1. Insomnias

The *International Classification of Sleep Disorders Second Edition* describes 11 types of insomnia. The *International Classification of Sleep Disorders Third Edition (ICSD-3)* has only three categories of insomnia: chronic, short-term and other. This change reflects a major shift in thinking about insomnia and more broadly in the approach to the complex interactions between medical disorders.

In the *ICSD-2*, insomnia is divided into two broad types: 1) cases where the insomnia is thought to be the most important problem (primary insomnia) and 2) those in which the insomnia is thought to be a result of some other medical or psychiatric problem (secondary insomnia). In the past, patients with primary insomnia were treated with some form of sleep therapy. Other medical or psychiatric problems in their lives were not addressed because it was assumed that they would go away when the insomnia was resolved. Patients with secondary insomnia were told to have the medical or psychiatric problem fixed first with the expectation that the insomnia would go away when the patient was no longer depressed or in pain.

This classification and treatment strategy has largely been abandoned, first in the diagnostic classification system of the American Psychiatric Association and now by the *ICSD-3*. Insomnia is now considered as “comorbid” with other conditions. That is, the two conditions exist together and affect each other. Depression may worsen insomnia, and insomnia may make depression worse. The number of patients with “pure” primary insomnia (insomnia without any other medical or psychological factors) is probably quite small. Asking patients additional questions often leads to the discovery of medical or psychiatric factors contributing to or affected by the insomnia in patients initially thought to have primary insomnia. Finding the “root cause” may not be possible, but it may also not be necessary. One advantage of treating insomnia as a comorbid disorder is that both the insomnia and the medical or psychiatric problem may respond to treatment. Once the diagnosis of insomnia is made, there are two types of treatment that are most often prescribed. The sleep center patient is often referred for behavioral therapy. Currently, the most popular form of behavioral therapy is cognitive behavioral therapy (CBT). CBT has been shown in many scientific studies to be an effective treatment for a variety of types of insomnia. Other patients with insomnia are treated with sleeping pills (often called hypnotics), which typically reduce the time it takes for a patient to fall asleep. There is a critical shortage of behavioral sleep medicine (BSM) providers, so although CBT is the most effect treatment for chronic insomnia, many patients are often prescribed sedative hypnotics as monotherapy. Some patients are treated with both CBT and sleeping pills. Treatment of insomnia has been shown to have a positive effect on depression in patients who have both insomnia and depression. Other medical conditions such as pain syndromes also seem to get better with treatment of comorbid insomnia. Treatment of depression (such as with antidepressant medication) may result in improved sleep. In fact, many physicians respond to a complaint of insomnia, with or without depression, by prescribing sedating antidepressants. This strategy often helps to reduce symptoms of insomnia. But in some patients this may simply result in a patient who is not depressed but still has insomnia.

An AASM clinical guideline paper provides recommendations for the appropriate treatment of insomnia. For chronic insomnia, the evidence is very weak for any specific pharmacologic agent. This is because most of the insomnia trials are short-term and have not made it a priority to study the effects of these medications over time.

A second level in *ICSD-2* defined insomnia subtypes such as psychophysiological insomnia, paradoxical insomnia and idiopathic insomnia. A statistical analysis of clinician coding revealed that these subtypes could not be reliably discriminated. In addition, nearly all patients had a combination of subtypes with a dash or two of “sleep hygiene” issues thrown in for good measure. The *ICSD-3* takes note of these distinctions but does not require them as part of the diagnostic process. The *ICSD-3* requires only that the duration of the insomnia be determined in order to distinguish between chronic and short-term insomnia.

**A. Diagnostic Categories.** The three categories of insomnia are chronic, short-term and other. Chronic insomnia must occur at least three times per week and for at least three months. Short-term insomnia does not meet these criteria. The diagnosis of other insomnia disorder is reserved for patients who have some of the complaints associated with insomnia but do not meet diagnostic criteria.

Insomnia has three main components:

1. Trouble sleeping, including difficulty falling asleep, staying asleep and waking up too early, or simply a complaint that sleep is not refreshing
2. Occurring despite having enough time available for sleep – patients who restrict the amount of time for sleep due to work or social commitments may have trouble sleeping and daytime sleepiness but do not have insomnia
3. Daytime sleepiness or other dysfunction including depression, irritability and trouble thinking

The ICSD-3 identifies nine categories of daytime problems that may occur as a result of insomnia:

1. Fatigue or malaise – feeling tired, low energy or “blah”
2. Attention, concentration, or memory impairment – trouble paying attention, drifting off to sleep, or for some people the inability to sit still
3. Job or school problems, or problems in social situations – trouble finishing tasks at work or home work after school; lack of interest or discomfort in being with other people
4. Problems with mood or irritability – feeling blue, sad, cranky or touchy
5. Daytime sleepiness – feeling the need to take a nap even if unable to sleep when trying
6. Behavioral problems (e.g., hyperactivity, impulsivity, aggression)
7. Reduced motivation/energy/initiative
8. Frequent errors or accidents at work or while driving – these are usually a problem of missing a road sign or some instruction, called an error of omission
9. Concerns about or dissatisfaction with sleep – spending lots of time worrying about sleep

When defined in this way, insomnia disorder is easily recognized, reliably diagnosed and associated with a number of significant consequences such as reduced quality of life, increased consumption of healthcare resources, trouble at work or school, increased frequency of automobile accidents and physical symptoms. Patients who meet diagnostic criteria for insomnia are also likely to respond to treatments.

Although the primary/secondary distinction is no longer made, it is important to evaluate patients with complaints of insomnia for other sleep disorders. For example, patients with restless legs syndrome may complain of difficulty falling asleep. Typically patients will allow adequate time for sleep but are unable to fall asleep when they go to bed, resulting in inadequate sleep time. Restless legs syndrome patients also have impaired function during the day. This means that these patients meet criteria for a diagnosis of insomnia. However, unlike other insomnia patients, those with restless legs syndrome will also have an irresistible urge to move, have symptoms that are relieved by movement and have symptoms that are worst at night. A careful sleep history may also uncover chronic pain syndromes, medical disorders and medication use that explains or is critically important in the development of insomnia symptoms. Comprehensive evaluation of the patient with a complaint of insomnia may lead to a different diagnosis or, in some cases, a dual diagnosis that reflects the importance of both disorders in explaining the patient’s complaints.

These diagnostic considerations have consequences for treatment planning. For many insurance carriers, reim-

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**Figure 1.1** Spielman’s Three Factor Model showing a stable predisposing factor, the effects of a precipitating event and the development of perpetuating factors
The first factor is diagnostic criteria for a sleep disorder. In this simple model, every patient has a bout of insomnia that meets the sum of the three factors is higher than a threshold of restlessness syndrome and insomnia may have no trouble getting approved for medication and CBT.

