8. Recurrent stimulant use in situations in which it is physically hazardous.
9. Stimulant use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the stimulant.
10. Tolerance, as defined by either of the following:
    a. A need for markedly increased amounts of the stimulant to achieve intoxication or desired effect.
    b. A markedly diminished effect with continued use of the same amount of the stimulant.

    Note: This criterion is not considered to be met for those taking stimulant medications solely under appropriate medical supervision, such as medications for attention-deficit/hyperactivity disorder or narcolepsy.
11. Withdrawal, as manifested by either of the following:
    a. The characteristic withdrawal syndrome for the stimulant (refer to Criteria A and B of the criteria set for stimulant withdrawal).
    b. The stimulant (or a closely related substance) is taken to relieve or avoid withdrawal symptoms.

    Note: This criterion is not considered to be met for those taking stimulant medications solely under appropriate medical supervision, such as medications for attention-deficit/hyperactivity disorder or narcolepsy.

Specify if:

In early remission: After full criteria for stimulant use disorder were previously met, none of the criteria for stimulant use disorder have been met for at least 3 months but for less than 12 months (with the exception that Criterion A4, "Craving, or a strong desire or urge to use the stimulant," may be met).

In sustained remission: After full criteria for stimulant use disorder were previously met, none of the criteria for stimulant use disorder have been met at any time during a period of 12 months or longer (with the exception that Criterion A4, "Craving, or a strong desire or urge to use the stimulant," may be met).

Specify if:

In a controlled environment: This additional specifier is used if the individual is in an environment where access to stimulants is restricted.

Code based on current severity/remission: If an amphetamine-type substance intoxication, amphetamine-type substance withdrawal, or amphetamine-type substance-induced mental disorder is also present, do not use the codes below for amphetamine-type substance use disorder. Instead, the comorbid amphetamine-type substance use disorder is indicated in the 4th character of the amphetamine-type substance-induced disorder code (see the coding note for amphetamine-type substance intoxication, amphetamine-type substance withdrawal, or a specific amphetamine-type substance-induced mental disorder). For example, if there is comorbid amphetamine-induced depressive disorder and amphetamine use disorder, only the amphetamine-induced depressive disorder code is given, with the 4th character indicating whether the comorbid amphetamine use disorder is mild, moderate, or severe: F15.14 for mild amphetamine use disorder with amphetamine-induced depressive disorder or F15.24 for a moderate or severe amphetamine use disorder with amphetamine-induced depressive disorder. (The instructions for amphetamine-type substance also apply to other or unspecified stimulant intoxication, other or unspecified stimulant withdrawal, and other or unspecified stimulant-induced mental disorder.) Similarly, if there is comorbid cocaine-induced depressive disorder and cocaine use disorder, only the cocaine-induced depressive disorder code is given, with the 4th character indicating whether the comorbid cocaine use disorder is mild, moderate,

or severe: F14.14 for a mild cocaine use disorder with cocaine-induced depressive disorder or F14.24 for a moderate or severe cocaine use disorder with cocaine-induced depressive disorder.

Specify current severity/remission:

Mild: Presence of 2–3 symptoms.
- **F15.10** Amphetamine-type substance
- **F14.10** Cocaine
- **F15.10** Other or unspecified stimulant

Mild, In early remission
- **F15.11** Amphetamine-type substance
- **F14.11** Cocaine
- **F15.11** Other or unspecified stimulant

Mild, In sustained remission
- **F15.11** Amphetamine-type substance
- **F14.11** Cocaine
- **F15.11** Other or unspecified stimulant

Moderate: Presence of 4–5 symptoms.
- **F15.20** Amphetamine-type substance
- **F14.20** Cocaine
- **F15.20** Other or unspecified stimulant

Moderate, In early remission
- **F15.21** Amphetamine-type substance
- **F14.21** Cocaine
- **F15.21** Other or unspecified stimulant

Moderate, In sustained remission
- **F15.21** Amphetamine-type substance
- **F14.21** Cocaine
- **F15.21** Other or unspecified stimulant

Severe: Presence of 6 or more symptoms.
- **F15.20** Amphetamine-type substance
- **F14.20** Cocaine
- **F15.20** Other or unspecified stimulant

Severe, In early remission
- **F15.21** Amphetamine-type substance
- **F14.21** Cocaine
- **F15.21** Other or unspecified stimulant

Severe, In sustained remission
- **F15.21** Amphetamine-type substance
- **F14.21** Cocaine
- **F15.21** Other or unspecified stimulant

Specifiers

"In a controlled environment" applies as a further specifier of remission if the individual is both in remission and in a controlled environment (i.e., in early remission in a controlled environment or in sustained remission in a controlled environment). Examples of these environments are closely supervised and substance-free jails, therapeutic communities, and locked hospital units.

