sleepiness. In these patients, the prevalence of obstructive sleep apnea may be as high as 90 percent, and screening instruments such as the Berlin questionnaire may lack sensitivity [15]. (See "[Clinical presentation and diagnosis of obstructive sleep apnea in adults](#)", section on 'Diagnostic evaluation'.)

The multiple sleep latency test (MSLT) is not typically indicated for an insomnia complaint and is only used if narcolepsy is suspected. (See "[Quantifying sleepiness](#)", section on 'Multiple sleep latency test (MSLT)'.)

The home sleep apnea test (HSAT) is an alternative to in-laboratory polysomnography that can be used to diagnose obstructive sleep apnea in selected patients. Although most HSATs in use do not actually measure sleep, some newer models have algorithms for estimating objective sleep time (including derived EEG measures in some cases), which may correlate better with risk for medical comorbidities and adverse outcomes in insomnia. (See "[Risk factors, comorbidities, and consequences of insomnia in adults](#)".)

Role of actigraphy — Actigraphy is not routinely indicated in the evaluation of chronic insomnia but is an important adjunct to sleep diaries when a circadian sleep-wake rhythm

disorder is suspected or when an objective estimate of total sleep time is needed to support clinical decision making [16,17]. (See '[Differential diagnosis](#)' above.)

Actigraphy is a validated method of objectively measuring sleep parameters and average motor activity over a period of days to weeks using a noninvasive accelerometer, worn like a wristwatch. In patients with suspected circadian rhythm sleep-wake disorders, actigraphy data complements self-reported sleep parameters obtained from sleep diaries and provides a substitute for self-reported sleep parameters in patients who cannot reliably complete sleep diaries. (See "[Actigraphy in the evaluation of sleep disorders](#)".)

Reasons for referral — Consider referral to a sleep medicine physician when:

- Insomnia does not respond to therapy.
- Patients with insomnia report profound daytime sleepiness or symptoms of other sleep disorders, including sleep-related breathing disorders, periodic limb movements, narcolepsy, parasomnias, or circadian rhythm sleep-wake disorders [18,19].

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "[Society guideline links: Insomnia in adults](#)".)

INFORMATION FOR PATIENTS

UpToDate offers two types of patient education materials, "The Basics" and "Beyond the Basics." The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on "patient info" and the keyword(s) of interest.)

- Beyond the Basics topics (see "[Patient education: Insomnia \(Beyond the Basics\)](#)" and "[Patient education: Insomnia treatments \(Beyond the Basics\)](#)")
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SUMMARY AND RECOMMENDATIONS

- **Clinical features** – Insomnia is one of the most common medical complaints and frequently coexists with medical, psychiatric, sleep, or neurological disorders. Key clinical features include:
 - **Difficulty initiating or maintaining sleep** – Patients with insomnia have decreased sleep quality or quantity due to any combination of difficulty initiating sleep, difficulty maintaining sleep, or waking up too early. Importantly, insomnia differs from sleep deprivation in that it occurs despite adequate opportunity and circumstances for sleep. (See '[Difficulty initiating or maintaining sleep](#)' above.)
 - **Compromised daytime function** – Insomnia is associated with compromised daytime function due to fatigue or malaise, poor attention or concentration, social or vocational/educational dysfunction, mood disturbance or irritability, daytime sleepiness, reduced motivation or energy, increased errors or accidents, behavioral problems such as hyperactivity, impulsivity, or aggression, and ongoing worry about sleep. (See '[Compromised daytime function](#)' above.)
 - **Persistence and recurrence** – Insomnia is often a persistent or recurrent condition, with exacerbations connected to medical, psychiatric, and psychosocial stressors. The persistent nature of insomnia underscores the importance of interventions that teach patients ways to manage recurrent symptoms over the lifespan.
- **Differential diagnosis** – Insomnia should be distinguished clinically from several other common sleep complaints and conditions, including short sleep duration, chronic sleep insufficiency ([table 4](#)), circadian rhythm sleep-wake disorders, restless legs syndrome, and sleep-related breathing disorders ([table 3](#)). (See '[Differential diagnosis](#)' above.)
- **Evaluation** – Insomnia is a clinical diagnosis established by history ([table 1](#)). The goals of the evaluation are to characterize the nature and severity of the sleep problem and identify contributing factors and comorbidities relevant to successful treatment. Key elements include:
 - Obtain a sleep history, supplemented by a sleep diary ([table 7](#) and [table 8](#)) and a sleep problems questionnaire ([table 9](#) and [table 10](#)) ([calculator 1](#)) (see '[Sleep](#)

[history and sleep diary](#)' above and ['Self-report screening tools'](#) above)

- Probe for symptoms of other sleep disorders, including obstructive sleep apnea, restless legs syndrome, and circadian rhythm sleep-wake disorders (see ['Contributing factors'](#) above and ['Physical examination'](#) above)
- Screen for depression ([table 11](#)) and anxiety ([table 13](#))
- Review medications and habits, including caffeine intake, tobacco and alcohol, and substance use
- **Diagnosis** – Insomnia disorder is confirmed when all of the following criteria are met ([table 1](#)) (see ['Diagnostic criteria'](#) above):
 - Difficulty initiating sleep, difficulty maintaining sleep, or final waking earlier than desired
 - Sleep difficulties occur despite adequate opportunity and circumstances for sleep
 - Daytime impairment attributable to the sleep difficulties
 - Sleep-wake difficulty is not solely explained by a current sleep disorder, medical disorder, mental disorder, or medication/substance use

Short-term insomnia lasts for <3 months (usually a few days or weeks) and is often in response to an identifiable stressor. Chronic insomnia is defined as symptoms lasting for ≥3 months and occurring ≥3 nights per week, or a pattern of repeated sleep difficulties for weeks at a time over several years. (See ['Diagnostic criteria'](#) above and ['Types of insomnia'](#) above.)

