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Petrol Sniffing in Aboriginal Communities.

A Review of Interventions

Peter d'Abbs and Sarah MacLean

2000

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Executive summary

This is a review of published and unpublished literature addressing petrol sniffing in Australian Aboriginal communities. In this executive summary, the main findings are itemised; however, because petrol sniffing, when it occurs, is invariably a product of a complex mix of causes and contextual factors, the findings themselves should not be considered in isolation from the broader contextual factors discussed in the main text.

Features of successful strategies against petrol sniffing

- Successful strategies involve the use of a range of concurrent interventions addressing three variables labelled by Zinberg (1979, 1984) as 'drug, set and setting'. By these Zinberg means: the pharmacological-toxicological properties of the substance (drug); the attributes of persons using the substance, such as personality and physical health (set); and aspects of the social and physical environment in which consumption occurs (setting). No intervention strategy is likely to ameliorate petrol sniffing and the problems associated with it unless it addresses each of these factors, and the interrelated effects engendered by them. This does not mean that a single program must attempt to bring about change in all three domains, even if it could do so. However, it does mean that any intervention strategy, of which particular programs will form a part, must begin by identifying the factors in each of these domains that shape the usage patterns and consequences of petrol sniffing in the community concerned.

- The most successful strategies are initiated by the community, enjoy widespread community support and involve strong participation of community members. Interventions proposed by the community need to complement those undertaken by families, and family actions must be consistent with community strategies. Developing and fostering community cohesion and support for interventions is therefore critical in any anti-petrol sniffing campaign. Some communities have requested ongoing support to assist them in dealing with petrol sniffing, thus it is important to maintain the continuity of any intervention.

The context of petrol sniffing

- Petrol sniffing is a form of volatile substance misuse (VSM). VSM is practised by a significant minority of young people across Australia and in other countries. It is more prevalent in particular ethnic and socioeconomic groups. Petrol sniffing has been reported among indigenous populations of a number of developed nations.

- Although petrol sniffing tends to attract the most media attention, a range of other forms of drug use including other VSM is practised by young Aboriginal people. Interventions targeting a particular substance may have the effect of shifting young people to other forms of drug use.

- A majority of Aboriginal petrol sniffers are males. Most are between 8 and 30 years of age. Sniffing is most prevalent among people in their late teens. Older sniffers are more likely to be chronic users.
- Because of fluctuations in petrol sniffing and variations between communities it is difficult to draw conclusions about the prevalence of petrol sniffing. It appears, however, that since 1994 there has been a reduction in sniffing in some areas where it has been prevalent for a long time, although some communities still experience high levels. This has occurred alongside a spread of petrol sniffing to new localities in Australia. There also appears to have been an increase in VSM in some urban communities. Interventions should be planned so as to be sensitive to local seasonal variations in prevalence.
- Early intervention against petrol sniffing is critical as people are much more likely to stop early in their 'sniffing career' before the practice becomes entrenched.
- A complex range of interrelated causes has been proposed to explain petrol sniffing. These range from dispossession and cultural breakdown to individual psycho-social factors. Boredom is a major contributor and any program must offer a counter-attraction to the experience of petrol sniffing. Poverty as a contributing factor in petrol sniffing warrants more consideration than it has received in the literature.
- Petrol sniffing poses a range of problems to sniffers, their families, communities and to the wider society. Among the problems which have been associated with petrol sniffing are: serious health consequences including death or long-term brain damage, social alienation of sniffers, social disruption, vandalism and violence, increased inter-family conflict and reduced morale on communities, incarceration of sniffers and costs to the health system in terms of acute care and providing for the long-term disabled.
- Families, communities, community organisations and governments (State/Territory and Commonwealth) each have a role in addressing petrol sniffing. Cooperation and consistent action between these agencies is essential. Within jurisdictions a whole-of-government approach is required.
- Interventions against petrol sniffing are all too often spasmodic, consisting of responses when sniffing peaks rather than implementation of long-term preventative strategies.

Primary intervention

- There are many difficulties facing young people growing up on Aboriginal communities and a channelling of adult attention to these issues by communities, agencies and funding bodies may impact on 'risk' behaviours including petrol sniffing. Many people have argued that youth worker positions should be funded in Aboriginal communities to provide support and increase the range of activities available to young people.
- Recreational programs have a useful role to play if they: are sensitive to the needs of the community, provide a range of programs, are genuinely engaging and exciting and provide opportunity for risk-

taking, and include activities for girls and young women. Activities should be available after hours, on the weekends and during school holidays. Although sniffers should be encouraged to take part, programs should be targeted at all young people in the community.