Diagnostic Features

Stimulants are a type of psychoactive substance that increases activity in the brain and can temporarily elevate alertness, mood, and awareness. Stimulants covered in this chapter include amphetamine and prescription stimulants with similar effects (e.g., methylphenidate) and cocaine. Substance-related disorders involving certain other substances with stimulant properties are classified in other sections of this chapter. These include caffeine (in caffeine-related disorders), nicotine (in tobacco-related disorders), and MDMA (3,4-methylenedioxymethamphetamine; in other hallucinogen-related disorders), which has both stimulant and hallucinogenic effects.

Given that the effects of amphetamine-type substances are similar to those of cocaine, amphetamine-related disorders and cocaine-related disorders are grouped under the single rubric "stimulant-related disorders." Amphetamine-type substances (and other or unspecified stimulants) and cocaine have different ICD-10-CM codes (e.g., F15.10 mild amphetamine-type substance use disorder, F14.10 mild cocaine use disorder). The particular stimulant used by the individual is recorded in the diagnosis (e.g., "methamphetamine withdrawal," "methylphenidate use disorder," "cocaine intoxication").

The amphetamine-type substances include stimulants with a substituted phenylethylamine structure, such as amphetamine, dextroamphetamine, and methamphetamine. Also included are substances that are structurally different but have similar effects, such as methylphenidate, modafinil, and armodafinil. These amphetamine-type substances are usually taken orally or intravenously, although methamphetamine is also taken by the nasal route. In addition to the synthetic amphetamine-type compounds, there are naturally occurring, plant-derived stimulants such as *khât*, as well as synthetic chemical *khât* analogs, called *cathinones*.

Amphetamines and other stimulants may be obtained by prescription for the treatment of obesity, attention-deficit/hyperactivity disorder, and narcolepsy. Consequently, prescribed stimulants may be diverted into the illegal market.

Cocaine, a naturally occurring substance produced by the coca plant, is consumed in several preparations (e.g., coca leaves, coca paste, cocaine hydrochloride, and cocaine alkaloids such as freebase and crack) that differ in potency because of varying levels of purity and speed of onset. However, in all of the forms, cocaine is the active ingredient. Cocaine hydrochloride powder is usually "snorted" through the nostrils or dissolved in water and injected intravenously. Crack and other cocaine alkaloids are easily vaporized and inhaled, and thus their effects have an extremely rapid onset.

Individuals exposed to amphetamine-type substances or cocaine can develop stimulant use disorder as rapidly as 1 week, although the onset is not always this rapid. Regardless of the route of administration, tolerance occurs with repeated use. Withdrawal symptoms, particularly hypersomnia, increased appetite, and dysphoria, can occur and can enhance craving. Most individuals with stimulant use disorder have experienced tolerance or withdrawal.

Use patterns and course are similar for disorders involving amphetamine-type substances and cocaine, as both are potent central nervous system stimulants with similar psychoactive and sympathomimetic effects. Amphetamine-type substances are longer acting than cocaine and thus are used fewer times per day. Usage may be chronic or episodic, with binges punctuated by brief non-use periods. Aggressive or violent behavior is common when high doses are smoked, ingested, or administered intravenously. Intense temporary anxiety resembling panic disorder or generalized anxiety disorder, as well as paranoid ideation and psychotic episodes that resemble schizophrenia, is seen with high-dose use.

Withdrawal states are associated with temporary but intense depressive symptoms that can resemble a major depressive episode; the depressive symptoms usually resolve

within 1 week. Tolerance to amphetamine-type substances develops and leads to escalation of the dose. Conversely, some users of amphetamine-type substances develop sensitization, characterized by enhanced effects.

Associated Features

When injected or smoked, stimulants typically produce an instant feeling of well-being, confidence, and euphoria. Dramatic behavioral changes can rapidly develop with stimulant use disorder. Chaotic behavior, social isolation, aggressive behavior, and sexual dysfunction can result from long-term stimulant use disorder.

