Inhalant Treatment Guidelines

GENERAL BACKGROUND INFORMATION:
Any exploration of inhalant treatment issues must begin with a degree of basic knowledge and understanding about this problem. Inhalant use and abuse seems to stand in the shadow of other, more heralded, substances of abuse. Both laypersons and professionals have less awareness regarding inhalants compared to their knowledge of other substances of abuse. Unfortunately, very few treatment facilities are able to provide help and services for this population. To clarify issues, inhalant use and abuse should be placed in a contextual framework.

A POPULATION AT RISK
In 2001, according to the Substance Abuse and Mental Health Administration's (SAMHSA) 2001 National Household Survey on Drug Abuse (NHSDA), approximately 2 million young people ages 12 to 17 had used an inhalant; overall, more than 18 million people have had experience with an inhalant in their lifetime. Before the 6th or 7th grade, inhalants are the third most popular substance of abuse after alcohol and tobacco; after the 7th grade, inhalants decrease to fourth place on the abuse list after alcohol, tobacco and marijuana ? but their use far exceeds that of all other substances. With an initiation age of about 12, inhalants are often the first substance of abuse a child will use ? thus giving rise to the notion that inhalants are "gateway" drugs. As these facts are noted, it is also important to remember that inhalants are unique because even first time use or experimentation of an inhalant could be a fatal episode.

With these numbers in mind, it is all the more startling when the Partnership for a Drug-Free America reports in their 2002 Parent Attitude Survey (PATS) that: parents' awareness of teen use of inhalants lags behind teen reports: 18 percent of teens (ages 12-17) reported having tried inhalants; only 1 percent of parents of teens believe their child has tried inhalants. Further, parents of school-aged children who discuss drugs with their child are less likely to discuss inhalants than marijuana or other drugs such as heroin, cocaine and crack (discussed marijuana "a lot with their child": 50%; discussed drugs such as heroin, cocaine and crack: 39%; discussed inhalants: 33%).

The treatment needs of inhalant abusers are not being met. According to the 2001 NHSDA, of the 141,00 persons who have abused inhalants and are in need of treatment, approximately half are young people 12 to 17 (77,000), while there are only an estimated 61,000 cocaine and 23,000 heroin abusers ages 12 to 17 who are in need of treatment. Additionally, no other substance has as high a percentage of youthful abusers in need of treatment than inhalant abusers. Furthermore, according to SAMHSA's latest (2000) Treatment Episode Data Set (TEDS), only an estimated 1,272 persons are receiving inhalant treatment, almost 43 percent are youth 17 years old and younger.

Inhalant abuse continues into the adult population. The NHSDA found that approximately 64,000 adults also are in need of treatment for inhalant abuse. Further, in 2001, the Drug Abuse Warning Network (DAWN) reported that 676 persons were seen in a sample of United States emergency departments because of inhalant problems. Of

these, 10% were ages 6 to 17, 33% were ages 18 to 25, 10% were ages 26 to 34, and 47% were aged 35 or older.

MAIN CATEGORIES OF INHALANT ABUSERS

Dr. Neil Rosenberg and Dr. Charles Sharp identified four main categories of inhalant abusers:

A. Transient social user—short history of use; use with friends; average intelligence; 10-16 years old.
B. Chronic social user—long history of use 5+ years; daily use with friends; minor legal involvement; poor social skills; limited education; brain damage; 20-30 years old.
C. Transient isolate user—short history of use; solo use; 10-16 years old.
D. Chronic isolate—long history of use 5+ years; daily solo use; legal involvement; poor social skills; limited education; brain damage; 20-29 years old.

WHAT ARE INHALANTS?

Inhalants are breathable chemical vapors or gases that produce psychoactive (mind-altering) effects when abused or misused. They include volatile organic solvents, fuel gases, nitrites and anesthetic gases.

Most inhalants are part of a large group of chemicals called volatile organic solvents. Volatility is a measure of the solvent's tendency to vaporize or leave the liquid state. The most common volatile organic solvents are the aliphatic and aromatic hydrocarbons, which are widely distributed in nature, primarily in natural gas, petroleum and coal. Examples include: toluene, benzene, xylene, hexane, trichloroethylene and the freons. Another class of inhalants is anesthetic gases such as ether, nitrous oxide, chloroform and halothane.