- Appropriate school, employment and training opportunities have the potential to divert young people from petrol sniffing.
- Education about petrol sniffing is most usefully targeted at the community or select groups within the community such as parents or professional staff. Most young people already know that sniffing is dangerous and scare tactics are generally counter-productive. Educational activities should seek to promote caring capacities in the community rather than spread alarm and despondency. When education is aimed at sniffers it should focus on effects of sniffing which are likely to be of concern to young people.
- Where it has been accompanied by interventions at the level of set and setting, the substitution of petrol with Avgas has made an important contribution to the prevention of petrol sniffing in many communities.
- Locking up petrol supplies or adding chemical deterrents is not generally effective.
- The increased use of unleaded petrol has been associated with a significant reduction in morbidity and mortality, but this is not a reason for complacency as the long-term effects of sniffing unleaded petrol are unknown.
- Moving to outstations has enabled some families to escape problems such as petrol sniffing experienced in some large communities.

Secondary intervention

- A range of innovative resources drawing on Aboriginal *tjukurpa* and art forms have been developed to address social problems including petrol sniffing. (*Tjukurpa* is a term that defies ready translation into English; it can refer, depending on context, to stories, the Law and/or particular words.) Culturally appropriate evaluation of some of these resources would be useful.
- The outcomes of a petrol sniffing strategy initiated in Central Australia in the 1980s (Healthy Aboriginal Life Team, or HALT) suggest that, in the hands of a skilled counsellor, orthodox counselling and community development techniques can be effective if used with sensitivity and respect for Aboriginal perceptions and values. However, the HALT approach was not effective in all communities in which it was tried.
- Activities generated through another innovative program in Central Australia - Petrol Link-Up - point to the value of maintaining an inhalant substance misuse team to provide support to communities trying to address petrol sniffing, and to act as a conduit for information.

- Community warden schemes and night patrols have a useful but limited role to play. They can be effective in returning sniffers to their families, but if they simply bring pressure to bear on the families, without any provision being made to assist those families, they are likely to be ineffectual. However, if additional measures are in place these schemes may reduce the level of sniffing in the short term and give people in the community a sense that something can be done - and is being done - about sniffing.
- Legal sanctions offer few keys to the petrol sniffing problem. Jailing petrol sniffers can certainly deprive them of access to petrol for a limited period, but offers little prospect of inducing any longer-term behaviour change.

Rapid community responses to petrol sniffing in the form of sending visiting sniffers away and chastising young people involved can be effective. However, measures based on shaming, banishing or ostracising sniffers must be undertaken with extreme caution as they risk further alienating young people from their families and communities.

Outstation or homeland programs established by family groups to provide care and respite for petrol sniffers are an important secondary and tertiary response. For many Aboriginal people, outstations provide a response to petrol sniffing which is consistent with cultural values and 'traditional' learning and authority structures. Young people must be appropriately assessed before being sent to remote outstation programs. Outstation programs must be properly resourced, with access to telecommunication facilities, medical support and first aid training, and must provide a meaningful program of activities. Outstations may assist some young people to stop sniffing and enforce a break from the practice for others but can only be effective in the longer term if accompanied by changes in the community.

Available harm minimisation measures include discouraging sniffers from sniffing in small spaces or from large containers, not sniffing from a rag or bag and taking care not to ignite petrol. Sniffers should not be surprised or chased, as this may lead to sudden death. Spraying inhalants directly into the mouth appears to be the most dangerous form of VSM.

Tertiary intervention

- There is some debate as to the efficacy of chelation therapy in the treatment of organic lead poisoning, but as the use of unleaded fuels is increasing it will have a limited role in the future care of sniffers.
- Airway maintenance is crucial in the care of acutely affected sniffers.
- There is little available evidence from which to assess the benefits of residential rehabilitation for petrol sniffers. Any further models developed such as respite or 'sobering-up' services should be carefully evaluated. Under no circumstances should residential treatment and rehabilitation facilities be regarded as an alternative to adequate primary and secondary interventions; at best, they complement the latter.