Individuals with acute intoxication may present with rambling speech, headache, transient ideas of reference, and tinnitus. There may be paranoid ideation, auditory hallucinations in a clear sensorium, and tactile hallucinations, which the individual usually recognizes as drug effects. Threats or acting out of aggressive behavior may occur. Depression, suicidal thoughts, irritability, anhedonia, emotional lability, or disturbances in attention and concentration commonly occur during withdrawal. Mental disturbances associated with cocaine use usually resolve hours to days after cessation of use but can persist for 1 month. Physiological changes during stimulant withdrawal are opposite to those of the intoxication phase, sometimes including bradycardia. Temporary depressive symptoms may meet symptomatic and duration criteria for major depressive episode. Histories consistent with repeated panic attacks, social anxiety disorder–like behavior, and generalized anxiety–like syndromes are common, as are eating disorders. One extreme instance of stimulant toxicity is stimulant-induced psychotic disorder, a disorder that resembles schizophrenia, with delusions and hallucinations.

Individuals with stimulant use disorder often develop conditioned responses to drug-related stimuli (e.g., craving on seeing any white powderlike substance). These responses contribute to relapse, are difficult to extinguish, and persist after detoxification.

Depressive symptoms with suicidal thoughts or behavior can occur and are generally the most serious problems seen during stimulant withdrawal.

Prevalence

Stimulant use disorder: amphetamine-type substances. Estimated 12-month prevalence of amphetamine-type substance use disorder in the United States is 0.4% among individuals 12 years and older. Twelve-month prevalence is 0.1% among individuals ages 12–17 years, 0.5% among those ages 18–25, and 0.4% among those age 26 and older. Rates are 0.5% for men and 0.2% for women, overall. Rates are approximately 0.4% among Hispanics and non-Hispanic Whites and 0.1% among African Americans and Asian Americans. Prevalence estimates for American Indian/Alaskan Natives and Native Hawaiian/Pacific Islander populations are difficult to determine, given small sample sizes, but there is some evidence for higher rates in American Indians/Alaskan Natives.

Among U.S. adults, 6.6% (annual average) used prescription stimulants overall; 4.5% used without misuse, 1.9% misused without use disorders, and 0.2% had use disorders. While non-Hispanic Whites are more likely to use prescription stimulants nonmedically, Hispanics tend to use them more frequently and have higher rates of prescription stimulant use disorder.

Stimulant use disorder: cocaine. Estimated 12-month prevalence of cocaine use disorder in the United States is 0.4% among individuals 12 years and older. Rates are 0.1% among individuals ages 12–17 years, 0.7% among those ages 18–25 years, and 0.3% among those age 26 and older. Rates are 0.5% for men and 0.2% for women, overall. Rates are 0.4% among African Americans and non-Hispanic Whites, 0.3% in Hispanics, and <0.1% among Asian Americans.

Development and Course

In the United States, stimulant use disorder occurs throughout all levels of society and is more common among individuals ages 18–25 years compared with individuals ages 12–17 or 26 years and older. On average, first regular use among individuals in treatment occurs at approximately age 23 years. For primary methamphetamine treatment admissions, the average age is 34 years, and for primary cocaine treatment admissions, the average age is 44 years for smoked cocaine and 37 years for other routes.

Some persons begin stimulant use to control weight or to improve performance in school, work, or athletics. Initial use may include obtaining medications such as methylphenidate or amphetamine salts prescribed to others for the treatment of attention-deficit/hyperactivity disorder. Among primary treatment admissions for amphetamine-type substance use in the United States, 61% reported smoking, 26% reported injecting, and 9% reported snorting, suggesting that stimulant use disorder can develop from multiple modes of administration.

Patterns of stimulant administration include episodic or daily (or almost daily) use. Episodic use (e.g., intense use over a weekend or on one or more weekdays) tends to be separated by 2 or more days of nonuse. "Binges" involve continuous high-dose use over hours or days and are often associated with physical dependence. Binges usually terminate only when stimulant supplies are depleted or exhaustion ensues. Chronic daily use may involve high or low doses, often with an increase in dose over time.

Stimulant smoking and intravenous use are associated with rapid progression to severe-level stimulant use disorder, often occurring over weeks to months. Intranasal use of cocaine and oral use of amphetamine-type substances result in more gradual progression occurring over months to years. With continued use, there is a diminution of pleasurable effects because of tolerance and an increase in dysphoric effects.

