



Review of volatile substance use among Indigenous people

What are volatile substances?

Volatile substances are chemicals that give off fumes at room temperature. They are also called 'inhalants' because they are breathed (inhaled) through the mouth and nose [1]. Volatile substances are a type of psychoactive drug. Psychoactive drugs are drugs taken for pleasure that act on the brain to alter the way we think, feel or act. Intoxication (being under the influence) through the use of volatile substances reduces the ability of the central nervous system (the brain and spinal cord) to function. The effects of a volatile substance are felt quickly after inhaling because the large surface area of the lungs allows the blood to quickly transport it to the brain within minutes of use. This causes the level of the drug in the blood to be at its highest point very quickly [2].

What types of volatile substances are there?

There are around 250 household, medical and industrial products that contain volatile substances that can be used act on the brain to alter the way we think, feel or act [1]. Many of these are easily available.

Volatile substances are usually classified into four groups [3]:

- solvents - liquids or semi-liquids (such as glues and petrol)
- gases - medical anaesthetics (sedatives) and fuel gases (such as lighter fuels)
- aerosols - sprays containing propellants and solvents
- nitrites - found in room deodorisers (nitrites do not directly affect the central nervous system and are used normally only for increasing sexual pleasure)

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More detailed information about volatile substance use in Indigenous people can be found at:

http://www.healthinfolnet.ecu.edu.au/volatile_review

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The most commonly used volatile substances are everyday items including: glues; spray paints; petrol; gas from cigarette lighters; acetone in nail polish remover; varnish; bottled fuel; and aerosol propellants.

What are the effects of inhaling volatile substances?

Inhalation of volatile substances produces a variety of short-term effects [4]. The effects are experienced within a few minutes and only last for a short time, usually less than an hour. In some cases, volatile substance use can cause serious long term effects, even death. The effects of volatile substances are shown below in Table 1.

Table 1. Short-term, long-term and pregnancy effects of volatile substance use

Progressive short term effects (low to high dose)	Long term or chronic effects	Pregnancy effects
<ul style="list-style-type: none"> feeling of wellbeing disinhibition (improper behaviour) hallucinations (visions) nausea and vomiting drowsiness (feeling tired) confusion aggression (anger and violence) slurred speech loss of coordination blurred vision loss of consciousness death <p>Other immediate effects can include:</p> <p>headache</p> <p>abdominal (stomach) pain</p> <p>hyper-salivation (over-production of spit)</p> <p>palpitations (abnormal heartbeat)</p>	<ul style="list-style-type: none"> red, watery eyes nosebleeds indigestion dizziness frequent cough lack of energy shortness of breath tinnitus (ringing in the ears) angina (temporary chest pain) stomach ulcers chronic headache sinusitis (inflammation of the area around the nose) attention, memory and problem solving depression ataxia (gross lack of coordination of muscle movements) irreversible neurological (brain) damage seizures and epilepsy (fitting) loss of hearing and sight loss of feeling damage to the heart, lungs, liver and kidneys reduced bone density (strength) some forms of cancer Parkinson's disease 	<ul style="list-style-type: none"> spontaneous abortion (loss of baby) congenital malformation (birth defects) low birth weight developmental delay behavioural issues in later life

Source: Adapted from d'Abbs P, Maclean S, 2008 [1] and Parliament of Victoria, Drugs and Crime Prevention Committee, 2002 [4]

There are also large financial costs associated with VSU for the wider Australian community. In 2005, the estimated total cost of petrol sniffing in Central Australia was \$78.9 million, the majority of which related to the costs associated with ill-health caused by VSU (\$38.1 million) and those associated with crime (\$16.2 million) [5].

What is known about hospitalisation and deaths?

At present, there is no thorough collection of data about VSU-associated mortality (deaths) or morbidity (serious injury and hospitalisation) in Australia [1]. This is because users typically present to health facilities with illnesses (for example, pneumonia) or injuries (for example, burns) caused by VSU, but the hospital records only reflect the specific illness or injury.

Similarly in the case of deaths, the practice is to list the medical explanation of the cause of death rather than the use of volatile substances that led to it [4]. For example, the cause of death of a petrol sniffer may be recorded as asphyxiation (suffocation) rather than the petrol sniffing that precipitated the asphyxiation.

The following facts represent the best summary of what is known at a national and state level about mortality and morbidity due to VSU:

- During 2003-04 in Victoria, VSU was the main drug problem of around 2% of clients undertaking courses of treatment delivered by specialist alcohol and drug services [6].
- During 2003-04 in Victoria, 35 VSU-related hospitalisations resulted in 214 bed days
- In WA, between 1994 and 2000, there was an average of 32 VSU-related hospital admissions per year [7].
- A national study indicated that 121 deaths from VSU occurred between 1980 and 1987 [8]. Of these deaths, 17 were attributable to petrol sniffing (at this time petrol contained lead).
- Victorian coronial files indicated that 44 deaths between 1991 and 2000 were associated with VSU [4].