B. A Useful Theoretical Construct. The cause or causes of insomnia are not known. There are probably a variety of factors that lead to the diagnosis. A useful model of insomnia is the “Three Factor” model popularized by Dr. Arthur Spielman. These factors are thought to be important in explaining how insomnia starts and how treatments work. There is no direct method for actually measuring the three factors in a patient. However, as we will see in discussions of sample patients, it is often possible to estimate the relative importance of the factors and this can lead to recommendations for specific types of treatment. The Three Factor model is a theoretical framework that has proven useful over many years. A graphic representation of the factors is shown in Figure 1.1

In Spielman’s model, insomnia is the result of a combination of three factors each of which starts with the letter P—predisposing, precipitating and perpetuating. Figure 1.1 shows the interaction of these factors over a one year period in a typical patient. In this simple model, every time the sum of the three factors is higher than a threshold level, the patient has a bout of insomnia that meets diagnostic criteria for a sleep disorder.

The first factor is predisposing. This reflects the fact that some people are more likely to respond to stress by having insomnia. In Figure 1.1 the predisposing factor is shown at the bottom of the graph in green. If a patient responds to stress by having trouble sleeping, he or she is high in the predisposing factor. If a patient responds to stress by crawling in to bed and having a good nap, then he or she is low in the predisposing factor for insomnia. This is probably determined mostly by genetic factors, and is shown with a stable level throughout the year in Figure 1.1

The second factor is precipitating, shown in yellow in Figure 1.1. This reflects an event or stresses in the patient’s life that may trigger the insomnia. A bout of insomnia begins at month six with a precipitating life stress event. At month eight, the combination of predisposing and precipitating factors fall below the threshold for insomnia. However, the perpetuating factors developed during months seven and eight continue even after the effect of the precipitating event fades. This causes the insomnia to persist through the eleventh month.

The third factor is perpetuating, shown as the red areas in Figure 1.1. A big part of the perpetuating factor is expectation. If a patient has three horrible, no good, very bad nights of insomnia in a row he or she may climb into bed on the next night fully expecting not to sleep at all. If a patient plays exciting video games in bed, he or she may think of the bed as a place where enjoyable or frustrating things happen. They may have trouble thinking of the bed as a place for rest. Another perpetuating factor is “secondary gain.” Patients with insomnia may get sympathy or special treatment from family members or employers. A patient with insomnia may be able to ask his wife to walk the dogs in the morning or get to work late without being docked and play the “sympathy card.” When the insomnia is cured, these special allowances may disappear. Rather than working toward a cure, this may entice the patient to prolong his complaints. Once the insomnia starts, these perpetuating factors may kick in and prevent the insomnia from stopping. The precipitating factors may have melted away, but the perpetuating factors keep insomnia high on the problem list.

The Three Factor model applies directly to several subtypes of insomnia. The development of some of the subtypes can be viewed in terms of abnormal levels of one of the three factors. Despite this, the focus of treatment strategies for all types of insomnia is often on the perpetuating factors. This is based on the assumption...
that the predisposing and precipitating factors cannot be controlled. The physician can’t change the patient’s genes, and can’t prescribe a stress-free life. But reducing or eliminating the perpetuating factors can help to reduce the length of time that the patient suffers from insomnia (Figure 1.1).

C. Psychophysiological Insomnia. The subtype of psychophysiological insomnia is no longer an ICSD diagnosis. It is also called “learned insomnia” or “conditioned insomnia.” In the Three Factor model the perpetuating factor is the strongest contributor to the insomnia. The diagnostic criteria for this type of insomnia include duration of at least three months and evidence of conditioned sleep difficulty. This evidence may be:

1. Focus on sleep and anxiety about sleep – some patients become obsessed with sleep
2. The patient has trouble falling asleep at bed time, but no trouble falling asleep when not trying to fall asleep
3. Sleeping better away from home
4. The patient has racing thoughts when first getting into bed
5. Inability to relax – tense muscles that prevent the patient from falling asleep

A Case of Psychophysiological Insomnia:

Mr. Wren is a 42-year-old educator with problems of insomnia that began when he was 24 years old. With some encouragement from his wife and his primary care physician, Mr. Wren returns to the Cardinal City Sleep Center for a visit with Dr. Robin. With the first bout of insomnia, Dr. Robin had told him 18 years ago that his problem would resolve within a few weeks, and this is exactly what happened. However, he has had short bouts of insomnia from time to time since then. This trouble gradually became more of a nightly problem over the past year or two.

He once again complains that he has insomnia, and now it is almost always falling asleep. He says that it began so long ago that he cannot remember precisely how it started. He was the vice-principal for several years and for the past year he has been the principal of Swan School for children with behavioral problems. He has a supportive wife and two children. His children are doing well at school and are not an undue source of stress. He likes his job and finds it rewarding. He had some trouble adjusting to the promotion at first, but feels that things are now under control. He lives in the principal’s residence rent free. He feels that overall his life is relatively low stress.

He reports that he hates his bedroom. He dreads going to bed every night because he knows he will have trouble falling asleep. He says that when he first moved into the principal’s residence he was hopeful that his insomnia would go away. He thinks that the first night or two may have been better, but that after a few days his insomnia returned in full force and his feelings about his old bedroom transferred to the new one.

He often watches television on the couch in the evening and he may fall asleep if the program is boring. Every night at 11:00 PM he flosses carefully, brushes his teeth and gets ready for bed. He crawls into bed and is suddenly, completely wide awake. He tries to force himself to fall asleep but he feels “wired” and his heart is racing. He often gets restless and considers getting out of bed, but he stays in bed thinking that he may fall asleep at any time. Once he falls asleep he usually manages to sleep through the night. He wakes with the help of an alarm clock. He thinks that he is often awake until 1:00 or 2:00 AM. He says that he拖s himself through the day and that as the work week wears on he gets sleepier and sleepier. He sleeps later on weekends and tends to sleep better during summer vacation. He reports that his mood is also better during the summer.

Dr. Robin asks Mr. Wren what he thinks about as he is trying to fall asleep. He reports that he typically thinks about how he will be unable to function during the day as a result of not getting sleep. He tries to shut down his mind by thinking about his school days and vacations with his old friends. However, anxiety about sleep always returns to the front of his mind. Mr. Wren has no evidence of other sleep disorders, and except for occasional gout he has no medical problems. He does not feel that he is depressed. He does not use alcohol or medications.

