

Sniffing Buijjiu

The Dangers
of Solvent
Use by Young
People



Introduction: a shared concern, a shared approach

Sniffing, the inhalation of solvents, is a type of drug use that is particularly associated with young people. The practice has become of increasing concern in the last few decades with the widespread availability of solvent-based chemical products.

The purpose of this publication is to inform teachers and other relevant professionals about solvent use by young people. It is not intended for and should not be used with students. It is generally counter-productive to provide specific information on solvents to those currently not engaged in their use and this applies to the majority of school students. To describe techniques for using substances (as outlined in this publication) has the potential to promote a list of products that young people might try if their curiosity is aroused.

Schools are one of the most numerous and widespread institutions in the State and, particularly in rural areas, often the hub of community activity. Therefore, potential exists for schools to help provide information and education programs on drugs for parents and the general community. Schools also have the potential to act as catalysts for collaboration between a range of government agencies, local councils, non-government organisations, community and parents, all focused on their shared interest in, and responsibility for, children and young people.

Relevant government agencies such as NSW Health, the Department of Community Services and the NSW Police, together with local councils, non-government organisations, community groups and parents groups, may consider using schools as community centres for providing information and programs about drugs, drug use and the support available to the community.

The Dangers of Solvent Use by Young People

Why is solvent use of such concern?

Solvent use is of particular concern because:

- solvents are toxic
- young people, including pre-adolescents, are the primary users
- while the rate of use in the population is relatively low, it is nevertheless one of the most used substances by youth after alcohol, tobacco and cannabis
- the products containing solvents are readily accessible to young people as they are inexpensive and in common, every-day use
- it can result in short-term and long-term harm to the health of users or in death
- a phenomenon known as *Sudden Sniffing Death* can occur among first time users of solvents or those who have been sniffing for years
- associated problems include family and social disruption from behaviours such as theft, truancy and vandalism
- in some remote communities petrol sniffing has resulted in tragedy for the individual, families and the whole community.

What are solvents?

Solvents are found in products that give off fumes at room temperature and, when inhaled, cause intoxication (similar to alcohol). They include items such as butane in cigarette lighter gas, aerosol sprays, petrol, some glues, correction fluids, paint thinners, dry cleaning fluid, nail polish removers, nitrous oxide used in whipped cream dispensers, fire extinguishers and other common, often inexpensive, household and industrial products.

How are they used?

Inhalation – ‘sniffing’ – is the method used. Many commercial products, from paints to perfumes, contain ‘evaporative bases’ or solvents such as alcohol, water, turpentine, petroleum by-products and various hydrocarbons (often used as propellants in spray cans). As the solvent evaporates at room temperature, the sniffer breathes the fumes into the lungs to be absorbed into the blood stream. The user can experience a feeling of euphoria, not unlike the effects of alcohol. Other immediate effects, also similar to drunkenness, can be restlessness, weakness, slurred speech, unco-ordinated movements, aggression, blurred vision, hallucinations, nausea, vomiting and unconsciousness.

Some examples of techniques used include:

- inhaling directly from a container (spray cans, tins, foam dispensers, etc.)
- pouring liquids onto a rag or clothing or into a plastic drink bottle and inhaling
- placing a substance such as glue into a plastic bag which is held over the mouth and nose – some young people put their whole head into a bag. This is particularly dangerous if the person passes out, as they can suffocate.
- spraying aerosols and butane gas lighter refill containers into a bag or directly into the mouth
- fitting nitrous oxide bulbs to an empty whip-cream or soda siphon dispenser and inhaling directly from the nozzle or injecting the gas into a balloon and inhaling from the balloon outlet
- warming the product to help distil the volatile components of the substances.

‘Chroming’ refers to the use of chrome paint in spray cans. Metallic spray paints, such as gold and silver, have special solvents to suspend the heavier metallic particles. These solvents can have psychoactive effects such as delirium, disorientation, delusions and hallucinations.

Who uses?

