



Australian Government
Department of Health and Ageing

An evaluation of the **Comgas Scheme**



*They sniffed it and they sniffed it
– but it just wasn't there*



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– but it just wasn't there*

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'This Petrol Rubbishes Our People and the Homelands'

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FOREWORD

This is a report of an evaluation of the Comgas Scheme. The Scheme is a petrol sniffing reduction program administered by the Office for Aboriginal and Torres Strait Islander Health in the Commonwealth Department of Health and Ageing. It financially assists remote Aboriginal and Torres Strait Islander communities to substitute their supplies of unleaded petrol with an aviation fuel, Avgas, which is not attractive to sniffers.

This evaluation found that the Comgas Scheme is a safe, popular and effective strategy to reduce petrol sniffing in Australia. Avgas is not sniffed on a regular basis. Complementary, community-based interventions are important, as is distance from unleaded fuel.

The evaluation report recommends that the Comgas Scheme be continued. My Department will do so, and remote communities will continue to be able to apply to join the Scheme on meeting eligibility criteria.

The evaluation report also recommends that the Scheme be promoted and expanded, and that associated educational material is developed. My Department will streamline the program's administration and promotion. This will include continuing to provide funding to communities to support complementary interventions. Work will commence with the Department of the Environment and Heritage and the petroleum industry to explore partnership opportunities, including investigation of an unleaded alternative fuel to Avgas for use in the Scheme.

This Report will be of use to those interested in improving the health and wellbeing of Aboriginal and Torres Strait Islander people, particularly around volatile substance use. It provides encouraging evidence that responses developed by the Australian Government are working.

The Report will be posted on the web site of the Office for Aboriginal and Torres Strait Islander Health at www.health.gov.au/oatsih. Further copies are available by contacting OATSIH's Substance Use and Men's Health Section on (02) 6289 1256.

I thank those individuals, communities and services that contributed to this evaluation.

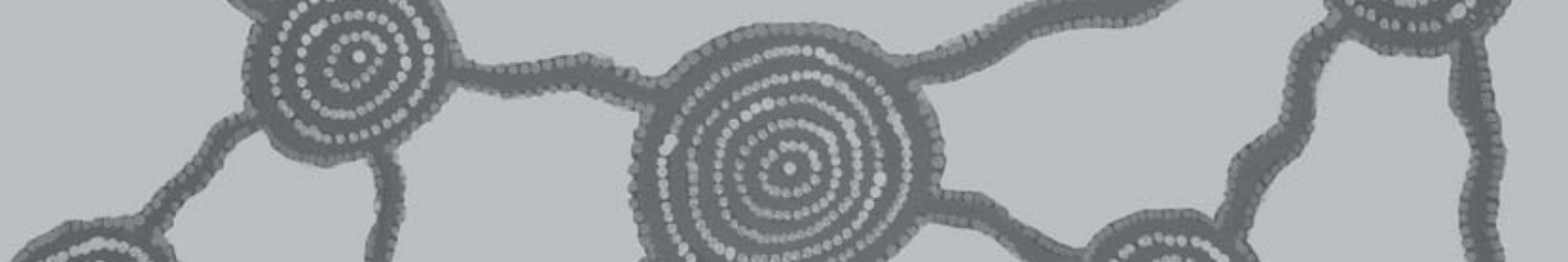


TONY ABBOTT

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ABBREVIATIONS

ADAC	Aboriginal Drug and Alcohol Council (SA)
ANCD	Australian National Council on Drugs
Avgas	aviation fuel
CAYLUS	Youth Link-Up Program
CDEP	Community Development Employment Program
COAG	Council of Australian Governments
COMGAS SCHEME	Australian Government harm minimisation strategy that subsidises the purchase of Avgas
NDRI	Nation Drug Research Institute
RAAASS	Remote Area Alcohol and other Substance Abuse Strategy

EXECUTIVE SUMMARY

The purpose of this evaluation was to investigate the safety and effectiveness of aviation fuel (Avgas) as an intervention to reduce petrol sniffing, and specifically to evaluate the Comgas Scheme. Thirty-three communities that have experienced sniffing were visited or telephoned and were asked about:

- the impact of Avgas on levels of petrol sniffing;
- the number of current sniffers in their community;
- the health impacts of sniffing; and
- other strategies to reduce petrol sniffing.

Avgas was found to be safe, effective and popular in reducing petrol sniffing. While most communities reported experimental sniffing on the introduction of Avgas, we found no evidence that Avgas is being sniffed on a regular basis. Experimental sniffing stopped as soon as people realised *...it isn't there* (unnamed source).

Avgas is effective in reducing levels of petrol sniffing in a range of situations defined in terms of:

- distance to the nearest outlet for unleaded petrol;
- length of time Avgas has been used; and
- types of other interventions for reducing petrol sniffing.

While these factors do impact on the degree to which Avgas is effective, this study has shown that it has some positive impact in every situation.

Support for the use of Avgas and specifically for the Comgas Scheme was widespread. Many people were alarmed that the Comgas Scheme was being evaluated and bade team members to ensure that the Scheme would remain in operation. As one person put it,

If we bring that red petrol back, we'll be marching to the graveyard again.

Unnamed source

This study concludes that the Comgas Scheme should be maintained and the role of the scheme expanded to promote and facilitate the use of Avgas so as to maximise participation. The role of the Comgas Scheme should expand from just providing a subsidy to include educating communities about the impact of Avgas on vehicles and boats, and offering support to communities facing challenges in using Avgas.

Other data collected includes information on:

- the extent of sniffing;
- health impacts; and
- other interventions in place.

These data do not have an immediate bearing on the Comgas Scheme and are presented as a separate section of the report (*Section 2*). Its analysis has led to recommendations that are relevant to aspects of the response to petrol sniffing other than through the Comgas Scheme.

The level of petrol sniffing has declined over the past 20 years. Estimates of the number of people currently sniffing were compared to data collected in 1986 by Brady (1992). Analysis suggests that Avgas has made an important contribution to this decline, but that while petrol sniffing appears to be declining, many communities are now more concerned about use of cannabis.

Health impacts

Mortality and morbidity associated with petrol sniffing since the late 1980s and early 1990s (when leaded petrol was used) has been reduced with one alarming exception—Western Central Australia has experienced higher levels of mortality (i.e. six deaths) from petrol sniffing over the last eighteen months than in any other area at any time since data collection began.

Other interventions

Communities participating in this study have also tried a wide range of other interventions to reduce petrol sniffing. These can be roughly divided into those carried out by family members, and those initiated and conducted either through community or regional structures. The diversity of the location, structure, content, staffing and timelines of these interventions makes it difficult to draw conclusions about their efficacy as types of interventions and they can only be assessed with respect to the unique context in which they are carried out. This study concludes that pre-conditions such as the presence of stable organisations to support the intervention and community ownership of the intervention are more important than the precise form or type of intervention employed.

Summary of recommendations

Recommendation 1:

The Comgas Scheme should be continued because it facilitates the use of Avgas and has been shown to be a safe, effective and popular intervention.

Recommendation 2:

The Comgas Scheme should be made available to any community wishing to participate.

Recommendation 3:

Communities should become eligible for payment of the Comgas subsidy from the time of the first delivery of Avgas.

Recommendation 4:

The role of the Comgas Scheme should be expanded to include facilitating and promoting the use of Avgas at the community level. This expansion should include the following support:

- 4.1 Creation of a database to track participation in the scheme. Communities withdrawing from the Comgas Scheme could be easily identified, so they could be offered support and information.
- 4.2 Creation of a resource and information kit about Avgas, to be distributed and put on the internet (with appropriate links). Details of information that needs to be included in this kit are provided at the end of *Section 1*.
- 4.3 From time to time, the promotion of Avgas and the Comgas Scheme including advertising on radio and television and circulating the Avgas kit.
- 4.4 Creation of a small fund to facilitate expert visits to communities considering the use of Avgas.

Recommendation 5:

The feasibility of locating Avgas on highways and in towns should be investigated.

Recommendation 6:

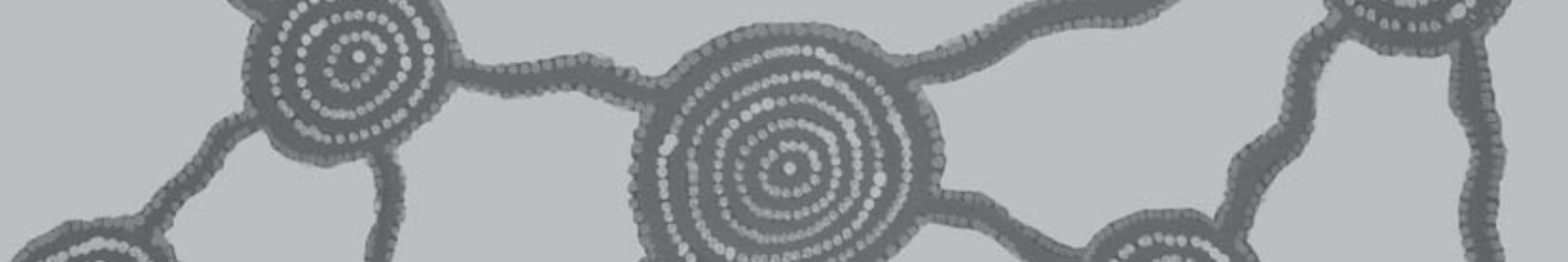
Strategies to address petrol sniffing should not be conducted in isolation from broader substance misuse interventions, as petrol sniffing is often part of a pattern of polydrug use including alcohol and cannabis.

Recommendation 7:

Consideration should be given to undertaking an education campaign warning petrol sniffers of the dangers of lying down with a petrol can on their face. This campaign should be aimed at sniffers and their families.

Recommendation 8:

The current Youth Link-Up Program (CAYLUS) should continue to be funded, as this program is best placed to reduce the high levels of petrol sniffing and related levels of mortality and morbidity in the Central Northern Territory.



Recommendation 9:

Funding should be made available for communities to implement a range of complementary interventions as considered appropriate by each community.

Recommendation 10:

Fuel companies should be encouraged to support the above initiatives, financially and in kind, by providing information and/or support staff to communities and to the proposed clearing house.



INTRODUCTION

Objectives for the review were to:

- advise on the safety and effectiveness of the use of Avgas as a harm minimisation measure to reduce the incidence of petrol sniffing;
- identify the nature and extent of sniffing;
- assess the community participation approaches to reduce petrol sniffing;
- collect specific data on health impacts of petrol sniffing;
- identify petrol sniffing reduction, success or impediment factors; and
- develop conclusions and make recommendations.

Aviation fuel (Avgas) contains substantially less of the hydrocarbons used in petrol (leaded, lead replacement and unleaded) that affect the central nervous system and cause intoxication. Sniffing Avgas does not result in any noticeable level of intoxication and is used as a substitute for petrol in many remote Aboriginal communities. It functions as both a supply reduction and a harm minimisation strategy.

Avgas was first used as a strategy to reduce petrol sniffing in Arnhem Land in 1992. However, the level of excise on Avgas when it is used for non-aviation purposes is 45.2 cents per litre, making it substantially more expensive than unleaded petrol. Several communities successfully petitioned the Australian Government for relief from the excise, and the Comgas Scheme was launched in 1998. At least 36 communities have introduced Avgas for varying periods of time and 33 have participated in the Comgas Scheme since that time. Currently, there are 30 communities in the scheme and several more poised to join it.

Under the Comgas Scheme the Australian Government provides a subsidy to participating remote Aboriginal communities

to enable them to purchase Avgas at prices comparable to unleaded petrol.

METHODOLOGY

Evaluation activities

Literature relating to petrol sniffing and Avgas was reviewed to examine the effectiveness of:

- community participation strategies;
- historic documentation of health impacts; and
- previous documentation of the efficacy of the Comgas Scheme.

Extensive literature reviews on petrol sniffing have been published, so this review concentrated on the most recent materials, and on sources specific to the Comgas Scheme and Avgas.

Ethics approval for the evaluation was obtained from the:

- Human Research Ethics Committee of the Northern Territory Department of Health and Community Services;
- Central Australian Human Research Ethics Committee; and
- Aboriginal Health Research Committee of South Australia.

The Western Australian Aboriginal Health Information and Ethics Committee was advised of the study, but indicated they did not need to approve it as long as Ngaanyatjarra Health was fully informed of activities.

A plain language consent form and a plain language community information handout for interviewees were prepared (*Appendix A*).

An interview guide or checklist was prepared to ensure that there was consistency among the different interviewers. Interviews did not necessarily cover every item in the guide. Rather, interviewers concentrated on the areas of interest and expertise of each interviewee (*Appendix B*).

Communities to be visited were selected through negotiations with the Comgas Evaluation Working Group and the communities themselves.

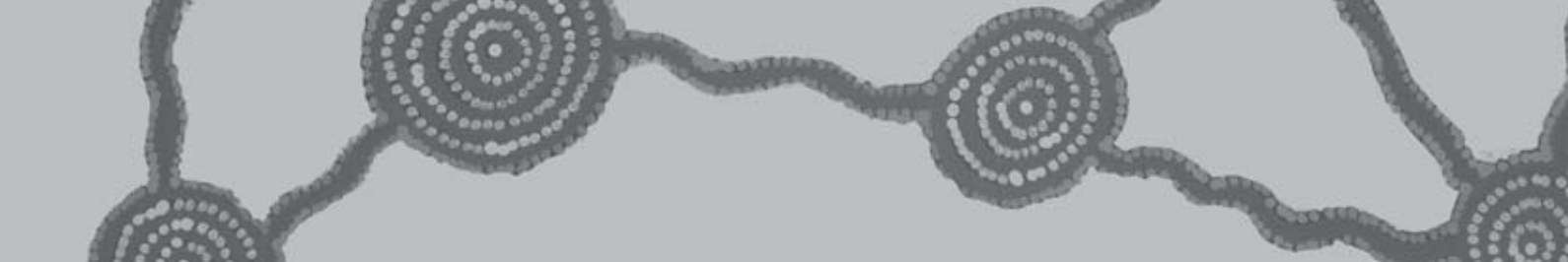
Small teams visited eight communities where Avgas is used and two communities where it is not used. Several other communities were visited en route and brief consultations conducted. All the communities visited are in either the Northern Territory, South Australia or Western Australia. The interviewers spoke with a wide cross-section of people in these communities including council members, town clerks, elders, night patrol workers, health clinic staff, past and present sniffers, family members of sniffers, youth workers, police, women's centre workers, workshops, shops, the Community Development Employment Program (CDEP), schools, and cultural centres (*Appendix C*).