Risk and Prognostic Factors

Temperamental. Comorbid bipolar disorder, schizophrenia, antisocial personality disorder, and other substance use disorders are risk factors for developing stimulant use disorder and for relapse to cocaine use in treatment samples. Higher stress reactivity has been correlated with frequency of cocaine use in some U.S. treatment samples. Conduct disorder in childhood and antisocial personality disorder are associated with the development of stimulant-related disorders. In the United States, previous use of another substance, being male, having a Cluster B personality disorder, family history of substance use disorder, and being separated, divorced, or widowed all result in increased risk of using cocaine. Men who have sex with men are also at higher risk for methamphetamine use.

Environmental. Predictors of cocaine use among a cohort of U.S. teenagers include prenatal cocaine exposure, postnatal cocaine use by parents, and exposure to community violence during childhood. Research in industrialized countries suggests that exposure to intimate partner violence or childhood mistreatment often co-occurs with stimulant use, especially in women. In a cohort of U.S. women followed up longitudinally, socioeconomic status, including food insecurity, had a dose-dependent effect on risk of stimulant use. For youth, especially girls, risk factors include living in an unstable home environment, having a psychiatric condition, criminal behavior, and associating with dealers and users.

Culture-Related Diagnostic Issues

The prevalence of cocaine use in the United States increased between 2001–2002 and 2012–2013 among non-Latinx Whites, African Americans, and Latinx, but the prevalence of cocaine use disorder increased only among Whites. Despite small variations, cocaine and other stimulant use disorder diagnostic criteria perform equally across gender and eth-

noracial groups. In limited data on prevalence estimates, it appears that American Indian/Alaskan Native populations are at higher risk for methamphetamine use disorder, and, to a lesser degree, cocaine use disorder, than are non-Hispanic Whites, while native Hawaiian/Pacific Islanders appear to have similar risks to non-Hispanic Whites.

Approximately 64% of individuals admitted to publicly funded substance abuse treatment programs for primary methamphetamine/amphetamine-related disorders are non-Hispanic White, followed by 20% of Hispanic origin, 3% Asian and Pacific Islander, and 6% non-Hispanic Black. Among individuals admitted for primary treatment related to smoked cocaine, 51% were non-Hispanic Black, 35% non-Hispanic White, 8% Hispanic, and 1% Asian/Pacific Islander. For admissions related to other routes of cocaine administration, 47% were non-Hispanic White, 31% were non-Hispanic Black, 17% were of Hispanic origin, and 1% were Asian/Pacific Islander. Rates of disorders in clinical samples should be interpreted with caution because they may be affected by differential access to and utilization of services, pathways to care, criminalization, stigma, and racial bias in diagnosis and referral for treatment.

Sex- and Gender-Related Diagnostic Issues

In the United States, women with cocaine use disorder more frequently have comorbid psychiatric disorders, such as depression and posttraumatic stress disorder (PTSD), compared with men. Gonadal hormones affect a male's responses to cocaine. Females with cocaine use disorder and higher levels of progesterone have lower stress-induced and cue-induced cocaine craving and lower cue-induced changes in blood pressure than females with cocaine use disorder and lower levels of progesterone. This may explain why use of cocaine in pregnant females is lower than in nonpregnant females.

Diagnostic Markers

Benzoylecgonine, a metabolite of cocaine, typically remains in the urine for 1–3 days after a single dose and may be present for 7–12 days in individuals using repeated high doses. Mildly elevated liver function tests can be present in cocaine injectors or users with concomitant alcohol use. There are no neurobiological markers of diagnostic utility. Discontinuation of chronic cocaine use may be associated with electroencephalographic changes, suggesting persistent abnormalities; alterations in secretion patterns of prolactin; and downregulation of dopamine receptors.

Short-half-life amphetamine-type substances (e.g., methamphetamine) can be detected for 1–3 days, and possibly up to 4 days depending on dosage and metabolism. Hair samples can be used to detect presence of amphetamine-type substances for up to 90 days. Other laboratory findings, as well as physical findings and other medical conditions (e.g., weight loss, malnutrition; poor hygiene), are similar for both cocaine and amphetamine-type substance use disorder.