- **Limited role for additional testing** – Diagnostic testing is not required in most patients with insomnia. Sleep studies, actigraphy, or iron studies may be indicated when another sleep disorder (eg, obstructive sleep apnea, circadian rhythm sleep-wake disorders, or restless legs syndrome) is suspected. (See ['Additional testing'](#) above.)

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GRAPHICS

International Classification of Sleep Disorders, third edition (ICSD-3) diagnostic criteria for chronic insomnia disorder

Diagnostic criteria A-F must be met:	
A	<p>The patient reports, or the patient's parent or caregiver observes, one or more of the following:</p> <ul style="list-style-type: none"> ▪ Difficulty initiating sleep* ▪ Difficulty maintaining sleep¶ ▪ Waking up earlier than desired^Δ ▪ Resistance to going to bed on appropriate schedule ▪ Difficulty sleeping without parent or caregiver intervention
B	<p>The patient reports, or the patient's parent or caregiver observes, one or more of the following related to the nighttime sleep difficulty:</p> <ul style="list-style-type: none"> ▪ Fatigue/malaise ▪ Attention, concentration, or memory impairment ▪ Impaired social, family, occupational, or academic performance ▪ Mood disturbance/irritability ▪ Daytime sleepiness ▪ Behavioral problems (eg, hyperactivity, impulsivity, aggression) ▪ Reduced motivation/energy/initiative ▪ Proneness to errors/accidents ▪ Concerns about or dissatisfaction with sleep
C	<p>The reported sleep-wake complaints cannot be explained purely by inadequate opportunity (ie, enough time is allotted for sleep) or inadequate circumstances (ie, the environment is safe, dark, quiet, and comfortable) for sleep</p>
D	<p>The sleep disturbance and associated daytime symptoms occur at least three times per week</p>
E	<p>The sleep disturbance and associated daytime symptoms have been present for at least three months</p>
F	<p>The sleep/wake difficulty is not better explained by another sleep disorder</p>

* In general, delays of >20 minutes for children and young adults and >30 minutes for middle-aged and older adults are considered clinically significant.

¶ In general, periods of awakening in the middle of the night of >20 minutes for children and young adults and >30 minutes for middle-aged and older adults are considered clinically significant.

Δ In general, waking up >30 minutes before normal awakening time is considered clinically significant.

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Risk factors and comorbidities of chronic insomnia in adults

Psychiatric conditions	Medical conditions	Neurological conditions	Medications and substances	Other disorders
<ul style="list-style-type: none"> ▪ Depression ▪ Anxiety ▪ Substance use disorders ▪ Posttraumatic stress disorder ▪ Bipolar disorder ▪ Psychotic disorders ▪ Eating disorders 	<ul style="list-style-type: none"> ▪ Pulmonary <ul style="list-style-type: none"> • Chronic obstructive pulmonary disease • Asthma ▪ Musculoskeletal <ul style="list-style-type: none"> • Arthritis • Fibromyalgia • Chronic pain ▪ Cardiovascular <ul style="list-style-type: none"> • Heart failure • Ischemic heart disease • Nocturnal angina • Hypertension ▪ Endocrinologic <ul style="list-style-type: none"> • Hyperthyroidism ▪ Urinary <ul style="list-style-type: none"> • Nocturia ▪ Gastrointestinal <ul style="list-style-type: none"> • Gastroesophageal reflux ▪ Diabetes ▪ Cancer ▪ Pregnancy ▪ Menopause ▪ Lyme disease ▪ Human immunodeficiency virus (HIV) infection ▪ Myalgic encephalomyelitis/chronic fatigue syndrome ▪ Dermatologic (eg, pruritus) 	<ul style="list-style-type: none"> ▪ Neurodegenerative diseases (eg, Alzheimer dementia, Parkinson disease) ▪ Neuromuscular disorders including painful peripheral neuropathies ▪ Cerebral hemispheric and brainstem strokes ▪ Brain tumors ▪ Traumatic brain injury ▪ Headache syndromes (eg, migraine, cluster, hypnic headache, and exploding head syndromes) ▪ Fatal familial insomnia 	<ul style="list-style-type: none"> ▪ Central nervous system stimulants ▪ Central nervous system depressants ▪ Bronchodilators ▪ Antidepressants ▪ Beta antagonists ▪ Diuretics ▪ Glucocorticoids ▪ Caffeine ▪ Alcohol 	<ul style="list-style-type: none"> ▪ Resyn ▪ Permo ▪ disc ▪ Slee ▪ bre ▪ disc ▪ Circ ▪ rhy ▪ slee ▪ disc • • • • • •