Now that Mr. Wren has had his insomnia for a full year, he has “progressed” from short-term insomnia to chronic insomnia. His problem clearly exceeds the three month minimum duration. We can match several of the things that Mr. Wren has reported to Dr. Robin with the diagnostic criteria for psychophysiological insomnia. At several points in the interview he indicated having a focus on sleep. It is clearly a big part of his life. The thoughts about sleep are intrusive – he thinks about sleep even when he is trying to think about something else. He reports that he can fall asleep watching television when he is not trying to fall asleep, but when he goes to bed he can’t sleep. He also reports that he sleeps better on vacation.

Mr. Wren has enough insight into his problem to know that his bedroom has become a place associated with wakefulness rather than sleep. This is a classic sign of...
psychophysiological insomnia. Changing the environment helped for a few days but did not produce lasting improvement. Fortunately, he has not turned to drugs or alcohol to help him fall asleep. He also does not feel that he has become depressed. Patients with insomnia are at risk for drug abuse and depression.

What is seen in the patient with psychophysiological insomnia who is tested in the sleep center? Patients with psychophysiological insomnia do not routinely have sleep studies. When they do, a surprising result is seen in some patients. Patients may sleep well, wake up refreshed and report that the night in the laboratory was among the best nights of sleep that they ever had. This is called the “reverse first night effect.” This happens because the patient is not sleeping in his usual sleep environment – the environment associated with wakefulness and negative emotions. Most people find it hard to sleep with electrodes and sensors attached to their bodies and someone watching on a computer monitor. The patient with psychophysiological insomnia focuses on the fact that they are not sleeping in their dreaded bedroom. Some of these patients even find it reassuring that someone is watching them while they sleep. Other patients with psychophysiological insomnia may have some difficulty in the sleep center. They may have the same sleep pattern that they have at home, or they may have long periods of wakefulness during the study and even less sleep than usual. This variability illustrates why sleep studies are generally not ordered on patients with insomnia – they rarely provide information that changes the diagnosis or treatment plan.

How is psychophysiological insomnia treated? This is one of the subtypes of insomnia that responds well to CBT. One component of CBT is to engage the patient in data collection. For many patients the concern they have about not getting enough sleep is that it will make them feel miserable on the next day. Mr. Wren feels pressure to sleep because he believes he will be unable to function when he sleeps poorly. When patients collect data on their sleep times and their mood, they often find that this is not true. In fact, many patients with psychophysiological insomnia function quite well on minimal amounts of sleep. Knowing this helps to break the excessive concern about sleep and reduce some of the pressure on falling asleep. Daytime tests such as the Multiple Sleep Latency Test (MSLT) have been performed on patients with psychophysiological insomnia. On average, psychophysiological insomnia patients are similar to normal subjects in the amount of time they take to fall asleep on the naps. In other words, they are not excessively sleepy during the day.

A therapy developed specifically for the treatment of psychophysiological insomnia by Dr. Richard Bootzin is called stimulus control therapy. One goal of this therapy is to change or unlearn the association between the bedroom and poor sleep that perpetuates the insomnia. The patient is instructed to go to bed at their usual time and try to fall asleep for 15-20 minutes. If not asleep after 20 minutes, the patient is instructed to get out of bed and do something boring. Tasks such as balancing the checkbook or ironing shirts are often helpful. Playing an exciting video game is often counterproductive. The patient should only return to that bed when sleepy and should only try to fall asleep for another 15-20 minutes. Getting out of bed is one of the more difficult aspects of this therapy for patients, especially as it results in some sleep deprivation. For someone who is terribly concerned about getting enough sleep, asking them to get out of bed and stay awake for a time during the night sounds counterproductive. However, the sleep deprivation produces an increased drive to fall asleep. This eventually leads the patient to fall asleep during the first 15-20 minute stay in bed. When this happens, the patient begins to learn that the bed is once again a place for sleep. Another instruction in this type of therapy is not to do anything other than sleep or have sex in bed. Many patients with psychophysiological insomnia will read, watch television, eat and talk on the telephone while in bed. This leads to unhelpful expectations about what happens in bed. It leads to problems like Mr. Wren describes. He is sleepy as he gets ready for bed, but wide awake as soon as he actually gets into bed.

When faced with a patient with psychophysiological insomnia, many physicians turn immediately to their prescription pad. Using sleeping pills to treat this form of insomnia has several advantages. First, medication usually works. Studies have shown that sleeping pills help people to fall asleep more quickly. For some patients with trouble falling asleep, this may be the only treatment that is needed. Second, the treatment works without asking the patient to exert much effort to treat their problem. Patients don’t have to get out of bed. They don’t have to follow instructions. They just need to take the medication before bed time. Third, using a sleeping pill for a week or so may break the psychological association between the bed and poor sleep. It may lead to the expectation that they will fall asleep as soon as they get into bed. Why not use sleeping pills for everyone with psychophysiological insomnia? Some of the medications are associated with the development of tolerance. Patients may need higher and higher doses in order to achieve the same effect. Other patients may be concerned about dependence – that they won’t be able to sleep if they stop using medication. And, like all other medications, sleeping pills may have troublesome side effects.
Studies have shown that for long term results, sleeping pills work best when used for brief periods and in combination with behavioral therapy. The behavioral therapy may take several weeks to learn or take effect, whereas the sleeping pill works immediately. The skills learned in behavioral therapy may be most important when it comes time to stop the sleeping pill. Older sleeping medications were associated with a “rebound” that produced insomnia when the medication was stopped. Newer medications have less of a physical tendency to produce rebound, but insomnia may return when the medication is stopped as a result of psychological dependence. The patient may have the expectation that they will only fall asleep when they take a sleeping pill. This expectation is reduced by behavioral therapies. As a result, many sleep specialists favor a combination of behavioral and medication treatments of insomnia.

What usually happens to the psychophysiological insomnia patient? There isn’t much data on the natural history of psychophysiological insomnia. We know that some patients who do not seek treatment may have insomnia that lasts for years or decades. They may show up at the sleep clinic after a lifetime of insomnia expecting an immediate cure. They often become frustrated if it takes some time to resolve their problem. The lack of an immediate response may reinforce the patient’s feeling that they are a special case or that trying to change is not worth the effort. Some patients claim to be interested in curing their insomnia, but resist treatment because of secondary gain. They may benefit from their insomnia by getting sympathy from a spouse or being excused from some tasks at work or at school. These patients may even work to be sure that their treatment fails. Patients with psychophysiological insomnia are expected to improve when perpetuating factors are removed or resolved. However, some may have a high predisposing factor as well. They may come to expect that they will have bouts of insomnia from time to time throughout their lives. These patients may never be cured of their insomnia, but may still benefit from CBT. The benefits may include shorter bouts of insomnia and less panic when a bout of insomnia occurs. Other patients may feel better just by having a bottle of sleeping pills in their medicine cabinet. Sleeping pills are not recommended for long-term use, but may provide patients with a sense of control over their sleep.