The majority of young people will never use solvents. Of those who do try solvents, most will only do so experimentally (such as trying once or twice out of curiosity) or 'socially' (using solvents with friends while it is a fad). Very few of those who try solvents will become dependent (demonstrate entrenched patterns of use over time). There is a much reduced incidence of the use of solvents by the age of 17 (approximately 2-3% reported as having used in the last week).

- In NSW students aged 12 years have the highest rates of use with approximately 13% having used solvents in the past week and about a third of all 12 year olds indicating having ever tried solvents.
- Solvent use tends to be irregular, affecting different groups and communities at different times.
- While accurate data on petrol sniffing in NSW is not currently available there is concern about solvent use in some rural or remote communities, although many will not engage in petrol sniffing.
- Solvent use occurs in all socio-economic groups, but is higher in lower socio-economic groups.

What are the dangers?

Some techniques are more dangerous than others. One particularly hazardous method is spraying substances from aerosols directly into the mouth, and in particular, towards the back of the throat. This may have a drastic cooling effect on the larynx that can cause spasm and close the airway. Additionally, certain nerves can be stimulated that have a profound slowing effect on the heart. Both of these mechanisms have been implicated in Sudden Sniffing Death (SSD).

Other common causes of death amongst young 'sniffers' are suffocation from plastic bags placed over the head or heart attack due to sudden physical exertion. Other hazards include:

- explosion and fire if products are heated, particularly petrol
- harm to lips and skin from direct contact with solvents
- harm from inhalation of unwanted associated products, particularly from aerosols

- frostbite (freeze burns) to lips from inhaling nitrous oxide directly from the nozzle of dispensers
- passing out and falling
- choking on vomit while unconscious.

What factors limit solvent use?

Some very strong factors limit the up-take of the use of solvents. These 'protective factors' need to be maintained and enhanced, particularly given the ready availability of solvents in retail outlets, schools and households.

- Solvents are seen as 'gutter drugs' by most young people.
- Society disapproves of inhalant use, including disapproval by most peers (positive peer influence).
- Solvents are not advertised or generally glamorised by the media.
- There is a fear of harm, particularly brain and other organ damage.
- The short-term effects of use mimic permanent brain damage.
- The unpleasant smell is easily detectable.
- The effects can be frightening and disorientating.
- It can produce headaches and irritation to eyes, nose and mouth.

What factors limit mortality and morbidity?

- Toxic harms from solvents are often reversible after short and medium term use.
- Lead has been removed from most supplies of petrol. However, the long-term effects of sniffing non-leaded petrol are unknown.
- Some popular products containing solvents, such as particular types of glue, are less toxic than other solvents.
- The majority of young people do not want to harm themselves.
- Some solvent sniffers practise harm reduction methods such as not putting plastic bags over their heads.

- Family and community support structures can reduce the negative impact of solvent use when it occurs.

Is sniffing solvents illegal?

Inhaling a volatile substance is not illegal in Australia. Products with the potential to give off dangerous fumes carry warning labels. There are restrictions on the marketing of certain of these products.

What about petrol sniffing by young Aboriginal people?

Petrol sniffing by young Aboriginal people is a complex and emotive issue. Little research has been done on the problem in NSW. Petrol sniffing mainly occurs in rural and remote communities, is often periodic and can move from one community to another. Other solvents such as glue, paint and lighter fluid are more often used by sniffers in rural towns and cities.

Petrol sniffing has proved to be an intractable problem since it was first identified as an emerging issue in the 1970s. Locking up petrol supplies and adding ethyl mercaptan or 'skunk juice' to petrol supplies have not been successful. Substituting avgas has had only limited success in some remoter communities where alternative supplies of petrol are less easily obtained. The phasing out of leaded petrol has been of significant benefit although the long-term effects of unleaded petrol on health are unknown.