Everyday people are exposed to volatile solvents and other inhalants in the home, school and workplace. Most people do not think of inhalable products as "drugs" their children would use. This is because these consumer products were never meant to be misused and people tend to heed the necessary cautions printed on the product label. However, when consumer products are misused or abused by intentionally inhaling them they can become highly toxic chemicals never intended for human consumption.

EXAMPLES OF INHALANTS

Inhalants fall into several categories:

A) Solvents:
   A) Industrial or household solvents or solvent containing products such as paint thinners or solvents, degreasers, dry cleaning fluids, spray lubricants, gasoline, kerosene, octane boosters, glues and adhesives, liquid lighter fluid, nail polish and remover and furniture polish and wax.
   B) Art, school or office supply solvents including correction fluids, permanent felt tip markets, enamel paints, spray computer cleaners, dry erase makers and electronic contact cleaners (such as computer cleaners)

B. Gases and Propellants:

A) Gases and propellants used in household or commercial products including butane lighters, propane, spray paints, hair and deodorant sprays, fabric protector sprays, room deodorizer sprays and refrigerants (note that all aerosols use fuel gas as a propellant except canned whipping cream which uses nitrous oxide).
B) Medical anesthetic gases such as nitrous oxide (also used as a propellant in aerosol whipping creams), ether, chloroform and halothane.
C) Volatile Nitrites
D) Aliphatic nitrites including amyl, butyl and isobutyl nitrite sold over the counter as room odorizers, and liquid incense under such brand names as Rush, Bolt and Locker Room.

Researchers rely heavily on toxicologic studies to decide what amount, or dose of a chemical causes harm. By law, a product containing a chemical must be subjected to toxicological testing before being released into the marketplace. Pesticides, chemicals in drug formulations and potentially toxic substances are subjected to study. Although these tests are directed toward human applications, using people as subjects is unfeasible because it is not ethical. Thus toxicity assessment is done in laboratories using animals.

MODES OF ADMINISTRATION

Inhalants are used either by sniffing though the nose or inhaling fumes through the open mouth (huffing) much like a smoker breathes in cigarette smoke. Usually the open tube of glue, nail polish or marker is placed close to the nose and the fumes inhaled. The user may also spray the substance into a plastic or paper bag and huff that way. Often a product will be poured or sprayed on to a piece of cloth, a rag, a towel, a shirt sleeve or into a soda can and inhaled in that manner. Another method is to paint the finger nails with a product like correction fluid and inhaled.

SYMPTOMS OF INHALANT USE

Lawton and Malmquest (1961) and Wyse (1973) describe four stages in the development of symptoms associated with solvent abuse:

Stage One (Excitatory Stage):

A. Symptoms may include: euphoria, excitation, exhilaration, dizziness, hallucinations, sneezing, coughing, excess salivation, intolerance to light, nausea and vomiting, flushed skin and bizarre behavior.

Stage Two (Early Central Nervous System Depression):

A. Symptoms may include: confusion, disorientation, dullness, loss of self-control, ringing or buzzing in the head, blurred or double vision, cramps, headache, insensitivity to pain and pallor or paleness.

Stage Three (Medium Central Nervous System Depression):

A. Symptoms may include: drowsiness, muscular uncoordination, slurred speech, depressed reflexes and nystagmus or rapid involuntary oscillation of the eyeballs.

Stage Four (Late Central Nervous System Depression):

A. Symptoms may include: unconsciousness that may be accompanied by bizarre dreams, epileptiform seizures and EEG changes.

