

“How High Do They Look?”: Identification and Treatment of Common Ingestions in Adolescents **CE**

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OBJECTIVES

1. Review current patterns of illicit and licit substance use and abuse among adolescents.
2. Discuss common substances adolescents are ingesting and using to become intoxicated.
3. Review symptoms of and treatment for overdose or toxicity of common ingestions among adolescents.

ABSTRACT

Adolescents have access to a variety of legal or illicit substances that they use to alter their mood or “get high.” The purpose of this review is to provide an overview of common substances adolescents use to get high, including the illicit substances synthetic marijuana or “Spice,” salvia, MDMA, synthetic cathinones, and 2C-E. Dextromethorphan and energy drinks are easily accessible substances that teenagers abuse. The toxic effects of common ingestions and treatment of overdose is discussed to inform pediatric providers who provide care for adolescents. *J Pediatr Health Care.* (2013) 27, 135-144.

KEY WORDS

Adolescent ingestions, spice, salvia, energy drinks, dextromethorphan intoxication

A 15-year-old girl presents to Urgent Care, saying that she has had persistent vomiting for the past 4 hours. She also reports seeing double, that colors are too bright, and that she has a headache. Her parent notes that she appeared confused and was knocking things over when she tried to reach for them after arriving home from school today. Significant examination findings include heart rate, 120 beats per minute; blood pressure, 146/96 mm Hg; and pupils, 5 mm equal, with a sluggish reaction to light. A few subconjunctival hemorrhages are noted bilaterally, although the fundi are benign.

Her breath has no unusual odor. Epigastric tenderness is appreciated with hypoactive bowel sounds. Muscular abdominal wall tenderness is present from her xiphoid to pubis along the rectus. Allodynia upon palpation of her face, extremities, and trunk is noted. Her mental status examination reveals that she is anxious and confused. She repeatedly looks at her parent and asks, “Who are you?” She has emotional lability, with inappropriate episodes of hysterical laughter. The patient is unable to perform basic cognitive tests accurately; however, she is able to respond appropriately to questions with a significant delay in response. Her blood glucose level is 110 mg/dl, and results of a urine drug screen are negative. This patient subsequently is found to have a packet of potpourri in her purse and admits that she smoked it with a friend on the way home from school. The package label identifies the ingredients as CP-47.

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ADOLESCENT SUBSTANCE ABUSE

Adolescent use of alcohol and tobacco are at historically low levels, yet use of illicit and synthetic drugs among adolescents has increased. Pediatric providers are challenged with understanding the trends of use among various substances among adolescents, the presenting symptoms, and how to treat acute intoxication. This review will examine some substances that adolescents are using and provide guidance in identifying and treating intoxicated adolescents who may present for care.

Decrease in Alcohol and Tobacco Use

Two large population-based studies, the national school-based Youth Risk Behavior Survey (YRBS) (Centers for Disease Control and Prevention [CDC], 2012) and the Monitoring the Future (MTF) survey (Johnston, O'Malley, Bachman, & Schulenberg, 2012), track adolescent drug and alcohol use. In both studies it was found that current alcohol use (used in the past 30 days) among adolescents has decreased during the past 20 years. The YRBS reported a decrease in current alcohol use among students from 50% in the 1991 to 1999 report to 38.7% in 2011, and the MTF survey found a decrease in current use from 51% in 1992 to 40% in 2011 (CDC, 2012; Johnston et al., 2012). Tobacco use has demonstrated a similar downward trend in frequent daily use (20 or more cigarettes in the past 30 days). The YRBS reported a decrease from a prevalence of 12.7% to 16.8% during 1991-1999 to 6.4% in 2011, and according

to the MTF survey, daily cigarette use decreased from 28% in 1992 to 10.3% in 2011 (CDC, 2012; Johnston et al., 2012). These downward trends are encouraging.

Upward Trends in Illicit and Licit Drug Use

The use of illicit (unlawful) and licit (legal) drugs among adolescents has seen an upswing during the past 20 years. Half of all 12th graders reported ever using marijuana in national surveys, with 48.9% prevalence in the 2011 YRBS survey and 46% prevalence in the 2011 MTF survey (CDC, 2012; Johnston et al., 2012). The widespread use of marijuana may represent changing personal and societal attitudes as the debate over legalization has grown (National Institute on Drug Abuse [NIDA], 2012a). Synthetic marijuana (known as “K2” and “Spice”) emerged on the market in 2004 and has become popular with teens; 11.4% of 12th graders reported using it in the past year (Johnston et al., 2012). Adolescent use of ecstasy (MDMA) has increased during the past 5 years; according to the YRBS, 5.8% of students reported having ever used it in 2007 compared with 8.2% in 2011, with the MTF reporting a similar trend of 3.0% annual use in 2005 and 5.3% in 2011 (CDC, 2012; Johnston et al., 2012). Other commonly used illicit substances are not tracked in the national surveys, including amyl nitrate (“Poppers” or “Whippits”), the psychoactive drug 2C-E (“Europa”), the herb salvia, and synthetic cathinones, or bath salts.

A disturbing trend has emerged of adolescents using easily accessible over-the-counter (OTC) and prescription drugs, as well as household products such as hand sanitizer to alter mood. Dextromethorphan abuse, particularly the tablet form found in Coricidin HBP Cough and Cold (“CCC”) has become increasingly popular among adolescents, with the California Poison Control, American Association of Poison Control Centers (AAPCC), and Drug Abuse Warning Network (DAWN) all reporting an increase in reports of dextromethorphan toxicity and the 2011 MTF survey indicating that 5.3% of 12th graders abused cough syrup in the past year (Bryner et al., 2006; Johnston et al., 2012). Non-medical use of prescription drugs was 15.2% in the 2011 MTF survey, with 20.7% of students in the 2011 YRBS report having taken prescription drugs (e.g., OxyContin, Percocet, Vicodin, codeine, Adderall, Ritalin, or Xanax) without a prescription (CDC, 2012; Johnston et al., 2012). Another disquieting craze is the use of hand sanitizers (62% ethyl alcohol) by adolescents to get drunk (Nordqvist, 2012). Caffeine intoxication has become a relatively new concern, with recent reports of five deaths from ingesting the high-caffeine energy drink Monster Energy drink (DeNoon, 2012). The use of easily accessible mood-altering substances requires the pediatric provider to be astute and thorough when faced with a teen who appears intoxicated or whose symptoms do not match his or her story.

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