Conclusions

- Interventions addressing petrol sniffing by young Aboriginal people are rarely critically evaluated. The sensitive evaluation of programs would facilitate a rational deployment of effort and allocation of resources.
- The most effective long-term strategies against petrol sniffing are likely to be those which broadly improve the health and wellbeing of young Aboriginal people, their families and communities.

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Strait Islander Alcohol and Other Drug Projects, developed by the Perth-based National Centre for Research into the Prevention of Drug Abuse in 1995 (Sputore et al 1997), proved useful, as did the Australian Drug Foundation library in Melbourne. CD-rom and Internet searches for literature were also undertaken.

The review focuses on literature dealing specifically with petrol sniffing; more general literature on Indigenous alcohol and other drug issues has, in the main, not been included.

The review is divided into two parts. The first part focuses on 'Petrol sniffing as a problem', and includes chapters on prevalence and patterns of petrol sniffing, both overseas and in Australia, causes of petrol sniffing, and the large number of problems associated with petrol sniffing. Part Two is concerned with interventions, and is divided into chapters dealing with primary, secondary and tertiary intervention respectively. These are defined as follows:

primary intervention: actions taken to prevent the emergence of a problem, and/or to prevent it from spreading to new areas or groups (e.g. education, substitution of petrol with Avgas);

secondary intervention, or early intervention: actions targeted towards a population either deemed to be at risk, or already in the early stages of exhibiting a problem, designed to halt further progress of the problem (e.g. individual and family counselling); and **tertiary**

intervention, or treatment: actions targeted towards persons already misusing drugs habitually, designed to halt further misuse or to rehabilitate (e.g. residential rehabilitation).

The final chapter, entitled 'Learning from the past', is an attempt to summarise and integrate the findings from the previous chapter into a framework which provides a basis for planning interventions. This framework is taken from the work of Zinberg (1979; 1984), who argues that the manner in which mind-altering substances are used, and the consequences of those patterns of use, are a product of the interrelated effects of three sets of factors: pharmacological properties of the substance concerned, attributes of individual users, and characteristics of the environment in which use takes place. (Zinberg attaches the labels 'drug, set and setting' to the three factors.) No single factor, taken by itself, provides an adequate framework for explaining the use and effects of a mind-altering substance, and consequently, no single factor constitutes, by itself, an adequate basis for intervention. One major reason why so many petrol sniffing interventions in the past have had little or no effect is that they were focused exclusively on one of these factors, without consideration being given to interactions with other factors: for example, exclusive focus on the substance itself (introducing additives to the petrol), or users (residential rehabilitation, life skills training), or the setting (banishment).

In considering intervention options, one qualification should be borne in mind. Young people who sniff petrol often use a range of substances, including other volatile substances.' In the main, interventions that address the issues underlying young people's drug use will have a more profound effect than attempts to stop them from using a specific substance. Indeed, the most effective measures against petrol sniffing by young Aboriginal people may prove not to be drug related interventions at all, but other developments which change the mix of economic, cultural and spiritual contents of people's lives and environments. Brady concludes a major study of petrol sniffing by pointing out that members of Aboriginal society, like those of all societies, need opportunities for meaningful productive activities.

"People abandon their drug use when it begins to interfere with too many other valued aspects of their lives. If there are no other valued aspects to life then there is simply no compulsion to abstain" (1992, 193). Roper adds that petrol sniffing interventions will not work on their own, but must be "accompanied by a commitment to achieving social and health justice for Aborigines from governments and the Australian people" (1998). The present review does not venture into these wider fields, but is confined to interventions that are more directly concerned with petrol sniffing.

1. Introduction

The purpose of this study is to review interventions that have been implemented to combat petrol sniffing in Aboriginal communities, in order to learn from these interventions, and to use these lessons in the development of more effective policies and programs in the future.

The review was initially written in 1989 and updated in 1991 when Dr Peter d'Abbs was working with the Drug and Alcohol Bureau of the Northern Territory Department of Health and Community Services - subsequently renamed the Alcohol and Other Drugs Program (AODP) of Territory Health Services (THS). At the time, the review was circulated internally with a few copies also being made available to interested organisations. The review was well received and many people called for it to be made more widely available; however, it was never published. In 1998 Sarah MacLean, in her capacity as Senior Policy Advisor with AODP, commenced work on updating the review. With the establishment of the Centre for Cooperative Research in Aboriginal and Tropical Health (CRCATH) in 1997, it was decided to finalise the update as a CRCATH project with Peter's and Sarah's time representing in-kind donations to the CRCATH by their employers, Menzies School of Health Research and THS respectively. The CRCATH project commenced in November 1998.