A plain language report of the findings resulting from the interviews was drafted for these communities and returned to their councils for feedback. This information was then summarised using the broad headings of the objectives of the evaluation and compiled as a community report.

In addition to the communities visited, 23 communities (all Comgas Scheme participants) participated in a brief survey of their current situation. Council members or employees were asked about:

- whether the community was still using Avgas;
- other interventions in place;
- other fuels available;
- levels of petrol sniffing;
- their views on continuing the Comgas Scheme; and
- suggestions for improving the scheme (*Appendix C*).

A number of key informants were also interviewed. Key informants were identified



by the Comgas Evaluation Working Group and by members of the evaluation team. Most interviews were conducted face-to-face, but in cases of limited availability, telephone interviews were done (*Appendix D*).

During the community visits, interviewers collected available data about the health status of sniffers and sniffing-related deaths from health services. The following data sources were also contacted:

- Coroner’s Office (Northern Territory);
- Coroner’s Office (South Australia);
- National Coronial Information System;
- Drug and Alcohol Office (Western Australia);
- Department of Health and Community Services (Northern Territory); and
- Dr Maggie Brady (author of *Heavy Metal: The Social Meaning of Petrol Sniffing in Australia 1992*).

Neither the Northern Territory nor the South Australian Coroner’s Offices could search their records without the name of the deceased, so their data collections were not used. The National Coronial Information System provided mortality data from the year 2000 including location of death by postcode, age and cause of death. The Drug and Alcohol Office of Western Australia offered data that had already been published in an occasional paper. The Northern Territory Department of Health and Community Services was approached for evacuation data (i.e. hospitalisations related to petrol sniffing), but could not provide it in a timely manner, so it was omitted.

All evaluation team members met in Adelaide for one week to collate and discuss the data collected and to draft the report including recommendations. Subsequently, another meeting was held in Adelaide with members of the Comgas Evaluation Working Group to discuss the draft recommendations and presentation of the final report.

Data analysis

A large amount of data was collected. The validity of each source of data was tested in the field by triangulation—opinions and facts that were supported by other interviews were included for use in the next stage of analysis.

Data were coded into themes designed to answer the study objectives (e.g. data on the impact of Avgas on levels of petrol sniffing from each community were collated to form a national picture). Data for each theme were then analysed to:

- identify any consistent themes in relation to the study objectives; and
- look for any exceptional circumstances.

The evaluation team

Aboriginal Drug & Alcohol Council (ADAC)

- Mr Scott Wilson, Director of ADAC, member of the Australian National Council on Drugs (ANCD), and Deputy Chair of the Alcohol Education and Rehabilitation Foundation
- Mr Andrew Biven (B.Econ), Special Projects Officer
- Mr Jimmy Perry, Cert 4 Aboriginal Primary Health Care, Project Officer—Makin’ Tracks

National Drug Research Institute

- Associate Professor Dennis Gray (MPH, PhD), Deputy Director of NDRI
- Ms Annalee Stearne (B.A., Dip Ed.), Research Associate

Independent consultants

- Anne Mosey (Dip. Comm. Serv. [AOD Mgmt])
- Gillian Shaw (B.App. Sc. [Hlth Ed], MPH)



CASE STUDIES



CASE STUDIES

Six case studies are presented. They were chosen because they encapsulate many of the issues raised during the thirteen community visits. The overall impression from these case studies is one of diversity (see below):

- each community has a different history of sniffing;
- each has dealt with their sniffers differently; and
- Avgas has been used at different stages of their sniffing history.

Outline of case study community background.

Community	Community situation
Community 1	Used Avgas in a situation where sniffing was completely out of control. Avgas was introduced and sniffing stopped very quickly. Quick to introduce youth programs for young people. Avgas has been successful in reducing the level of sniffing in this community.
Community 2	Used Avgas in a situation where sniffing was completely out of control. Avgas was introduced and sniffing stopped very quickly. Only just beginning to introduce youth programs for young people. Avgas has been successful in reducing the level of sniffing in this community.
Community 3	Sniffing well under control, but introduced Avgas as an additional measure. Avgas has further reduced their level of sniffing.
Community 4	Does not have Avgas at present but appears to have all the prerequisites for a successful program. Currently reconsidering an earlier decision not to introduce it.
Community 5	Situated close to a highway, so petrol is relatively easily available. Avgas only slightly reduces the supply of petrol so rely principally on other interventions.
Community 6	Does not use Avgas. Provides a good example of the difficulties in accessing information about Avgas.

Themes that emerged from these case studies are:

- cannabis is perceived as a bigger problem than petrol sniffing in some areas;
- people are concerned about the effect of mixing smoking cannabis and sniffing petrol in the one session;
- widespread concerns about the impact of Avgas on vehicles and boats may affect the decision to use Avgas;
- there is difficulty accessing accurate information about the impact of Avgas on cars and boats, and about sniffing it;

- some communities begin to use Avgas before they have joined the Comgas Scheme;
- a diverse range of other interventions is used by communities to reduce petrol sniffing;
- in one community Avgas was successful in reducing petrol sniffing over many years as a stand-alone strategy;
- Avgas is used in a diverse range of situations;
- the police play a role in assisting communities to combat sniffing; and
- stable community organisations are important in assisting communities to deal with petrol sniffing.



Community 1

Community 1 experienced very high levels of sniffing in the 1980s and early 1990s, with reports of up to 200 petrol sniffers camping in the mangroves during the day and harassing the community at night. No deaths are attributable to sniffing, however sniffers were sometimes in Royal Darwin Hospital Intensive Care Unit for up to six months.

Previous interventions

The community had made a series of attempts to deal with the sniffing levels, including:

- removal to outstations;
- employment of a youth worker funded by YMCA; and
- replacement of leaded with unleaded petrol.

While the first two of these partially reduced levels of sniffing, they were ultimately unsuccessful.

Replacing leaded fuel with unleaded reduced the harm associated with sniffing and evacuations to Royal Darwin Hospital dropped from over 40 per year to only one or two. However, sniffing levels did *not* decrease.

The community heard about the use of Avgas from the Ngukurr community, which had tried one tank load. It had also noticed that the Avgas drums kept on the airstrip

were not touched by sniffers. However, when they realised that Avgas was high in lead content, there was a high level of concern about using it. The community was informed that ... *it might kill young people who sniffed it within a week* (Community Council employee) and signs were put up around the community. The community conducted extensive meetings before the decision was taken to try Avgas. Clinic staff were put on standby and preparations were made for emergency evacuations. Petrol in the tanks was allowed to run down to almost empty. The community, both Indigenous and non-Indigenous members, emptied out or used up every container of petrol in the community.

Avgas was put into the tanks in December 1992. All long-term residents interviewed stated that there was no sniffing at all from that day. One boy attempted to sniff the new fuel and was very ill, and no others attempted to. There were no attempts to break open the bowser, in contrast

to previously, when the underground tank outlets were damaged nightly. The community was amazed at the instant change. Young people who hadn't been seen before emerged from the bush.

The Community Council then put in place strategies to assist the young people with employment and recreation, and employment increased dramatically. While these initiatives had been planned for some time before the introduction of Avgas, their implementation was delayed until early 1993.

Current interventions

Sport and recreation

Community 1 has a recreation officer, a basketball court, an oval, and a recreation hall used for indoor sport and band practice. A series of workshops on music and the music industry is being run, and an alcohol-free music festival was recently held.

Education

The school has obtained secondary education status, and will offer a full secondary education from 2004. There is

a good family liaison program, and staff provided at outstation schools. The school has a good relationship with the community, and high attendance numbers.

Avgas

Avgas and diesel are still the only fuels used in this community. Employment contracts state that no petrol is to be used in the community, and this intervention has been supported unanimously.

Police

The police were supportive of the community's decision to use Avgas. Their primary concern was the very high levels of cannabis use among young people and alcohol abuse among adults.

Night patrol

A night patrol operates on most nights, working mainly with drinkers.

Wellbeing program

The youth and wellbeing program funds two workers to work with young people, taking them camping and fishing, and providing other resources.



Community 2

Community 2 had a long history of chronic petrol sniffing. However, there are 50 to 60 young people who will opportunistically sniff paint and solvents as well as petrol.

Community 2 is an example of an extremely isolated community that has experienced great success with Avgas. For many years it was the community's only intervention. However, it is now putting more youth-oriented interventions into place—not as petrol sniffing interventions but rather as attempts to address the broader needs of the young people.

One staff member commented that the community is starting to heal from the divisions and distress caused by petrol sniffing—high levels of tension meant that ceremonial business could not take place. This healing has taken many years to occur and only now can the community work together for its betterment.

This experience gives some indication of the lengthy process of healing following the cessation of sniffing. It also suggests that some communities need to start with Avgas as a sole strategy because they may not be capable of running any other interventions initially (see Recommendation 2).

Current interventions

Sport and recreation

Community 2 has an active football program:

- the football oval is well kept; and
- the council runs a football development program that offers training and regular tournaments.

Little regular sport is offered for girls. Netball teams travel to competitions in Kalgoorlie and Alice Springs. The town also has a well-used basketball court and a swimming pool that is open after school. The council runs a youth program that visits communities periodically offering a variety of activities such as trips away, rock climbing and discos. The school is starting up a basketball competition to be run once a week.

Police wardens

The community has ten wardens who are paid by CDEP. They work at night, supervising the young people and sending them home if they get too noisy. This scheme has only just started and operates intermittently. The men who work on the scheme are very enthusiastic and say that they are effective in controlling any sniffing that might occur.

Police

The community has police patrols visiting every week so petrol sniffing-related offences are dealt with quickly.

Outstation

An outstation is located approximately 100 km from the community and is designed to accommodate young people. The magistrate occasionally sends people who have been sniffing petrol and causing trouble out there to 'cool down'.

Avgas

Avgas has been used consistently since 1994. The community acknowledges that although it is not good for their cars, they choose it because *..we want to save lives*. Community members state that, *If we go back to red petrol we'll be marching to the graveyard again*. Most families have lost at least one young man to petrol sniffing, and they see Avgas as the centre of their efforts to reduce petrol sniffing. As one long term non-Aboriginal staff member commented, *...once you've got your foot on its throat, you don't take it off*.

Family-based interventions

The clinic staff commented that they see some petrol sniffing-related trauma, particularly when family members 'belt' their young people for sniffing. The wardens also commented that, *We talk to them—tell them it will kill them. They might stop then*.



Community 3

Community 3 had a history of petrol sniffing in the late 1980s and early 1990s with over 25 sniffers in 1992. Several attempts have been made to deal with it, including:

- two community outstation programs (an island in a nearby river and an outstation only 5 kilometres from the community);
- a change to unleaded petrol;
- community and family-administered physical punishments; and
- health promotion programs.

None of these interventions were effective. As a next stage, in the early 1990s, a senior man from the Alcohol Awareness Family Recovery initiative and his family took 14 young sniffers (who were also extended family) to a camp very close to the community, where they stayed for two years (none attempted to return) learning to hunt, fish and live off the land using traps and snares. When they returned they were put through young men's ceremonies and were married.

The community heard about the success of Avgas in the Maningrida community. They have used Avgas from 1993 to the present and are unanimous in their wish to keep it. Community 3 has relied solely on the use of Avgas as a preventative measure with only intermittent programs for young people since 1993.

No ongoing sniffing has occurred since Avgas was introduced. Two isolated outbreaks of one week in the latter part of 2003 have been associated with visitors and ready access to a supply of unleaded fuel (one organisation had used petrol instead of Avgas in its vehicle). These outbreaks appear to have been rapidly dealt with by proactive

police action with council support. Two young men have been successfully charged with supplying petrol with the intention that it may be used for inhalation. Other services have tightened their security since the outbreaks.

One death from petrol sniffing has occurred in Community 3. A long-term sniffer whose mother refused the outstation intervention died of respiratory failure after being progressively crippled. He had continued to sniff intermittently when the others had stopped.

Interventions

Avgas


Avgas has been used since mid-1993 and is the primary intervention used against sniffing. The community strongly supports its continued use. It should be noted that employment contracts do not stipulate use of Avgas only and that outside groups can bring in unleaded petrol (e.g. for small engines and quad bikes) and sniffing outbreaks have occurred.

Police

The police have responded very rapidly to reports of sniffing by:

- contacting the council;
- advising the council to expel the visiting recruiters; and
- charging two local boys with supplying petrol.

Their main concern was very high levels of cannabis use and alcohol abuse among older



community members. A female Aboriginal Community Police Officer has been training young girls in softball, with success in local competitions.

Sport and recreation

Two sport and recreation officers are employed—one by the school and one through Juvenile Diversion Unit funding. They run discos, and basketball and football games, and have a sports shed as well as a good oval. A swimming pool is planned and may be operating by the end of 2003. No youth workers are currently employed.

Employment

The community has been identified as a pilot community in the Northern Territory under the Council of Australian Governments (COAG) Agreement and has decided on youth issues as one of its two major priority areas. The community is part of a new local government region called Thamarrur, based on traditional ownership lines. They have funded a new shopping centre with a butchery, bakery, traditional credit union, post office and takeaway food store providing employment for young people. A CDEP program also operates housing, construction, garage, welding, outstation and women's resource centre sections, all providing employment for young men and women. The Land Management Program also employs young men and women.

School

The school is operating under a new structure that gives administrative decision making to a committee of Aboriginal staff. This has resulted in much higher student attendance and Aboriginal employment rates at the school.

Family strategies

When sniffing was occurring, families talked with their young people, sent them away, punished them, and sent them to local

outstations. With high levels of alcohol abuse among some families, young people only have poor role models to follow.

Alcohol Awareness Family Recovery

The Alcohol Awareness Family Recovery initiative was started by community church members, and has worked for many years with a whole-of-family approach to substance abuse. It also provides support, counselling and information on drug-related harms to community members.

Health centre

Staff reported some instances of fitting from the recent isolated outbreaks.



Community 4

Community 4 is a community of about 600 people located in Arnhem Land. As it is located a substantial distance from other communities and other sources of petrol, it would appear to be a community suited to the successful application of the Comgas Scheme. However, at the time of the evaluator's visit, Avgas was not used there.

Community 4 has experienced petrol sniffing periodically since at least the early 1980s:

- between 12 and 15 sniffers were reported in the late 1980s;
- sniffing re-emerged in about 1997 with up to 50 sniffers being present;
- in 2002 petrol was reportedly smelt on the clothes of 10 to 15 sniffers aged 10 or 11 years.

