Substance Abuse Treatment
ADVISORY
Breaking News for the Treatment Field

March 2003
Volume 3
Issue 1

Inhalants

What are inhalants?

Inhalants are breathable chemical vapors or gases that produce psychoactive (mind-altering) effects when abused or misused. These include volatile organic solvents, fuel gases, nitrites, and anesthetic gases. They do not include inhaled medicinal drugs that are taken as prescribed. Once commonly referred to as "glue sniffing," inhalant abuse now includes a broad range of volatile solvents and gas products (e.g., model airplane glue, paint thinner, gasoline, and nail polish remover), aerosols (e.g., nonstick cooking spray and hair spray), anesthetics (e.g., nitrous oxide or "laughing gas" and ether), and nitrites (e.g., amyl, butyl, and isobutyl nitrites, often marketed as "poppers" or room odorizers). (Other powdered drugs, such as heroin, cocaine, and methamphetamine, can be inhaled but are not considered inhalants.) Although the chemicals involved and their effects vary, the route of administration is the common factor.

What are the most common modes of administration?

Inhalants are abused either by "sniffing" through the nose or inhaling fumes through the open mouth ("huffing") much like a smoker inhales cigarette smoke. Usually the open tube of glue, nail polish, or marker is placed close to the nose and the fumes are inhaled. People who abuse inhalants may also spray the substance into a plastic or paper bag and huff that way ("bagging") or even place the bag over the entire head. Often a product will be poured or sprayed on a piece of cloth, a rag, a towel, or a shirt sleeve or into a soda can and inhaled in that manner. Another method is to paint the fingernails with a product such as correction fluid and inhale the substance from the nails. Sometimes an aerosol substance is sprayed directly into the mouth. Substances also can be placed into alternative containers (e.g., balloon filled with nitrous oxide) or heated and then inhaled (Synergies 2002).

Who is likely to abuse inhalants?

Contrary to popular perception, people who abuse inhalants are found throughout the population and no one group can be categorized as "inhalant abusers." In 2001, more than 18.2 million Americans reported ever having used an inhalant, and 141,000 were estimated to need treatment because they were dependent on or abused inhalants. According to the 2001 National Household Survey on Drug Abuse (SAMHSA 2002d), 8.6 percent of youth between 12 and 17 had used inhalants some time in their lives. The Household Survey reported that 13.4 percent of young adults ages 18–25 had used inhalants and 7.1 percent of persons 26 and older. Lifetime prevalence by gender and race/ethnicity was 8.9% for white males, 9.8% for white females, 8.3% for Hispanic males, 7.4% for Hispanic females, 5.0% for black males, and 6.8% for black females (SAMHSA 2002a).

The categories of inhalants most frequently reported by youth were glue or toluene (3.6%) and gasoline or lighter fluid (3.0%). Among young adults, the most popular was nitrous oxide or "whippets" (9.3%) and for adults it was nitrous oxide or "whippets" (3.4%) and amyl nitrite, "poppers," Locker Room Odorizers, or "Rush" (3.4%) (SAMHSA 2002a).

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Substance Abuse and Mental Health Services Administration
Center for Substance Abuse Treatment
www.samhsa.gov

Very few people who abuse inhalants are treated in facilities that receive funds from State alcohol and drug agencies. In 2000, only 1,251 persons (0.1% of all admissions) entered treatment with a primary diagnosis of inhalant dependency. Of these inhalant clients, 72.4% were male, 65.9% were white, 16.6% were Hispanic, and 10.3% were American Indian or Alaska Native; 44% were under age 18. Some 28% reported daily use of inhalants, 26% had used inhalants by age 12, and another 30% had used by age 14; 61% had used other drugs as well as inhalants (SAMHSA 2002e).