Association With Suicidal Thoughts or Behavior

Few data on the association of stimulant use disorders and suicide are available because most studies examining suicidal thoughts and behavior examine use of stimulants rather than stimulant use disorders. One systematic review found that regular or problem amphetamine use (examining primarily individuals who inject amphetamines and/or individuals admitted to treatment for use of amphetamines) is associated with increased suicide mortality. A general population study of adults in the United States found an association of prescription stimulant use disorder with suicidal thoughts. In a study of individuals admitted to substance use treatment, those with cocaine use disorder were much more likely to report suicidal thoughts than those with other substance use disorders. In a study of both men and women in the U.S. Veterans Administration health care system, co-

caine and amphetamine use disorders were each associated with increased rates of suicide deaths.

Functional Consequences of Stimulant Use Disorder

Various medical conditions may occur depending on the route of administration. Intranasal users often develop sinusitis, irritation, bleeding of the nasal mucosa, and a perforated nasal septum. Individuals who smoke stimulants are at increased risk for respiratory problems (e.g., coughing, bronchitis, and pneumonitis). Injectors have puncture marks and "tracks," most commonly on their forearms. Risk of HIV and hepatitis C infection increases with frequent intravenous injections and unsafe sexual activity. Other sexually transmitted diseases, hepatitis B, and tuberculosis and other lung infections are also seen. Weight loss and malnutrition are common.

Chest pain may be a common symptom during stimulant intoxication. Myocardial infarction, palpitations and arrhythmias, sudden death from respiratory or cardiac arrest, and stroke have been associated with stimulant use among young and otherwise healthy individuals. Pneumothorax can result from performing Valsalva-like maneuvers done to better absorb inhaled smoke. Cocaine use is associated with irregularities in placental blood flow, abruptio placentae, premature labor and delivery, and an increased prevalence of infants with very low birth weights.

Individuals with stimulant use disorder may become involved in theft, prostitution, or drug dealing in order to acquire drugs or money for drugs. Traumatic injuries due to violent behavior are common among individuals trafficking drugs.

Neurocognitive impairment is common among both methamphetamine and cocaine users, including deficits related to attention, impulsivity, verbal learning/memory, working memory, and executive functioning. Transient psychosis and seizure have also been reported with chronic use of either cocaine or methamphetamine, possibly related to patterns of use or the exacerbation of preexisting vulnerabilities. Amphetamine use can cause toxic effects related to elevated body temperature, and there is some evidence that chronic use causes neuroinflammation and neurotoxicity in dopaminergic neurons. Oral health problems include "meth mouth" with gum disease, tooth decay, and mouth sores related to the toxic effects of smoking the drug and to bruxism while intoxicated. Adverse pulmonary effects appear to be less common for amphetamine-type substances because they are smoked fewer times per day, although methamphetamine use is still associated with a risk of pulmonary arterial hypertension. Emergency department visits are common for stimulant-related mental disorder symptoms, injury, skin infections, and dental pathology. In the United States, diagnosis of a stimulant use disorder is associated with a 20% increase in 30-day readmission rates in assessment of follow-up after hospitalization for "any cause" (a standard measure of overall hospital quality of care).

Differential Diagnosis

Phencyclidine intoxication. Intoxication with phencyclidine (PCP or "angel dust") or synthetic "designer drugs" such as mephedrone (known by different names, including "bath salts") may cause a similar clinical picture and can only be distinguished from stimulant intoxication by the presence of cocaine or amphetamine-type substance metabolites in a urine or plasma sample.

Stimulant intoxication, stimulant withdrawal, and stimulant-induced mental disorders. Stimulant use disorder is differentiated from stimulant intoxication, stimulant withdrawal, and stimulant-induced mental disorders (e.g., stimulant-induced depressive disorder) in that stimulant use disorder describes a problematic pattern of stimulant use that involves impaired control over stimulant use, social impairment attributable to stimulant use, risky stimulant use (e.g., continued stimulant use despite medical complications), and pharmacological symptoms (the development of tolerance or withdrawal), whereas stimulant intoxi-

cation, stimulant withdrawal, and stimulant-induced mental disorders describe psychiatric syndromes that occur in the context of heavy use. Stimulant intoxication, stimulant withdrawal, and stimulant-induced mental disorders occur frequently in individuals with stimulant use disorder. In such cases, a diagnosis of stimulant intoxication, stimulant withdrawal, or a stimulant-induced mental disorder should be given in addition to a diagnosis of stimulant use disorder, the presence of which is indicated in the diagnostic code.