Barnes (1979) notes that the major difference between alcohol drunkenness and solvent intoxication is the occurrence of hallucinations in the sniffers. The presence of hallucinations has been reported in gasoline sniffers (Lawton and Malmquist, 1961; Remington & Hoffman, 1984; Seshia et al, 1978) and Toluene sniffers (Press & Done, 1967)

ADVERSE EFFECTS OF USE

When inhalant abusers inhale the toxic chemicals of common products, the concentration of the fumes can be hundreds to thousand times greater than the maximum permitted in industrial settings. Although different in makeup, most of the abused inhalants produce effects similar to anesthetics and are considered central nervous system depressants with the exception of the nitrites which are considered vasodialators which lower blood pressure and cause light headedness and dizziness. These act to slow the body's functions. Intoxication occurs when the chemical products are inhaled in sufficient concentrations. At low doses users may feel slightly stimulated and light-headed. At higher amounts, they may feel less inhibited, less in control. Hallucinations have also been reported to occur. Intoxication can last for only a few minutes or for several hours if the chemicals are inhaled repeatedly.

Deep breathing of the toxic vapors may result in losing touch with one's surroundings, a loss of self-control, violent behavior, nausea, unconsciousness or even death. In certain instances more dire consequences can occur such as: instant heart failure ("Sudden Sniffing Death"); asphyxiation, suffocation; or the central nervous system becomes so depressed that breathing slows down until it stops.

Additional potential consequences (depending on the particular chemical being used) from inhaling:

A. Central nervous system or brain damage
B. Peripheral neuropathies or limb spasms
C. Bone marrow damage (theoretical)
D. Liver and kidney damage
E. Hearing loss
F. Blood oxygen depletion
G. Heart and lung damage
H. Vision impairment

Organic solvents are highly lipophilic, or highly attracted to the fatty tissue in the body. This means that they are more soluble in fats than in water. Therefore solvents will readily leave the blood and quickly accumulate in the fat cells of the brain, heart, liver and muscles and remain there for a considerable period of time. The central and peripheral nervous system, liver, kidney, lungs, heart and adrenal gland will have a high toxic chemical content even after a single inhalation. Because of concentration of these toxins in the body of a chronic abuser, detoxification of solvents from the body can take several weeks.

HABITUAL USE OF INHALANTS
Psychological addiction and physiological dependence on inhalants does occur (Criteria for diagnosing inhalant intoxication can be found in the DSM IV, 292.89). Many users are known to be heavily preoccupied and dependent on their favorite product or brand to experience its effects. They may be unwilling to substitute another product unless theirs is unavailable. Further, the chronic abuser is likely to require greater doses of the inhalants due to the effects on the central nervous system. Some inhalant abusers who had stopped using for a period of time reported intense inhalant cravings at unexpected times making continued sobriety very difficult. Withdrawal symptoms to inhalants have been reported. These include: hand tremors; nervousness; excessive sweating; hallucinations; chills; headaches; abdominal pain; and muscular cramps.

REASONS FOR USING
A number of reasons exist for people using inhalants, which include:

A. Experimentation.
B. Peer group pressure.
C. Cost effectiveness.
D. Easy availability.
E. Convenient packaging ? "It can be easily hidden in my pocket and nobody knows."
F. Initial mood elevation - "I like the high."
G. The course of intoxication ? "It's a quicker drunk."
H. Legal issues ? "It's not illegal to buy or have it." (Actually many states have laws making it illegal to abuse these products as well as precluding the sale of certain products to minors ? but they are not strictly enforced.)
I. The "high" doesn't last too long. Depending on the dose, the intoxication is over in minutes (one can huff during school time) or one can sniff all day long and remain "high."
J. Usually the hangover is not as bad as from alcohol, although headaches appear to be the most common post-intoxication complaint.
K. In some places where extreme poverty exists, inhalants are used to dull hunger pangs and to keep from feeling cold.
L. Lacking supervision, inconsistency in their family life, having a hard time making important decisions or just being bored are some additional common reasons young people give for using inhalants.

SOCIAL CONSEQUENCIES OF INHALANT ABUSE
The major socialization forces for most youth are community, schools, family and peers. Inhalant use impacts on all of these forces:

A. The community provides a base within which all other socialization occurs. Consequently, the community maintains very strong effects by itself. When children in a community use inhalants heavily it can suggest sniffing to the next age cohort as they grow up as well as legitimize it with their peers.
B. Disruptive family structures are almost always found in studies of chronic inhalant abusers. Even if the family is intact, family relationships, particularly with the father, are poor. Parental alcohol and drug use is usually present, Young

inhalant abusers typically feel that the family does not care about them. Family sanctions are usually weak.