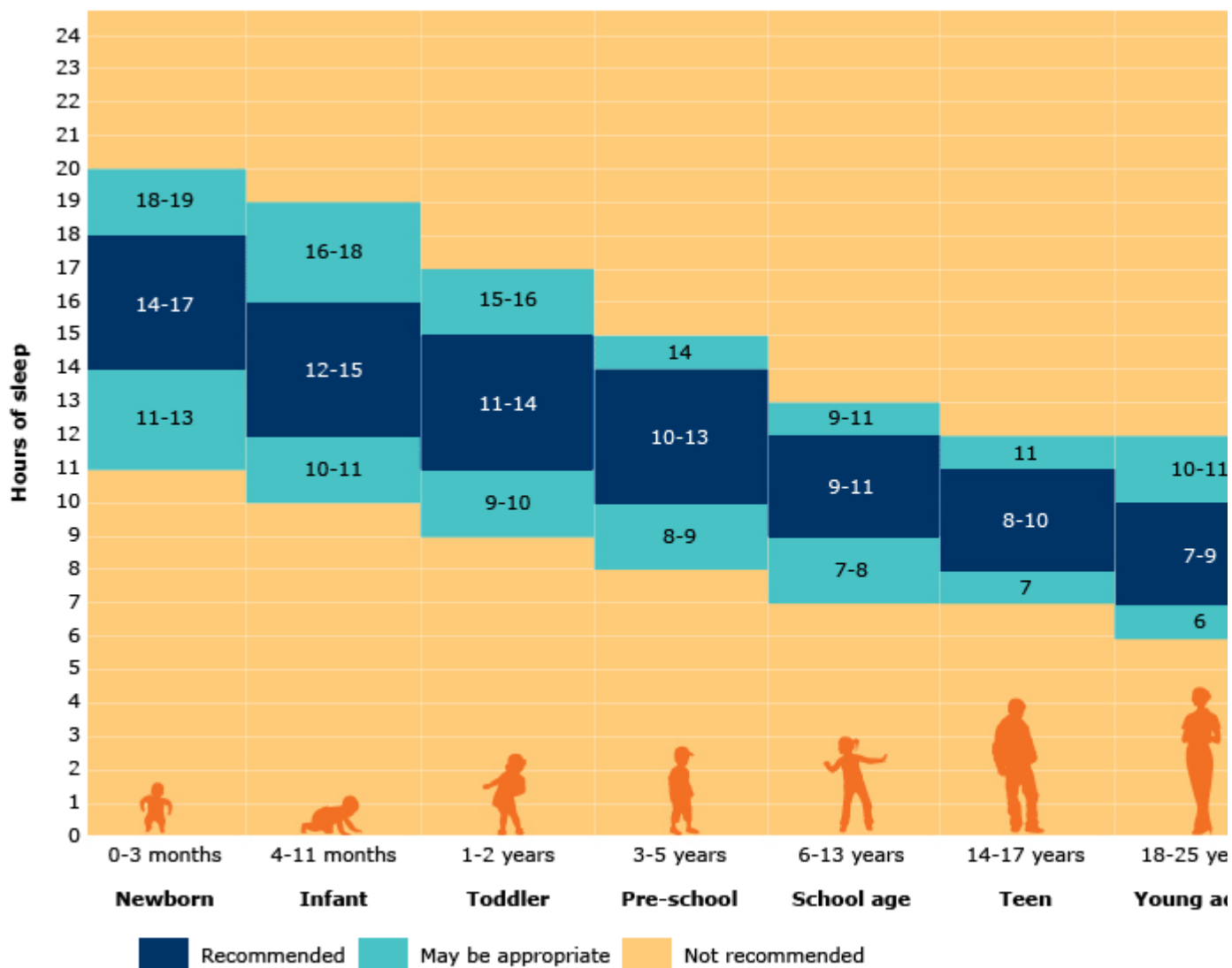
Chronic insomnia: Examples of patient complaints and questions that may suggest alternative diagnosis or contributing comorbidity

Insomnia symptom	Patient complaint(s)	Follow-up question(s)	Possible alternative diagnosis or comorbidity (if yes)	Next steps
Sleep onset difficulty	I can't fall asleep at night. I can lie in bed for hours and not fall asleep.	Do your legs bother you when you are sitting or lying down?	Restless legs syndrome	Check iron stores, consider pharmacotherapy for restless legs syndrome (eg, iron supplementation, dopamine agonists, gabapentinoids)
		When you are on vacation, do you tend to stay up late and sleep late? Do you consider yourself a "night owl"? If you go to bed later, do you fall asleep more easily? Do you have trouble waking up in the morning?	Delayed sleep-wake phase disorder	Sleep log and/or actigraphy for review of sleep-wake patterns on weekdays and weekends
Sleep maintenance difficulty, daytime sleepiness	I often wake up in the middle of the night. I can't keep my eyes open during the day, even though I am getting enough sleep.	Do you snore loudly? Does your partner witness pauses in your breathing while you sleep?	Sleep apnea	Polysomnography or home sleep apnea testing
		Are you a restless sleeper? Have you been told you have limb	Periodic limb movements	Polysomnography