People who abuse inhalants also seek care in emergency rooms, according to the Drug Abuse Warning Network (DAWN), which is a national sample of hospitals with 24-hour emergency departments. In 2001, 676 individuals who mentioned inhalants as a drug of abuse were seen in the DAWN sample, but in the first half of 2002 alone, 559 had been seen. Of the 2001 inhalant patients, 10% were 17 or younger, 33% were 18–25, 10% were 26–34, and 47% were 35 or older (SAMHSA 2002b).

Use of inhalants can result in death. Bowen et al. (1999) reported on 39 deaths in Virginia between 1987 and 1996 from acute voluntary exposure to inhalants. Median age was 19 years; 46% of the cases involved butane or propane. Maxwell (2001) reported 144 deaths in Texas between 1988 and 1998 in which use or abuse of inhalants was mentioned on the death certificates. Median age was 24, and 35% of the cases involved chlorofluorocarbons or Freon®. Mortality data reported to DAWN show deaths that were due to or involved inhalants: Birmingham (1), Chicago (6), Dallas (1), Louisville (1), Milwaukee (2), New Orleans (1), Oklahoma City (7), Philadelphia (2), and San Diego (2) (SAMHSA 2002c).

Why are inhalants popular?

Most inhalants are readily available, inexpensive or free, and usually legal to purchase and possess. The high is achieved instantly and lasts only about 5–15 minutes. (Pandina and Hendren 1999). Because products are easy to conceal and are useful everyday products (e.g., permanent markers, correction fluid) found in homes, offices, and schools, it is difficult to prevent access to them. Further, because abusable products are so common, many youth do not perceive them as harmful and do not understand the consequences of using them (Johnston et al. 2002).

What Types of Products Can Be Abused?

General Supplies—cements and glues; correction fluid; magic markers; solvent-based dry erase markers

Cleaning Supplies—any product in an aerosol can; aerosol air fresheners and deodorizers; computer air duster

Wood Shop—paints; varnishes; stains; paint thinner; contact cement

Art Supplies—rubber cement; printing inks; spray paints and clear finishes

Auto—degreasers; spray lubricants; "Fix-a-Flat" type products; solvents; Freon®; brake fluid; gasoline; lacquers; thinners

Health and Beauty—nail polish and nail polish remover; hair spray; deodorants

Cooking Supplies—cooking spray; whipping cream in aerosol cans; whipping cream cartridges (whippets) ■

Source: Synergies 2002, Bureau of Substance Abuse Services, Massachusetts Department of Public Health

What do inhalants do?

Inhalants provide an instant "rush" and, like alcohol, cause euphoria followed by central nervous system depression (Pandina and Hendren 1999). Deep breathing of the toxic vapors may result in losing touch with one's surroundings, a loss of self-control, violent behavior, nausea, unconsciousness, giddiness, loss of inhibition, loss of appetite, and, at higher dosages, hallucinations (Kurtzman et al.

2001; Pandina and Hendren 1999). Inhalants can cause loss of motor skills, slurred speech, heart palpitations, seizures, nausea, vomiting, diarrhea, and abdominal pain, among other things (Kurtzman et al. 2001). Signs of inhalant abuse include "huffer's rash" or drying and redness around the mouth and nose; spots or sores around the mouth; red or runny eyes or nose; paint or stains on body or clothing; chemical breath odor; drunk, dazed, or dizzy appearance; sneezing, coughing, wheezing, and excess salivation; an unexplained collection of abusable products; nausea and loss of appetite; and anxiety, excitability, and irritability (Synergies 2002).

The debilitating and lethal effects of inhalants can occur even with first use. Sudden sniffing death syndrome usually is caused by the irregular heart rate induced by inhalants; other cardiac effects are hypotension (low blood pressure), tachycardia (rapid heart beat), and bradycardia (slow heart beat). Other significant effects may include coma, seizures, brain damage, and lead poisoning (Kurtzman et al. 2001).

Additional inhalant dangers are suffocation (e.g., from bagging), fire-related injuries from inhalant combustion (especially if the inhalant is heated or a cigarette is lit in a closed area where the inhalant is being abused), and accidents related to impaired judgment, lack of motor skills, or high-risk behavior.