Programs to address petrol sniffing include counselling, the provision of recreational activities to reduce boredom, increasing young people's skills and employment prospects, or a combination of these. One or two interventions by themselves are seldom successful. An integrated approach that addresses the characteristics of the substance, the attributes of the users, such as personality and physical health, and the social setting in which the use occurs, is needed. The most successful strategies are those initiated by the community in which the petrol sniffing occurs and have widespread community support and the active participation of community members.

What can schools do?

Identification of students potentially at risk

Schools could develop a co-ordinated approach involving other agencies, targeting pre-schools and Kindergarten to identify children potentially at risk. Discussions with the local Aboriginal community may identify issues or support strategies.

Early intervention

Where there is concern in the local community about sniffing, schools could develop an early intervention strategy focusing on social skills in the classroom and address issues requiring assessment and treatment such as Otitis Media through appropriate agencies. Otitis Media, an infection of the middle ear characterised by impaired hearing, is prevalent among children in some remote and rural Aboriginal communities. It can adversely affect a child's performance at school and lead to the child becoming isolated. Such disconnection from school and peers can be a precursor to the misuse of inhalants.

Monitoring and support

As part of on-going support for students who have used solvents, a strategy should be put in place to monitor their welfare as they get older. This should include liaising with local community health staff. Potential problems that could trigger a recurrence of sniffing should be addressed promptly.

Drug education

It is generally counter-productive to provide specific information on solvents to those not currently engaged in their use. For example, to describe the techniques for using substances (as outlined in this publication) merely provides a list of products that young people might try if their curiosity is aroused.

Schools should ensure that a comprehensive, developmentally appropriate drug education program, meeting the outcomes in the Personal Development, Health and Physical Education syllabuses (PDHPE) is in place. One approach to teaching about inhalants recommends that solvents be referred to as 'poisons' rather than 'drugs'. Rather than teach specifically about volatile substance use, teachers should ensure that prevention messages are linked to topics such

as poisons, product safety, first aid and fire safety. Prevention messages should promote an awareness that products such as butane in cigarette lighter gas, aerosol sprays, petrol, some glues, correction fluids, paint thinners, dry cleaning fluid, nail polish removers, nitrous oxide used in whipped cream dispensers, fire extinguishers and other common, often inexpensive household and industrial products may contain poisons, toxins, pollutants and in some cases, highly inflammable materials. This is appropriate particularly with primary school aged students but may be superfluous for secondary students who know about the dangers associated with such products.

If teachers know with certainty that a group of students is using inhalants regularly, schools should consider collaborating with other community and government agencies to establish a co-ordinating committee to ensure the fullest possible integration of actions to address the sniffing. Evidence suggests isolated interventions have limited impact.

Teaching about the potential harms of inhaling fumes from volatile substances can occur during discussions about safety issues within school PDHPE programs. Dangers of inhalant use can be addressed in the following ways:

- unsafe behaviour (risk taking), unsafe attitudes (irresponsibility, impunity), multiple causes (combinations of factors)
- assessing, reducing and avoiding risk
- first aid for inhalation of fumes, contacting the Poisons Information Centre and emergency services
- safety warning labels on volatile substances, laws and regulations regarding volatile substances.

Immediate response to incidents involving sniffing where the student is affected by the substances

- Do not chase a student if he or she runs away. Children who have been sniffing are potentially at risk of a heart attack.
- Try to place the student in a quiet area and ensure she or he is monitored and encouraged to sit still.
- If possible try to find out if and what the child has inhaled. There may be a smell of a substance like petrol on the clothing or around the face.

- Inform the principal, or person acting in that capacity, immediately.
- Call an ambulance and the parents.
- Complete a written report, sign and date it as per school record requirements.

In the longer term the student may be supported by:

- an individualised education program that:
 - highlights the harms associated with sniffing
 - assists the student to find alternative behaviours through engagement in decision making and problem solving skills
- assisting the student to identify or establish a specific support network, so that he or she knows where and when to get help
- identifying and providing an appropriate mentoring strategy
- maintaining links with area health service staff regarding joint case management to ensure a co-ordinated approach, especially with parents and community.

