

# SELF-STUDY COURSE

## Inhalant Abuse

August 2003

4.0 Training Hours

This self-study course was developed by Jennifer Kipp-Wissink for the Alaska Center for Resource Families. The following materials were used in developing this self-study course:

**About Inhalants**, National Inhalant Prevention Coalition ([www.inhalants.com](http://www.inhalants.com))

**Frequently Asked Questions About Inhalants**, National Inhalant Prevention Coalition ([www.inhalants.com](http://www.inhalants.com))

Information on Inhalants Handouts, a joint project by the FSIN Solvent Coordinator, White Buffalo Youth Inhalant Treatment Centre, and Yorkton Tribal Council Community Based Training Project.

**Inhalant Abuse**, National Institute on Drug Abuse, Research Report Series ([www.nida.nih.gov](http://www.nida.nih.gov))

**Inhalant Prevention Resource Guide**, Virginia Department of Education, September 2000

**“Inhalant Treatment: What’s Out There,”** Viewpoint Newsletter, National Inhalant Prevention Coalition, Winter 1998

**Inhalants Fact Sheet**, Life Education Network ([www.lec.org](http://www.lec.org))

**“Poison Center Notes Early Childhood Use,”** Viewpoint Newsletter, National Inhalant Prevention Coalition, Summer 1997

**“Practical EMS,”** Viewpoint Newsletter, National Inhalant Prevention Coalition, Winter 1998

**Substance Abuse Self Study Course.** Alaska Center for Resource Families

**Tips for Teens About Inhalants**, The National Clearinghouse for Alcohol and Drug Information ([www.health.org](http://www.health.org))



**Alaska Center for Resource Families**  
815 Second Avenue, Suite 202  
Fairbanks, Alaska 99701

1-800-478-7307 or (907) 479-7307

[www.acrf.org](http://www.acrf.org)

# Inhalant Abuse

## Part One: Introduction to Inhalants

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When people hear the word “substance abuse,” most think of drug and alcohol abuse and not inhalants. As such, caregivers often ignore the dangers from common household products that contain dangerous fumes, vapors, and gases, and instead focus concern on alcohol, nicotine, marijuana, cocaine, and other types of drug use. National surveys have shown that more than twelve and a half million Americans have abused inhalants at least once in their lives. People are quickly discovering that common household products are inexpensive, legal to obtain, and an easy way to get high.

Inhalants are often among the first substance that young children use. One national survey indicates about 6 percent of U.S. children have tried inhalants by the time they reach the fourth grade. Inhalants are also one of the few substances abused more by younger children than by older children. A one-year study of two poison control centers revealed that intentional use of inhalants can appear very early in childhood, even as early as age four.

Inhalant use is highly addictive and extremely dangerous. Even a single session of inhalant use can result in death. Inhalant use can disrupt heart rhythms resulting in cardiac arrest or can lower oxygen levels enough to cause suffocation. Regular abuse of these inhalants can also result in harm to vital organs such as the brain, the heart, the kidneys, the liver, and the lungs.

During the past ten to fifteen years, the seriousness of inhalant abuse has been brought into the forefront in our nation. Research has begun to show the severity of inhalant use in children and adolescents, and awareness campaigns for prevention have been started. This self-study will help you learn more about inhalant abuse in children and adolescents and what you as a foster parent can do to help.

“We’d like to introduce you to the cocaine of the nineties. Your child may already be familiar [with them]. Inhaling fumes from products like hairspray, nail polish, and spray paint is so popular, nearly one in five kids has done it by eighth grade. It’s even as popular as marijuana. And anytime these products are ‘huffed,’ they can kill.”

Quote from the National Inhalant Prevention Coalition website

## **WHAT ARE INHALANTS?**

Inhalants are substances that produce chemical vapors that can be inhaled to “get high,” or produce a mind-altering effect. Although there are other types of abused substances, such as cocaine, that can be inhaled, the term “inhalants” refers only to substances that are abused primarily by inhalation. They rarely, if ever, are swallowed or injected to produce a “high.”

More than 1,000 everyday products have the potential to be abused. Most abused products, when used as designed, are legal, useful, and serve many needs in our society. Some products carry warning labels for appropriate use and safety and warn against inhalation and other risks. These products, or “inhalants,” can be found at home, in the garage or workshop, at school, and in work settings.