Using the same theoretical framework as in Figure 1.1, Figure 1.2 is a graph of the changes in insomnia over a much longer time frame: the course of Mr. Wren’s working lifetime. A bout of insomnia occurs whenever the sum of the factors exceeds the insomnia threshold. The graph shows his brief bouts of insomnia at age 24 ① (as described in the section on adjustment insomnia, Section J below) and at age 33, mostly due to precipitating factors. As predicted by Dr. Robin, these bouts did not last very long and resolved on their own. Mr. Wren’s midlife bout of insomnia lasted several years ②. The precipitating factors (in yellow) resolved fairly quickly but the perpetuating factors (in red) continued. With Dr. Robin’s help, these responded gradually to therapy. Mr. Wren had another bout of insomnia in his early fifties related to work issues ③. Mr. Wren had an expected increase in sleep troubles as retirement approached ④. Using the techniques learned in therapy, Mr. Wren was able to resolve these later bouts.

**Figure 1.2** The Three Factor Model with several bouts of insomnia over the course of a patient’s lifetime
of insomnia relatively quickly and without resorting to medications or alcohol.

Studies have shown that in most cases, treatments for insomnia are effective. Several types of behavioral therapy are supported by evidence and endorsed by the AASM in a clinical guidelines paper on insomnia (see Reading List). Stimulus control and CBT are recommended in the guidelines. The clinical guidelines also recommend using medication for insomnia. The recommendations for use of hypnotic medications are:

1. Use the smallest dose that works for the shortest amount of time
2. Have frequent visits with the physician while taking medicine
3. Stop using sleeping pills as soon as possible by slowly reducing the dose

For many patients with insomnia there is no permanent cure. The predisposing factors may lead some patients to have frequent bouts of insomnia that reach criteria for diagnosis across their lifetime. Rather than eliminate all episodes of insomnia, the treatment goal may be to reduce the severity of the bouts and get patients “back on the right track” as quickly as possible. Development of good coping skills may be the most important treatment for these patients.

**D. Idiopathic Insomnia.** Idiopathic insomnia is also called lifelong insomnia or childhood onset insomnia. Patients with this disorder typically report that their insomnia started in childhood. Although genetic factors are suspected, there are no known associations that have been studied. There is no precipitating event that can be identified. It has been with them all of their lives. This contrasts with psychophysiological insomnia, which must have an identifiable trigger.

**A Case of Idiopathic Insomnia:**

Ms. Pigeon has had trouble sleeping her entire life. Her parents tell her that from the moment of her birth she was awake much more than asleep. They can remember checking on her at midnight and finding her wide awake in her crib. At sleepovers during adolescence she was always the last to fall asleep, if she fell asleep at all. Although she is not sleepy during day, Ms. Pigeon feels that there is something wrong with her. She would like to be able to sleep more but she has not found any way to do so. She has tried over-the-counter remedies, self-help books, seashore noise devices and a bedside light that comes on slowly the way that natural sunlight comes on in the morning. Nothing has resulted in a noticeable change in her sleep pattern. At times she can become quite depressed when thinking about her poor sleep. However, most of the time she is not depressed and her sleep problems do not change with her mood.

Most people like Ms. Pigeon do not become patients of a sleep disorder center. They cope with their sleep problem, if in fact it is a problem, and rarely seek help. When they do seek help, the sleep specialist has little to offer them. In fact, one of the dangers for patients with idiopathic insomnia is that they will become dependent on hypnotics or alcohol in an attempt to improve their sleep. Figure 1.3 is a graph of the Three Factor model for Ms. Pigeon, a patient with idiopathic insomnia.

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**Figure 1.3** The Three Factor Model in a patient with idiopathic insomnia

![Figure 1.3 The Three Factor Model in a patient with idiopathic insomnia](image-url)
The key feature for patients with idiopathic insomnia is an increased level of the predisposing factor. Combined with a moderate level of precipitating factors, the total always exceeds the insomnia threshold in the case of Ms. Pigeon. Compare the predisposing factor level in Figure 1.3 to the lower level of predisposing factor for Mr. Wren in Figure 1.2. For some patients with idiopathic insomnia, like Ms. Pigeon, the predisposing factor alone is enough to cause her to have symptoms that meet criteria for a diagnosis of insomnia. There are some ups and downs in the precipitating factor, because patients with idiopathic insomnia are not immune to life stresses. These produce temporary worsening of the insomnia. There are also occasional perpetuating factors. However, perpetuating factors are not a major contributor to the insomnia picture in idiopathic insomnia.

What happens when patients with idiopathic insomnia are studied in the sleep center? As with other forms of insomnia, sleep studies are not typically part of the clinical evaluation process. In research studies, the total sleep time of idiopathic insomnia patients is often reduced. If the patient falls asleep, the sleep may show reduced N3 sleep and increased N1 and N2 sleep.

How is idiopathic insomnia treated? Typically idiopathic insomnia is not treated. Behavioral therapies may be used, but are often unsuccessful in this population. The goal of therapy is often to help the patient become more accepting of their lifelong insomnia. CBT may help to reduce anxiety about daytime symptoms and encourage better sleep habits. Medications may be used but may be ineffective or lead to dependence.

What happens to the idiopathic insomnia patient? There is not much data to answer this question. These patients have little contact with sleep specialists and have not been studied in a systematic way.

E. Paradoxical Insomnia. Paradoxical insomnia is recognized much less frequently than other subtypes of chronic insomnia. Patients with paradoxical insomnia often present with three characteristic features. First, the patient must give a report that indicates that they feel their sleep is not the same as sleep measured using an objective tool, such as a sleep study. As previously mentioned, a sleep study is infrequently used as part of the insomnia evaluation. An overnight study or activity monitoring may be helpful in confirming the diagnosis. Patients with paradoxical insomnia often report that they go for several nights without any sleep at all. If they keep a sleep log it often reports little or no sleep during the night as well as little or no sleep during the day. This is highly unlikely to be true, and should alert the physician to the possibility that there is a discrepancy between the report and the actual amount of sleep. Second, the patient must feel that they are always awake. This can be reported as constant awareness of the environment or constant awareness of thinking (their mind does not shut off). Third, patients have little or no complaints of daytime problems despite drastically reduced amounts of reported sleep time.