What are the long-term effects of inhalant abuse?

Solvents are easily absorbed from the blood into lipid-rich tissues (i.e., fatty tissues) (Kurtzman et al. 2001). Chronic inhalant abuse significantly damages the heart, lungs, kidney, liver, and peripheral nerves (Pandina and Hendren 1999); it can cause heart failure and complete hepatic and renal failure (Kurtzman et al. 2001).

Continued, chronic inhalant abuse has been associated with neurological damage (Rosenberg et al. 1988a, 1988b). People who abuse inhalants chronically have demonstrated a range of mental dysfunction, from mild cognitive impairment (e.g., lack of concentration or attention, poor memory, and poor learning skills) to severe dementia (National Institute on Drug Abuse 2000). However, studies often have not been able to answer whether or to what extent neurological dysfunction existed before inhalant abuse (Pandina and Hendren 1999). It is not clear whether the neurological effects of inhalant abuse are permanent or transitory (Jumper-Thurman and Beauvais 1992; Ron 1986). Emotional problems, including violent behavior, and mental disorders, particularly antisocial personality disorders and depression, have been associated with inhalant abuse, but "there is no plausible evidence at this time that inhalant abuse actually…causes psychiatric conditions in any direct way" (Compton et al. 1994).

Are inhalants addictive? Do they lead to further drug abuse?

Studies have reported that people who abuse inhalants can build up tolerance (Ron 1986), which requires them to increase their dosages to achieve the intoxication effect. They also can develop cravings for inhalants (Keriotis and Upadhyaya 2000). Withdrawal symptoms—sleep disturbance, nausea, tremors, and irritability, all lasting several days—have been described (Brouette and Anton 2001).

Early abuse of inhalants has been related to later use of illicit drugs, particularly heroin (Bennett et al. 2000; Johnson et al. 1995; Schutz et al. 1994). It is not clear, however, that inhalants are a "gateway" drug; rather, inhalant abuse may be a marker for risk of other drug use (Compton et al. 1994; Dinwiddie 1994).

How can people who abuse inhalants be treated?

As a group, people who abuse inhalants differ from people who abuse other drugs. They often have multiple problems, such as polydrug abuse, a chaotic family life, low self-esteem, poor academic records, personality disorders, and poor cognitive function, and they may present with neurological deficiencies. Thus, treatment is more complicated and requires more resources than for people who abuse other

drugs. Many drug and alcohol abuse treatment programs do not accept people who abuse inhalants, and those that do consider treatment ineffective for such clients (Dinwiddie 1994; Malesevich and Jadin 1995). There are few references to evidence-based treatment protocols in the literature (National Inhalants Prevention Coalition 1997; Reidel et al. 1995). However, the Substance Abuse and Mental Health Services Administration (SAMHSA), through its Center for Substance Abuse Treatment (CSAT) and Center for Substance Abuse Prevention (CSAP), has funded an Inhalant Resource Center that will provide resource guides and make recommendations for additional materials concerning the treatment of people who abuse inhalants.

Taking into account problems unique to people who abuse inhalants, a number of treatment approaches have been suggested. Because people who abuse inhalants typically consume a variety of inhalants, a detailed history and thorough physical examination is especially important to identify specific substances abused and their physical effects, followed by medical treatment of physical conditions. Inhalants can stay in the body for weeks; therefore detoxification periods could extend for a month (Jumper-Thurman et al. 1995). Abusers often are not ready to begin therapy until detoxification is complete, and they often require therapy for a long duration (possibly as long as 2 years) (Jumper-Thurman and Beauvais 1992). Because people who abuse inhalants tend to have a short attention span and difficulty with complex thinking, initial therapy sessions should be short (e.g., 15–20 minutes) (Jumper-Thurman and Beauvais 1992).

Treatment programs are encouraged to scan their premises for products that clients could inhale to get high while in treatment. A nonsolvent, nonaerosol-based product should be substituted when possible; if there is no substitute, use of these products should be closely monitored by staff.