Currently, some six regular sniffers are influenced by two ringleaders. When these ringleaders are away from the community (i.e. in jail or at an outstation) the sniffing substantially reduces or disappears. There was a report of one sniffing-related death that occurred in the late 1980s.

Community 4 is an interesting case study as it appears that the visit by the evaluator assisted in reawakening an interest in Avgas. Subsequent to the visit, and in the wake of a break-in to the petrol bowser, the Council made a decision to cancel the impending delivery of unleaded petrol and replace it with Avgas without application to the Comgas Scheme (see Recommendation 3).

Most people spoken to at Community 4 reported that cannabis was a bigger problem than petrol now.

Previous interventions

Sniffing in the late 1980s was addressed by removing sniffers to outstations. With the re-

emergence of sniffing in 1997 the community decided to move to become a diesel-only community. The community relies largely on diesel but a small amount of petrol was retained chiefly for outboards and other small motors. At the time of this study, there were four petrol cars in the community—much of the demand for petrol comes from visitors who bring their own petrol vehicles.

At the time Avgas was being considered as a strategy in Arnhem Land, Community 4 was influenced to reject Avgas by their mechanic. He was able to influence community leaders and to undermine all attempts to introduce Avgas. His opposition was based on the possible impact of Avgas on vehicles and outboard motors. Following the departure of this person in early 2003, the community, with the encouragement of the new Workshop Manager, again investigated Avgas. The Workshop Manager argued that provision of Avgas was an equity issue—diesel vehicles are more expensive than petrol vehicles. By introducing Avgas, more community members will be able to afford a vehicle.

Following rewiring of the petrol bowser overnight by several sniffers, the Workshop Manager and the Council Clerk acted quickly to introduce Avgas without application to the Comgas Scheme.

Current interventions

Homelands

Several homelands relate to Community 4 and these have been used as places where sniffers are sent to remove them from the community or from petrol supplies. Although some homelands have petrol, its use is easier to monitor and they have been a suitable location for occasional sniffers. Separation from sniffing ringleaders has been an effective strategy for some.

Youth program

The community has been involved with Darwin Workskills in developing their Youth Wellbeing Program. A major focus of this program has been to run camps for young people, especially those involved in petrol sniffing or smoking cannabis. While the program is still operating, no camps have been run recently. Funding ceased on 30/6/2003 and the community has not received word about future funding.

A large youth recreation building is being constructed and there are plans for movies, table tennis and other activities. Discos are not permitted in the community for cultural reasons.

Sport

Football is a major focus for the community during the dry season. The community has four teams and up to 120 young males are involved. Competition is by knockout and each time a team is knocked out there is a noticeable increase in sniffing. This would also account for some of the reported increase in sniffing during the wet season. Basketball is also played but does not attract as many players. A sport and recreation program supports the football and basketball.

Avgas

Avgas had not been introduced as a strategy. However, it is available at the airport and there were reports of attempts to sniff it leading to a visit to the local health clinic with stomachaches and vomiting.

Supply control

The community operates a fuel card system for the purchase of all fuel. They do not carry \$10 petrol cards and cards are not sold to minors. The store is also aware of the potential of other inhalant products (e.g. 'Mortein' was removed from the shop).

Policing

The community operates a night patrol but does not have any police presence. They are currently negotiating for an Aboriginal Community Police Officer.

Education

Community 4 has an education problem with respect to sniffing. This relates to the film 'Yolgnu Boy', which has an anti-sniffing message. In the film, an actor dies as a result of sniffing. However, this actor is well known in Community 4 and is still very much alive and active. The message some children have drawn from watching the movie is that you can die and come back.



Community 5

Community 5 is situated only 40 km from the nearest petrol outlet and has a long history of intensive sniffing:

- in 1997 there were approximately 26 sniffers; and
- in 2003 there is a core group of between 8 and 12 chronic sniffers and reports of two new school-age boys beginning to sniff.

An apparent decline in sniffing occurred between 1997 and 2003 (pers. comm., long-time nursing sister at the health clinic). A sniffing-related suicide occurred in May 2003, and there have been several attempted suicides among the sniffing population. Community 5 has one disabled sniffer and one who is 'getting sick'. There are also reports of people sniffing petrol and smoking cannabis at the one session together.

The community vehemently wishes to continue the Avgas strategy. In addition to their success with Avgas, they have had a lot of success with community and family-based programs. The interventions they use can be summarised as:

- removal;
- youth work (through pastoral care);
- diversionary activity;
- education; and
- policing.

These strategies have not entirely eliminated petrol sniffing, but have contributed to its reduction. The role of the school as an initiator and coordinator of some of these interventions is important. Its principal has been in the community for seven years and provides stability to the educational aspects of the interventions, and also knowledge of how to work with the community to get additional interventions operating in a sustainable way.

Current interventions

Education

Community 5 has a well established school with a number of long-term staff. They achieve good retention into high school, and have three students in Year 12. They also have one student at the University in Adelaide. The school does take up some individual cases, trying to reintroduce young people at risk into school. They report a varying degree of success.

Sport and recreation

Community 5 has a 'Rage Cage', a multi-purpose sporting facility that was funded by the school. It is the size of a tennis court, has a sprung floor, is surrounded by wire netting and has night lighting. The lights stay on until 10:00 pm and it is well used until that time. One interviewee commented that the young people play games there until 10:00 pm, and then go and sniff. The community also plays an active role in local football and has a well-kept football oval.

Police

A recent police operation—Operation Safelands—in Community 5 (and other Pitjantjatjara communities) has targeted petrol sniffing. The Safelands teams of police aides and police officers have spent time roaming the community at night, tipping the petrol out of cans and sending people home. The community is highly supportive of Operation Safelands and thinks that it plays a role in reducing sniffing.

Avgas

Community 5 has used Avgas consistently since 1997. The community are keen to

continue its use, as they believe it does limit petrol sniffing. Although sniffers often obtain fuel from other sources, such as neighbouring towns where unleaded fuel is sold, it is harder to get and so Avgas is effective as a supply reduction measure in this community. The reduction in supply may discourage people from becoming chronic users. The Police Aide also commented that, *When they sniff, they only got a little bit in that can*. As a result, it is also serving as a harm minimisation strategy.

The community agreed that Avgas is very bad for their cars, and some community members mentioned that they don't actually use Avgas, preferring to put unleaded petrol into their vehicles.

Pastoral care

Community 5 has a church minister who takes a great interest in young people. Others reported that he has directly influenced at

least three young people to stop sniffing. He spends time with these boys, encouraging them to stop sniffing and engage in other activities.

Family-based interventions

People spoke of three individuals who have been taken by family members to live elsewhere—Alice Springs, Port Augusta and a neighbouring Pitjantjatjara community. All three of these individuals have stopped sniffing; however, when they return to Community 5 they immediately begin again.

Community intervention is also important in reducing sniffing since it tends to increase when '*... The old people are too old to take on all the fights*', suggesting that community members have a constant role in encouraging, exhorting and arguing with their young people.



Community 6


Community 6 was not selected as one of the field work sites for this project. The case is included here as it demonstrates the difficulties in accessing information about petrol sniffing in general and Avgas in particular.

Community 6 has experienced a recent rise in petrol sniffing. Out of their concern, the community asked their youth worker to help find a solution to this problem. They stipulated that they do not want to use Avgas because of harmful effects on outboard motors for boats.

The youth worker contacted Dr Maggie Brady, who sent a number of articles about petrol sniffing to the community. She also suggested that Avgas might help the community reduce sniffing, and gave

the youth worker Gill Shaw's home phone number. Gill Shaw discussed the potential of Avgas for Community 6 and referred the youth worker to Alan Clough—along time worker at Maningrida with knowledge of the impact of Avgas on boats.

The youth worker now faces the challenge of discussing these issues with the community. She will be relaying information in a second-hand way, and will probably face an uphill task unless she is very well respected within the community.



Members of the team have not heard from Community 6 again, and are unsure of subsequent events in this case.

Community 6 illustrates the ad hoc nature of obtaining information sources about petrol sniffing. Other evaluation team members also receive calls from communities wanting information about sniffing and it has been suggested that this lack of a clear information source is one of the obstacles faced by communities wishing to address petrol sniffing (M Brady, pers. comm. 2003). Dr Brady has suggested the creation of a network of information officers at the State level. These officers could sit within the drug and alcohol section of each State health department to ensure that petrol sniffing is a part of the response to drug use, rather than an isolated entity. The capacity created by these officers would give every community a clear information point. The officers could also facilitate the creation of a network of expertise in petrol sniffing. There could be yearly meetings to share information with a broad range of stakeholders.

Another approach to the creation of a centralised information dissemination point is to link it with the proposals for a national clearinghouse on drug information.

This case also demonstrates the possible utility of a small fund that would allow experts and workers addressing petrol sniffing to visit and support other communities contemplating the introduction of Avgas (see Recommendation 4).



SECTION 1: AVGAS



SECTION 1: AVGAS

The Safety of Avgas

Avgas has been used in Aboriginal and Torres Strait Islander communities as a petrol substitute since 1992. In the eleven years since its introduction, only sporadic reports of Avgas sniffing have been made. These reports are of particular concern given the high lead content of Avgas and the chance that sniffing Avgas could cause the same degree of harm as sniffing leaded petrol.

In order to examine the veracity of these reports the evaluators asked community organisations and individuals whether or not people in their communities had ever sniffed Avgas in a sustained fashion. Typically, this question was asked of mechanics, storekeepers, sniffers and their families, teachers, and health clinic staff. Across all communities, the answer was the same. When Avgas was first introduced people had tried to sniff it. However, they quickly found that they became ill rather than intoxicated and after a short time stopped trying to sniff it.

They sniffed it and sniffed it—but it just wasn't there.

(Woman Community Member 2003)

No reports of sustained Avgas sniffing were found.

Sporadic reports have been made of people mixing a variety of ingredients with Avgas in order to change its chemical composition and cause intoxication. In order to follow up these reports, the evaluators asked whether local people had tried to change Avgas and whether these attempts had meant that they could sniff Avgas on a regular basis. Sniffers in different communities have tried the following methods to make Avgas 'sniffable':

- mix Avgas and unleaded petrol, let sit until fuels separate, pour off unleaded petrol;
- strain Avgas through a loaf of bread;
- let Avgas sit in the sun to evaporate chemicals;
- heat Avgas to evaporate chemicals;
- sniff Avgas from Styrofoam cups to take out the impurities;
- mix solvents in a plastic bottle then add Avgas;
- add sugar to Avgas to ferment the fuel;
- add Vicks vapour rub to Avgas;
- add paint to Avgas;
- add Coca Cola to Avgas to make it more palatable;
- add Disprin to Avgas;
- add broken up polystyrene cups to Avgas;
- add transmission fluid to make it red;
- add 2-stroke oil to Avgas; and
- mix Avgas with diesel.

There was no evidence that any of these strategies had the desired effect of rendering Avgas 'sniffable' and none of these strategies have persisted. Typically information about these attempts is received in an indirect fashion (see below).

In one community, the storekeeper noticed that he was selling large amounts of sugar and asked a community member why so many young people were buying lots of sugar. The shopkeeper was told the sugar was being mixed with Avgas to make it ferment and render it 'sniffable'. The high sugar sales lasted a short time suggesting that this attempt was unsuccessful.

Community Storekeeper, 2003

The conclusion that attempts to alter Avgas have been unsuccessful is given further support by the lack of any reports of lead-related morbidity and very limited reports of the fitting that is associated with sniffing

leaded petrol. Further details of petrol sniffing-related morbidity are provided in *Section 2* of this report.

The introduction of Avgas into a community

The decision to use Avgas

The decision to substitute Avgas for petrol has generally been made by communities and their councils in order to reduce the prevalence of petrol sniffing. When the decision is made in this way, the community owns the decision. Most community councils made the decision after consultations within their communities.

In Community 3, the community and petrol sniffers themselves both supported the decision to introduce Avgas. Everyone was informed of the decision at a community meeting. Following the meeting, the petrol sniffers went 'out bush', lit a big fire and burnt all their cans and supplies of fuel. This support gave the community members a sense of power and showed that they did not accept petrol sniffing. In other places, such as the Ngaanyatjarra Lands, councils did not consult their wider communities. However, the older people became supportive when they saw the positive impact of Avgas.

Information about Avgas

Most communities initially found out about Avgas by word of mouth. For much of Central Australia this was through the Petrol Link-Up Program in the mid 1990s. For the Top End it was through word of mouth, while another community was informed by its fuel supplier. Awareness of Avgas is now widespread.

However, the experience of the CAYLUS project in Central Australia demonstrates the level of misinformation that is common and is a deterrent to the use of Avgas. This study found evidence of a great deal of misinformation about the impact of Avgas on vehicles, none of which is countered through any reputable source. This misinformation prevents some communities from using the Avgas strategy (see Recommendation 4).

Some communities experienced difficulties in obtaining information about accessing the Comgas Scheme (see Recommendation 4).

Effectiveness of Avgas

Avgas enjoys a high level of support from the communities that use it. Every single community that is currently using Avgas and was contacted by this study wants to continue with the strategy. Many became alarmed at the thought that the Comgas Scheme might stop.

We have to keep the Avgas. If we go back to red petrol we'll be marching to the graveyard again.


Male Community Member
who lost his son to petrol sniffing

We can't go back now. We've got new kids coming up. They don't know petrol.

Woman Community Member

Two communities that previously used Avgas but have now stopped were contacted by this study. One of them has moved to using diesel only, and the other believed that Avgas, along with not having much impact on petrol sniffing, damaged their cars ¹.

¹ Further inquiry revealed that this community had not stopped selling unleaded petrol and that it was sold to anyone who wanted it. This contrasts with other communities who continued to sell unleaded petrol to tourists only.



The overwhelming popularity of Avgas suggests that it is effective in reducing petrol sniffing. However, this study found that Avgas was effective to varying degrees across communities and regions. Some communities found that Avgas reduced petrol sniffing dramatically and in a sustained manner while others found that Avgas contributed to some reduction in petrol sniffing, but not much.

Further analysis of this differential impact sheds some light on the factors that are important in determining effectiveness—to apply the findings in a similar way across all communities would not do justice to the capacity of individual communities to overcome the inherent difficulties in making Avgas more effective.

It is important to understand how Avgas serves to reduce petrol sniffing—available literature makes it clear that Avgas serves to reduce petrol sniffing in a variety of ways (Shaw et al. 1995; Shaw 1996).