An Example of Paradoxical Insomnia:

Ms. Oriole is a 38-year-old woman who claims that she never sleeps. She reports that on rare occasions she can remember a dream, but otherwise she is certain that she's awake all the time. The sleep log from a patient with paradoxical insomnia shows little or no sleep during the night as well as little or no sleep during the day.
of the time. She does not nap during the day and rarely feels sleepy even after a night during which she is sure she has not slept. Her husband, Donald, has been trying to get her to see someone about this for years. She agrees to see a specialist at the Cardinal City Sleep Center and after a brief discussion with the receptionist is given an appointment with Dr. Robin.

Based on this history, Dr. Robin asks Ms. Oriole to keep a sleep log for a week and at the end of the week she is scheduled for a sleep study in the center. The sleep log is shown in Figure 1.4.

A review of the sleep log shows that she felt she did not sleep at all on four of the seven nights. On the other three nights she averaged two hours of sleep. She did not report any sleep during the day. In contrast to these reported sleep times, she says that she is in bed at least seven hours a night, with long periods between going to bed (down arrow) and reported sleep onset, as well as long periods awake in the morning before getting out of bed (up arrow). The questionnaire that she filled out on the morning after her sleep study shows that she felt she had less than one hour of sleep on the night of the study. The sleep study, scored using standard scoring rules, indicated 6.5 hours of sleep with a sleep latency of 25 minutes and normal amounts of each of the sleep stages.

She returns to the Sleep Center one week after her study to discuss the results. Ms. Oriole tells Dr. Robin that the results cannot be true. He shows her a section of the video recording of her study. In this sample the video recording shows her eyes are closed, she is quite still and mild snoring can be heard. Dr. Robin tells her that most of the study looks exactly like this sample. Ms. Oriole replies that although it looks like she is asleep she is not. She can remember hearing the technologist talking on the telephone and hearing the patient next door using the bathroom several times during the night. She also reports that she was thinking the entire night about a recipe she was going to use. Her thinking was quite detailed. It involved using a mustard sauce on a turkey and included a very complicated stuffing recipe with 18 ingredients that ranged from sausage to chestnuts. Dr. Robin tells Ms. Oriole that she appears to have paradoxical insomnia and that her sleep is just fine. He tells her that she should not be concerned about the symptoms she is feeling. She becomes enraged with Dr. Robin and says that she is never coming back to the sleep center.

What is seen in the patient with paradoxical insomnia that is tested in the sleep laboratory? Proper identification of patients with paradoxical insomnia requires an objective assessment of sleep. Most often, actigraphy is used. Sometimes, and particularly if another sleep disorder is also suspected, polysomnography is ordered. In order to make the diagnosis, the objective measure of sleep must be within the normal range and must be markedly discrepant from the subjective patient report. There is some evidence in the scientific literature that patients with paradoxical insomnia have alpha activity in the EEG that persists during sleep. This is often called “alpha – delta” sleep. It is an infrequent finding that is not an abnormality. Alpha rhythm activity is associated with wakefulness and delta activity defines N3 sleep. Therefore, patients with paradoxical insomnia may have an EEG indicator that some brain areas required for wakefulness are active at the same time that other areas of the brain appear to be asleep. However, this finding is present in patients without similar complaints and many researchers point out that it is not a reliable diagnostic finding.

How is paradoxical insomnia treated? For patients with little or no daytime symptoms, treatment is often not necessary. Some reassurance may be all that is needed. At times, physicians will tell patients that their “body is getting the rest that it needs” even if it seems that their mind is awake. Another strategy is to attempt to convince the patient that they are in fact asleep when they think they’re awake. This may include showing the patient the sleep study and video-recording or telling them that remembering a dream means they must have been asleep. This often leaves the patient unconvincingly and occasionally angry. One useful strategy is to tell patients to sit up on the edge of their bed if they think they are awake throughout the night. If they truly are asleep then they will not be able to do so. At follow-up when the patient is asked how many times and for how long they sat up in their bed, they begin to realize that they were asleep for a much longer period of time than they previously thought. Cognitive behavioral therapies may provide some relief and reduce the patient’s anxiety about sleep. Exploring potential comorbidities may be helpful. The diagnosis is based entirely on the patient’s subjective feelings and a careful history is an important part of the patient evaluation.

What happens to the paradoxical insomnia patient? There is very little information available to answer this question. After a normal sleep study, very few patients return to the center for follow-up. Patients may develop other symptoms with time and may fall into a different category of insomnia.

F. Inadequate Sleep Hygiene. Patients with inadequate sleep hygiene engage in behaviors that are not helpful for desirable sleep patterns. There is some controversy as to whether inadequate sleep hygiene is, in itself, sufficient to result in a diagnosis of insomnia.
As noted earlier, patients with insomnia have difficulty sleeping as much as they would like to, allowing sufficient time to sleep, and have daytime symptoms related to inadequate sleep. Some patients may have poor sleep hygiene but fail to meet these criteria. Furthermore, many sleep specialists feel that the importance of poor sleep hygiene in contributing to insomnia may have been overestimated. There is very little evidence supporting the use of sleep hygiene education as an effective treatment for insomnia. However, many clinicians feel that correction of sleep hygiene “violations,” especially in conjunction with other forms of treatment, may be helpful. Sleep hygiene violations include:

1. Not keeping a regular schedule and frequent napping
2. Failure to have a healthy diet and regular daytime exercise
3. Failure to have a quiet and cool sleep environment
4. Using caffeine, other stimulants, nicotine, alcohol, excessive fluids
5. Engaging in stimulating activities before bedtime

Some patients are remarkably uninformed about the effects of behaviors on sleep. Patients may exercise just before bed, drink large amounts of coffee at bedtime and smoke cigarettes during middle of the night wakings with the expectation that this will not affect their sleep. Some patients are unaware of “hidden” sources of caffeine such as certain headache remedies and chocolate. Patient education regarding the negative consequences of these behaviors may have a positive effect on sleep patterns, although recommendations for sleep hygiene training are based only on consensus and have very little in the way of experimental evidence in support.³

G. A special case: Behavioral insomnia of childhood. Patients diagnosed with behavioral insomnia of childhood rarely come to the sleep disorder center for testing, but are frequent visitors to the pediatric sleep clinic. A brief discussion of this disorder may be helpful. It is a common problem and there are effective treatments available. There are two types of behavioral insomnia of childhood: sleep-onset association disorder and limit-setting sleep disorder.