There are generally four categories of inhalants based on the form in which they are often found in household, industrial, and medical products:



### **Solvents**

This category refers to liquids that produce harmful vapors at room temperatures, and are comprised of a multitude of inexpensive, easily available products used for common household and industrial purposes. Examples include (not a comprehensive list)

Gasoline	Paint thinner	Nail polish remover
Markers	Correction fluids	Paint stripper
Glues	Rubber cement	Ammonia
Dry-cleaning fluids	Industrial chemicals	Degreasers
Shellac	Lighter fluid	Household cleaners

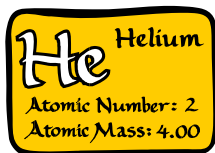
### **Aerosols**

This category refers to sprays that contain propellants and solvents. Aerosol users primarily seek the propellant gases or the solvents and not usually the products themselves. In some cases, however, the smell and taste of specific products may attract some users. Examples include (not a comprehensive list)

Spray paint	Hair spray	Deodorant spray
Cooking spray	Fabric protector spray	Spray air fresheners
Furniture wax	Oven cleaner	Insecticide spray
Dusting spray	Spray lacquer	Asthma spray



## WHAT ARE INHALANTS? (CONTINUED)



### Gases

This category includes medical anesthetics as well as gases used in household or commercial products. The list below will list the gas and examples of where the gas is found or used (not a comprehensive list)

<u>Name of Gas</u>	<u>Where found or used</u>
Butane	Fuel for lighters and sold as lighter fluid
Ether	Medical anesthetic
Freon	Used in air conditioners and refrigerants
Chloroform	Medical anesthetic
Halothane	Medical anesthetic
Nitrous Oxide	Sometimes referred to as the “laughing gas.” Used as a whipped cream propellant and a medical anesthetic
Propane	Used for cooking and heating
Helium	Used to inflate balloons

### Nitrites

This category is often considered a special class of inhalants. Most other inhalants (described above) act directly on the central nervous system and are used to alter mood. Nitrates act primarily to dilate blood vessels and relax the muscles. It is thought that nitrites are used primarily as sexual enhancers. The following are types of nitrites and where they are found



<u>Name of Nitrite</u>	<u>Where found or used</u>
Cyclohexyl Nitrite	■ Found in room odorizers
Isoamyl (Amyl) Nitrite	■ A legitimate medication once prescribed for circulatory problems. It is still used in certain diagnostic procedures and is prescribed to some patients for heart pain. Illegally obtained amyl nitrite is often called “poppers” or “snappers.”
Isobutyl (Butyl) Nitrite	■ An illegal substance that is often packaged and sold in small bottles. Butyl nitrite is illegal to buy, sell, or possess. Sometimes referred to as “poppers,” “rush,” “climax,” or “locker room.”

## WHAT CHEMICALS ARE FOUND IN INHALANTS?

Solvents and other inhalant products contain many different chemicals. While there are literally over a thousand of these products, the following table summarizes some of the harmful chemicals in some everyday products.



	<u>Product</u>	<u>Harmful Chemical/s</u>
<b>Adhesives</b>	Airplane glue	toluene, ethyl acetate
	Rubber cement	hexane, toluene, methyl chloride, acetone, methyl ethyl ketone, methyl butyl ketone
<b>Aerosols</b>	Spray paint	butane, propane, fluorocarbon, hydrocarbons, toluene, trichloroethylene
	Hairspray	butane, propane, fluorocarbons
	Spray deodorant/air fresheners	butane, propane, fluorocarbon
	Fabric protection spray	butane, trichloroethane
	Asthma spray	Fluorocarbon
<b>Cleaning Products</b>	Degreasers	tetrachloroethylene, trichloroethane, methanol, trichloroethylene
	Spot removers	Tetrachloroethylene, trichloroethane, xylene, petroleum distillates
	Dry cleaning fluid	Tetrachloroethylene, trichloroethane
<b>Solvents</b>	Nail polish remover	Acetone, ethyl acetate, toluene
	Paint thinner	Toluene, methylene chloride, methanol, acetone
	Correction fluid	Toluene, methylene, methanol, trichloroethylene
	Gasoline	Butane
	Lighter fluid	Butane, isopropane
	Paint stripper	Toluene, methylene chloride, methanol
<b>Food Products</b>	Whippets	Nitrous oxide
	Canned whipped cream	Nitrous oxide