		movements or muscle twitches during sleep?		
Early morning awakening	I wake up too early in the morning and can't get back to sleep.	Do you nod off in the early evening or have to force yourself to stay awake for evening activities?	Advanced sleep-wake phase disorder	Sleep log and/or actigraphy for review of sleep-wake patterns on weekdays and weekends
		Do you feel down, depressed, or hopeless? Have you lost interest or pleasure in doing things?*	Depression	Evaluate for depression; concomitant treatment for both disorders is often necessary to hasten recovery and increase the likelihood of sustained response
Decreased sleep quantity	I try to get enough sleep, but I can't keep my eyes open during the day. I sometimes nod off at work or when I'm driving.	Do you have family, social, or job obligations that prevent you from getting enough sleep on a regular basis? Do you depend on an alarm to wake up in the morning? Do you catch up on sleep on the weekends?	Insufficient sleep	Emphasize sleep hygiene and lifestyle changes to promote adequate sleep
	I can't seem to sleep for more than six hours per night, but I'm not tired during the day.	Have you always seemed to need less sleep than other people your age?	Short sleep duration	Educate about range of normal sleep need, revise expectations on sleep quantity

* Although early morning awakening is a common symptom of depression, any insomnia complaint should trigger an evaluation for depression and anxiety, as they are frequently comorbid with insomnia.

Sleep duration recommendations by age from the National Sleep Foundation*



* These recommendations are very similar, but not identical to those from the American Academy of Sleep Medicine.

1. Paruthi S, Brooks LJ, D'Ambrosio C, et al. Recommended amount of sleep for pediatric populations: A statement of the American Academy of Sleep Medicine. *J Clin Sleep Med* 2016; 12:785.

2. Consensus Conference Panel, Watson NF, Badr MS, et al. Recommended amount of sleep for a healthy adult: A Joint Statement of the American Academy of Sleep Medicine and Sleep Research Society. *J Clin Sleep Med* 2015; 11:591.

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Distinction between insufficient sleep and insomnia disorder

	Insufficient sleep/sleep deprivation	Insomnia disorder
Ability to sleep	Maintained. Patient is able to sleep when given the opportunity.	Disrupted. Patient cannot sleep even when an opportunity to obtain sufficient sleep is available.
Opportunity for sleep	Inadequate. Patient is not in bed long enough to obtain sufficient sleep, and, therefore, suffers daytime consequences.	Adequate. Patient is able to spend an adequate amount of time in bed to obtain sufficient sleep, but is not able to sleep when the opportunity is available.
Sleep duration	Short sleep duration due to inadequate opportunity.	Short sleep duration despite adequate opportunity.

Diagnostic criteria for restless legs syndrome

RLS, a neurologic sensorimotor disease often profoundly disturbing sleep and quality of life, has variable expression influenced by genetic, environmental, and medical factors. The symptoms vary considerably in frequency from less than once a month or year to daily and severity from mildly annoying to disabling. Symptoms may also remit for various periods of time. RLS is diagnosed by ascertaining symptom patterns that meet the following 5 essential criteria, adding clinical specifiers where appropriate.

Essential diagnostic criteria (all must be met):

1. An urge to move the legs usually but not always accompanied by, or felt to be caused by, uncomfortable and unpleasant sensations in the legs*¶.
2. The urge to move the legs and any accompanying unpleasant sensations begin or worsen during periods of rest or inactivity, such as lying down or sitting.
3. The urge to move the legs and any accompanying unpleasant sensations are partially or totally relieved by movement, such as walking or stretching, at least as long as the activity continues^Δ.
4. The urge to move the legs and any accompanying unpleasant sensations during rest or inactivity only occur or are worse in the evening or night than during the day[◇].
5. The occurrence of the above features is not solely accounted for as symptoms primary to another medical or a behavioral condition (eg, myalgia, venous stasis, leg edema, arthritis, leg cramps, positional discomfort, habitual foot tapping)[§].

Specifiers for clinical course of RLS:‡

- A. Chronic-persistent RLS – Symptoms when not treated would occur on average at least twice weekly for the past year.
- B. Intermittent RLS – Symptoms when not treated would occur on average <2/week for the past year, with at least 5 lifetime events.

Specifier for clinical significance of RLS:

The symptoms of RLS cause significant distress or impairment in social, occupational, educational, or other important areas of functioning by their impact on sleep, energy/vitality, daily activities, behavior, cognition, or mood.

RLS: restless legs syndrome.

* Sometimes the urge to move the legs is present without the uncomfortable sensations, and sometimes the arms or other parts of the body are involved in addition to the legs.

¶ For children, the description of these symptoms should be in the child's own words.

Δ When symptoms are very severe, relief by activity may not be noticeable but must have been previously present.

◇ When symptoms are very severe, the worsening in the evening or night may not be noticeable but must have been previously present.