C. Inhalant abusers usually have educational problems. They usually experience high truancy and dropout rates, problems with school authorities and poor school performance. Young inhalant abusers demonstrate less liking for school as well as school adjustment problems.
D. There is a strong relationship between crime and inhalant abuse, in part, because of the progression of this addition. Chronic inhalant abusers often have significant levels of psychopathology, aggressive behavior, violence and they engage in a wide variety of deviant and delinquent activities.
E. Young inhalant users tend to be more alienated than other youth. These feelings of alienation may be important factors leading a young person to find other alienated youth which may then lead to inhalant abuse. Young inhalant users are different from other young drug users because they may be experiencing more emotional problems. They are typically more depressed, more anxious, feel that they are blamed and experience greater anger than other youth. It is likely that the emotional and social problems predated inhalant abuse and it is an attempt to cope with these problems.
F. Young inhalant users sniff inhalants in small groups. A large percent of their friends and /or siblings of inhalant users also use inhalants. They usually start abusing at the urging of friends or relatives. Among young inhalant users there is a strong relationship between inhalant use and peer drug associations that involve inhalants. Peer groups operate strongly to either encourage or suppress inhalant use.

INHALANT TREATMENT
BACKGROUND:

Most generic substance abuse treatment programs are not equipped to deal with the multiplicity, intensity and complexity of problems that the inhalant abuser presents. Chronic inhalant abuse causes many psychological and social problems. Because of the damage neurotoxic chemicals cause to the brain, it may be wise to consider the regular, chronic inhalant abuser as having a dual diagnosis of chemical dependency and mental illness. Many approaches and techniques used in typical alcohol and drug treatment apply but a host of other specific issues must also be addressed.

Inhalant abuse researchers and experts including Fred Beauvais, Ph.D., Angelo Bolea, Ph.D., Luis Formazarri, M.D., Mark Groves, MSW, Steve Riedel, M.S.ED. Richard Scatterday, M.D., Milton Tenenbein, M.D., and Pam Jumper-Thurman, Ph.D., concur on the following critical elements in treating the volatile solvent abuser:

If inhalant abuse is suspected, a medical examination is required. During physical examination, several medical complications must be assessed such as: (1) central nervous system damage; (2) renal (kidney) and hepatic (liver) abnormalities; (3) lead poisoning; (4) the possibilities of cardiac arrhythmia and pulmonary (lung) distress; and (5) nutritional deficiencies.

Because chemicals are stored in the fatty tissue of the body, the inhalant abuser may experience residual effects for quite some time. This could include altered affect and dullness of intellectual functioning. Consequently, the detoxification period will need to be longer than the typical drug abuser ? several weeks not days.

Neurological impairment is usually present with the inhalant abuser. Determining whether these problems predate or are the result of inhalant abuse is difficult to decide. Nonetheless, it is important to assess the presence of any learning difficulties that may interfere with the treatment process or contributes to disruptive behavior. A thorough examination of the school records or any early neurological testing may be productive. Neurological or neuropsychological testing should be considered early in the treatment process. However, it is important to not confuse the effects of acute intoxication with more enduring damage. It is also important to repeat the testing in several months to assess improvement. It is not known conclusively whether neurological damage from inhalant abuse is reversible or not. However, anecdotal evidence from some treatment professionals indicates that dramatic improvement in functioning can occur over the course of several weeks in treatment.

A thorough assessment of family stability, structure and dynamics must be a major component of any treatment program addressing the inhalant abuser. Family involvement is critically important. Treatment can be focused on therapeutic intervention with the family ? providing drug education, parenting and social bonding skills.

Alcohol and other drug abuse are common for siblings and parents of inhalant abusers. There is a high probability of poor communication, sadness and possible physical, emotional and psychological abuses occurring in the home. There is a need to assess and address identified issues. Additionally, treatment providers report a high level of sexual abuse among inhalant abusers.