# Inhalant Abuse

## Part Two: Inhalant Abuse in Children and Teens

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### **WHY ARE INHALANTS ABUSED?**

Inhaling fumes from products like hairspray, nail polish, and spray paint is so popular; nearly one in five children have tried inhalants by the time they reach the eighth grade. Inhalant use has become popular for a variety of reasons including:

- **Availability**

There is almost an inexhaustible supply of inhalants since over 1,000 common household products can be abused. Inhalant products do not have to be obtained by going to a “dealer.” They are universally available and can be found at home, in the garage or workshop, at school, and in work settings. They can also be easily purchased or shoplifted at grocery stores, convenience stores, home improvement centers, auto supply stores, gas stations, etc. Availability leads the list of reasons why children and teens may select to use inhalants.

- **Legal**

Most merchants are unaware of the abuse potential of products that contain chemicals and poisons. Many do not question quantity sales or know to restrict access to products. Not all states have laws prohibiting sale and/or use of inhalants. States that do have laws prohibiting use of inhalants and sale of products to minors have problems enforcing the laws as inhalant use is difficult to detect. Legal consequences are usually minimal.

- **Low Cost**

Inhalant products are free or generally inexpensive. Correction fluid, nail polish remover, butane lighters, spray paint, etc., often costs less than \$3. Children and teens may not even have to purchase the products if they are able to use what they find at school, home, friends’ homes, workplace, or parents’ workplaces.



- **Difficult to Detect**

Since inhalants are not illicit drugs, inhalants can be very difficult to detect and identify. Standard urine screens and blood tests will not usually detect inhalant chemicals. Special tests, such as blood-gas tests, can be used, but they must be administered within a matter of a few hours after the inhalant/s are used and can be very expensive.

## WHY ARE INHALANTS ABUSED? (CONTINUED)

- **Easy to Conceal**

Most inhalant products can be hidden and concealed very easily. Small quantities of products can be transferred to small containers that can be hidden in pockets, backpacks, socks, etc.

- **Unrecognized Hazards**

Children and teens who abuse inhalants are usually unaware of the dangers involved. Products are legal and abuse is not widely discussed. Inhalant deaths are rarely identified or publicized, so children and teens don't recognize the fatal consequences.

- **Immediate and Short-Acting Effects**

Inhalants' effects are usually felt immediately. Other substances, such as pills or alcohol, can take up to a half an hour for the effects to be felt. Effects are also short-lived and can last anywhere from sixty seconds to five minutes after inhalation. These immediate and short-lived effects appeal to children and teens as they are able to experience a high, but due to the short-acting effects, detection is difficult.



- **Paraphernalia**

Inhalant use does not require paraphernalia such as hypodermic needles, crack pipes, etc. which are beyond the reach of most children and teens. Inhalant users often utilize easily obtainable items such as plastic or paper bags, rags, bandanas, empty pop cans, etc. These items are rarely identified by adults as inhalant paraphernalia.

- **Social Activity**

Children and teens often learn how to use inhalants through role modeling or social activity. Older siblings may show younger ones how to use. Friends may use peer pressure for other friends to try it.

## HOW ARE INHALANTS USED?



Inhalants can be breathed in through the nose or the mouth in a variety of ways. Individuals who use inhalants do so in various ways. Inhalant methods will vary by area, age, resource availability, the type of product, and the experience of the inhalant user. The two main ways of using inhalants include “sniffing” and “huffing.” Sniffing refers to the process of sniffing fumes, gases, or vapors through the nose. Huffing refers to the process of breathing in fumes, gases, or vapors through the mouth. Some reported methods of inhalant abuse include:

- Sniffing or huffing an inhalant product directly from the container or source (such as markers, gasoline cans, glue)
- Sniffing/huffing the inhalant product in a small-enclosed space like a closet, cardboard shipping carton, steam bath, car, etc.
- Spraying or pouring the inhalant product into a plastic or paper bag and holding the bag over the face
- Filling a plastic bag with freon gas from an air conditioner and sniffing or huffing the gas
- Spraying gas such as nitrous oxide or butane into a heavyweight balloon and huffing the gas
- Inverting a spray can and inhaling the gas propellant only
- “Painting” an inhalant product onto fingernails and inserting nails in the nose or mouth to breathe the fumes
- Pouring the product onto a collar, cuffs, sleeves, and then raising clothing to the face to huff or sniff
- Transferring an inhalant product onto a rag, scarf, bandana, handkerchief, cloth, or baby diaper and then holding or tying the inhalant soaked item over the face or inserting the item into the mouth to inhale the fumes
- Soaking cotton balls, swabs, etc. in an inhalant product and then placing the item in the nose to inhale the fumes
- Transferring and inhalant product into an empty container such as a “pop” can, camera film canister, etc., and then huffing or sniffing the fumes



Inhaled chemicals are rapidly absorbed through the lungs into the bloodstream and are then quickly distributed to the brain and other vital organs. Within minutes of inhalation, the person experiences an initial “high” and then experiences effects similar to alcohol intoxication such as drowsiness, disinhibition, lightheadedness, and agitation. Other effects can include loss of sensation, slurred speech, and inability to coordinate movements, lethargy, depressed reflexes, general muscle weakness, headache, confusion, euphoria, hallucinations, and delusions.

Intoxication from inhalants usually lasts only a few minutes. As such, inhalant abusers will usually try to prolong the high by continuing to inhale repeatedly over the course of several hours. This practice of repeated usage is dangerous and can result in loss of consciousness and death. Common side effects of inhalant use are nausea and vomiting.



## WHAT ARE THE EFFECTS OF INHALANT USE?

Inhalant use can have many damaging effects on the user. Nearly all inhalants produce effects similar to alcohol, which acts to slow down body functions, yet the user feels stimulated. Immediate effects of inhalant use may include the following:

- Potential for “Sudden Sniffing Death” during any inhaling session, even for the first-time user.
- Nausea or vomiting
- Loss of appetite
- Bad breath
- Double vision
- Runny or bloody nose
- Lack of coordination
- Feeling and looking tired
- Eye irritation
- Sneezing and/or coughing
- Diarrhea
- Headache
- Chest pains
- Ringing in the ears
- Erratic heart beat



Long-term effects from prolonged inhalant use can include:

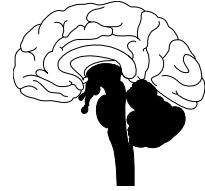
- Short-term memory loss
- Hearing loss
- Central nervous system damage
- Bone marrow and muscle damage
- Brain, liver, lung, and kidney damage/impairments
- Decreased physical activity
- Hand or body tremors
- Impaired respiratory system
- Blood abnormalities
- Decreased or loss of sense of smell
- Lack of coordination
- Sores/rash around mouth and nose
- Weight loss
- Disorientation
- Inattentiveness
- Irritability and restlessness
- Possible aggressive behavior
- Depression
- Fatigue

## **HOW DO INHALANTS DAMAGE THE BODY AND BRAIN?**

Inhalant abusers risk an array of devastating medical consequences. Inhalants can damage the following area of the body and brain:

### **Brain:**

Many inhalants can damage brain tissue and cause brain cell death. Damage to the following areas of the brain may have drastic results including:



### **Cerebral Cortex:**

Cellular death in the cerebral cortex can cause permanent personality change, memory impairment, hallucination, and learning disabilities.

### **Cerebellum:**

Damage to the cerebellum can result in loss of coordination, slurred speech, tremors, and uncontrollable shaking.

### **Ophthalmic Nerve:**

Certain chemicals can affect this nerve resulting in sight disorders

### **Body:**

The body is affected in many ways by inhalant abuse. Damage to the following areas of the body can have drastic results including:

### **Lungs:**

Repeated use of inhalants can cause lung damage. Inhalant use can also result in suffocation as the inhaled gases, fumes, or vapors take up the space in the lungs where oxygen is needed.

### **Heart:**

Inhalant use can disturb the heart's normal rhythms to the point of cardiac arrest (sudden sniffing death syndrome).

### **Liver**

Use of aerosol paints, correctional fluid, and cleaning (products that contain trichloroethylene) can cause liver tissue damage.

### **Kidney:**

Use of some inhalants (those containing toluene) may impair the kidney's ability to control the amount of acid in the blood resulting in the development of kidney stones.