Teachers in NSW Government schools should consult the booklet, *Guidelines for Managing Drug Related Incidents in Schools* (NSW Department of Education and Training, 2000).

Teachers in Catholic and Independent schools should refer to the booklet, *Guidelines to Support the Development of School-based Drug Education Policies and Practices* (developed by the Catholic Education Commission NSW and the Association of Independent Schools of NSW, 2001). Catholic schools should also consult their Diocesan Drug Education Policy and Guidelines.

Where can further information be found?

CEIDA (Centre for Education and Information on Drugs and Alcohol), part of the Drug Programs Bureau, NSW Health, has published a very useful fact sheet for parents, education and health professionals about general inhalant use. The Fact Sheet, number 12 in the series, is titled, *Volatile substances*. It is available through the Better Health Centre, telephone 02 9816 0452 or email: del@doh.health.nsw.nsw.gov.au Information on volatile substances is also available from the CEIDA website: www.ceida.net.au/tools_for_workers/drugs/volatile_substances.html.

The Australian Drug Foundation website has information about inhalants at:
www.adf.org.au/drughit/facts/inhalants.html.

The WA Drug Abuse Strategy Office, an agency of the Western Australian Government, has made available on its website a number of small publications such as *Guide to Solvent Sniffing* (a guide for parents to identify and respond to young people's glue and other solvent use, released by the Alcohol & Drug Authority, 1997); *Background Materials* (a 12 page document that outlines the types of volatile substances, the consequences of their use and statistics, 1998) and *Retailer's Resource Kit* (1999). The site URL is:
<http://www.wa.gov.au/drugwestaus/html/contents/publication/campaigns/solvents/solvents.html>

The resource, *Petrol sniffing and other solvents: a resource kit for Aboriginal communities* (Aboriginal Drug and Alcohol Council of South Australia Inc. [ADCA]) provides an excellent manual that can be used in small groups and, where appropriate, with parents and students. The materials provide useful strategies for teachers, Aboriginal support staff and community health workers to use with local communities. Included in the kit is the book, *Petrol sniffing in Aboriginal communities: a review of interventions* by Peter d'Abbs and Sarah MacLean (Cooperative Research Centre for Aboriginal and Tropical Health, 2000, ISBN: 187683112X) that discusses different Aboriginal community experiences in combating petrol sniffing. It has an extensive bibliography.

A seminal work on the issue of petrol sniffing in outback Aboriginal communities is Maggie Brady's *Heavy metal: the social meaning of petrol sniffing in Australia*. Canberra: Aboriginal Studies Press, 1992.

An important and very extensive document is *Volatile substance abuse in Australia: Senate Select Committee on Volatile Substance Fumes, the Parliament of the Commonwealth of Australia*. Canberra: Australian Government Publishing Service, 1985. ISBN: 0644045396. 284 pages.

For an American perspective on the misuse of inhalants the following reviews of the literature offer a useful starting point:

- Brouette, T. and Anton, R. (2001) *Clinical review of inhalants*, American Journal of Addictions. 10 (1): 79-94, Winter.

The article focuses on the current knowledge of the epidemiology, pharmacology, and sequela of inhalant use in the United States where the rate of use continues to rise. Means of preventing and treating inhalant use are proposed.

- Cairney, S., Maruff, P., and Currie, B. (2002) *The neurobehavioral consequences of petrol (gasoline) sniffing*, Neuroscience & Biobehavioral Reviews. 26 (1): 81-89, March.

This review treats petrol sniffing as a specific form of substance use. Leaded petrol was banned in the United States after December 31, 1995. The review examines the neuropharmacological actions of tetraethyl lead and volatile hydrocarbons.

- Kutzman, T.L., Otsuka, K.N. and Wahl, R.A. (2001) *Inhalant abuse by adolescents*, Journal of Adolescent Health. 28(3): 170-180, March.

The review discusses the prevalence of inhalant use in the United States, summarises the various types of substances used, highlights the major physiologic effects of inhalants and briefly discusses associated risk behaviours, prevention and medical management.



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