There is more information available at a regional level on deaths associated with petrol sniffing, and in all cases those who died were Indigenous [1][9]. What is currently known about regional level mortality due to VSU includes:

- between 1981 and 1991, 63 Indigenous people (only 3 females) were identified as having died from causes related to petrol sniffing in WA, SA and NT. Two-thirds (42) of those who died were from desert communities that straddled the border region of WA and SA
- between 1998 and 2003, 37 petrol sniffing deaths were identified in WA, SA and NT.
 - most of these deaths occurred in the Central Northern Territory (16) and the Pitjantjatjara Lands (11)
 - the immediate cause of deaths in most cases was either respiratory failure (failure of the lungs and the breathing system) (10) or suicide (9) [10].

Conclusion

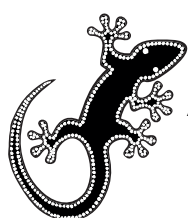
According to available evidence, the use of volatile substances – especially petrol sniffing – among the Indigenous population is much higher than that of the non-Indigenous population. The use of volatile substances has major impacts on Indigenous people, families, communities and the wider Australian community.

It is important to develop policy and practice to address volatile substance use among Indigenous people. The much greater disadvantage experienced by Indigenous people in the areas

of education, employment, income, and housing are important contributors to the use of volatile substances. Reducing volatile substance use and its impacts requires a holistic approach addressing this disadvantage. Programs addressing volatile substance use should be operated in combination with a range of general programs aimed at 'closing the gap' between Indigenous people and other Australians in the areas of education, employment, income and housing.

References

1. d'Abbs P, Maclean S (2008) Volatile substance misuse: a review of interventions. Barton, ACT: Australian Government Department of Health and Ageing
2. Wille SMR, Lambert WEE (2004) Volatile substance abuse—post-mortem diagnosis. *Forensic Science International*; 142(2-3): 135-156
3. National Institute on Drug Abuse (2005) Research report series – inhalant abuse. Maryland: National Institute on Drug Abuse
4. Parliament of Victoria, Drugs and Crime Prevention Committee (2002) Inquiry into the inhalation of volatile substances: final report. Melbourne: Drugs and Crime Prevention Committee
5. Access Economics (2006) Opal cost benefit analysis. Canberra: The Opal Alliance
6. Stoové M, Jenkinson R, Matthews S, Dietze P, Laslett AM, Clemens S, Cvetkovski S, Barratt M, McElwee P (2005) Victorian drug statistics handbook 2005: patterns of drug use and related harm in Victoria. Melbourne: Victorian Government Publishing Service
7. National Inhalant Abuse Taskforce (2006) National directions on inhalant abuse, final report. Melbourne: Victorian Government Department of Human Services
8. National Drug Abuse Information Centre (1988) Deaths due to volatile substance abuse. Canberra: Australian Government Publishing Service
9. Shaw G, Biven A, Gray D, Mosey A, Stearne A, Perry J (2004) An evaluation of the Comgas scheme: they sniffed it and they sniffed it but it just wasn't there. Canberra: Department of Health and Ageing
10. South Australian Centre for Economic Studies (2010) Cost benefit analysis of legislation to mandate the supply of opal fuel in regions of Australia: final report. Adelaide: Australian Government Department of Health and Ageing



Australian Indigenous HealthInfoNet

The Australian Indigenous HealthInfoNet is an innovative Internet resource that contributes to 'closing the gap' in health between Indigenous and other Australians by informing practice and policy in Indigenous health.

Two concepts underpin the HealthInfoNet's work. The first is evidence-informed decision-making, whereby practitioners and policy-makers have access to the best available research and other information. This concept is linked with that of translational research (TR), which involves making research and other information available in a form that has immediate, practical utility. Implementation of these two concepts involves synthesis, exchange and ethical application of knowledge through ongoing interaction with key stakeholders.

The HealthInfoNet's work in TR at a population-health level, in which it is at the forefront internationally, addresses the knowledge needs of a wide range of potential users, including policy-makers, health service providers, program managers, clinicians, Indigenous health workers, and other health professionals. The HealthInfoNet also provides easy-to-read and summarised material for students and the general community.

The HealthInfoNet encourages and supports information-sharing among practitioners, policy-makers and others working to improve Indigenous health – its free on line yarning places enable people across the country to share information, knowledge and experience. The HealthInfoNet is funded mainly by the Australian Department of Health and Ageing. Its award-winning web resource (www.healthinonet.ecu.edu.au) is free and available to everyone.

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FEATURED ARTWORK

Rain meets creek,
creek meets river, river
meets sea

by William Miller

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