Avgas mainly reduces the supply of petrol, but to varying degrees. If a community eliminates petrol altogether, then there would be no petrol sniffing. However, there are numerous references to the vigilance of petrol sniffers in searching for supplies of petrol (Burns et al. 1995(c), Shaw et al. 1995; Shaw 1996; Mosey 1999; d'Abbs and MacLean 2000), and in practice a small amount of petrol is bound to be available from sources such as visiting cars, contractors vehicles and cars returning from town.

Thus, Avgas typically creates a situation in which petrol is scarce. The effect is that petrol is sniffed less often and in smaller quantities. To demonstrate the point, a police aide commented that there was only ever ... *a little bit in their can*. Less petrol in the can means a lower level of intoxication, fewer negative health effects, and less of the community disruption that is typically associated with petrol sniffing (Brady 1992; Burns et al. 1995; Shaw et al. 1995; Shaw 1996; Mosey 1999; d'Abbs & MacLean 2000).


In summary, the effectiveness of Avgas in reducing the prevalence of, and harms associated with, petrol sniffing is directly linked to the extent to which it serves to reduce the supply of petrol. If Avgas results in a dramatic reduction in petrol supplies, then the reduction on petrol sniffing is dramatic and sustained. If petrol remains available along with Avgas, then Avgas will have a limited effect on petrol sniffing.

Factors affecting the impact of avgas

Proximity to unleaded petrol

The principle factor affecting the supply of petrol to a community is the proximity of the nearest source. This study found that close proximity to a regular petrol supply reduces the impact of Avgas. For some communities the closest source is a nearby highway, but for others (e.g. Pitjantjatjara and Ngaanyatjarra regions where communities are 50 to 200 km apart) the closest source may be the next community. In these cases, a regional structure for introducing and coordinating the use of Avgas is of paramount importance. Without a regional approach, one community deciding not to use Avgas (and retain a regular supply of petrol) can undermine the efforts of all other communities in the region.

The Ngaanyatjarra region, for example, has a very strong regional Council and it was a Council decision to implement Avgas, and that strategy has been maintained. There is no regular supply of unleaded petrol in the entire region and consequently there has been a dramatic and sustained reduction in the level of petrol sniffing in this region. In contrast, the neighbouring Pitjantjatjara region does not have such a strong regional structure and the decision



to implement Avgas was taken by each individual community. Over time, as some communities decided to revert to selling petrol, the strategy became less effective for other communities, who in turn became discouraged and reverted to selling petrol.

Consistency of use

Consistent use over time is another important factor in the success of Avgas. Of the 33 communities currently on the Comgas Scheme, 17 have used Avgas continually since its introduction. These communities now tend to experience very low levels of sniffing. The remaining 16 communities—most of which are located in the Pitjantjatjara, Eastern Kimberley and South West Central Australian regions—have used it sporadically (e.g. one community has used it three separate times).

Inconsistent use of Avgas may be a symptom of other obstacles to success, such as proximity to alternative petrol supplies or other factors. This idea is supported by the fact that most of the communities who use Avgas consistently are located a long way from any other source of petrol. However, there are also cases of communities that are located near to other petrol sources that have used Avgas consistently and have seen positive results.

Reasons for inconsistent use of Avgas

Unlike the reasons for introducing Avgas, the reasons for discontinuing it are often unclear. Exactly when, and for how long, Avgas has been used has not been systematically documented and this study has relied on the memories of community members. The following explanations for reverting back to unleaded petrol were given.

- **Damage to vehicles.** A number of community members cited the impact of Avgas on cars as the main reason for discontinuing its use. One long-time observer noted that in the Pitjantjatjara communities Avgas was discontinued because of the steady increase in the use of unleaded vehicles and the corresponding belief that Avgas ‘ruins cars’. One community member gave us a pithy summary of this issue: *Avgas is good for kids—but our cars have got a big problem!* Another echoed this, saying *Avgas finishes our cars in six months!*

An interesting example is provided by the history of Avgas use in the Pitjantjatjara Lands. It was introduced on a regional basis in 1994 through Nganampa Health and the Petrol Link-Up Program. By around 2000, all but one of the communities in the region had stopped its use. The decision to discontinue its use was made in an ad hoc manner by individual communities at different times. But then, prior to June 2002 (the time of the Coronial Inquiry into three petrol sniffing-related deaths), all the Anangu Pitjantjatjara communities had reintroduced Avgas.

- **Influence of individuals.** Two other communities that have used Avgas sporadically had their use of Avgas curtailed through the impact of non-Aboriginal staff. In both cases, the store managers made unilateral decisions to stock unleaded petrol on the basis that Avgas was detrimental to their own cars. Information about the use of Avgas should be included in all employment contracts and orientation manuals for community staff members. Maningrida provides an example of how this has been done successfully.
- **Pressure from external sources.** Another community made the decision to return to the use of Avgas in 2002. Since then it has been contacted by a motoring

association informing them that Avgas is bad for cars. The motoring association is concerned that there is no unleaded petrol available for a stretch of 1050 kilometres, making tourist travel through the area more difficult (they must either carry sufficient fuel in jerry cans or use Avgas). So, they are keen to get one community in the region to supply unleaded petrol. Despite this pressure, the Community Council is determined to continue to use Avgas.

In addition to the above reasons expressed by community members themselves, high staff turnover and consequent poor corporate memory also affects use of Avgas. Communities with high staff turnover tend to be more dysfunctional than those that retain long-term staff and it is possible that this dysfunction is also one of the causes of high levels of sniffing. The presence of long-term staff can mitigate against the other factors that lead to discontinuing Avgas (e.g. long-term staff can counteract claims that Avgas damages cars).

Other effects of using Avgas

This study documented some details about the impact of the reduced petrol sniffing (as a result of using Avgas) on community life. Both of the communities described here have used Avgas for a sustained period of time. Community 1 experienced a 'cultural efflorescence' as a result of Avgas (Burns et al. 1995(c)). Ceremonies that had not been performed for 20 years were performed again. After using Avgas for several years, Community 2 has also experienced a revival in ceremonial life because community rifts caused by petrol sniffing-related deaths began to heal and allowed people to come together again.

One community experienced a negative economic impact from the use of Avgas. Despite having used Avgas for about nine

years, until January 2003, Community 2 sold unleaded petrol to tourists (the policy not to sell to local cars was rigidly enforced). As a consequence, the roadhouse experienced a succession of break-ins at the bowser and guests at the roadhouse were also targets. These incidents were costing the business money and discouraging further business. So, the roadhouse managers decided to stop selling unleaded petrol and sell only Avgas. The loss of the unleaded petrol business reportedly cost the roadhouse 20% of their trade. Like the experience cited earlier, this community also experiences pressure to supply unleaded petrol. The roadhouse proprietors stated: *At some point we will have to go back to selling unleaded. We are almost not viable without it.* They intend to go back to stocking unleaded petrol when the proposed police station is in operation, and believe that the police presence will stop the petrol sniffers interfering with the roadhouse.

These examples demonstrate that different communities have different experiences with Avgas. Importantly, these experiences can be overwhelmingly positive, and are worth striving for. And communities are able to sort out their own solutions to challenges faced in using Avgas.


Conclusion

It is clear that Avgas is not being sniffed on a regular basis.

Avgas is a popular and effective intervention that has positive impacts on many aspects of community life (see Recommendation 1).

This study has identified several factors that influence the impact of Avgas.

- *Consistency of use*—a regional strategy and stable organisations at the community level increase the likelihood that Avgas will be used consistently. In addition, the



strength of perceptions of the impact of Avgas on cars, boats and small engines also influences consistency of use. The stronger the belief that Avgas causes damage, the less likely that Avgas will be used consistently.

- *Proximity to alternative fuel supplies*—this is primarily affected by the geographic situation of the community. However, it is also affected by whether the community continues to stock unleaded fuel.

There is very strong support for the Comgas Scheme in all communities contacted. Many organisations and individuals were alarmed to think that it might be under threat.

Recommendations arising from Section 1

Recommendation 1

The Comgas Scheme should be continued because it facilitates the use of Avgas and has been shown to be a safe, effective and popular intervention.

Recommendation 2

The Comgas Scheme should be made available to any community wishing to participate.

Recommendation 3

Communities should become eligible for payment of the Comgas subsidy from the time of the first delivery of Avgas.

Recommendation 4

The role of the Comgas Scheme should be expanded to facilitate and promote the use of Avgas at the community level. This expansion should include the following support.

- 4.1 Creation of a database to track participation in the Scheme. Communities withdrawing from the Comgas Scheme could be easily identified, so they could be offered support and information.
- 4.2 Creation of a resource and information kit about Avgas, to be distributed and put on the internet (with appropriate links). Details of information that needs to be included in this kit are included as a footnote to these recommendations (see below).
- 4.3 From time to time, the promotion of Avgas and the Comgas Scheme should include advertising on radio and TV and circulation of the Avgas kit.
- 4.4 Creation of a small fund to facilitate expert visits to communities considering the use of Avgas.

Recommendation 5

The feasibility of locating Avgas on highways and in towns should be investigated.

Information to be included in Avgas information kit

(see above Recommendation 4.2)

- **How to implement Avgas**
 - What should be done at the community level before having Avgas delivered
 - Emphasis that all petrol needs to be secured or removed
 - Emphasis that attention needs to be given to storage of solvents
 - Suggestion that as many people as possible be included in the decision-making process.
- **Frequently asked questions by and for communities that are already using Avgas**
 - What is the impact of Avgas on motor cars? (needs both plain English and technical version)
 - Do kids sniff Avgas? (No they don't)
 - How do I get onto the Comgas Scheme?
 - What are the manufacturers' statements about the impact of Avgas on vehicles and boats?
 - What are the possible fuel additives to ameliorate the effect of Avgas on vehicles and boats and where do I get them? Information should include the options and how to implement them.
- **A myth and fact sheet**
 - Do kids sniff Avgas? (No)
 - Does Avgas ruin engines? (It isn't great for them, but it doesn't ruin them)
 - Can Avgas be mixed with other substances to get kids high? (No).
- **An information sheet for visitors to communities using Avgas**
 - Discuss which substances need to be locked up
 - Indicate which substances to avoid bringing to the community

- **Information on other useful programs to reduce petrol sniffing**

- such as sporting or cultural programs, bush and hunting trips, recreation activities such as discos, community night patrols, sending kids away to other communities or away to school.

- **Promotional materials such as posters and stickers**

This resource kit should be distributed to all communities in the Comgas Scheme. Within each community, it should be sent to the health clinic, the school and the Council. The Aboriginal Drug and Alcohol Council's *Petrol Sniffing and other Solvents Resource Manual* should be included as a part of the resource kit as it provides information on a range of interventions other than Avgas.



SECTION 2:
OVERVIEW
OF PETROL
SNIFFING



SECTION 2: OVERVIEW OF PETROL SNIFFING

This section addresses the:

- nature and extent of petrol sniffing;
- health impacts of petrol sniffing; and
- community participation approaches to reduce petrol sniffing.

Data on the nature and extent of petrol sniffing has not been gathered systematically since 1992 (Brady 1992). In both its health impacts and community approaches sections, this study is unable to make definitive statements that would apply to all communities and the diversity of experience across the communities means that generalisations are likely to be incorrect for some communities. The only rule is that *all communities are different*.

Nature and extent of petrol sniffing

In her book *Heavy Metal: The Social Meaning of Petrol Sniffing in Australia*, Brady (1992) estimated that, until 1985, petrol sniffing had been reported in 56 Aboriginal and Torres Strait Islander communities in Australia. This did not include urban populations, and that *... at least a few of the communities listed no longer have a problem, and several who (sic) do have incidences of petrol sniffing are not listed* (Brady 1992, p. 27). Nevertheless, Brady's estimate does provide a broad baseline against which to compare the current distribution of petrol sniffing.

Brady reported that petrol sniffing was concentrated in three areas:

- parts of Arnhem Land;
- Central Australia (including the contiguous

- areas of the Northern Territory, South Australia and Western Australia); and
- the Eastern Goldfields region of Western Australia.

At that time, petrol sniffing was also reported in scattered communities in Queensland, New South Wales and South Australia. No reports of petrol sniffing from either Victoria or Tasmania had been made. The communities in which petrol sniffing was reported made up 6.7% of Aboriginal and Torres Strait Islander communities (Brady 1992, p. 27).

Brady also made a *...very approximate estimation of the number of chronic petrol sniffers in South Australia, Western Australia and the Northern Territory* (emphasis added). She defined 'chronic sniffers' as habitual rather than occasional users and estimated their number to be between 600 and 1000 (between 2% and 3% of the 10–24 year age group in those jurisdictions).

In 1994, the then Commonwealth Department of Human Services and Health (now the Department of Health and Ageing) commissioned a household survey of urban-dwelling Aboriginal people, designed to supplement the regular household surveys conducted as part of the National Drug Strategy. The survey involved face-to-face interviews with 2993 Aboriginal and Torres Strait Islander people aged 14 years or over, and living in urban areas (defined by the Australian Bureau of Statistics as population clusters of greater than 1000 persons). While the findings of the survey cannot be extrapolated directly to the Aboriginal and Torres Strait Islander population as a whole, it provides—and remains—the most comprehensive estimate of alcohol and other drug use among Aboriginal and Torres Strait Islander people. In the survey, 4% reported having sniffed petrol (as opposed

to inhalants in general) and 0.3% reported having sniffed petrol in the previous 12 months (DHS 1996).

At the population level, the percentage of Aboriginal and Torres Strait Islander people who sniff petrol is relatively small. Nevertheless, in those communities in which sniffing is endemic, especially small communities, the proportion of sniffers is high and the impact of their sniffing activity is far greater than their numbers would suggest (e.g. five chronic sniffers can cause havoc in a community of 400 people).

Community-level data gathered for this study has been de-identified and aggregated into regional reports due to the sensitivities of some communities.

Northern Territory Top End

Brady (1992) identified eight Arnhem Land communities in which petrol sniffing had been reported up until the end of 1985 (Numbulwar, Angurugu, Yirrkala, Gapuwiyak, Galiwinku, Ramingining, Maningrida and Gunbalanya [Oenpelli]). A further nine communities/towns in the Top End of the Northern Territory were identified by this study as ones in which petrol sniffing has been recorded since that time. Five of these are Arnhem Land communities, while the other four are outside that area.