Independent mental disorders. Some of the effects of stimulant use may resemble symptoms of independent mental disorders, such as psychosis (schizophrenia) and low mood (major depressive disorder). Discerning whether these behaviors occurred before the intake of the drug is important in the differentiation of acute drug effects from a preexisting mental disorder.

Comorbidity

Stimulant-related disorders often co-occur with other substance use disorders, especially those involving substances with sedative properties, which are often taken to reduce insomnia, nervousness, and other unpleasant side effects. Individuals admitted to treatment for cocaine use are likely to also use heroin, PCP, or alcohol, and individuals admitted for amphetamine-type substance use disorder are likely to use marijuana, heroin, or alcohol. Stimulant use disorder may be associated with posttraumatic stress disorder, antisocial personality disorder, attention-deficit/hyperactivity disorder, and gambling disorder. Cardiopulmonary problems are often present in individuals seeking treatment for cocaine-related problems, with chest pain being the most common. Medical problems occur in response to adulterants used as "cutting" agents. Cocaine users who ingest cocaine cut with levamisole, an antimicrobial and veterinary medication, may experience agranulocytosis and febrile neutropenia.

Stimulant Intoxication

Diagnostic Criteria

A. Recent use of an amphetamine-type substance, cocaine, or other stimulant.

B. Clinically significant problematic behavioral or psychological changes (e.g., euphoria or affective blunting; changes in sociability; hypervigilance; interpersonal sensitivity; anxiety, tension, or anger; stereotyped behaviors; impaired judgment) that developed during, or shortly after, use of a stimulant.

C. Two (or more) of the following signs or symptoms, developing during, or shortly after, stimulant use:

   1. Tachycardia or bradycardia.
   2. Pupillary dilation.
   3. Elevated or lowered blood pressure.
   4. Perspiration or chills.
   5. Nausea or vomiting.
   6. Evidence of weight loss.
   7. Psychomotor agitation or retardation.
   8. Muscular weakness, respiratory depression, chest pain, or cardiac arrhythmias.
   9. Confusion, seizures, dyskinesias, dystonias, or coma.

D. The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication with another substance.

Specify **the particular intoxicant** (i.e., amphetamine-type substance, cocaine, or other stimulant).

Specify if:

With perceptual disturbances: This specifier may be noted when hallucinations with intact reality testing or auditory, visual, or tactile illusions occur in the absence of a delirium.

Coding note: The ICD-10-CM code depends on whether the stimulant is an amphetamine-type substance, cocaine, or other stimulant; whether there is a comorbid amphetamine-type substance, cocaine, or other stimulant use disorder; and whether or not there are perceptual disturbances.

For amphetamine-type substance, cocaine, or other stimulant intoxication, without perceptual disturbances: If a mild amphetamine-type substance or other stimulant use disorder is comorbid, the ICD-10-CM code is **F15.120,** and if a moderate or severe amphetamine-type substance or other stimulant use disorder is comorbid, the ICD-10-CM code is **F15.220.** If there is no comorbid amphetamine-type substance or other stimulant use disorder, then the ICD-10-CM code is **F15.920.** Similarly, if a mild cocaine use disorder is comorbid, the ICD-10-CM code is **F14.120,** and if a moderate or severe cocaine use disorder is comorbid, the ICD-10-CM code is **F14.220.** If there is no comorbid cocaine use disorder, then the ICD-10-CM code is **F14.920.**

For amphetamine-type substance, cocaine, or other stimulant intoxication, with perceptual disturbances: If a mild amphetamine-type substance or other stimulant use disorder is comorbid, the ICD-10-CM code is **F15.122,** and if a moderate or severe amphetamine-type substance or other stimulant use disorder is comorbid, the ICD-10-CM code is **F15.222.** If there is no comorbid amphetamine-type substance or other stimulant use disorder, then the ICD-10-CM code is **F15.922.** Similarly, if a mild cocaine use disorder is comorbid, the ICD-10-CM code is **F14.122,** and if a moderate or severe cocaine use disorder is comorbid, the ICD-10-CM code is **F14.222.** If there is no comorbid cocaine use disorder, then the ICD-10-CM code is **F14.922.**