In writing this review we have aimed to provide a broad and reasonably detailed overview of the literature for literate non-specialists. We imagined our readers to be people with good English skills who are living and working in Aboriginal communities, members of non-government organisations dealing with petrol sniffing, and policy makers in governments and funding bodies. While we have spoken with many people involved in the prevention of petrol sniffing through the process of writing this review, the document is primarily a review of the literature (published and unpublished) dealing with petrol sniffing. Two consultations with agencies and individuals dealing with sniffing in Central Australia have recently been undertaken, and this review does not attempt to duplicate them (Mosey 1997; McFarland 1999). Initially it was also planned to produce a shorter plain-language version for use in communities; however, since this time we have learned that the Aboriginal Alcohol and Drug Council of South Australia has undertaken extensive research and consultation towards the production of a manual for communities wishing to address petrol sniffing. A shorter version of our document would duplicate this.

The study does not purport to be a comprehensive overview of 'the petrol sniffing problem'; it has little to say, for example, about the origins of petrol sniffing or about pharmacological aspects of toxicity. For a comprehensive study of the history, prevalence, impact and social meanings of petrol sniffing in Australia, see Maggie Brady's *Heavy metal: the social meaning of petrol sniffing in Australia* (1992). Part 11 of the Senate Select Committee on Volatile Substance Fumes report *Volatile Substance Abuse in Australia (Commonwealth of Australia 1985)* provides a general overview. Chris Burns' PhD thesis, *An End of Petrol Sniffing* (1996), held in the Menzies Library at Royal Darwin Hospital (RDH), deals with a number of issues around eradication of petrol sniffing at Maningrida, and also contains a useful overview of pharmacological and clinical

aspects of petrol sniffing. Elizabeth Chalmers' article 'Volatile Substance Abuse' (1991) provides a useful summary of the epidemiology and physiological effects of the practice. Throughout our own text we give further references to more detailed medical and pharmacological investigations of petrol sniffing, and to further studies of health effects.

Much of the literature on petrol sniffing is unpublished, and gathering it has proved time consuming. Despite our efforts, it is likely that we have overlooked some material (particularly unpublished material produced outside the Northern Territory). A list of organisations contacted as part of the 'literature search' is included as Appendix Two. The National Database on Aboriginal and Torres

PART ONE..

PETROL SNIFFING AS A PROBLEM

2. Prevalence and patterns

Interventions to redress social problems are governed in the first place by the manner in which those problems are defined: is petrol sniffing primarily a health or 'law and order' issue? Who defines it as an issue demanding attention: the families of sniffers, or the local police officer? Lack of clarity as to the nature, scope and causes underlying petrol sniffing among Aboriginal people has helped to foster a proliferation of intervention approaches, many of them based on hunches or convictions rather than any coherent theory or model. Almost none of them are formally monitored or evaluated, and only a few of them - it would appear - are sustainable and successful in significantly reducing sniffing.

Any assessment of intervention options, therefore, must begin with a clear delineation of the problem. How prevalent is petrol sniffing, in Australia and elsewhere; why do young people sniff petrol; for whom, and why, is petrol sniffing among Aboriginal people a problem; and who is responsible for addressing it?

2.1 Volatile substance misuse around the world

The inhalation of petrol fumes for their mind-altering effects belongs to a broader category of activities known as 'volatile substance', 'Solvent' or 'inhalant' misuse (Commonwealth of Australia 1985, 34). As such, it is neither a new nor a peculiarly Aboriginal phenomenon. In general, volatile solvent misuse is more prevalent among people from lower socioeconomic backgrounds (Dinwiddie 1994) and problematic petrol inhalation is particularly a problem for indigenous peoples in Australia, Canada and the USA.

Although the term is frustratingly vague (Beauvais and Oetting 1987; Esmail et al 1997), volatile substance misuse usually refers to the inhalation of fumes from glues, liquid solvents, petrol and fuel gases, aerosols, nitrites and fire extinguisher propellants. Of these, inhalation of glues, liquid solvents, petrol and aerosols is particularly associated with young people, largely because they are cheap and readily available (Commonwealth of Australia 1985, 4).