§ These conditions, often referred to as "RLS mimics," have been commonly confused with RLS, particularly in surveys, because they produce symptoms that meet or at least come very close to meeting criteria 1 to 4. The list here gives some examples that have been noted as particularly significant in epidemiologic studies and clinical practice. RLS may also occur with any of these conditions, but the RLS symptoms will then be more in degree, conditions of expression, or character than those usually occurring as part of the other condition.

¥ The clinical course criteria do not apply for pediatric cases nor for some special cases of provoked RLS, such as pregnancy or drug-induced RLS, where the frequency may be high but limited to duration of the provocative condition.

Reproduced with permission from: 2012 Revised IRLSSG Diagnostic Criteria for RLS. IRLSSG, 2012. Copyright © 2012 International Restless Legs Syndrome Study Group. www.irlssg.org.

Graphic 86837 Version 11.0

Clinical features of obstructive sleep apnea

Examination findings

- Narrow or "crowded" oropharynx (eg, Mallampati 3 or 4; macroglossia, tonsillar enlargement, narrow palate)
- Obesity
- Large neck circumference (eg, >17 inches [males]; >16 inches [females])
- Craniofacial abnormalities (eg, retrognathia)

Symptoms

- Daytime sleepiness
- Nonrestorative sleep or fatigue
- Loud snoring
- Witnessed apneas by bed partner
- Awakening with choking or gasping
- Nocturnal restlessness
- Insomnia (initiation, maintenance, frequent awakenings)
- Lack of concentration
- Cognitive deficits (eg, short-term memory loss)
- Changes in mood
- Morning headaches
- Vivid, strange, or threatening dreams
- Nocturia

Associated conditions

- Obesity hypoventilation syndrome
- Systemic hypertension
- Cardiovascular disease (eg, heart failure)
- Cerebrovascular disease (eg, stroke, transient ischemic attacks)
- Cardiac dysrhythmias (eg, atrial fibrillation)
- Pulmonary hypertension
- Cor pulmonale
- End-stage kidney disease
- Type 2 diabetes mellitus
- Chronic lung disease
- Pregnancy
- Acromegaly
- Hypothyroidism
- Gastroesophageal reflux
- Secondary polycythemia

- Floppy eyelid syndrome
- Polycystic ovary syndrome
- Parkinson disease
- Marfan or Ehlers-Danlos syndrome

Other medical conditions that may have an association with OSA include fibromyalgia, gastroesophageal reflux disease, and secondary polycythemia. For further information refer to UpToDate content on clinical evaluation of OSA.

OSA: obstructive sleep apnea.

Graphic 55633 Version 18.0

Consensus Sleep Diary

Today's date	4/5/11						
1. What time did you get into bed?	10:15 PM						
2. What time did you try to go to sleep?	11:30 PM						
3. How long did it take you to fall asleep?	55 min						
4. How many times did you wake up, not counting your final awakening?	6 times						
5. In total, how long did these awakenings last?	2 hours 5 min						
6a. What time was your final awakening?	6:35 AM						
6b. After your final awakening, how long did you spend in bed trying to sleep?	45 min						
6c. Did you wake up earlier than you planned?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
6d. If yes, how much earlier?	1 hour						
7. What time did you get out of bed for the day?	7:20 AM						
8. In total, how long did you sleep?	4 hours 10 min						
9. How would you rate the quality of your sleep?	<input type="checkbox"/> Very poor <input checked="" type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good
10. How rested or refreshed did you feel when you woke up for the day?	<input type="checkbox"/> Not at all rested <input checked="" type="checkbox"/> Slightly rested <input type="checkbox"/> Somewhat rested <input type="checkbox"/> Well-rested <input type="checkbox"/> Very well-rested	<input type="checkbox"/> Not at all rested <input type="checkbox"/> Slightly rested <input type="checkbox"/> Somewhat rested <input type="checkbox"/> Well-rested <input type="checkbox"/> Very well-rested	<input type="checkbox"/> Not at all rested <input type="checkbox"/> Slightly rested <input type="checkbox"/> Somewhat rested <input type="checkbox"/> Well-rested <input type="checkbox"/> Very well-rested	<input type="checkbox"/> Not at all rested <input type="checkbox"/> Slightly rested <input type="checkbox"/> Somewhat rested <input type="checkbox"/> Well-rested <input type="checkbox"/> Very well-rested	<input type="checkbox"/> Not at all rested <input type="checkbox"/> Slightly rested <input type="checkbox"/> Somewhat rested <input type="checkbox"/> Well-rested <input type="checkbox"/> Very well-rested	<input type="checkbox"/> Not at all rested <input type="checkbox"/> Slightly rested <input type="checkbox"/> Somewhat rested <input type="checkbox"/> Well-rested <input type="checkbox"/> Very well-rested	<input type="checkbox"/> Not at all rested <input type="checkbox"/> Slightly rested <input type="checkbox"/> Somewhat rested <input type="checkbox"/> Well-rested <input type="checkbox"/> Very well-rested
11a. How many times did you nap or doze?	2 times						
11b. In total, how long did you nap or doze?	1 hour 10 min						
12a. How many drinks containing alcohol did you have?	3 drinks						
12b. What time was your last drink?	9:20 PM						
13a. How many caffeinated drinks (coffee, tea, soda, energy drinks) did you have?	2 drinks						
13b. What time was your last drink?	9:20 PM						
14. Did you take any over-the-counter or prescription medication(s) to help you sleep? If so, list medication(s) dose, and time taken	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Medication(s): Relaxo-Herb Dose: 50 mg Time(s) taken: 11 PM	<input type="checkbox"/> Yes <input type="checkbox"/> No Medication(s): Dose: Time(s) taken:	<input type="checkbox"/> Yes <input type="checkbox"/> No Medication(s): Dose: Time(s) taken:	<input type="checkbox"/> Yes <input type="checkbox"/> No Medication(s): Dose: Time(s) taken:	<input type="checkbox"/> Yes <input type="checkbox"/> No Medication(s): Dose: Time(s) taken:	<input type="checkbox"/> Yes <input type="checkbox"/> No Medication(s): Dose: Time(s) taken:	<input type="checkbox"/> Yes <input type="checkbox"/> No Medication(s): Dose: Time(s) taken:
15. Comments (if applicable)	I have a cold						