Of the 17 Top End communities in which sniffing has been recorded:

- no information was available about one;
- seven reported no current sniffing; and
- the remaining nine reported varying levels of sniffing.

Of the seven reporting no sniffing:

- one had no previous information;
- three reported low levels in the past; and
- three reported high levels in the past.

Five of these seven communities are part of the Comgas Scheme, but this is not the only intervention that they have undertaken:

- diesel fuel is available in all of them and use of diesel vehicles has been encouraged; and
- most have a range of youth activity programs.


Of the other two communities with no current sniffing:

- one reported that occasional small outbreaks were dealt with by punishments or removal to an outstation; and
- the other, located close to a major regional town, has implemented a range of interventions, including a switch to diesel and youth programs.

One informant said that this was a relatively affluent community and the proximity to the regional centre meant that access to other drugs (i.e. alcohol, cannabis and kava) made petrol sniffing less attractive.

Sniffing continues in nine communities/towns. The proportion of current sniffers in these communities is between 1% and 10% with most having less than 5%. Most are occasional sniffers with a few (between 2 and 15) described as 'ringleaders', 'chronic' or 'hardcore' sniffers. Most of the sniffers in these communities were males aged between 13 and 17 years, with some younger and older people occasionally being involved.

Of the nine communities/towns in which there are current sniffers, information on changes in sniffing prevalence over time is not available for five. Of the remaining four communities one reported some fluctuation, with a recent increase to approximately 40 sniffers, including between 15 and 20 'hardcore' sniffers. This community is not part of the Comgas Scheme. The other three communities reported significant reductions. These communities have all encouraged



use of diesel engine vehicles. Two of them are part of the Comgas Scheme, and two have implemented various youth-oriented activities. One of the two not on the Comgas Scheme was actively contemplating joining it.

Burns et al. (1995a, p.164-5) found that petrol sniffers in Maningrida were more likely to be cigarette smokers, heavy drinkers, and light kava users than were non-sniffers—a finding similar to that of Gray et al. (1996) in relation to young users of volatile substances in an urban area. In six of the communities reporting current sniffing, concern was expressed about levels of cannabis use among young people. Several of those interviewed said that cannabis and alcohol were much bigger problems than petrol sniffing. In five communities, there was also some variable use of kava—depending partly upon whether the community had a license to sell kava. As elsewhere, there was a preference for these substances over petrol. In some of these communities, there was some substitution of other volatile substances (i.e. paints and glues) for petrol, but not to a great extent.

Central Northern Territory

Brady (1992, p.28-33) identified 15 communities that had experienced episodes of petrol sniffing in the Central Australian region of the Northern Territory up to 1985. However, six of those are actually in the Anangu Pitjantjatjara Lands in South Australia and are included in the discussion of that area. There were eight communities in the Central Northern Territory that Brady identified by name: Tara [Neutral Junction], Jurlpungu, Yuendumu, Mount Liebig, Walangurru (Kintore), Papunya, Haasts Bluff and Mutitjulu. A further four have reported sniffing since that time.

Of these 12 communities, four reported no current sniffing. In two of these four, numbers of sniffers had never been high. One community reduced sniffing from very

high numbers in the mid-1990s to none currently with a combination of youth-oriented activities (e.g. discos, sports, media), a night patrol and the use of an intensive intervention program based at an outstation. No information is available about the fourth community.

Levels of sniffing have fluctuated in the other eight communities in which sniffing has been reported in the Central Northern Territory. Four communities reported increased numbers of sniffers, one a steady number, and three reported decreased numbers of sniffers over time.

As in the Top End, most sniffers are in their teens. However, at least three communities reported having sniffers as young as eight years and chronic sniffers up to the age of 30 years and beyond.

Anangu Pitjantjatjara Lands

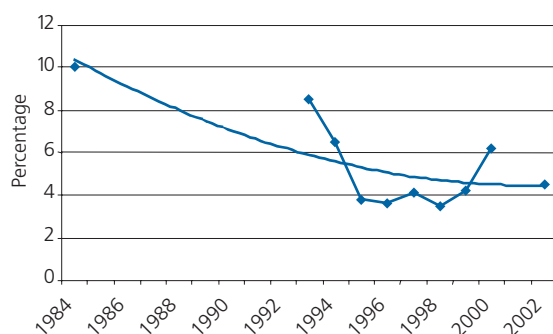
Brady (1992) identified six Anangu Pitjantjatjara Lands communities from which there had been reports of petrol sniffing up to 1985 (Indulkana [Iwantja], Mimili, Pukatja [Ernabella], Fregon [Aparawatatja], Amata, and Pipalyatjara). Since that time there have also been reports of sniffing in two other communities. Currently, there is no petrol sniffing in three communities, no information available in one, and significant reductions in the remaining four communities.

Data provided by Nganampa Health show that despite some fluctuation there has been a steady decline in the number and population proportion of sniffers in the Anangu Pitjantjatjara Lands. In 1984, there were between 150 and 170 petrol sniffers. Despite some fluctuations, this had declined to 116 in 2002. This decline has not been uniform across all communities. As indicated above, there is currently no sniffing in three communities. According to Roper (1998, pp. 119–120), the number of sniffers in Amata in the 10–34 year age group declined

from 56 (46%) in 1984 to 36 (25%) in 1993, and further to 23 (11%) in 1997. In Fregon, with some annual fluctuation, the number declined from 50 (34%) in 1993 to 36 (24%) in 1997 (Roper 1998, p. 126).

Figure 1: Prevalence of petrol sniffing, Anangu Pitjantjatjara Lands (1984–2002)

(source Nganampa Health)



The number of sniffers also declined in Indulkana from 39 (29%) in 1993 to 29 (16%) in 1997 (Roper 1998, p. 132). Numbers of sniffers have significantly declined since 1997.

In Pukatja, there was little fluctuation in number of sniffers between 1993 and 1997, and in the latter year there were 17 sniffers (8%) in the 10–34 year age group (Roper 1998, p. 123).

Roper (1998, pp. 46–47) showed that male sniffers outnumbered females by about three-to-one in the Anangu Pitjantjatjara Lands. In addition, the age profile of sniffers was rising as a consequence of fewer young people being recruited (Roper 1998, pp. 41–45). Informants interviewed in this study reconfirmed Roper’s observation of the ageing cohort of sniffers.

Roper (1998) attributed much of the reduction in sniffing in Anangu Pitjantjatjara communities to the introduction of Avgas. He wrote:


The introduction of Avgas to replace leaded petrol in October 1994, resulted initially in an almost complete cessation of the practice. In the ensuing years petrol sniffing has gradually increased to varying degrees in different communities. Outcomes were influenced by community resolve and distance from the nearest petrol outlet

(Roper 1998, p. 1).

In addition, an amendment to the *Pitjantjatjara Land Rights Act 1981* (SA) was passed which ... empowers police to confiscate any petrol they reasonably suspect to be used for the purpose of inhalation (Roper 1998, p. 20). Roper also notes that there have been problems with this approach and it may cause resentment and anger if relatives are involved. However, some people interviewed said that sniffing was reduced at times of increased police presence. In one community, several people said that cannabis was more of a problem than petrol sniffing. Limited data provided by Roper (1998, p. 68) indicates that the use of cannabis in the Anangu Pitjantjatjara Lands had been increasing but that young people had been smoking it before the introduction of Avgas. He also states that: *Many young Anangu, including sniffers drink alcohol and it would be impossible to determine whether this was occurring more frequently as a result of a shortage of petrol* (Roper 1998, p. 68).

The Ngaanyatjarra Lands

The area designated as Central Australia by Brady (1992) included eight communities in the Ngaanyatjarra Lands of Western Australia where sniffing had occurred (Kiwirrkurra, Tjukurla, Warakurna, Tjirrkarli, Parnamaru [Jameson/Mantamaru], Warburton, Papulankutja [Blackstone] and Irrunytju [Wingellina]). Since 1985, small intermittent



amounts of sniffing have been recorded at two other communities.

Currently, none of the Ngaanyatjarra communities are experiencing any serious problems with petrol sniffing. Most report that there are young people who will sniff petrol if it is available (usually taken from the cars of visitors). However, petrol is not generally available. All of these communities except one are using Avgas and this has been a very effective supply reduction measure. The one community not currently using Avgas had tried it before, but switched to diesel because ongoing petrol supplies were undermining its efforts with Avgas. The community that experiences the most frequent episodes of sniffing is the community nearest to supplies of petrol.

In addition to the use of Avgas, the Shire of Ngaanyatjarraku also passed by-laws making petrol sniffing illegal and subject to a short period of imprisonment. However, subsequent changes to the *Western Australian Sentencing Act 2000* (WA) abolished prison terms of less than three months, thus undermining the community's use of this sanction. As well as these measures, communities such as Warburton have implemented activities for young people.

There were reports of isolated incidents of sniffers breaking into the community store or contractors supplies in search of other solvents in several communities. However, these incidents were not of major concern. In some of the Anangu Pitjantjatjara communities, informants reported that, ... *gunja is causing a lot more trouble now.*

Eastern Goldfields of Western Australia

Brady (1992) cited reports of petrol sniffing in Mount Margaret, Laverton, Leonora and Parkeston on the outskirts of Kalgoorlie southern WA, and classified the Eastern


Goldfields as one of the three areas in the country in which petrol sniffing was concentrated. Since Brady's work, there have also been isolated reports of petrol sniffing in one community, which lies between the Eastern Goldfields and the Ngaanyatjarra Lands. However, apart from these isolated incidents there have been no recent reports from this area. Brady did not provide any information on the frequency of petrol sniffing in this area and it is difficult to gauge how extensive it was. It has been suggested that most of the sniffers in the Goldfields were visitors from the Ngaanyatjarra Lands (community member, pers. comm., 2003). Petrol sniffing is not currently endemic in this region.

Other areas in South Australia

Apart from the communities in the Anangu Pitjantjatjara Lands, Brady (1992) identified Gerard, Davenport, Coober Pedy (Umoona) and Yalata as other locations in South Australia in which petrol sniffing had been reported. No reports are available of sniffing in two of these communities since that time; two communities report isolated instances (mostly among visitors from outside these communities). There is only one community in South Australia outside the Anangu Pitjantjatjara Lands that has reported a problem with endemic petrol sniffing. The number of sniffers fluctuates, but it is estimated that there are between 18–24 current sniffers with 5–6 being described as 'the main sniffers'. Informants said that about half were under 18 years of age. As in the Anangu Pitjantjatjara Lands, the ratio of male to female sniffers was about three-to-one. Informants said that in the past two years there has been an increase in both sniffing and drinking in this community and that alcohol was the main problem.

Other areas in Western Australia

Since about 1998, sniffing in one community in the Great Sandy Desert area has



intensified and it is now estimated that it now has approximately 40 sniffers. Reports of occasional petrol sniffing in two other communities have also been made in this area. The increased level of sniffing in this area is a cause for concern, as is the report of occasional outbreaks of sniffing in Western Desert communities to the south west (*The Western Australian*, June 7th, 2002).

Queensland

Brady (1992) identified five communities in Queensland in which petrol sniffing had been reported to 1985 (Cherbourg, Woorabinda, Palm Island, Doomadgee in the Gulf Country and Dauan Island in the Torres Strait). Since that time reports of sniffing have also been made from seven other communities in Queensland. Informants reported small numbers of sniffers in two of these communities in mid-2002. Incidents at another community prior to 1999 had not recurred since a youth program was put in place. No other information about current levels of sniffing in Queensland communities was available.

New South Wales

Brady (1992) reported instances of petrol sniffing in Moree, Purfleet, Bathurst and Dareton in New South Wales up to 1985. Reports of sniffing in two other communities/towns have also been made since that time. No other current information on the levels of sniffing in these communities/towns is available, but they do not appear to have the same magnitude of problem as those in the Top End or Central Australia.

Conclusion

Brady (1992) identified 56 Aboriginal and Torres Strait Islander communities in which petrol sniffing had been reported up to 1985. This study identified a further 22 communities from which there have been reports of sniffing since that time. No sniffing is occurring in 33 of these communities; 26


do have sniffing taking place; no available information is available for the other 19, but it is likely that sniffing is occurring in some.

Brady (1992) identified three areas in which petrol sniffing was concentrated—parts of Arnhem Land, Central Australia, and the Eastern Goldfields of Western Australia. No sniffing is occurring in the latter region and it is probable that its prevalence was never very great. Sniffing is still endemic in Arnhem Land and Central Australia and since 1985 has spread to other communities in those areas. Although no specific data are available, it appeared that sniffing may be on the increase in the Gulf and Peninsula regions of Queensland, as well as in one community in Western Australia. However, the spread of sniffing to other areas has been limited.

The fact that there are at least 33 communities in which petrol sniffing has previously been reported but is currently not taking place, and that in others—particularly those in Arnhem Land and the Anangu Pitjantjatjara and Ngaanyatjarra Lands—significant reductions in sniffing have occurred, provides evidence for the efficacy of various interventions, including Avgas.

It is important to note, however, that no current sniffing does not mean that sniffing has been permanently eradicated. In many communities, people will sniff opportunistically if petrol becomes available. For this reason, it is important to maintain current supply and demand reduction strategies.

Within Central Australia, a marked contrast can be seen in the levels of success achieved by the Anangu Pitjantjatjara and Ngaanyatjarra communities, as compared to the communities of the Central Northern Territory. The former communities have been more successful, in part because of the greater homogeneity of language, cultural



and social groups and the presence of overarching community organisations such as Nganampa Health, the Ngaanyatjarra-Pitjantjatjara-Yangkuntjatjara Women's Council, the Ngaanyatjarra Council and the Ngaanyatjarraku Shire. These organisations are able to coordinate inter-community action on various matters, including sniffing.

Within communities, there is clear evidence that the prevalence of sniffing fluctuates—both over the long and short term. Informants in communities in Arnhem Land and Central Australia frequently linked short-term increases in sniffing to the influx of visitors associated with various inter-community events such as sporting carnivals and 'law business'. The influx of visitors tends to be a catalyst for sniffing—young people describe using petrol as a focus for social activity in the same way that adults use alcohol. Alternative activities for young people should be provided at these times.

The literature shows that many people are poly-drug users, making use of the drugs that are available and affordable. The literature also shows that volatile substances are drugs of last resort—people use them when other psycho-active substances are not available or are too expensive. Aboriginal people in urban areas refer to volatile substances as 'gutter drugs' or 'little kids drugs'.