Sleep-onset association disorder is a problem related to the conditions during which a child falls asleep. For example, many infants will fall asleep while feeding or being held and rocked in a chair. It is a very normal for children to wake up during the night. If a child can only fall asleep when being held and rocked in the chair they may not fall back to sleep after waking up during the night. They may stay awake until conditions are the same as they are when they first fall asleep. Infants may develop sleep onset associations that are not a disorder. For example, a child may become attached to a specific blanket or stuffed animal. He or she may be unable to fall asleep without the blanket or stuffed animal. However, unless the blanket or stuffed animal is stolen or lost, this sleep onset association will not cause problems. The child may wake up during the night, find the blanket and go back to sleep without disrupting the family. Treatment of sleep-onset association disorder may involve finding a suitable object of attachment, or training the child to fall asleep in bed without an adult or object present. Another method involves a progressive approach, leaving the baby alone in the bedroom for a period of time after each awakening, at first for a few minutes and then for longer and longer periods of time. Unfortunately, this may be associated with bouts of loud crying, and some parents find they are unable to outlast the child and make it work.

An interesting story of sleep association in a child involves parents who both wore eyeglasses. The child developed a sleep onset association problem. Every time the child woke during the night his parents would come to check to see if he needed his diaper changed. Each time he would become wide awake and want to play. One night the child woke and called out. It was the father’s turn to check on him, but his father could not find his glasses. He stumbled into the child’s room without his glasses on, checked on the child to be sure he was dry, and before he could leave the room the boy was back to sleep. The parents quickly learned not to wear their glasses when they checked on the boy at night and his sleep association (that parents with glasses want to play) gradually disappeared.

Limit setting sleep disorder is characterized by stalling and refusing to go to bed, and is typically blamed on the caretaker.

A Case of Limit Setting Sleep Disorder:

Mr. and Mrs. Sparrow were overjoyed when their son, Steven, was born. He was an easy infant. He began sleeping through the night at 8 weeks. Unfortunately, the transition from crib to bed turned the star sleeper into an actor who would not leave the stage. He required multiple “curtain calls” every night. At age 6, Steven had a “regular” bedtime of 7:30 PM. Mrs. Sparrow taught remedial English at the Raptor Community College, including a Monday night class that ran from 6:30 to 9:30 PM. Mr. Sparrow, like many fathers, was somewhat lax with discipline. He let Steven stay awake until his mother came home. “Only on Mondays,” the Sparrows told Steven. But Wednesday was also special, as Steven was a huge fan of bird watching.
He refused to miss the weekly television show, This Old Birdhouse, which ran from 7:30 to 8:30 PM on the local public broadcasting station. Weekends were also a problem because Mr. Sparrow hosted a rowdy poker night on Friday that kept Steven awake until nearly midnight. Several of the poker players called Steven their “good luck charm.” The Sparrows often went dancing on Saturday night, leaving Steven with Polly, the babysitter. Polly often let Steven stay up late watching romantic comedy movies.

The limit setting problems began on Tuesday, Thursday and Sunday, when Steven’s parents attempted to enforce his “real” bedtime. Steven would go to bed very reluctantly, and after 10 minutes in bed would call out for a glass of water. After another 10 minutes he wanted to go to the bathroom. Then he would come out to the television room and ask to watch for a few minutes. He complained that he wasn’t sleepy. He said that a few minutes watching television would make him tired. On other visits he would rub his belly and point to his mouth. This went on for more than an hour on most nights. Some nights the Sparrows caved in; on other nights Mrs. Sparrow would shoo Steven back into his room. Then the problems spread to the other nights, with Steven saying that he wasn’t tired even after his show was over.

This special form of insomnia is due to several problems. Some nights it’s OK to stay up late; other nights it is not OK. As a result, Steven develops an irregular sleep pattern that fails to take advantage of his normal sleep rhythm. Steven also gets a different message from his parents and from his babysitter about bedtime. These inconsistencies make him believe that if he is clever or persistent enough he will not need to go to bed. And he knows that calling out with a request for water or to use the bathroom will get his parents to come into his room and delay his bedtime. Treatment usually begins with consistency: getting the parents to set a regular bedtime that is enforced every night. The parents must also limit the number of times that the child can get out of bed or ask for things. In general, limit-setting problems resolve with time even when not treated. Teenagers gradually develop a need for more privacy and independence and stop coming out of the bedroom.

H. Insomnia due to Mental Disorder. The Diagnostic and Statistical Manual of Mental Disorders (DSM-V) is the guide from the American Psychiatric Association that is used by mental health professionals for the diagnosis of psychiatric disorders. Sleep disorders appear frequently in the DSM. Sleep disturbance is one of the symptoms in the diagnostic criteria for many of the mental disorders. It is also frequently listed as a consequence of mental disorders. It is often difficult to tell what the causes are and what the results are when thinking about sleep and mental disorders. As mentioned above, the current thinking is that sleep disorders and mental disorders may be comorbid. Therefore, it is useful to address the sleep disorder of the patient with mental disorders. Treatment may reduce symptoms and improve quality of life. It is also useful to treat the mental disorders of a patient who presents with insomnia because this may also improve the sleep pattern.

A Case of a Patient with Comorbid Insomnia and Mental Disorder:

Mr. Drake is a 26-year-old man seen by Dr. Robin in the infirmary of the Swan Transitional Living Facility. Dr. Robin was called to the facility by Dr. Heron, the staff psychiatrist. Mr. Drake has had bouts of depression since age 12, as well as a history of violent behavior. Beginning at age 18 he was noted to have episodes of racing thoughts and delusions. A diagnosis of bipolar disorder was made. He has always been a restless sleeper, and the amount of sleep he gets per night goes up and down with his mood. More recently, however, the sleep problem has persisted even when Mr. Drake seems to have a relatively stable mood.

When questioned, Mr. Drake’s description of his sleep problem is much like that of most patients with psychophysiological insomnia. He reports being able to sleep while watching television in the common room and has even fallen asleep at the dinner table. However, after preparing for bed he suddenly finds himself wide awake. The facility has “lights out” at 11:00 PM and Mr. Drake is rarely able to fall asleep at that time. He reports having trouble shutting down in the evening. For a time, the staff experimented with allowing him to stay in the common room until midnight or 1:00 AM. But he still required several hours to fall asleep. He also suffers from middle of the night awakenings. The facility staff is concerned because Mr. Drake often walks up and down the halls of the facility in the middle of the night and recently he has been disturbing the other residents. He also has episodes of early morning awakening. Often he is in the dining hall for an hour or more before breakfast is served. Dr. Heron has many patients with bipolar disorder, and tells Dr. Robin that Mr. Drake’s insomnia is far worse than others with the same diagnosis.