Questions 1 through 10 are to be completed within one hour of getting out of bed in the morning. Question 15 are to be completed before bed.

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Graphic 87134 Version 7.0

Consensus Sleep Diary instructions

General instructions

What is a sleep diary?

A sleep diary is designed to gather information about your daily sleep pattern.

How often and when do I fill out the sleep diary?

It is necessary for you to complete your sleep diary every day. If possible, the sleep diary should be completed within one hour of getting out of bed in the morning.

What should I do if I miss a day?

If you forget to fill in the diary or are unable to finish it, leave the diary blank for that day.

What if something unusual affects my sleep or how I feel in the daytime?

If your sleep or daytime functioning is affected by some unusual event (such as an illness or an emergency), you may make brief notes on your diary.

What do the words "bed" and "day" mean on the diary?

This diary can be used for people who are awake or asleep at unusual times. In the sleep diary, the word "day" is the time when you choose or are required to be awake. The term "bed" means the place where you usually sleep.

Will answering these questions about my sleep keep me awake?

This is not usually a problem. You should not worry about giving exact times, and you should not watch the clock. Just give your best estimate.

Sleep diary item instructions

Use the guide below to clarify what is being asked for each item of the sleep diary.

Date: Write the date of the morning you are filling out the diary.

1. What time did you get into bed?

Write the time that you got into bed. This may not be the time you began "trying" to fall asleep.

2. What time did you try to go to sleep?

Record the time that you began "trying" to fall asleep.

3. How long did it take you to fall asleep?

Beginning at the time you wrote in question 2, how long did it take you to fall asleep?

4. How many times did you wake up, not counting your final awakening?

How many times did you wake up between the time you first fell asleep and your final awakening?

5. In total, how long did these awakenings last?

What was the total time you were awake between the time you first fell asleep and your final awakening? For example, if you woke 3 times for 20 minutes, 35 minutes, and 15 minutes, add

them all up (20 + 35 + 15 = 70 minutes or 1 hour and 10 minutes).

6a. What time was your final awakening?

Record the last time you woke up in the morning.

6b. After your final awakening, how long did you spend in bed trying to sleep?

After the last time you woke up (item #6a), how many minutes did you spend in bed trying to sleep? For example, if you woke up at 8:00 AM but continued to try and sleep until 9:00 AM, record 1 hour.

6c. Did you wake up earlier than you planned?

If you woke up or were awakened earlier than you planned, check yes. If you woke up at your planned time, check no.

6d. If yes, how much earlier?

If you answered "yes" to question 6c, write the number of minutes you woke up earlier than you had planned on waking up. For example, if you woke up 15 minutes before the alarm went off, record 15 minutes here.

7. What time did you get out of bed for the day?

What time did you get out of bed with no further attempt at sleeping? This may be different from your final awakening time (eg, you may have woken up at 6:35 AM but did not get out of bed to start your day until 7:20 AM).

8. In total, how long did you sleep?

This should just be your best estimate, based on when you went to bed and woke up, how long it took you to fall asleep, and how long you were awake. You do not need to calculate this by adding and subtracting; just give your best estimate.

9. How would you rate the quality of your sleep?

"Sleep quality" is your sense of whether your sleep was good or poor.

10. How restful or refreshed did you feel when you woke up for the day?

This refers to how you felt after you were done sleeping for the night, during the first few minutes that you were awake.

11a. How many times did you nap or doze?

A nap is a time you decided to sleep during the day, whether in bed or not in bed. "Dozing" is a time you may have nodded off for a few minutes, without meaning to, such as while watching TV. Count all the times you napped or dozed at any time from when you first got out of bed in the morning until you got into bed again at night.

11b. In total, how long did you nap or doze?

Estimate the total amount of time you spent napping or dozing, in hours and minutes. For instance, if you napped twice, once for 30 minutes and once for 60 minutes, and dozed for 10 minutes, you would answer "1 hour 40 minutes." If you did not nap or doze, write "N/A" (not applicable).

12a. How many drinks containing alcohol did you have?