Family involvement in treatment is especially important for young people. Intervention to improve parenting or bonding skills or treatment of parental substance abuse may be needed (Jumper-Thurman and Beauvais 1992; Brouette and Anton 2001). Because inhalant abuse is often a group activity, especially among youth, abusers need to become part of new peer groups that do not abuse inhalants or other drugs (Jumper-Thurman and Beauvais 1992). However, people who abuse inhalants are looked down on by people who abuse other drugs, so group therapy should be introduced into treatment gradually (Malesevich and Jadin 1995).

Treatment plans should take into account that relapse is common among people who abuse inhalants (Reidel et al. 1995). It may be helpful to introduce abusers to safe and healthy forms of recreation. Aftercare and followup are particularly important for this group of abusers (Jumper-Thurman and Beauvais 1992; Texas Commission on Alcohol and Drug Abuse 1997) and may involve multiple community resources (schools, faith-based organizations, recreation programs, community centers, etc.). Finally, people who abuse inhalants often need help developing basic life skills (e.g., in hygiene, nutrition, school attendance, and job skills) (Jumper-Thurman and Beauvais 1992).

Education about the effects and dangers of inhalants may help people abstain from abusing inhalants. Education is a key to primary prevention of inhalant abuse. A study that found abuse among Native Americans decreasing since the mid-1990s attributed the change to targeted prevention efforts in that population (Beauvais et al. 2002). Because inhalant abuse starts early, early education (e.g., in elementary school) is needed (Dinwiddie 1994; Kurtzman et al. 2001). However, raising awareness by describing all the potential inhalants that are subject to abuse may have the unintended effect of increasing abuse among adolescents (Beauvais et al. 2002). ■

What Constitutes Effective Treatment of People Who Abuse Inhalants?

People who abuse inhalants are thought to be an easily overlooked and undertreated population. In many ways, they are like other people who are chemically dependent, but they also have unique treatment needs. Currently, treatment protocols are based on limited experience and research, primarily with disadvantaged Native American and Hispanic populations in Southwestern and Midwestern United States.

The checklist below includes questions you should consider as you review treatment protocols or guide program development.

- ❑ Do you provide information about inhalant abuse to referral sources? Do referral sources understand the dangers of inhalant abuse and the need for intervention? People who abuse inhalants are a hidden population. They rarely seek treatment, and inhalant abuse is often undetected because it "is not on the radar screen."
- ❑ Do you rigorously assess for inhalant abuse? Do you know what inhalants are abused and how they are abused? Do you know patterns of abuse so that you can converse with clients who may be reluctant and embarrassed to discuss their abuse? Do you ask clients why they are attracted to inhalants (very quick acting, short duration, free or low cost, easy availability, not prosecutable, hard to test for, like the high, often overlooked as a drug)?
- ❑ Does your program allow for adequate detoxification? Depending on type of product abused and length of abuse, detoxification from the acute effects of solvents and gases may last for 2 to 6 weeks. During this time, the program may need to make adjustments.
- ❑ Do you thoroughly assess for cognitive functioning, neurological damage, and physical effects? Levels of physical and cognitive dysfunction vary greatly, but some people who abuse inhalants show high levels of deterioration. Physical damage needs to be assessed early, but cognitive and neurological evaluations are often postponed until after detoxification. In some treatment populations, a high percentage of people who abuse inhalants have experienced physical and sexual abuse.
- ❑ Does treatment include specific inhalant-focused components? Do you provide inhalant abuse prevention education? Many people in treatment are not aware of the toxicity and lethality of inhalants; they are, after all, toxins, poisons, pollutants, and fire hazards. Do you address life-skills issues? Some people start abusing inhalants as early as elementary school; along with the neurological damage, early abuse can result in poorly developed life and academic skills. Do you take into account cognitive deficits by using brief (20-minute) and concrete interventions?
- ❑ Does family involvement include attending education sessions about inhalants, removing inhalants from the home, and providing extra support and supervision that clients may need? Treatment programs need to thoroughly assess the stability, structure, and dynamics of the family. If family support is limited, programs should consider alternatives such as foster care.
- ❑ Are inhalants accessible in your treatment program? Do you have a policy to secure dry erase markers, nail polish and remover, correction fluid, solvent-based glues, and aerosol products (such as deodorants, hair spray, shaving cream, cleaning products, and canned whipped cream) in your program?
- ❑ Are staff members knowledgeable about inhalant abuse? Do they have realistic expectations for recovery? To effectively treat inhalant abuse, counselors need to understand the unique aspects of the problem, including the slow rate of recovery.
- ❑ Does your aftercare planning take into account the special problems of inhalant abuse? These include easy availability of inhalants, residual cognitive impairment, and poor social functioning. Has a school-based advocate or counselor been included in the plan? ■