The exploration of peer group dynamics is very important. For younger children, sniffing and huffing often occurs in groups. Treatment goals that are realistic can help the child break the bonds with their negative peer group and replace it with a more positive peer group. This is important for recovery and sobriety.

Treatment programs should be prepared to engage the inhalant abuser in an extended period of supportive care marked by abstinence from inhalants. Non-confrontation and an emphasis on developing basic life sills are recommended. Action therapies such as art, music, drumming, dance and activities that involve hand-eye are often beneficial. Therapeutic recreational activities that encourage multi-sensory action will help to assist to assist in recovery.

Initial interventions should be very brief (15 to 30 minute sessions), informal and concrete. Walking and talking sessions would probably result in the development of rapport and encourage interaction. The inhalant abuser’s attention span and complexity of thinking are greatly reduced in the early stages of treatment. Thus, cognition should be continually assessed to decide their changing level of functioning.

The "typical" 28 day or current treatment stay is probably too short a time to realistically expect change. One of the reasons for this is the prolonged time that inhalants persist in the body. Treatment time is uncertain and typically requires many months. Intensive aftercare and follow up are essential to rebuild life skills and re-integrate the client with school, family and community.

DISCUSSION:

If treatment is suggested, McSherry (1988) stresses that mental health workers need to possess an understanding about all aspects of inhalant abuse to develop and apply effective treatment. Studies on solvent abuse find that treatment is difficult because most treatment centers apply alcohol and drug treatment techniques with the assumption that all chemical dependencies are similar and would respond to these modalities. Sniffers appear to have less reasoning and resistance power than alcoholics and other drug abusers due to interruptions in their thought process. Fomazzari (1988) notes that these deficiencies are generally reversible, depending upon the extent of damage. He also stresses that, generally, sniffers are not ready for therapy as we now apply it in the typical treatment setting for up to 30 days. The detoxification period in chronic solvent abusers should be as long as possible. Several weeks of close observation are necessary for the brain of these young persons to be rid of the effect of these chemicals. The lack of effectiveness of long-term treatment is probably due to the lack of social and family support, being immersed too early in treatment programs and the reduced capacity of inhalant abusers to understand and cooperate in treatment and recovery. It is important to understand that inhalant abusers are often stigmatized, even by abusers of other drugs, making their participation and retention in a general drug treatment program very difficult and problematic.

Mason (1979) visited several treatment facilities to conduct a pilot study to assess the patterns of inhalant abuse and problems associated with treating inhalant abusers. The general impression from treatment staff interviewed was that most clients do not respond well to the programs. There was difficulty in getting clients and family members to keep their appointments. Consequently, they found more success when they went to the homes of the inhalant abusers to engage the client and family.

Staff studied by Mason at the different sites generally felt that these youths: (1) were not motivated to participate in the treatment process; (2) were cognitively impaired; (3) had low self-esteem; (4) were immature; and (5) generally did not respond well to therapy and other more formalized treatment approaches. Staff agreed that group therapy in the clinical setting did not work with the inhalant abuse clients and they specifically avoided using confrontation techniques with inhalant abusers. Their general approach was an ad hoc assignment of specific counselors who got along better with these youth and participated with them more in individual counseling sessions. Because of the sniffers' low motivation level, recreational or activity therapy is needed to maintain an interest in the program. The need for changes in the peer group of the sniffer is crucial as is the need to maintain focus upon positive peer group influences through continued outpatient or aftercare efforts.

Inhalant abusers experience higher dropout and expulsion rates than any other type of drug abuser (Mason, 1979). These rates are the result of the inhalant abusers being recalcitrant, erratic, uncooperative and occasionally exhibiting violent behaviors. This can be overcome with patience and consistent approaches. Most agencies involved with inhalant abusers do not seem to have a clear idea of the inhalant abuse problem and do not know how to develop an effective treatment approach targeted to this youthful and frequently disruptive clientele. Even though the therapeutic process should involve the family, many programs appear to be unsuccessful in getting families involved in the treatment programs.