Enter the number of alcoholic drinks you had where 1 drink is defined as one 12 oz beer (can), 5 oz wine, or 1.5 oz liquor (one shot).

12b. What time was your last drink?

If you had an alcoholic drink yesterday, enter the time of day in hours and minutes of your last drink. If you did not have a drink, write "N/A" (not applicable).

13a. How many caffeinated drinks (coffee, tea, soda, energy drinks) did you have?

Enter the number of caffeinated drinks (coffee, tea, soda, energy drinks) you had where for coffee and tea, one drink = 6 to 8 oz, while for caffeinated soda one drink = 12 oz.

13b. What time was your last caffeinated drink?

If you had a caffeinated drink, enter the time of day in hours and minutes of your last drink. If you did not have a caffeinated drink, write "N/A" (not applicable).

14. Did you take any over-the-counter or prescription medication(s) to help you sleep?

If so, list medication(s), dose, and time taken: List the medication name, how much and when you took EACH different medication you took tonight to help you sleep. Include medication available over the counter, prescription medications, and herbals (example: "Sleepwell 50 mg 11:00 PM"). If every night is the same, write "same" after the first day.

15. Comments:

If you have anything that you would like to say that is relevant to your sleep, feel free to write it here.

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Pittsburgh Sleep Quality Index (PSQI) questionnaire

Name: _____

ID#: _____	Date: _____	Age: _____
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INSTRUCTIONS: The following questions relate to your usual sleep habits during the past month *only*. Your answers should indicate the most accurate reply for the *majority* of days and nights in the past month.
Please answer all questions.

1. During the past month, when have you usually gone to bed at night?
USUAL BED TIME _____

2. During the past month, how long (in minutes) has it usually take you to fall asleep each night?
NUMBER OF MINUTES _____

3. During the past month, when have you usually gotten up in the morning?
USUAL GETTING UP TIME _____

4. During the past month, how many hours of *actual sleep* did you get at night? (This may be different than the number of hours you spend in bed.)
HOURS OF SLEEP PER NIGHT _____

INSTRUCTIONS: For each of the remaining questions, check the one best response.
Please answer *all* questions.

5. During the past month, how often have you had trouble sleeping because you...	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
(a) ...cannot get to sleep within 30 minutes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) ...wake up in the middle of the night or early morning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) ...have to get up to use the bathroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(d) ...cannot breathe comfortably	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) ...cough or snore loudly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) ...feel too cold	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) ...feel too hot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h) ...had bad dreams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) ...have pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(j) Other reason(s), please describe:				
How often during the past month have you had trouble sleeping because of this?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Very good	Fairly good	Fairly bad	Very bad
6. During the past month, how would you rate your sleep quality overall?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
7. During the past month, how often have you taken medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(prescribed or "over the counter") to help you sleep?				
8. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No problem at all	Only a very slight problem	Somewhat of a problem	A very big problem
9. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No bed partner or roommate	Partner/roommate in other room	Partner in same room, but not same bed	Partner in same bed
10. Do you have a bed partner or roommate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you have a roommate or bed partner, ask him/her how often in the past month have you had...	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
(a) ...loud snoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) ...long pauses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

between breaths while asleep				
(c) ...legs twitching or jerking while you sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) ...episodes of disorientation or confusion during sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) ...other restlessness while you sleep; please describe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Pittsburgh Sleep Quality Index (PSQI) scoring instructions

SCORING INSTRUCTIONS FOR THE PITTSBURGH SLEEP QUALITY INDEX:

The Pittsburgh Sleep Quality Index (PSQI) contains 19 self-rated questions and 5 questions rated by the bed partner or roommate (if one is available). Only self-rated questions are included in the scoring. The 19 self-rated items are combined to form seven "component" scores, each of which has a range of 0-3 points. In all cases, a score of "0" indicates no difficulty, while a score of "3" indicates severe difficulty. The seven component scores are then added to yield one "global" score, with a range of 0-21 points, "0" indicating no difficulty and "21" indicating severe difficulties in all areas.

Scoring proceeds as follows:

Component 1: Subjective sleep quality

1. Examine question #6, and assign scores as follows:

Response	Component 1 score
▪ "Very good"	0
▪ "Fairly good"	1
▪ "Fairly bad"	2
▪ "Very bad"	3
<i>Component 1 score:</i>	_____

Component 2: Sleep latency

1. Examine question #2, and assign scores as follows:

Response	Score
▪ ≤15 minutes	0
▪ 16-30 minutes	1
▪ 31-60 minutes	2
▪ >60 minutes	3
<i>Question #2 score:</i>	_____

2. Examine question #5a, and assign scores as follows:

Response	Score
▪ Not during the past month	0
▪ Less than once a week	1
▪ Once or twice a week	2