Sources: Jumper-Thurman and Beauvais 1992; Jumper-Thurman et al. 1995; Texas Commission on Alcohol and Drug Abuse, 1997. The checklist was developed by Howard C. Wolfe, CASPAR Youth Services, 661 Massachusetts Avenue, Suite 14, Arlington, MA 02476; hwolfe@wolfe411.org; 781-643-7272. For more information, visit the Massachusetts Inhalant Abuse Task Force Web site at www.state.ma.us/dph/inhalant.

References

Beauvais, F.; Wayman, J.C.; Jumper-Thurman, P.; Plested, B.; and Helm, H. "Inhalant Abuse Among American Indian, Mexican American, and Non-Latino White Adolescents." *American Journal of Drug and Alcohol Abuse* 28(1):171–187, 2002.

Bennett, M.E.; Walters, S.T.; Miller, J.H.; and Woodall, W.G. "Relationship of Early Inhalant Use to Substance Use in College Students." *Journal of Substance Abuse* 12:227–240, 2000.

Bowen, E.E.; Daniel, J.; and Balster, R.L. "Deaths Associated with Inhalant Abuse in Virginia from 1987 to 1996." *Drug and Alcohol Dependence* 53(3):239–45, 1999.

Brouette, T., and Anton, R. "Clinical Review of Inhalants." *American Journal on Addictions* 10:79–94, 2001.

Compton, W.M., III; Cottler, L.B.; Dinwiddie, S.H.; Spitznagel, E.L.; Mager, D.E.; and Asmus, G. "Inhalant Use: Characteristics and Predictors." *American Journal on Addictions* 3:263–272, 1994.

Dinwiddie, S.H. "Abuse of Inhalants: A Review." *Addiction* 89:925–939, 1994.

Johnson, E.O.; Schutz, C.G.; Anthony, J.C.; and Ensminger, M.E. "Inhalants to Heroin: A Prospective Analysis From Adolescence to Adulthood." *Drug and Alcohol Dependence* 40:159–164, 1995.

Johnston, L.D.; O'Malley, P.M.; and Bachman, J.G. *Monitoring the Future: National Survey Results on Drug Use, 1975–2001, Volume I: Secondary School Students.* NIH Pub. No. 02-5106. Rockville, MD: National Institute on Drug Abuse, 2002.

Jumper-Thurman, P., and Beauvais, F. "Treatment of Volatile Solvent Abusers." In: Sharp, C.W.; Beauvais, F.; and Spence, R., eds. *Inhalant Abuse: A Volatile Research Agenda.* NIDA Research Monograph 129. NIH Pub. No. 93-3475. Rockville, MD: National Institute on Drug Abuse, 1992. Available at www.drugabuse.gov/pdf/monographs [accessed February 2003].

Jumper-Thurman, P.; Plested, B.; and Beauvais, F. "Treatment Strategies for Volatile Solvent Abusers in the United States." In: Kozel, N.; Sloboda, Z.; and De La Rosa, M., eds. *Inhalant Abuse: An International Perspective.* NIDA Research Monograph 148. NIH Pub. No. 95-3831. Rockville, MD: National Institute on Drug Abuse, 1995. Available at www.drugabuse.gov/pdf/monographs [accessed February 2003].