Interviewees in this study commented, *If no gunja, they look for petrol* and *Some older men sniff if they've got no grog*. Many remote Aboriginal communities are alcohol free, so most people may be sniffing petrol because there is no or limited availability of other drugs or because they cannot afford them. If the availability of petrol is reduced, one should not expect to see an immediate switch to other substances, such as alcohol or cannabis, unless they become more available or affordable at the same time. An observed increase in the use of other drugs is more likely to contribute to a reduction in petrol

sniffing rather than being a consequence of it. For these reasons, it is important that substance misuse interventions in remote communities do not focus simply on petrol, but should be part of a broader substance misuse strategy (see Recommendation 9).

Mortality and morbidity resulting from petrol sniffing

Health effects of unleaded petrol

Most petrol sniffing literature deals with leaded petrol. Very little published information is available on the health impacts of sniffing the unleaded petrol that is now more widely used.

The toxicity of unleaded petrol is associated with the hydrocarbons (benzene, toluene, xylene, naphthalenes, paraffins and alkenes) it contains. In its submission to the Senate Select Committee on Volatile Substance Fumes (1985), the then Commonwealth Department of Health prepared a detailed analysis of the composition and toxicity of volatile hydrocarbons. The Department concluded that the level of hydrocarbons in petrol varies, making it difficult to be definitive about potential toxicities (Brady 1992).

Since that Senate Committee report, other international investigations into the effects of sniffing hydrocarbons have been undertaken. They explore the effects of inhaling volatile substances other than petrol (e.g. butane from lighters and glues). These studies have produced inconclusive results because of the confounding effect of poly-drug use among those studied (d'Abbs & MacLean 2000).

Combined expert wisdom indicates that the health impacts attributed to sniffing hydrocarbons are that:

- volatile substances may stimulate the heart to the point that sudden exercise may cause a fatal heart attack;
- the heart can stop through stimulation of the vagal nerve; and
- there is a heightened risk of trauma through accidents occurring as a result of intoxication (e.g. burns).

The most comprehensive Australian study on this issue (Burns et al. 1995b) evaluated the impact of changing from leaded to unleaded petrol, including an examination of the health consequences of sniffing unleaded petrol. It was done at the request of the Maningrida community. Toluene and N-hexane are both neurotoxic; benzene is a known carcinogen.

Sniffing unleaded petrol in the medium term did not result in morbidity necessitating hospitalisation, even in individuals with past exposure to leaded petrol. However, we were unable to determine the relative contribution of lead additives and hydrocarbons to the toxicity associated with petrol sniffing

(Burns et al. 1995b, p. 34).

It also found that the long-term effects of exposure to hydrocarbons as a result of petrol sniffing requires further investigation.

Mortality

Mortality data was collected from:

- National Coronial Information System database (2000 onwards);
- deceased files from the Ngaanyatjarra Health Service (1989 onwards);
- list of deceased persons from Nganampa Health (1998 onwards);
- death Register from Galiwinku Health Clinic (1961 onwards);
- *Solvent Related Deaths in Western Australia 1997–2001* (Occasional Paper Number 10, Government of Western Australia, July 2003);
- Maningrida Death Book (1983 onwards);
- Wadeye Death Book (2000 onwards); and
- personal communications from various people, including Blair McFarland, Andrew Stojanovski and Damian McLean, all of whom have a long history of working with communities in which young people have died as a result of petrol sniffing.

Northern Territory Coronial reports could not be consulted. Death reports from 1998 onwards were obtained through personal communications and no data was obtained for the period prior to that date. This means that mortality from petrol sniffing in the Northern Territory may be under-represented in this study.

Case identification

To identify deaths associated with petrol sniffing from health service and clinic records, any deaths in the 14–40 year age group were investigated. Experience indicates that deaths associated with petrol sniffing are unlikely outside this age range. The only exception was Wadeye, where 10–30 years was deemed the appropriate age range. All deaths within this age range were identified, then the cause of death was located either in the individual case files (Ngaanyatjarra Health Services) or by asking relevant staff members for other clinic-based data collections. In some instances, no cause of death was recorded, but if the person was a known chronic sniffer it was counted as a petrol sniffing-related death (see *Appendix E* for a complete listing of the petrol sniffing-related deaths documented in this study).

Table 1: History of mortality from petrol sniffing*

Period	No of deaths	Location	Mean age	Age range	Source
1981–1991	63	Australia	19	11–32	Brady in NDS1994
1992–1999	9	Western Australia Northern Territory	25	12–32	Ng Lands. Pers. comm.
1999–2003	37	South Australia Western Australia Northern Territory	24	15–39	Ngaan. Health Pers. comm.

* Data for 1981–1991 comes from data presented at the Workshop on Lead and Hydrocarbon Toxicity from Chronic Petrol Inhalation (National Drug Strategy 1994), Brady and Torzillo (eds) 1995. The remaining two categories of data come from the sources presented for this project.

Table 2: Regional summary of mortality data (1998–2003)*

Region	No of deaths
Ngaanyatjarra Lands	5
Pitjantjatjara Lands	11
Central Northern Territory	16
East Kimberley	3
Top End	2
Total	37

* 1998–2003 are the years for which available data are most complete.

Geographic distribution of deaths

Brady (1994) estimated that of the 63 people who died from petrol sniffing-related causes between 1981 and 1991, two thirds (42 deaths) were ...*from a region spanning parts of South Australia and the Western Desert communities of Western Australia.* Of the remaining 21 deaths, 12 were from rural areas in the Goldfields region of Western Australia and rural areas in the south of South Australia (Brady 1992). The remaining nine deaths may have occurred in the Central Australian and Top End regions.

The distribution of deaths in the period from 1998 to 2003 changes markedly. During this period, data from the sources cited indicate there were 37 deaths. Of these 37 deaths, five occurred in the Ngaanyatjarra Lands and 11 in the Pitjantjatjara Lands—a total of 16 deaths from the Western Desert areas of Western and South Australia—many fewer than the 42 deaths reported between 1981 and 1991.

Of the remaining 21 deaths during the period (1998–2003), 16 occurred in the Central Northern Territory, two in the Top End and three from the East Kimberley. This represents a major increase for the Central Northern Territory and the East Kimberley. This trend becomes more marked when the data from 2003 are considered alone (see Table 3 below). The Central Northern Territory is clearly experiencing a significant problem associated with petrol sniffing.

Table 3: Regional summary of mortality (January–September 2003)

Region	No of deaths
Ngaanyatjarra Lands	1
Pitjantjatjara Lands	1
Central Northern Territory	5
East Kimberley	0
Top End	0
Total	7

Impact of Avgas on the distribution of deaths

The Ngaanyatjarra Lands in the Western Desert area of Western Australia have used Avgas consistently since 1994. There have been seven petrol sniffing-related deaths in this region during this time. These people had an average age of 30.3 years—the youngest was 23, the oldest 38—suggesting that they died from the effects of chronic

sniffing over a number of years. No deaths of very young sniffers or of people through sniffing-related accidents occurred through this period.


The data available from the Pitjantjatjara Lands cover the period from 1998 to 2003. During this period all of the Pitjantjatjara communities used Avgas sporadically. They mainly used it consistently between mid-1994 and 1996, and then again from April 2002 until the present. During this period, 11 people died. Their average age of 26.6 years suggests that they may have died from the results of chronic sniffing over a number of years. No deaths of very young sniffers in the Pitjantjatjara Lands have occurred during this period.

The Central Northern Territory has experienced a marked rise in number of deaths (Table 4) and has not used Avgas in any consistent manner. One of the affected communities has used Avgas sporadically, while the other two have not used it at all.

Table 4: Ages of petrol sniffers at death (1998–September 2003)

Region	No of deaths	Teen–early 20s	Late 20s–30's
Ngaanyatjarra Lands	5	0	5
Pitjantjatjara Lands	11	2	9
Central Northern Territory*	16	10	4
East Kimberley	3	3	0
Top End	2	1	1
Total	37	16	19

* No information was available about the age of one of the deceased and another was not a sniffer (but was killed by an intoxicated sniffer) and so has been omitted.



A marked difference can be seen between the ages at death in the Ngaanyatjarra and Pitjantjatjara Lands, and those in the Central Northern Territory and the East Kimberley:

- the preponderance of deaths in the late twenties and early thirties age group in the Ngaanyatjarra and Pitjantjatjara regions suggest an ageing cohort of sniffers; and
- deaths in the Central Northern Territory and East Kimberley regions are occurring among teenagers who have not been sniffing for long.

Regional summaries of causes of petrol sniffing-related death (1998 Sept–2003)

The Top End

The four Top End communities that provided data are located in Western Arnhem Land and the Daly river region. This is a small number of communities and these data are very likely to be an under-representation of the actual number of deaths in the entire Top End. Two deaths occurred in these communities—one from homicide and the other from respiratory failure.

Ngaanyatjarra Lands

The Ngaanyatjarra Lands in the Eastern Goldfields of Western Australia experienced five deaths over this period. The causes of death were:

- three chronic sniffers died from the cumulative effects of their sniffing;
- a man who sniffed for some years in the late 1980s developed abscesses in his lungs which led to chronic airways disease which ultimately caused his death; and
- another death was from chronic airways disease, but its cause was unknown.

Pitjantjatjara Lands

The Pitjantjatjara Lands in the northwest of South Australia experienced 11 petrol

sniffing-related deaths. The causes of deaths are:

- four deaths from asphyxia and respiratory failure where the individuals each had cans on their faces at the time of death;
- three deaths of long-term chronic petrol sniffers—two from cardiac arrest and one from asphyxiation;
- one death from burns sustained as a result of sniffing; and
- two suicides.

Central Northern Territory

The Central Northern Territory, the area to the west of Alice Springs, experienced an alarming 16 deaths from the following causes:

- five from suicide;
- four from a motor vehicle accident;
- four from respiratory failure (one with a can on the face);
- one from being lost in the bush;
- one from an accident (falling off a water tank) whilst sniffing; and
- one from homicide – a young girl was killed by an intoxicated sniffer.

East Kimberley

The East Kimberley region—specifically the south-eastern edge of the Kimberley region—experienced three petrol sniffing-related deaths. Two of the deaths were suicide and one was a homicide.

Accidental versus non-accidental causes of death (1998 September–2003)

The causes of death can be reduced to two broad categories—accidental and non-accidental. Accidental deaths include motor vehicle accidents, burns, stabbing and suicide. Non-accidental deaths include respiratory failure as a result of long illness

Table 5: Cause of death by region by age (1998–September 2003)

Region	No. of deaths	Mean age of death (yrs)	Non-accidental	Accidental/suicide
Ngaanyatjarra Lands	5	32.5	5	0
Pitjantjatjara Lands	11	30.6	9 (6)	2(5)
Central Northern Territory	16	20.0	5	11
Eastern Kimberley	3	19.5	0	3
Top End	2	19.0	1	1
Total	37			

resulting from petrol sniffing. There is a marked variation in the causes of death between the regions (Table 5). The Pitjantjatjara and Ngaanyatjarra regions have not experienced high levels of accidental death, whereas the Central Northern Territory and East Kimberley regions have had a larger proportion of sniffers dying as a result of accidents or suicides.

Three of the respiratory failures listed in the Pitjantjatjara Lands could also be considered accidental death in that the deaths occurred while the individuals had cans over their faces so that their deaths were not the result of a gradual decline, but rather a result of a specific set of circumstances that could be regarded as accidental.

When age at death was not precise, 28 years was used for those referred to as ‘late twenties’, 18 years for those referred to as ‘late teens’, and 15 years for those referred to as ‘early teens’.

Impact of Avgas on the cause of death

It is difficult to be definitive regarding the reasons for the regional variation in accidental versus non-accidental deaths. However, both the Ngaanyatjarra and

Pitjantjatjara Lands use Avgas, while the Eastern Kimberley and Central Northern Territory do not. This means that sniffers in the latter two regions have easier access to petrol. It is possible larger amounts of petrol are being inhaled in communities that do not use Avgas. This study found that sniffers in the regions using Avgas use ‘only a little bit’ in the can, become less intoxicated, and have fewer accidents. A larger amount of petrol may be more intoxicating and result in more fatal accidents and suicides.

Suicides and attempted suicides (1998–September 2003)

Between 1999 and 2003, ten petrol sniffing-related suicides occurred (Table 6). Most (eight) occurred in the Central Northern Territory and East Kimberley regions in 2002. The other two occurred in the Pitjantjatjara Lands in 1999 and 2003. In two of these cases, the victims reported seeing *mamu*—the ‘monsters’ or ‘evil spirit beings’ of Western Desert culture. In addition to these suicides, there were reports of ‘quite a few’ attempted suicides in the Pitjantjatjara Lands. The fact that no petrol sniffing-related suicides occurred between 1989–1999 suggests that it is a new development.

Table 6: Number of petrol sniffing-related suicides by region (1989–2003)

Year	Suicides	Region
1989–1998	0	–
1999	1	Pitjantjatjara Lands
2000	0	–
2001	0	–
2002	8	Central Northern Territory, East Kimberley
2003	1	Pitjantjatjara Lands

It should be noted that petrol sniffing is not the only factor causing suicides in these regions. The doctor at one clinic reported that they tend to have ... *about one suicide per year. Most have a history of substance use, but I can't say what role petrol has.* For the period 1998 to 2003, the mortality data from Nganampa Health shows four suicides that are not related to petrol sniffing. Similarly, the mortality data from a Top End community records four suicides in the years 1998 to 2003, none of them related to petrol sniffing.

Morbidity

Burns (1997) found that sniffing unleaded petrol does not cause morbidity necessitating hospitalisation in the medium term. This evaluation of the Comgas Scheme replicates that finding—no reports of hospitalisation related to petrol sniffing were found.

However, this study did not produce detailed information about morbidity. Evacuation data for the Northern Territory could not be accessed. The results of a study of petrol sniffing-related brain damage carried out at a particular community were also unable to be accessed. These two sources of data may yield a more complete picture of morbidity resulting from sniffing unleaded petrol.

Only personal communication from the site visits was used for this project. Many of the clinics commented that they rarely see petrol sniffing-related presentations. Instead interviewees commented that the main burden associated with petrol sniffing was from past behaviour.

The data are collated by cause of morbidity—fitting, trauma, disability and mental health.

Fitting

The 1992/3 Annual General Report from Nganampa Health shows 70 fitting-related consultations for that year, implying that fitting was a frequent consequence of petrol sniffing. Leaded petrol was sniffed at that time and high levels of lead in the body can cause fitting.