Figure 1.5 charts Mr. Drake’s insomnia during his early 20s. An additional factor has been added to the Three Factor model. At the bottom of the graph is a measure of mood (in black), which goes up and down as a result of his bipolar disorder. Higher numbers indicate a tendency toward mania. Periods of mania are often associated with sleeplessness.
When his mood factor is high, Mr. Drake is more likely to exceed the threshold for insomnia. Just before the end of his 21st year and again about a year later he had episodes of mania. These precipitated bouts of insomnia were extended by perpetuating factors. When his mood is low he is less likely to reach diagnostic criteria for insomnia. However, he can still have insomnia as a result of precipitating and perpetuating factors. Therefore, treatment of his perpetuating factors would be expected to reduce the duration of bouts of insomnia but not eliminate them.

The Three Factor model helps us understand the concept of comorbidity in patients with insomnia and mental disorders. The cycling of mood has a large effect on whether the factors reach threshold for a diagnosis of insomnia. There are times when the combination of the mood factor and the predisposing factor is enough to meet the threshold for diagnosis. There are also times when the mood factor is low but the combination of precipitating and perpetuating factors is enough to meet the threshold. If antidepressant or antipsychotic medications are used to reduce or eliminate the mood factor, it remains likely that Mr. Drake would still have occasional bouts of insomnia. If the perpetuating factors were removed using CBT or some other therapy, occasional bouts of insomnia would remain due to the fluctuations in mood. This scheme looks at only half of the patient’s disorders – the insomnia half. There is evidence to suggest that treating Mr. Drake’s insomnia and establishing regular and refreshing sleep will also improve his mood. That is, there will be feedback between the mood and insomnia disorders, such that when one is effectively treated the other will also improve. But focusing on only one disorder misses the opportunity to exploit this synergy. Treating both problems at the same time has the greatest chance of success.

What is seen when a patient with insomnia due to mental disorder is studied in the laboratory? There are no findings on the sleep study that are unique to this diagnosis. One group with insomnia due to mental disorder is patients with depression. Depression has been associated with a shift of REM sleep earlier in the night. The latency to REM sleep is typically 90-100 minutes in normal volunteers for sleep research studies; in patients with depression it can be around 60 minutes. This polysomnographic finding may be eliminated with the use of antidepressants. These medications may also produce alterations of the polysomnogram such as rapid eye movements during stage N2 sleep. A typical patient with depression will also have rapid sleep onset and early morning awakening. As mentioned above, mania is often associated with insomnia. Some patients may not sleep at all for extended periods of time during bouts of mania.

How is insomnia due to mental disorder treated? As with other subtypes of chronic insomnia, treatment with

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**Figure 1.5** Insomnia in a patient with comorbid depression

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CBT and sleeping pills may be effective. If the mental disorder is particularly disabling, the patient may not be able to engage in the CBT process. In some cases, the insomnia may be disruptive to caretakers or other residents of facilities and for this reason the use of a sleeping pill may be recommended. Sleeping pills may have effects on memory and other behaviors. Care must be taken not to worsen these problems in patients who are already impaired by mental disorders. Treatment of the mental disorder may take precedence in some cases, and may result in some improvement in sleep pattern as well.

What happens to patients with insomnia due to mental disorders? With appropriate treatment and support, the insomnia of patients with mental disorders may become more manageable over time. The treatment goal may not be to achieve a normal sleep pattern, but to produce an acceptable level of sleep disruption. Many mental disorders wax and wane over time and changes in sleep pattern may be unavoidable. There are many changes in precipitating and predisposing conditions across the lifespan. Hormonal and environmental changes may result in improvement of mood and sleep pattern. Maturity may give patients a better perspective on their problems and better coping skills. This may lead to behavioral changes that improve both the insomnia and mental disorders.

I. Insomnia due to Medical Condition and Insomnia due to Drug or Substance Use. Anyone who has walked through the hallways of a hospital at 3:00 AM knows that insomnia is a frequent problem in patients with medical conditions. Any condition that is associated with pain or discomfort will disrupt sleep. In the hospital, the unfamiliar environment, frequent visits from nurses and noises in the hallway may disrupt sleep. But even when the patient returns home and these stimuli are removed, the insomnia may continue. In addition, treatments for medical conditions may themselves cause insomnia. For example, most treatments for asthma cause disrupted sleep.

Abuse of alcohol, caffeine and some prescription medications may also result in insomnia. Alcohol may help with sleep onset but often results in awakenings during the night and poor sleep quality. Stimulant medications may cause prolonged bouts of wakefulness. Many people use coffee as a stimulant. However, the effect can last as long as 12 hours and an afternoon cup of coffee may cause sleep onset insomnia. An interesting form of insomnia due to drug use is “rebound” insomnia. This occurs when a patient suddenly stops using a sleeping pill. Rebound can also occur in a single night when a very short acting sleeping pill wears off and the patient has trouble sleeping in the second half of the night. These issues are addressed in the AASM guidelines paper which provides lists of medication effects on sleep and suggestions for treatment.

An Example of a Patient with Insomnia due to Medical Condition and Medication Use:

Mr. Peacock is a 60-year-old man who had his left hip replaced due to arthritis. He shared a room in the hospital with a man who had broken his leg putting up Christmas lights. The roommate complained frequently of pain, moaned loudly during the night and talked on his cell phone at all hours of the day and night. Not surprisingly, Mr. Peacock had difficulty sleeping in the hospital. He asked for and received a sleeping pill. On discharge, Mr. Peacock was prescribed codeine for pain and a short-acting sleeping pill. For the first few days at home the pain returned within three hours of his bedtime dose and he took an additional dose of both medications in the middle of the night.

He returned to his surgeon, Dr. Stork, one month after surgery for removal of staples. His pain level was much reduced and he asked if he could stop taking the codeine. He was told to slowly reduce the amount and then stop. He asked for a refill on his sleeping pills but Dr. Stork refused. When he ran out of the sleeping pill three days later, Mr. Peacock developed terrible insomnia. He would lie awake in bed for several hours each night. He called his internist for more sleeping pills, but was told he would have to see a sleep specialist. He made an appointment with Dr. Robin who reviewed his history and elected to give Mr. Peacock 15 doses of the sleeping pill: five with the full dose, five with a half dose and five with a quarter dose. He gave him instructions to take them in decreasing strength over the next two weeks. In addition, he asked Mr. Peacock to enroll in a cognitive behavioral therapy group at the Cardinal City Sleep Center.