## **HOW DO INHALANTS DAMAGE THE BODY AND BRAIN? (CONTINUED)**

### **Blood:**

Some inhalants block the ability of the blood to distribute oxygen to the rest of the body.

### **Muscles:**

Chronic inhalant use can result in reduced muscle tone and strength. It can also lead to the “wasting” or deterioration of muscle tissue.

### **Bone Marrow:**

Repeated use of gasoline can result of bone marrow damage, which may result in leukemia.

## **HOW CAN INHALANT USE CAUSE DEATH?**

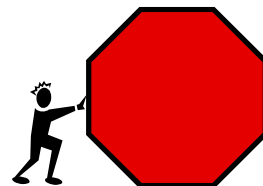
Inhalant use is extremely dangerous as even the first time of using inhalants can result in death. Inhalant abuse can cause death by:



- 1) “Sudden Sniffing Death” – prolonged sniffing can produce irregular and rapid heart rhythms, even cardiac arrest.
- 2) Asphyxiation – repeated inhalations results in high concentrations of inhaled fumes in the lungs, therefore displacing the available oxygen in the lungs
- 3) Suffocation – inhalers who use plastic bags to sniff or huff may block air from entering the lungs
- 4) Choking – inhaling substances may cause the inhaler to vomit. Choking can occur from the inhalation of vomit after inhalant use
- 5) Fatal injuries – persons under the influence of inhalants may exhibit careless and dangerous behaviors that can result in fatal accidents or other life-threatening dangerous situations.

## **WHAT SIGNS OF INHALANT USE CAN I LOOK FOR?**

Early intervention is crucial to assure that the health and safety of an inhalant user is not at risk. Children and teens who use inhalants tend to exhibit the early signs and symptoms any other form of substance abuse. These can include:



- Change in choice of friends and peer group
- Sudden drop in grades or failing grades
- Truancy
- Unruly school behavior
- Lack of appetite, weight loss
- Mood swings
- Withdrawal from family and friends
- Apathy
- Depression

The above signs do not by themselves indicate inhalant abuse; however, they should be a cause of concern. If the above early warning signs are present, the youth should be referred for assistance. If you notice any of the above you should also watch for the following that can indicate a possible inhalant abuse problem:

### **Physical Condition**

- “Contact dermatitis” – a red, pimply rash around the nose and/or mouth.
- Spots or sores around the mouth
- Runny nose or other cold-like symptoms
- Chemical breath odor or chemical odor on clothing
- Coordination difficulties
- Drunk, dazed, or dizzy appearance
- Disorientation
- Nausea, loss of appetite
- Paint or stains on body or clothing
- Anxiety, excitability, irritability

### **Products and/or Paraphernalia**

- Plastic/paper bags or balloons with chemical stains or smell
- Socks, rags, scarves, bandanas, handkerchiefs, cloths, cotton balls/swabs, or baby diapers with a chemical odor
- Empty spray cans or tubes of glue
- Balloons smelling of chemicals
- Empty pop cans or other small containers that smell like chemicals



## **WHAT SIGNS OF INHALANT USE CAN I LOOK FOR? (CONTINUED)**

### **Social Changes**

- Increased isolation from family and friends
- Increased defensiveness
- Peer group changes

### **Withdrawal Symptoms**

- Stomach and muscle cramps
- Excessive sweating
- Hallucinations
- Headaches
- Chills
- Nausea
- Nervous twitching
- Paranoid behavior

If you notice any of the above signs, do not hesitate to call for help. Inhalant abuse is very damaging and potentially deadly. Close supervision and intervention as soon as possible is crucial.

“Unless you know what to look for, the signs of sniffing are almost invisible. If your child has paint stains on his fingers and mouth, excessive vomiting and watery eyes, he may be inhaling the fumes from products like spray paint, nail polish and gasoline. Nearly one in five kids have abused them by the seventh grade.”