In contrast, the Comgas Scheme study found only three reports of fitting (none fatal)—one in the Top End and two from the Pitjantjatjara region. This is a marked decrease. Stewart Roper, a long-time nurse for Nganampa Health, commented that, *Paraldehyde—that's the drug of last resort that we used to use with fitting - used to be in every clinic, and part of every drug order. Now it isn't even on the imprest list.*

It is likely that the decrease in levels of fitting is a result of the switch to unleaded petrol, rather than the use of Avgas.

Petrol sniffing-related trauma

All communities visited reported occasional episodes of petrol sniffing-related trauma. This comment from a nursing sister was typical of such reports: *When there's been a big fight we see the sniffers, otherwise we don't see much of them.* Apart from such general comments, five reports of clinic presentations for such trauma were identified, including:

- two reports of domestic violence incidents;
- two reports of young people being 'belted' by family members to get them to stop sniffing; and
- one report of a young person being 'belted' for stealing petrol from a car.

Burns are another form of trauma sometimes associated with petrol sniffing because of the flammable nature of petrol. In the early 1990s, Yuendumu experienced three cases of severe disability resulting from burns. This study found one incident of a burn resulting from petrol sniffing in the Pitjantjatjara Lands—the victim died. There were no recent reports of disability due to burns as a result of petrol sniffing.

Disability

Disability was widely reported among communities with current and past sniffing problems. Most of them are cases of brain damage from sniffing in the early to mid-1990s. There was, however, one report of a girl recently becoming disabled.

Both Nganampa and Ngaanyatjarra Health Services reported that disability resulting from petrol sniffing results in a significant workload for their staff. They also commented that the families of these disabled sniffers are adversely affected by the burden of caring for them. This burden affects the quality of life and health of these families—particularly their oldest members.

In the Top End, both Wadeye and Galiwinku reported cases of permanently disability as a result of petrol sniffing.

Mental health problems

People interviewed at three of the sites visited raised the issue of the mental health of ex-sniffers. The following comment encapsulates these comments: *there is a*

group of 15 to 18 year old boys presenting with an aggressive psychosis from marijuana. I think these boys probably have a history of sniffing.

Members of another community visited commented that they had two severely brain damaged sniffers who sometimes caused extreme disruption, and had assaulted some non-Aboriginal staff who subsequently left the community.

Presentations


There is evidence of a decrease in presentations for petrol sniffing-related health problems. All of the clinics visited in the Ngaanyatjarra and Pitjantjatjara regions reported seeing 'very few' presentations related to petrol sniffing. The communities visited from the Top End also reported few presentations related to petrol sniffing.

This contrasts markedly with data collected by Nganampa Health for the year 1992/3. Over this period that health service reported a total of 337 petrol sniffing-related contacts across the six clinics where data was collected (Nganampa Health Council 1993).

Conclusion

The level of mortality from petrol sniffing has risen slightly from the period 1981 to 1991 (63 deaths) to the period 1998 to 2003 (37 deaths). This increase may be partially explained by an improvement in data collection. Another contributing factor could be the rise in the total population of the target age group. These two factors make it difficult to determine whether there has been a real increase in the rate of petrol sniffing-related deaths.

Both the Central Northern Territory and the East Kimberley have been severely impacted by sniffing-related deaths during the years 1998 to 2003 (19 deaths). Levels of mortality from petrol sniffing outside these two



regions dropped substantially. These regions need immediate and sustained support to help them address the problem (see Recommendation 8).

The pattern of mortality varies by region. In the Ngaanyatjarra Lands, deaths are a result of cumulative consequences—no deaths of young sniffers have been reported from this region. In the Pitjantjatjara Lands, some of the deaths are from cumulative consequences and some have been the result of the asphyxia of younger sniffers, several of whom have gone to bed with a can on their face and died. The Central Northern Territory has experienced a few deaths of older sniffers, but most deaths have been accidents or suicide among young people. The Eastern Kimberley has not experienced deaths of any older sniffers, but has experienced suicide and murder.

It is difficult to be definitive about the impact of Avgas on these communities—communities with fewer deaths have been using Avgas; those with more deaths (particularly among young people) have not. However, the Pitjantjatjara Lands have only used Avgas sporadically, but have experienced a smaller number of deaths than communities who don't use Avgas. Yuendumu, where Avgas is not used, has had no deaths from petrol sniffing since 1998.

It is of concern that five deaths (by asphyxiation) occurred as a result of individuals going to sleep with a can on their face. One interviewee urged that an education campaign be undertaken warning people not to sleep with a can on their face. This campaign needs to be aimed at both sniffers and their families (see Recommendation 7).

There is clear evidence of a decrease in petrol sniffing-related presentations to health clinics in all the regions visited. There is also clear evidence of a decrease in fitting resulting from petrol sniffing. Beyond this, the data are inconclusive.

The main morbidity impacts of petrol sniffing reported to us are disability from past sniffing, trauma caused by community and family reaction to sniffing, assault by sniffers, and fights amongst sniffers.

Assessment of other interventions

There is a considerable body of literature concerning interventions for petrol sniffing based on lengthy and varied experiences of a myriad of different programs. In a review of this literature, d'Abbs and MacLean (2000) argue the importance of implementing several interventions concurrently and of having widespread community support for any interventions. This study confirms these views.

For a community strategy to be successful, it should address the *drug* (supply reduction), the *set* (the individual, demand and harm reduction), and the *setting* (the peer group and community environment) (d'Abbs & MacLean 2000, p. 76). D'Abbs comments that while communities might not think in terms of a formalised treatment model, in actual fact several successful community strategies did cover all three components. Broad regional strategies (e.g. Petrol Link-Up and the current CAYLUS program) provide a community development approach to assisting communities with developing these three aspects of a strategy.

The one intervention that appears to be effective on its own is Avgas (see Recommendation 2). However, while Avgas provides a period of respite for a community it does not address the underlying issues that drive petrol sniffing. It is, therefore, important that other programs are also put in place. Some communities may only be capable of considering other programs after Avgas has been in place for some time.

Sniffers are not a homogeneous group. Occasional sniffers may respond to programs involving diversionary activity while chronic sniffers (who are more resistant) may respond better to removal. For chronic sniffers the timing of the intervention may be more important. One observer commented that interventions were successful for chronic sniffers only if they coincided with a life change such as marriage or the arrival of a baby. People who are disabled due to sniffing need constant care, so respite care becomes a priority for them and their families.

Supply reduction strategies

The following group of strategies can be effective for all groups of petrol sniffers.

Locking up petrol supplies

Locking up petrol supplies is usually the first intervention introduced when sniffing starts. It can be effective in the short term, but is often expensive and requires constant vigilance as sniffers constantly attempt to break-in. For example at Community 3 where unleaded petrol is stored, the CDEP have spent \$10 000 on upgrading security after a new sniffing outbreak. Security floodlights, double locks, one key only, double mesh, a cage inside shed, extra welding on shed doors, a guard dog, and a high fence have been installed. Experience from Maningrida indicates that, *Hoses, bolt cutters, tools will be constantly stolen. No-one could have gardens/grass on ovals as all hoses were stolen for siphoning, if they were left out for watering.*

Locking up petrol supplies creates stress for non-Indigenous residents as sniffers hunt for alternative petrol sources, such as the cars, boats, mowers, and quad bikes usually owned by non-Indigenous staff. Sniffers may also break into houses looking for petrol. To stop sniffers from cutting fuel lines, some people put petrol containers near their cars.

All this disruption may cause non-Indigenous staff to become disgruntled and leave, resulting in high staff turnover.

Other supply reduction strategies include restricting the use of \$10 fuel cards (a small denomination is most likely to be used by young people), refusing to sell fuel to minors, and not selling petrol in small or plastic containers. No information is available on the effectiveness of these measures.

Adding deterrents to petrol


Several communities tried adding deterrents to petrol in the late 1980s. It wasn't effective as it made community members too nauseous, and they 'couldn't go fishing'. In addition the petrol sniffers learned to leave the petrol out in the sun until the additive broke down. An interviewee from Community 1 commented, *Didn't work as the kids got sick and were sent to Darwin. People couldn't cope with immediate sickness of kids, didn't worry about the sickness you couldn't see.* There was no evidence that this strategy was continued.

Other solvents

Community stores and the CDEP are usually strict about the sale of other potential inhalants (e.g. deodorants, fly spray, glues) and will remove them from shelves completely, refuse sales to minors, and keep them locked up or behind the cash register, if requested.

Diesel only

Some communities use diesel rather than petrol or Avgas. This can be a very effective strategy, but needs community patience and determination to wait while old petrol vehicles are replaced with new or second-hand diesel vehicles. Unfortunately, diesel vehicles are more expensive to purchase and repair. Nonetheless, it can be a good strategy for smaller communities. It may be less effective for large communities that have more visitors, or those communities that are closer to petrol outlets.



Two particular communities have both tried a diesel-only strategy. One community took 12 months to convert all cars to diesel. Subsequently, some elders complained that vehicles were now too expensive, and the community went back to petrol. Now (six months later) sniffing has escalated and they are planning to try Avgas. The other community recently moved to diesel only and are pleased with the results. Community members stopped using Avgas because they felt that as long as they had petrol cars in the community, the petrol would somehow still enter the community.

A diesel-only strategy means that it is difficult for people with petrol cars to visit—a problem that is likely to cause ongoing unease with its implementation.

Demand reduction

These strategies are usually aimed at occasional sniffers, or at groups who are new to sniffing. They tend to be less effective with chronic sniffers, who will often watch, but not join in.

All communities surveyed had sport and recreation programs of differing levels. These are useful back-up strategies, but unfortunately are often viewed as the sole intervention. They tend to be dependent on the personality and preferences of the coordinator/youth worker, so changes in that position will result in changes in the types of sports and recreation programs being run. A common program is a basketball court with nightlights and a large supply of balls.

Sports


Many sport programs are delayed for years while the community seeks funding for large capital items such as swimming pools, sport and recreation halls, and staff. Most of the communities visited had plans for further sport programs and were waiting for funding.

Northern Territory communities are given \$25 000 to hire a sport and recreation worker. This is not enough to attract a skilled person and they tend to hire a series of poorly skilled workers. Northern Territory Sport and Recreation has recognised the problem and is training Indigenous staff. Usually these workers are commandeered by the older footballers, and women's sport rarely receives attention. Sniffers are often the lowest of all priorities unless there is a specifically trained youth worker.

Sport is very effective if players can enter State or Territory competitions as it builds self-esteem, but it is difficult to transport them into town every week for competitions. Teachers complain that students miss too much school travelling. Building a team takes time and requires stable and committed staff. Some communities are exploring the possibility of a community-based competition. There was a community football competition in the 1980s and early 1990s, but it stopped because of difficulties maintaining bush ovals.

Other recreation

Music, video making, bands, concerts, and murals are common examples of recreational strategies being employed. Some communities do not like discos as they are perceived as 'immoral' and against traditional culture. However, one community commented that they were very effective for *...creating an alternative scene, in opposition to the sniffing scene, to pull kids away from sniffing*. Other communities want bands and discos, but have no-one to run them and have trouble storing and repairing band equipment. Some communities have tried running discos with local helpers selling drinks and pies to build up some discretionary funds that can be used to pay workers or buy equipment. A community generated \$10,000 per year from selling food at discos and selling second-hand donated clothes. Starting a band can be a great self-



esteem booster as young people can play in town concerts, play on local Broadcasting for Remote Aboriginal Communities Scheme TV/radio, make a CD or a music video.

Camping/bush/fishing trips

Many communities have taken young people and/or sniffers 'out bush'. People felt that young people should be learning hunting and tracking skills as part of understanding and appreciating their culture. It is also a way of bringing the family together away from the stresses of the larger community. There is often a strong belief that their country will heal sniffers and help them to settle down.

Deterrence programs

Deterrence programs are aimed at both occasional and chronic sniffers. Communities with entrenched chronic sniffing rely on police for deterrent activity, while communities with mostly occasional sniffing are more likely to run warden schemes or a night patrol. Communities with chronic sniffing may have given up trying to control the sniffing themselves, and rely on external agencies such as the police to do it for them. In one location, for example, there was no warden scheme while they were experiencing chronic sniffing. After they introduced Avgas and sniffing became more occasional, they were able to run a good warden scheme. Now there are ten committed and enthusiastic wardens who are paid through the CDEP.

Wardens

Warden schemes involve community members patrolling the community at night. They talk to sniffers, and possibly take them home or tip out their petrol. They can be effective in large numbers and where they are strong members of the community. They may be more effective if they are not from the same language group since family connections can be compromising. These schemes demand a great deal of commitment

from the wardens, and so are hard to sustain. Many communities have succeeded in reducing an outbreak of sniffing through warden schemes.


Night patrols

Night patrols can also be effective but they require a pre-arranged procedure for dealing with sniffers (e.g. agreeing with the families of sniffers on a place to which they can be removed). These strategies need to be designed differently for sniffers than they would be for alcohol abuse (e.g. patrols should be conducted on foot as sniffers can escape from car lights and go to areas that are only accessible by foot). Patrols need to work in conjunction with local police and are most effective where there are adequate numbers of police and Aboriginal Community Police Officers, based in or close to communities. Police need to respond immediately to issues outside the range of a night patrol, such as assault and weapons incidents involving intoxicated sniffers.

Night patrol/police activity seems to reduce petrol sniffing in communities that have well-functioning night patrols, or effective policing either through temporary programs (e.g. Safelands Project in the Anangu Pitjantjatjara Lands), or through the proactive stance of individual police. Sniffing outbreaks are handled rapidly and sniffer numbers are kept low through interventions such as removal and close monitoring. Conversely, when night patrols and police are not present or are weak, much higher levels of petrol sniffing are found.

Policing

Poor policing is seen as a major issue for the South Australian communities visited. In the Pitjantjatjara region, no police are based on the lands and there is often a waiting time of at least two hours before the police can attend any incident. South Australian communities commented on the success of the Safe Lands Program (involving a greatly



increased police presence) run for six weeks by the South Australian Police in early 2003. They felt that it greatly reduced levels of violence because sniffers were being apprehended. They also felt that the police presence deterred violence among sniffers.

The South Australian Police had adopted a policy of not apprehending sniffers (unless for other serious offences) as they were concerned about causing sudden death, or possible deaths in custody. As a result of the Coronial Inquiry in June 2002, police are now tipping the petrol out of cans and escorting sniffers home. Superintendent Wayne Bristow commented that several police in the region have ‘taken sniffing on’ and are keen to find a successful way of policing it.