Even mild medical conditions may disrupt a patient’s sleep pattern. A sudden illness has psychological as well as physical effects. Both may contribute to sleep disruption. When medication effects are added to the mix, a variety of changes in sleep pattern may occur. These changes may occur surprisingly quickly. Mr. Peacock’s problems illustrate how difficult it may be to isolate factors and develop a treatment plan. His problems began with the pain associated with arthritis, which typically leads to disrupted sleep. The hip replacement surgery caused additional short-term pain as well as the effects of anesthesia. In the immediate post-surgery period these factors were combined with environmental disruption of sleep and the introduction of a pain reliever (codeine) and a hypnotic. On the return visit to the sur-
geon, the pain issues were presumed to be resolved. But withdrawal from codeine can cause rebound headache, which may have contributed to poor sleep. In addition, abrupt withdrawal from the hypnotic may have caused rebound insomnia.

A sleep specialist may be called in to help if the sleep disruption becomes severe. This is another case where a “comorbid” model may help lead to effective treatment. The sleep specialist often works with the primary care physician to treat the insomnia. Behavioral therapies may be recommended but are often ineffective if pain persists. Attempts to control pain are important, but perpetuating factors may also need to be addressed. Fortunately Mr. Peacock was sent to Dr. Robin, who prescribed tapering of the hypnotic to prevent rebound insomnia and behavioral therapy to address any perpetuating factors that may have developed of the course of the bout of insomnia. This combination therapy has the highest probability of success.

**J. Short-Term Insomnia Disorder.** Just like the name says, short-term insomnia is a temporary problem. It usually does not come to the attention of the sleep disorders specialist. The criteria for diagnosis (in addition to the general diagnostic criteria for insomnia listed above) are readily related to the Three Factor model. The insomnia starts with a precipitating factor, is expected to go away when the precipitating factor goes away, lasts for less than three months and is not caused by another sleep disorder or medical disorder.

### A Typical Case of Short-Term Insomnia Disorder:

Mr. Wren is a 24-year-old man who recently graduated from college. He spent three months after graduation looking for work with no success. Finally, he secured a position at Swan School for children with behavioral problems. School begins promptly at 8:00 AM and he is required to be present for a faculty meeting every morning at 7:00 AM. During college he stayed up late studying and had trouble waking up in the morning. As a result, he has purchased two very loud alarm clocks. But he has never had to use them. Since the first day of school one month ago he has been going to bed at 10:00 PM, lying awake until well after midnight, waking up several times during the night and practically leaping out of bed at 5:00 AM. He is able to sleep in on the weekends, and will partially catch up on his sleep. However, he is anxious, irritable and often unable to keep his eyes open at work during the day.

He comes to the Cardinal City Sleep Center for evaluation. He is seen by Dr. Robin. He tells Dr. Robin that he has been going to bed at 10:00 PM, lying awake until well after midnight, waking up several times during the night and practically leaping out of bed at 5:00 AM. He is able to sleep in on the weekends, and will partially catch up on his sleep. However, he is anxious, irritable and often unable to keep his eyes open at work during the day.

Mr. Wren meets the general criteria for insomnia. He not only has trouble falling asleep, but he has trouble staying asleep and he wakes up too early. Mr. Wren is in bed from 10:00 PM until 5:00 AM, which gives him just enough time to have a normal night of sleep. But he could sleep another hour and still make it to work on time. Finally, the insomnia affects his function during the day. He reports that he is anxious, irritable and unable to stay awake. In addition to the general criteria, Mr. Wren meets all of the criteria for short-term insomnia disorder. The insomnia has lasted for less than three months, it is clearly tied to his new job (the precipitating factor) and there do not seem to be other medical factors leading to his insomnia.

The final criterion for short-term insomnia disorder is that it resolves when the precipitating factor goes away. The only way to know that this is the case is to wait and see whether the insomnia goes away. If it does not, Mr. Wren may “graduate” to one of the other types of insomnia. Three things could lead to Mr. Wren having a longer lasting insomnia:

1. His predisposing factor for insomnia may be quite high. Any small precipitating factor would then cause his insomnia to last. He reports occasional bouts of insomnia in the past. Further exploration of his sleep history may indicate that he has always been a light sleeper. He may report that any noise or stress always results in several nights of poor sleep.

2. He may have a high-stress lifestyle resulting in prolonged periods with high precipitating factors. This may include the typical life stresses that a young man encounters such as marriage, children and a mortgage, which may lead to divorce, problems with the children and foreclosure. His choice of profession may also cause stress as he may encounter students with significant behavioral problems who need lots of help.

3. Perpetuating factors may take root and keep his insomnia going. After several weeks of insomnia he may have trouble remembering what a good night of sleep is like. He may begin to say
things such as "if only I could get a good night of sleep my life would be much better." He may find that after telling the school principal about his insomnia he is excused from the deadly 7:00 AM meetings.

What is seen when the patient with short-term insomnia disorder spends a night in the sleep laboratory? Expect to find long sleep onset latency, frequent awakenings and reduced sleep efficiency. But patients with adjustment insomnia rarely have sleep studies and there is very little data to answer this question.

How is short-term insomnia disorder treated? Due to the temporary nature of the diagnosis, no treatment is required and the disorder often resolves before a patient is able to see a sleep specialist. The patient is reassured that the reaction to the precipitating factor is normal and will resolve on its own. Occasionally, a physician will prescribe a small number of doses of a hypnotic to help the patient "get back on track." Less frequently, behavioral therapies will be recommended.

What usually happens to the short-term insomnia disorder patient? It is not known how many patients suffer bouts of adjustment insomnia once or twice in their life and never have sleep problems after that. Often physicians will try to encourage patients by telling them that most patients with short-term insomnia disorder have a rapid resolution of their problem and no recurrence (despite little evidence to support the claim). On the other hand, most patients with the longer lasting (chronic) forms of insomnia start out as adjustment insomnia patients. That is, they often report short bouts of insomnia before the problem becomes chronic. An additional factor that contributes to chronic insomnia is drug and alcohol use. Drug and alcohol abuse may start as a method of "self-medication" in an attempt to treat short-term insomnia disorder. In fact, this often makes the insomnia worse and may lead to the diagnosis of insomnia related to drug or alcohol use. Many physicians encourage short-term insomnia disorder patients to follow sleep hygiene recommendations. Mid-day exercise and avoiding stimulants in the evening may be helpful for these patients. Some patients may become so sleepy during the day that they essentially employ sleep restriction therapy for their insomnia. If the adjustment insomnia is severe and unresponsive to treatment attempts, patients may resolve to change the precipitating stimulus – in the case of Mr. Wren this may require finding a new job.

Mr. Wren is in many ways representative of the development of insomnia over the lifespan. An underlying predisposition to insomnia is coupled with triggers that produce occasional bouts of insomnia. These are exacerbated by learned behaviors. Some patients seek professional help from a primary care physician or a sleep specialist, others learn to cope with their sleep disorder, whereas others worsen over time.

REFERENCES