Diagnostic Features

The essential feature of stimulant intoxication, related to amphetamine-type substances and cocaine, is the presence of clinically significant behavioral or psychological changes that develop during, or shortly after, use of stimulants (Criteria A and B). Auditory hallucinations may be prominent, as may paranoid ideation, and these symptoms must be distinguished from an independent psychotic disorder such as schizophrenia. Stimulant intoxication usually begins with a "high" feeling and includes one or more of the following: euphoria with enhanced vigor, gregariousness, hyperactivity, restlessness, hypervigilance, interpersonal sensitivity, talkativeness, anxiety, tension, alertness, grandiosity, stereotyped and repetitive behavior, anger, impaired judgment, and, in the case of chronic intoxication, affective blunting with fatigue or sadness and social withdrawal. These behavioral and psychological changes are accompanied by two or more of the following signs and symptoms that develop during or shortly after stimulant use: tachycardia or bradycardia; pupillary dilation; elevated or lowered blood pressure; perspiration or chills; nausea or vomiting; evidence of weight loss; psychomotor agitation or retardation; muscular weakness, respiratory depression, chest pain, or cardiac arrhythmias; and confusion, seizures, dyskinesias, dystonias, or coma (Criterion C). Intoxication, either acute or chronic, is often associated with impaired social or occupational functioning. Severe intoxication can lead to convulsions, cardiac arrhythmias, hyperpyrexia, and death. For the diagnosis of stimulant intoxication to be made, the symptoms must not be attributable to another medical condition and are not better explained by another mental disorder (Cri-

terion D). While stimulant intoxication occurs in individuals with stimulant use disorders, intoxication is not a criterion for stimulant use disorder, which is confirmed by the presence of 2 of the 11 diagnostic criteria for use disorder.

Associated Features

The magnitude and direction of the behavioral and physiological changes depend on many variables, including the dose used and the characteristics of the individual using the substance or the context (e.g., tolerance, rate of absorption, chronicity of use, context in which taken). Stimulant effects such as euphoria, increased pulse and blood pressure, and psychomotor activity are most commonly seen. Depressant effects such as sadness, bradycardia, decreased blood pressure, and decreased psychomotor activity are less common and generally emerge only with chronic high-dose use.

Prevalence

Although prevalence of stimulant intoxication is not known, prevalence of stimulant use can be used as a proxy. Many individuals who use stimulants may not have symptoms that fully meet the criteria for stimulant intoxication, which requires "clinically significant problematic behavioral or psychological changes." Thus, rates of stimulant use can be considered the upper bounds of the likely prevalence of stimulant intoxication.

Estimated 12-month prevalence of cocaine use in the United States is 2.2% for individuals age 12 and older (0.5% among individuals ages 12–17-years, 6.2% among individuals ages 18–25 years, and 1.7% among individuals age 26 and older); 3% of men/boys and 1.4% of women/girls used cocaine in the last 12 months. Twelve-month prevalence of cocaine use is 2.3% among Whites, 2.2% among Hispanics, 1.7% among African Americans, and 1% among Asian Americans.

Estimated 12-month prevalence of methamphetamine use in the United States is 0.6% for individuals age 12 and older (0.2% among individuals ages 12–17 years, 1.1% among individuals ages 18–25 years, and 0.6% among individuals age 26 and older). Twelve-month prevalence of methamphetamine use is 0.8% among men/boys and 0.4% among women/girls. Twelve-month prevalence of methamphetamine use is 0.7% among Whites, 0.6% among Hispanics, 0.2% among African Americans, and 0.1% among Asian Americans. Small sample sizes make estimating rates among American Indians/Alaskan Natives difficult.

Differential Diagnosis

Stimulant-induced mental disorders. Stimulant intoxication is distinguished from stimulant-induced mental disorders (e.g., stimulant-induced anxiety disorder, with onset during intoxication) because the symptoms (e.g., anxiety) in the latter disorders are in excess of those usually seen in stimulant intoxication, predominate in the clinical presentation, and meet full criteria for the relevant disorder.

Independent mental disorders. Salient mental disturbances associated with stimulant intoxication should be distinguished from the symptoms of schizophrenia, bipolar and depressive disorders, generalized anxiety disorder, and panic disorder as described in this manual.

Comorbidity

Given the typical overlap of stimulant intoxication with stimulant use disorder, see "Comorbidity" under Stimulant Use Disorder for more details about co-occurring conditions that are likely to be encountered.