Keriotis, A.A., and Upadhyaya, H.P. "Inhalant Dependence and Withdrawal Symptoms" (Letter). *Journal of the American Academy of Child and Adolescent Psychiatry* 39(6):679–680, 2000.

Kurtzman, T.L.; Otsuka, K.N.; and Wahl, R.A. "Inhalant Abuse by Adolescents." *Society for Adolescent Medicine* 28:170–180, 2001.

Malesevich, D., and Jadin, T. "Of Huffers and Huffing: A Survey of Adolescent Inhalant Abuse." In: Center for Substance Abuse Treatment. *Treating Alcohol and Other Drug Abusers in Rural and Frontier Areas: 1994 Award for Excellence Papers.* Technical Assistance Publication 17. DHHS Pub. No. (SMA) 95-3054. Rockville, MD: Substance Abuse and Mental Health Services Administration, 1995, pp. 69–72.

Maxwell, J.C. "Deaths Related to the Inhalation of Volatile Substances in Texas: 1988–1998." *American Journal of Drug and Alcohol Abuse* 27(4):689-698, 2001.

National Inhalants Prevention Coalition. "Making a Difference: Inhalant Treatment Facility Helps Kickapoo Tribe Fight Inhalant Addiction." *Viewpoint* Summer:2–3, 7, 1997.

National Institute on Drug Abuse (NIDA). *Inhalant Abuse.* Research Report Series. NIH Pub. No. 00-3818. Rockville, MD: NIDA, July 2000.

Pandina, R., and Hendren, R. "Other Drugs of Abuse: Inhalants, Designer Drugs, and Steroids." In: McCrady, B.S., and Epstein, E.E., eds. *Addictions: A Comprehensive Guidebook.* New York: Oxford University Press, 1999, pp. 171–184.

Reidel, S.; Herbert, T.; and Byrd, P. "Inhalant Abuse: Confronting a Growing Challenge." In: Center for Substance Abuse Treatment. *Treating Alcohol and Other Drug Abusers in Rural and Frontier Areas: 1994 Award for Excellence Papers.* Technical Assistance Publication 17. DHHS Pub. No. (SMA) 95-3054. Rockville, MD: Substance Abuse and Mental Health Services Administration, 1995, pp. 1–12.

Ron, M.A. "Volatile Substance Abuse: A Review of Possible Long-Term Neurological, Intellectual and Psychiatric Sequelae." *British Journal of Psychiatry* 148:235–246, 1986.

Rosenberg, N.L.; Kleinschmidt-DeMasters, B.K.; Davis, K.A.; Dreisbach, J.N.; Hormes, J.T.; and Filley, C.M. "Toluene Abuse Causes Diffuse Central Nervous System White Matter Changes." *Annals of Neurology* 23(6):611–614, 1988a.

Rosenberg, N.L.; Spitz, M.C.; Filley, C.M.; Davis, K.A.; and Schaumburg, H.H. "Central Nervous System Effects of Chronic Toluene Abuse—Clinical, Brainstem Evoked Response and Magnetic Resonance Imaging Studies." N*eurotoxicology and Teratology* 10(5):489–495, 1988b.

SAMHSA (Substance Abuse and Mental Health Services Administration), Office of Applied Studies. Detailed Tables. *Results from the 2001 National Household Survey on Drug Abuse: Volume III.* Rockville, MD: U.S. Department of Health and Human Services, 2002a. Available at www.samhsa.gov/oas/nhsda.htm and at www.DrugAbuseStatistics.SAMHSA.gov [accessed March 2003].

SAMHSA, Office of Applied Studies. *Emergency Department Trends From the Drug Abuse Warning Network, Preliminary Estimates January–June 2002.* DAWN Series D-22, DHHS Pub. No. (SMA) 03-3779. Rockville, MD: U.S. Department of Health and Human Services, 2002b.