Quote from the National Inhalant Prevention Coalition website

# Inhalant Abuse

## Part Three: Treatment and Intervention

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### **WHAT SHOULD I DO IF I SUSPECT THAT MY FOSTER CHILD HAD BEEN USING INHALANTS?**

If you suspect that your foster child is abusing inhalants, ask for help. Call your child's social worker to report your concerns and create a safety plan. Insist on an assessment or screening if it is available. Other safety measures can include:

- 1) Remove or lock up potentially abuseable products and discuss your actions with the child
- 2) Contact the school to report your concerns. Children often will abuse products found at their school. By reporting your concerns, your child's teachers can watch for signs and be better able to monitor abuseable products in the classroom.
- 3) Talk with the child in a non-accusatory manner. By being frank about your concerns, you can help to educate your child about the dangerous and potentially deadly effects of inhalant abuse

### **CAN INHALANT ABUSE BE TREATED?**

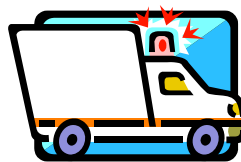
Some substance abuse treatment facilities will offer services to inhalant users. There are, however, a limited number of facilities that specialize in inhalant abuse treatment. Inhalant abusers will usually require thirty-fourty days or more of detoxification. Follow-up services after treatment are crucial as inhalant users suffer a high rate of relapse. As a foster parent, you can support your foster child's treatment by:



- 1) Learning everything that you can about inhalants and inhalant abuse
- 2) Support and be an active member in your foster child's treatment
- 3) Talk with your foster child's Inhalant Abuse Counselor
- 4) Be involved with your foster child's recovery
- 5) Remove or lock up toxic chemicals
- 6) Watch for signs of relapse

## **WHAT SHOULD I DO IF I FIND MY FOSTER CHILD USING INHALANTS?**

- 1) **If the child is unconscious or not breathing, call for emergency medical services immediately. CPR should be administered until help arrives.**



# **Emergency**

- 2) **If the child is still conscious and breathing but is suffering from chest pains, semi-conscious, and/or attacks of shaking, trembling, or convulsions, follow the following procedures:**
  - Call for emergency medical services.
  - Remove the inhalant product and any bags, rags, balloons, or other inhalant paraphernalia.
  - Do not excite, scare, shock, or upset the individual.
  - Loosen clothing around the neck and chest to make breathing easier.
  - If indoors, open windows and doors to let in fresh air and to ensure adequate ventilation.
  - Lay the child on his/her stomach with the head to the side in order to prevent vomit from being inhaled.
  - Cover the child with a blanket or coat to keep them warm – make sure the blanket/coat does not inhibit breathing.
  - Avoid activity or stimulation of the individual.
  - Listen for and monitor breathing until help arrives. If breathing has stopped, administer CPR.
  - When medical services arrive, send the inhalant product and any paraphernalia with the paramedics.
- 3) **Report either of the above situations to the child’s social or placement worker and your licensing worker immediately.**

### **Dianne Stem’s Story**

“My husband came in one day and went upstairs and found our son laying there in the floor with a bag over his head and the question came up, could he have been huffing? We, we didn’t know what huffing even was. He actually inhaled freon from our air-conditioning unit. His friends had shown him how to do this. And they think it is a cheap high, they think it’s not gonna hurt anybody or nobody will know. You know these are products right under our sink. You know, I’ve lost my son, I’ve lost my child if I can say one thing that would prevent another tragedy that’s what I want to do.”

Transcript from the Antidrug.com website

## **How Can I Prevent my Foster Child From Abusing Inhalants?**

The key to prevention is education. By educating your foster child on the risks associated with inhalant abuse, you can help to prevent it. Knowledge and concepts that you can teach your foster child include:

- Oxygen is necessary to sustain human life.
- Oxygen has a vital role as fuel for the human body.
- Inhaling gases other than oxygen deprives your brain of oxygen and can damage the brain and other vital organs.
- Many household products are toxic when they are not used safely.
- Vapors, fumes, and gases, even though they are invisible, can be poisonous and can result in death.
- Children and teens shouldn't ever inhale vapors, fumes, and gases.
- A caregiver or responsible adult should supervise children and teens whenever chemicals are being used.
- Products should only be used in well-ventilated areas and with proper safety equipment.



### **For more information on inhalant prevention and education resources...**

Contact the National Inhalant Prevention Coalition at 1-800-269-4237 or visit their website at: [www.inhalants.com](http://www.inhalants.com) . You can also contact the National Institute of Drug Abuse at 301-443-1124 or via their website at [www.nida.nih.gov](http://www.nida.nih.gov) . Both agencies have resources on inhalants and inhalant prevention materials.

# TEST