Mason (1979) further stresses that intervention and referral must be based on some understanding of the inhalant abuser and their problems and needs. To serve the inhalant abuser, programs must be prepared to move out to the community and engage these youngsters in their natural settings. Workers must be trained to work with young inhalant abusers in the community, using the resources of youth clubs, recreational facilities, churches and schools. Treatment approaches must be coordinated to take advantage of all available resources in the community in order to attain a degree of success with the inhalant abuser.

The literature indicates that the clinical setting should be warm, open and non-threatening with space and time for informal socialization and recreation. Relapse is common among sniffers and recidivist behavior must be tolerated to some extent in order to keep them in the treatment program. The cognitive demands of the typical recovery model are often beyond the grasp of most inhalant abusing clients because their thinking is too concrete (i. e., here and now and simplistic logic concepts) which is typical for children and adolescents when their cognitive abilities are impaired. In addition, most solvent abusers do not consider themselves to be drug addicts. Because of the multiple problems present, the counselor must be a case manager who understands both behavioral therapy and developmental concepts. Much of the treatment entails endless case management ? linking the clients with such resources as medical, legal, psychiatric, court, educational and family services.

Treatment of the inhalant abuser often times can be frustrating and unrewarding. This is the result of the cognitive impairment that often accompanies the abuse of solvents. Rogers (1982) stresses that the foremost method of prevention is through early education of health professionals, teachers, parents, etc. so that they can spot the early danger signs and get expert help when necessary.

Based on empirical findings of a study conducted by an interdisciplinary committee on solvent abuse among children and young adults at a Reserve in Manitoba (Gooden, et al., 1986), the following recommendations are suggested regarding solvent abusers:

A. There must be networking among the different agencies within the community including teachers, nurses, childcare workers and counselors and the treatment program.

B. Treatment must be social in nature. Because sniffing is usually a group activity, treatment should include group therapy when the client is ready. Individual counseling should be available as well. Treatment should consist of weekly group meetings. Topics should include: (a) medical complications for use; (b) reasons for trying sniffing and maintaining sniffing should be explored; (c) ex-sniffers should be used to serve as positive role models; and (d) new recreational group activities should be developed and encouraged particularly at those times when sniffing occurs (after school, weekends, etc.).
C. The program should require regular "checkups" to detect relapses. Encouraging the youths to be honest about "slip-up" by reassuring them they will not be removed from the group should they relapse may promote a desire to belong to the group. This would also ensure that members of the group develop trust ? a condition essential to effective therapy.
D. Patient records, including histories, questionnaires, and monthly progress reports, should be carefully maintained and evaluated. A researcher should evaluate this data every six months to determine (a) which areas of the program need to be changed; (b) the characteristics are of youths who relapse or drop out of treatment; and (c) the overall effectiveness of the treatment program.

Inhalant abusers can be difficult to treat not only because of their cognitive impairments but also because of their tendency to be disruptive while in treatment. Such behavior may be related to impaired social skill and poor impulse control as a result of the inhalant abuse. It would appear that programs would experience more success with inhalant abusers if the abusers were assigned them to one or two staff members who would gain empirical experience dealing with the inhalant abusers. These staff can gauge any successes plus obtain a reputation as "experts" with inhalant abusers. Being more flexible and less rigid with inhalant abusers would be wise. The families of these inhalant abusers must obviously become involved in the treatment program to experience more success with this difficult clientele. Strategies must also be developed to address the peer group influences.

TREATMENT CONSIDERATONS:
OUTREACH AND REFERRAL:
Inhalant abusers tend to be a "hidden" population; their use of inhalants tends to be undetected and rarely do abusers seek treatment. Too often inhalant use goes undetected because it just may not be on the "radar screen." For an inhalant referral to be effective, staff of the facility must carefully utilize assessment and intake procedures, be cognizant of the inherent dangers and complexity of inhalant abuse and have specific protocols in place for treatment. They must also develop relationships with medical practitioners to provide better overall care for these clients.