▪ Three or more times a week	3
<i>Question #5a score:</i>	_____
3. Add #2 score and #5a score:	
<i>Sum of #2 and #5a:</i>	_____
4. Assign component 2 score as follows:	
Sum of #2 and #5a	Component 2 score
▪ 0	0
▪ 1-2	1
▪ 3-4	2
▪ 5-6	3
<i>Component 2 score:</i>	_____
Component 3: Sleep duration	
1. Examine question #4, and assign scores as follows:	
Response	Component 3 score
▪ >7 hours	0
▪ 6-7 hours	1
▪ 5-6 hours	2
▪ <5 hours	3
<i>Component 3 score:</i>	_____
Component 4: Habitual sleep efficiency	
1. Write the number of hours slept (question #4) here: _____	
2. Calculate the number of hours spent in bed:	
▪ Getting up time (question #3): _____	
▪ Bedtime (question #1): _____	
▪ Number of hours spent in bed: _____	
3. Calculate habitual sleep efficiency as follows:	
▪ (Number of hours slept/number of hours spent in bed) X 100 = Habitual sleep efficiency (%)	
(_____ / _____) X 100 = _____ %	

4. Assign component 4 score as follows:

Habitual sleep efficiency %	Component 4 score
▪ >85%	0
▪ 75-84%	1
▪ 65-74%	2
▪ <65%	3
<i>Component 4 score:</i>	_____

Component 5: Sleep disturbances

1. Examine questions #5b-5j, and assign scores for *each* question as follows:

Response	Score
▪ Not during the past month	0
▪ Less than once a week	1
▪ Once or twice a week	2
▪ Three or more times a week	3
▪ #5b score:	_____
▪ 5c score:	_____
▪ 5d score:	_____
▪ 5e score:	_____
▪ 5f score:	_____
▪ 5g score:	_____
▪ 5h score:	_____
▪ 5i score:	_____
▪ 5j score:	_____

2. Add the score for questions #5b-5j:

Sum of #5b-5j: _____

3. Assign component 5 scores as follows:

Sum of #5b-5j	Component 5 score
▪ 0	0

▪ 1-9	1
▪ 10-18	2
▪ 19-27	3
<i>Component 5 score:</i>	_____

Component 6: Use of sleeping medication

1. Examine question #7 and assign scores as follows:

Response	Component 6 score
▪ Not during the past month	0
▪ Less than once a week	1
▪ Once or twice a week	2
▪ Three or more times a week	3
<i>Component 6 score:</i>	_____

Component 7: Daytime dysfunction

1. Examine question #8, and assign scores as follows:

Response	Score
▪ Never	0
▪ Once or twice	1
▪ Once or twice each week	2
▪ Three or more times each week	3
<i>Question #8 score:</i>	_____

2. Examine question #9, and assign scores as follows:

Response	Score
▪ No problem at all	0
▪ Only a very slight problem	1
▪ Somewhat of a problem	2
▪ A very big problem	3
<i>Question #9 score:</i>	_____

3. Add the scores for questions #8 and #9:

Sum of #8 and #9:	_____
4. Assign component 7 score as follows:	
Sum of #8 and #9	Component 7 score
▪ 0	0
▪ 1-2	1
▪ 3-4	2
▪ 5-6	3
Component 7 score:	_____
Global PSQI score	
Add the seven component scores together:	
Global PSQI score:	_____

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Short Patient Health Questionnaire (PHQ-2)

Name:		Date:			
Over the past 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day	
Little interest or pleasure in doing things?	0	1	2	3	
Feeling down, depressed, or hopeless?	0	1	2	3	
Total point score:	___	___	+ ___	+ ___	+ ___
Score interpretation^[1]:					
PHQ-2 score	Probability of major depressive disorder (%)		Probability of any depressive disorder (%)		
1	15.4		36.9		
2	21.1		48.3		
3	38.4		75.0		
4	45.5		81.2		
5	56.4		84.6		
6	78.6		92.9		

Reference:

1. Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. *Med Care* 2003; 41:1284.

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PHQ-9 depression questionnaire

Name:	Date:			
Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day

Little interest or pleasure in doing things	0	1	2	3
Feeling down, depressed, or hopeless	0	1	2	3
Trouble falling or staying asleep, or sleeping too much	0	1	2	3
Feeling tired or having little energy	0	1	2	3
Poor appetite or overeating	0	1	2	3
Feeling bad about yourself, or that you are a failure, or that you have let yourself or your family down	0	1	2	3
Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
Moving or speaking so slowly that other people could have noticed? Or the opposite, being so fidgety or restless that you have been moving around a lot more than usual.	0	1	2	3
Thoughts that you would be better off dead, or of hurting yourself in some way	0	1	2	3
Total __ =	__	+ __	+ __	+ __
PHQ-9 score ≥10: Likely major depression				
Depression score ranges:				
5 to 9: mild				
10 to 14: moderate				
15 to 19: moderately severe				
≥20: severe				
If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all —	Somewhat difficult —	Very difficult —	Extremely difficult —

PHQ: Patient Health Questionnaire.

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GAD-7 anxiety scale

	Not at all	Several days	More than half the days	Nearly every day
Over the last 2 weeks, how often have you been bothered by the following problems?				
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3
Total score*¶ _____ =	Add Columns	_____ +	_____ +	_____
If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?				
Circle one	Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult

* Score: 5 to 9 = mild anxiety; 10 to 14 = moderate anxiety; 15 to 21 = severe anxiety.

¶ This is a form that can be printed out and filled out by hand rather than a calculator that can be filled in online.

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