Policing has also had a substantial effect in one WA community. The roadhouse staff indicated that they would sell unleaded petrol again when the police station is completed. They believe a police presence will deter sniffers from breaking into the bowser or tourists’ cars.

The Western Australian Police have been running ‘blue light’ discos for many years and say that it gives them a chance to get to know the young people in a fun environment.

Policing has also been of great assistance to the Mt Theo program. The Police have taken individual sniffers to the outstation, giving the program additional authority in the eyes of young people and their families (Stojanovski 1999).

Legislation/Community By-Law

There has long been debate about the use of legislation to combat petrol sniffing. The Ngaanyatjarra communities used their by-laws to make sniffing an offence attracting a three month prison term. As a result, sniffing levels reduced and prison became a proxy detoxification facility. However, changes to

the sentencing provisions in the community by-laws legislation made this strategy inoperable. The Ngaanyatjarra region is now using a section of WA welfare legislation to legally apprehend and incarcerate people who are found guilty of supplying petrol for the purpose of sniffing. In the Northern Territory, Section 18 (i.e. supplying petrol with the knowledge that it may be used for inhalation) of the relevant legislation was not seen as effective as it is too hard to provide evidence. Nevertheless, there have been several successful prosecutions in 2002 and 2003.

Employment programs

Employment programs do not affect sniffing on their own, but can be effective when sniffing stops. One Top End community put employment and training programs in place after introducing Avgas. Employment opportunities included grassing and fencing the oval and starting a mud-brick factory. Ex-sniffers form the core of the workforce at the local Community Development Employment Program.

Education programs

Two examples of educational opportunities being used as both prevention and diversion strategies were found.

One community strongly supports young people’s attendance at high school in Cairns and now has 63 students attending. The communities believe that this is fundamental to giving their young people alternatives to sniffing.

Another community reports that a number of young people live in their community so that they can attend school there. While some students leave school because of sniffing, many are influenced by school to engage in other activities.

Health education/promotion programs

Non-Indigenous staff and their families often hope that health education and promotion programs are the answer to sniffing outbreaks. A typical refrain is *Tell them how bad it is for them and they will stop*. Health education programs may not stop sniffers, but they are effective in informing communities about how to reduce sniffing levels. 'The Brain Story' is one example of this. 'The Brain Story' (from ADAC's *Petrol Sniffing & Other Solvents Manual*) is most effective if the speaker has a relationship of respect with the children/community. It uses specific examples to illustrate key points (e.g. that *sniffer from R... passed away when he walked away from the community, because the map in his head was wiped out by petrol*). The example of petrol dissolving in butter is also useful to demonstrate the action of petrol on the brain's fatty tissues. Several communities reported that dissolving polystyrene foam in petrol reduced sniffing levels for a short time. One small community was successful with this intervention alone. Police have also used this as part of a community education program.

Many clinic and school staff indicated that education on the dangers of sniffing was provided as part of health promotion programs. Paintings of Aboriginal explanations of sniffing-related harm/histories can be effective in two-way understandings (the Healthy Alternative Lifestyle Team Program). No information was available from communities on the effectiveness or otherwise of the use of paintings in reducing sniffing.

The Northern Territory Department of Health and Community Services funded 15 community workshops based on the ADAC *Petrol Sniffing Manual* in 2002/03 in the Top End and Katherine regions. Their aim was to inform community members and

staff, and to assist the community to develop short- and long-term strategies. Participating communities reported an increased level of interest in starting or re-visiting community-based interventions due to their contribution to reducing sniffing levels.

One expert interviewee believed that there is a strong need for an education program warning people not to lie down and sleep while they have a can on their face. She indicated that the most effective way to deliver such a campaign would be to employ someone to 'sit down and talk quietly' with sniffers and their families. The findings of the recent Coronial Inquiry support this (see Recommendation 7).

An education kit needs to be compiled about Avgas and Avgas should be promoted from time to time (see Recommendation 4).

Treatment

Treatment is mainly aimed at chronic sniffers.

Outstations

The most common treatment strategy is to take sniffers to a family or other designated outstation. Chronic sniffers are unwilling to go, and often fight to stay in the community. Most communities had tried or were trying versions of outstation treatment, but none had so far attempted to replicate a well-known NT example at Mt Theo. Communities have visited Mt Theo to learn. Through sharing experiences, they have realised that sniffers needed to stay away for longer than a few days. Overall, interviewees thought outstations were quite helpful but they have some drawbacks, including reaching agreement with traditional owners, ensuring someone stayed with the sniffers, and negotiating stays for non-family members. Some outstations would only take young people from their own home community and some demanded their own

vehicle, graded road access, boat, housing and so on.

The advantage of outstations is that they provide a chance for families and elders to pass on cultural and food collection knowledge to young people in this situation in a peaceful, unstressed environment. Young people are more likely to listen to elders than in the community, where there are too many competing agendas, including temptations to sniff.

Counselling

The Healthy Alternative Lifestyle Team (HALT) program had some success with counselling, especially in using ‘family mapping’, a system of checking traditional authority figures for each sniffer, and asking that person to take some responsibility for the sniffer. Yuendumu mentioned that the Jardu Pirjidi Program had great success with counselling to uncover and process the underlying issues, once the young person had stopped sniffing.

Counselling requires a highly skilled person. One minister had successfully counselled young men to stop sniffing, but in the context of an ongoing mentoring relationship. The Reconnect Program also involves some counselling. Counsellors are limited in the choices they can propose—other places to live or a change of peer group are often not options in remote communities.

Successful counselling and treatment programs tend to rely on outstanding individuals who work long hours, often for small monetary recompense. These individuals are hard to find, and irreplaceable.

Community development

Internal community organisations

Several communities mentioned the importance of retaining staff. Staff may provide a corporate memory and can reinforce the community’s resolve to address petrol sniffing. Interviewees emphasised that reducing sniffing levels allowed communities to recruit and retain staff.

Having at least one stable organisation was strongly correlated with intervening successfully. Stable organisations provided support and assisted in trouble shooting as required.

External agencies

There are a wide range of external agencies, such as Family and Youth Services, that provide regular workshops, information and some assistance with community development. They also provide access to specialist skills such as neurological assessments of sniffers and access to funding.

Regional programs

HALT (Central Australia, South Australia), Petrol Link-Up (Tri-state), Reconnect (Central Australia, Northern Territory), Central Australia Youth Link-Up Service (CAYLUS) (Central Australia, Northern Territory), Youth Wellbeing Program (Top End, Northern Territory) and Makin’ Tracks (South Australia) have supported a broad range of strategies across several communities. There have been marked reductions in the number of sniffers in communities with these programs.

Petrol Link-Up, Youth Wellbeing, and CAYLUS have been able to support both community-by-community programs and regional programs (e.g. the regional introduction of Avgas).

These programs create and strengthen community networks so that each community is aware of other strategies in use in other places. They also provide administrative support to small programs that do not have the expertise to apply for the small amounts of funds that they need.

They are probably most valuable in implementing supply reduction measures on a regional basis. Petrol Link-Up facilitated discussion about Avgas so that all the communities would know that others were 'doing it too.' This study recommends that the current CAYLUS program (Central Australia) receive continued funding to assist those communities with high levels of sniffing (see Recommendation 8).

Brokerage programs, such as the Remote Area Alcohol and other Substance Abuse Strategy (RAAASS) and the program linked with CAYLUS, are quick-release programs that have been very effective in allowing communities to rapidly address areas of concern, such as a sniffer visiting from another community to recruit new sniffers. As take-up of sniffing can be very rapid (from 1 to 40 within one week) (Andrew Stojanovski, pers. comm.), a quick-release program is imperative in providing funds to remove the recruiting sniffer back to their originating community, and take new recruits to an outstation or other area.

The current CAYLUS program in Alice Springs is in an excellent position to help address the high level of petrol sniffing in South West Central Australia.

Permanent staff also need to be located in relevant State or Territory and national agencies to provide a 'clearing house' for information about community strategies, funding sources and resource material and to act as advocates for policy.

Family-based interventions

Camping

Taking sniffers on camping/hunting/fishing trips with family is a common diversionary strategy. This requires a good vehicle. Some families have their own 4WD, while others could access a community vehicle (education/sport).

Physical punishment

Brady (1992) comments on this as a strategy, so it has clearly been in use for many years. Many interviewees commented that they or other family members had physically punished sniffers, or that the community had publicly flogged and 'shamed' offenders. While physical punishment of minors is not condoned under Australian law, some interviewees said that it was successful in stopping sniffing with experimenters and those just starting out. Some community members had punished family members in response to community outrage over store/house/car break-ins.

Physical punishment appears to be more effective in smaller than in large communities. There is a high risk of offending extended family members in a larger community and potentially exacerbating other inter-familial tensions. It is generally ineffective and often counter-productive with larger groups and the long-term sniffing population. It can increase the alienation between the community/families and the sniffing group, by welding sniffers into a 'gang'.

Cultural

Many communities mentioned that cultural activities such as occasional or extended bush camps, young men's ceremonies, and hunting trips are often dependent on 4WD vehicle access and willingness of the family. The land is seen as having healing powers, both physically (through hunting and eating bush tucker) and spiritually (through connection to sites).

Removal

Many community members mentioned that removing sniffers to a community or town where there was no sniffing was effective but that, on their return, some would return to sniffing.

Others mentioned taking sniffers to family outstations for extended periods. Even if the young person returned to sniffing, at least while they were away they had a break from its damaging effects and the community and family received some respite.

Community members felt that they weren't given enough recognition for the multitude of interventions they had tried over many years. They believed that their efforts were more effective when supported by an agreed community-wide strategy (e.g. when the night patrol could assist them or when the school could take their child on a camp).

An important part of any community strategy is to provide support for family members and carers, as well as working with the sniffers. It may be more helpful to support the family than expecting them to be able to provide any 'answers'. While non-Indigenous community staff stated that *...families don't do anything, for example tip out petrol, tell the sniffer off*, families stated that they had tried many interventions.

Access to information about petrol sniffing

It is apparent many interventions have been tried, and that there is a substantial amount of written work that describes and evaluates their achievements. However, communities experiencing petrol sniffing continue to struggle to locate and use this information. Dr Maggie Brady commented that the lack of clear and accessible advice on petrol sniffing is a major failing of the current response to petrol sniffing. She suggested the creation of a State/Territory-based network of officers

who would provide information and support. These officers would form the backbone of the response to petrol sniffing. By meeting periodically, they could also play a role in the development of knowledge and ideas in combating petrol sniffing.

An alternative to this suggestion is to create a clearing house for petrol sniffing information. This could be allied to other clearing house structures.


Conclusion

A range of interventions has been tried with some success. Some of these interventions target individual sniffers or groups of sniffers (e.g. removal to outstations) and others are community-wide strategies (e.g. Avgas, night patrols, sport and recreation programs).

Examples of all types of interventions were identified in this study. Interviewees mentioned that all had been successful in varying contexts. It is apparent that any intervention, however small and apparently trivial (e.g. a one day workshop), can have some effect on petrol sniffing. Some of these small interventions have been shown to have an effect lasting one to several months. Even a supposed 'non-intervention' (e.g. this evaluation of the Comgas Scheme) is able to trigger communities into re-examining Avgas as a potential intervention.

Successful night patrols supported by effective policing and the presence of a stable organisation within the community is correlated to low levels of petrol sniffing. Since it takes a strong community to sustain these types of interventions, the question arises as to whether it is the strong community or the intervention that causes the low levels of sniffing.

Two communities have managed to eliminate sniffing without the use of Avgas. Both of these have relied on youth programs that have been run by extraordinarily



dedicated individuals. Unfortunately, both of these communities are very vulnerable if these individuals leave.

Petrol sniffing in each community is idiosyncratic, influenced by individuals and family structures. Each community has different strengths that may vary over time, and it is therefore not possible to determine which intervention is superior to any other. Different communities favour different approaches at different times. It is striking that almost all these interventions have worked for particular communities.

It is not possible to determine the strategies that should be used without a good knowledge of the community and an up-to-date knowledge of the strengths of its various organisations. It is the community itself that works this out most efficiently. The proposal for a program tends to come from the organisation most able to provide it. It is strongly recommended that, where possible, community desires for programs be supported (see Recommendation 9).



Recommendations arising from Section 2

Recommendation 6

Strategies to address petrol sniffing should not be conducted in isolation from broader substance misuse interventions, as petrol sniffing is often part of a pattern of poly-drug use including alcohol and cannabis.

Recommendation 7

Consideration should be given to undertaking an education campaign warning petrol sniffers of the dangers of lying down with a can on their face. This campaign should be aimed at sniffers and their families.

Recommendation 8

The current Youth Link-Up Program (CAYLUS) should continue to be funded, as this program is best placed to reduce the high levels of petrol sniffing and related levels of mortality and morbidity in the Central Northern Territory.

Recommendation 9

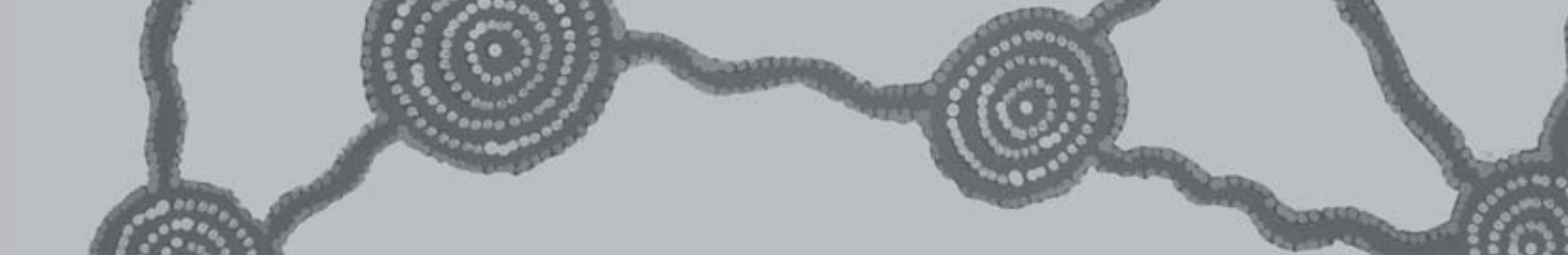
Funding should be made available for communities to implement a range of complementary interventions as considered appropriate by each community.

Recommendation 10

Fuel companies should be encouraged to support the above initiatives, financially and in kind, by providing information and/or support staff to communities and to the proposed clearing house.

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