INTAKE AND ASSESSMENT:
Inhalant abusers often present with a wide variety of social, educational, physical and cognitive problems. There must, therefore, be an understanding of abuser characteristics to ensure that inhalant abuse information is elicited. The interviewer must have a sound understanding of the various products that can be used, how these products are used and

why inhalants are attractive to users. Understanding patterns of abuse will facilitate a conversation with a client who may be reluctant and embarrassed to discuss his or her use or may not clearly remember episodes of use because of memory loss and/or cognitive impairment. The interviewer should also understand the attractions to inhalants (i. e., very quick acting; short duration; free or low cost; ease of availability; generally not prosecuted; difficult to test for; enjoyable high; often overlooked as a drug; etc.). Along with intake, thorough assessment must be conducted for cognitive functioning and neurological and physical damage caused by inhalant use. Some inhalant abusers show profound levels of dysfunction and deterioration, but there is a great deal of variation in this. Physical damage needs to be evaluated early in the assessment process but other testing for cognitive and neurologic evaluation may be postponed until after detoxification. In some treatment populations, abusers have been found to have higher rates of victimization by physical and sexual abuse.

Treatment programs need to thoroughly assess the stability, structure, and dynamics of the family. If there is limited family support, if feasible, develop alternatives which may include consideration of foster care.

SPECIFIC INTATE AND ASSESSMENT CONSIDERATIONS:

A. Determine extent, duration, range and context of inhalant products abused
   A record of products which have been abused, approximate number and frequency of exposures, time interval (over period of months or years) of abuse, etc., can be important to subsequent medical/neurological screening. Preparing specific questions relating to inhalants will insure more accurate and complete information. It is not sufficient to ask, "Have you ever inhaled anything to get high?" This question may produce a positive answer from someone who has snorted cocaine or heroin. Asking if gas or glue was ever inhaled may not elicit sufficient information, as these two products are not representative of the range of abusable products. Ask about specific abusable substances, including gas and glue, but also spray paint, lighter fluid, nitrous oxide (whippets), "rush" (butyl nitrite), poppers (amyl nitrite), aerosol products, correction fluid, cleaners, and more. Add additional products depending on known trends in the area. It is also important to understand the context of how and why the person abuses inhalants: alone or with a group; to get high or to become unconscious; where and when he or she huffs.
B. Medical Screening
   Persons with a significant history of inhalant abuse should be screened carefully. Depending on exposure, tests may be administered to ascertain levels of toxins in the body. It is necessary to delineate the extent of impairment of liver function, renal/kidney function, motor coordination, central nervous system dysfunction, lung dysfunction, cardiac arrhythmia, hearing loss, visual impairment, reduced sense of smell or touch.
C. Neurological tests
   Brain damage (transitory or permanent) can occur as a result of even occasional inhalant abuse. A complete neurological workup can reveal neurological damage and helps pinpoint need for specific remediation.

D. Behavior/emotional patterns
   Erratic and unstable behavior is often seen in chronic inhalant abusers. Some abusers become violent; others are unpredictable. Wide mood swings and impulsive behavior are commonly reported. Declining social skills have been reported among chronic inhalant abusers.
E. Cognitive history/testing
   Brain damage or dysfunction must be suspected, due to anoxia, product toxicity and other causes. To document changes or areas of difficulty, a complete history should be taken. Relevant issues: major changes in school performance; short attention span; inability to concentrate, memory problems; declining range of vocabulary; sharp decrease in ability to communicate clearly; inability to process information.
F. Evaluation of other drug use
   Use of alcohol and/or other drugs should be assessed.
G. Possession/access to abusable inhalant products
   Ascertain the extent of the client's "collection" of abusable products and ease of accessibility to product at home, on the job and/or at school
H. Family history
   Gather information about the structure, dynamics and stability of family life, along with family history of inhalant abuse. To be most productive, the family must be engaged in the rehabilitation process.
I. Peer group
   Explore the dynamics of the individual's abuse of inhalant products. Most often this is a group activity, so the person needs to transition away from an inhalant-abusing peer group to a more positive peer group.

TREATMENT PROCESS
OVERVIEW

A. Treatment must be specifically focused on inhalants. Research and practice have determined that "standard" alcohol and drug treatment is not appropriate or effective for inhalant abusers. In fact, many treatment facilities refuse to treat inhalant abusers, judging them to be "resistant to treatment."