SAMHSA, Office of Applied Studies. *Mortality Data From the Drug Abuse Warning Network, 2001.* DAWN Series D-23, DHHS Pub. No. (SMA) 03-3781. Rockville, MD: U.S. Department of Health and Human Services, 2002c.

SAMHSA, Office of Applied Studies. Technical Appendices and Selected Data Tables. *Summary of Findings from the 2001 National Household Survey on Drug Abuse: Volume II.* Rockville, MD: U.S. Department of Health and Human Services, 2002d.

SAMHSA, Office of Applied Studies. *Treatment Episode Data Set (TEDS): 1992–2000.* National Admissions to Substance Abuse Treatment Services. DASIS Series S-17, DHHS Pub. No. (SMA) 02-3727, Rockville, MD: U.S. Department of Health and Human Services, 2002e.

Schutz, C.G.; Chilcoat, H.D.; and Anthony, J.C. "The Association Between Sniffing Inhalants and Injecting Drugs." *Comprehensive Psychiatry* 36(2):99–105, 1994.

Synergies. *The 11th Annual NIAPW Local Coordinator's Kit, March 16–22, 2003. Effecting Change Together.* Austin, TX: Synergies, 2002.

Texas Commission on Alcohol and Drug Abuse. *Understanding Inhalant Users: An Overview for Parents, Educators, and Clinicians.* Revised Edition. Austin, TX: Texas Commission on Alcohol and Drug Abuse, 1997. Available at www.tcada.state.tx.us/research/inhalants [accessed February 2003].

March 2003, Volume 3, Issue 1

Substance Abuse Treatment ADVISORY

Resources for Additional Information

Substance Abuse and Mental Health Services Administration
5600 Fishers Lane
Rockville, MD 20857
Web: www.samhsa.gov
Phone: 301-443-8956

National Inhalant Prevention Coalition
Web: www.inhalants.org
Phone: 800-269-4237
E-mail: nipc@io.com

National Institute on Drug Abuse
National Institutes of Health
6001 Executive Boulevard, Room 5213
Bethesda, MD 20892-9561
Web: www.drugabuse.gov
Phone: 301-443-1124

Office of National Drug Control Policy
Drug Policy Information Clearinghouse
P.O. Box 6000
Rockville, MD 20849-6000
Web: www.whitehousedrugpolicy.gov
Phone: 800-666-3332
E-mail: ondcp@nchrs.org

Substance Abuse Treatment Advisory

Substance Abuse Treatment Advisory—published on an as-needed basis for treatment providers—was produced by Johnson, Bassin & Shaw, Inc., under contract 270-99-7072, for the Center for Substance Abuse Treatment (CSAT), of the Substance Abuse and Mental Health Services Administration (SAMHSA), U.S. Department of Health and Human Services (HHS). Edwin M. Craft, Dr.P.H., LCPC, is the CSAT point of contact for the publication. The content of this publication does not necessarily reflect the views or policies of SAMHSA or HHS. For further information or to request information about *Substance Abuse Treatment Advisory*, please contact Dr. Craft at *ecraft@samhsa.gov*.

Electronic Access and Copies of Publication: This publication can be accessed electronically through the Internet at *www.csat.samhsa.gov*. Additional free print copies can be ordered from SAMHSA's National Clearinghouse for Alcohol and Drug Information at 1-800-729-6686.

Recommended Citation: Center for Substance Abuse Treatment. "Inhalants." *Substance Abuse Treatment Advisory*. Volume 3, Issue 1, March 2003.

National Clearinghouse for Alcohol and Drug Information
Substance Abuse and Mental Health Services Administration
U.S. Department of Health and Human Services
7079 Oakland Mills Road
Columbia, MD 21046

CSAT Center for Substance Abuse Treatment
SAMHSA Substance Abuse and Mental Health Services Administration

DHHS Publication No. (SMA) 03-3788
NCADI Publication No. MS922
Printed 2003