B. Treatment staff should be knowledgeable about inhalant abuse and have realistic expectations for recovery. Counselors need to understand the unique aspects of the problem, including a slow rate of recovery and the very modest improvements that should be initially expected. Because many treatment professionals are not aware of the toxicity and lethality of inhalants (they are toxins, poisons, pollutants, and fire hazards) there needs to be provision for inhalant abuse prevention education.

C. When solvent abusing children are admitted for treatment they are distant and hard to reach. However, they are anxious to bond quickly to their peer group. Some treatment facilities have utilized this as a treatment opportunity and have developed a "peer patient advocate" system. Utilizing a peer who is further along in the treatment process provides the incoming youths with someone to "teach

them the ropes" and give them support. The treatment staff should closely supervise this relationship.

D. Life skills issues need to be addressed: some abusers have started huffing as early as elementary school which, along with the neurological damage, can result in poorly developed life and academic skills. Take into account cognitive deficits by using briefer (20 minutes) and more concrete interventions.

E. Programs must allow for adequate detoxification: depending on length of use and product used, detoxification from the acute effects of solvents and gases may last for several weeks. During this time, program expectations may need to be reduced.

F. Family involvement in the treatment plan should include education about inhalants, removal of inhalants from the home, and the understanding that extra support and supervision that inhalant abusers and their families may need.

G. Aftercare planning is a critical component of any inhalant treatment plan and must take into account the special problems of inhalant abuse. This includes easy availability of inhalants, residual cognitive impairment, and poor social functioning. A school-based advocate/counselor should be included in the plan.

H. As a practical and policy matter, ensure that inhalants are not accessible in the treatment program. Have a policy in place that to preclude the availability of such items as dry erase markers, nail polish and remover, typewriter correction fluid, solvent-based glues, aerosol products (such as deodorants, hair spray, shaving cream, cleaning products, and canned whipped cream). Be sure the custodial staff lock up chemicals and cleaning products

SPECIFIC INHALANT TREATMENT CONSIDERATIONS:

A. Standard" substance abuse treatment alone is generally ineffective for inhalant abusers for these reasons:
•detoxification from poisonous chemicals must be accomplished prior to planning for treatment. (Groves, Beavers, Sharp and others state that because toxic chemicals remain in the body's fat cells, effects may linger for weeks or months, affecting cognitive functioning and ability to participate in treatment.)
• detoxification and treatment cannot be effectively accomplished within a 14 day, 21 day or 28 day model; providing for an extended length of stay, allowing for a minimum patient stay of 90 days that can be extended to 120, would be most beneficial for the patient (Reidel, et. al, 1998)
•"talk therapy" may not be appropriate for persons with neurological and/or cognitive dysfunction
• short attention span, poor impulse control and/or poor social skills not appropriate for group therapy
• group therapy may not be appropriate initially, as users of alcohol and other

drugs are often reject or are contemptuous of inhalant abusers
• neurocognitive damage may impair decision-making skills

B. Detoxification, medical screening, and neurological screening must be initiated before a treatment plan can be constructed
C. Neurocognitive assessments should be performed to assess neurocognitive impairment and to develop an individual prescriptive neurocognitive rehabilitation program (the assessment should be repeated at discharge for outcome evaluation purposes)
D. Neurocognitive rehabilitation should be provided to those assessed as in the "impaired" range of neurocognitive functioning and to those assessed as in the "normal" range but who may have a specific impairment
E. An academic should be developed and be provided during the course of treatment which has the patient participating in school at individually assigned levels
F. A "peer patient advocate" system may be established to assist incoming patients but must be closely monitored by treatment staff
G. Team approach is imperative: medical, neurological, psychological, occupational, physical/motor rehabilitation, educational components
H. Where indicated, occupational and physical therapy must be included in a comprehensive treatment plan
I. As far as practical, access to inhalable substances must be eliminated or restricted
J. Aftercare planning is a critical component of any inhalant treatment plan and must take into account the special problems of inhalant abuse. This includes easy availability of inhalants, residual cognitive impairment, and poor social functioning. A school-based advocate or counselor should be included in the plan.