Volatile substance misuse is practised by a minority of young people in developed countries. Ramsey et al (1989) estimate that between 3.5 per cent and 10 per cent of young people in the United Kingdom have at least experimented with solvents, and that in 1989, between 0.5 per cent and 1 per cent of the secondary school population were current users. A 1992 study in Wales found that 12.6 per cent of 15-16 year old boys and 11.2 per cent of girls had used volatile substances (Flanagan and Ives 1994, 63). It appears that in the UK there is a higher prevalence of volatile substance misuse among white people than Asians or Afro-Caribbeans (Flanagan and Ives 1994, 63).

US estimates point to a higher rate of usage, and a strong trend to increased prevalence. The National Inhalant Prevention Coalition (nd) reported that in 1997 inhalation of common household products such as glue and paints had recently moved from being largely confined to Hispanic and Native American young people to more widespread usage. By the time they are in year eight, almost one in five students in the US will have experimented with inhalants (May and Del Vecchio 1997, 6). The

distribution of sniffing in North America has some similarities with the Australian situation. While Canadian Indians are more likely than the general population to sniff petrol, some communities maintain low rates of prevalence (May and Del Vecchio 1997, 7). It has been widely noted that African Americans have low rates of inhalant misuse (Dinwiddie 1994).

Beauvais and Trimble claim that there are nearly 20 million people - mostly street children - sniffing inhalants in Central and South America (1997, xi). Flanagan and Ives discuss prevalence of inhalant use around the developed world, including data from Denmark, the Netherlands, Norway, Brazil, Japan and New Zealand (1994, 61-2).

Australian studies of drug use among school children suggest that the experimental sniffing of glues, solvents and aerosols occurs among a significant minority of early adolescents, very few of whom, however, become chronic users. A 1992 Commonwealth Government study of secondary school students in Victoria and New South Wales found that about one-quarter of secondary students had at some time deliberately inhaled solvents, with 8 per cent having done so in the last month. Other studies present lower figures (Houghton et al 1998, 200). Nationally, the proportion of people aged over 14 years who had ever used inhalants for non-medical purposes was 4.3 per cent in 1993 and 2.3 per cent in 1995 (Ministerial Council on Drug Strategy 1988, 5; Commonwealth Department of Health and Family Services 1995, 18).

Both in Australia and overseas volatile substance misuse is particularly prevalent within particular ethnic and low socioeconomic groups of young people. A study of young people at risk of volatile substance misuse in Perth found that young Aboriginal people were likely to use inhalants more intensively than non-Aboriginal youth (Rose et al 1992). Although petrol remains the primary form of volatile substance misuse among young Aboriginal people, there are increasing reports of other forms (particularly glue and aerosol paint sniffing) in urban areas, as well as other drug use.

Petrol sniffing among young people in some remote Australian Aboriginal communities, in conjunction with other manifestations of poor health and lack of social opportunities, appears to have more serious consequences than volatile substance misuse among non-Aboriginal young people. In this respect, it shares similar features with volatile substance misuse among young people of other poor minority groups, including Pueblo Indians, Canadian Indians, Mexican Americans, Inuit, black South Africans, Maori, Pacific Islanders and gipsy children in Eastern Europe (Chaudron 1978; Moosa and Loening 1981; Brady 1988; Beauvais and Oetting 1988; Flanagan and Ives 1994).

2.2 Prevalence and patterns in petrol sniffing among Aboriginal people

2.2.1 Gender and age

In general terms petrol sniffing is marked by a majority of male participants, although this appears to be changing slowly. The age of sniffers is also changing. In the 1980s and early 1990s most people started sniffing around the 10-14 year age range, and this group had the highest prevalence rates. This

is now changing as sniffers who started in these years grow older, and in many areas there are fewer new recruits in the 10-14 year age bracket.

Aboriginal petrol sniffers are more commonly male than female (Brady and Torzillo 1994). In Central Australian remote communities Mosey reported that about a quarter of sniffers were girls (1997, 12); Similarly, Shaw found that in 1996, 28 per cent of sniffers in the community she studied were female, and that this proportion was increasing (1999, 7).

Most petrol sniffers are between 8 and 30 years of age (Brady and Torzillo 1994). A number of past reports document sniffing among young Aboriginal people aged up to 25 years (Tomlinson 1975; Craighead 1976; CAAPS 1985; Clark 1984). Freeman (1986), who studied the prevalence of petrol sniffing in a Central Australian community, reported that 15 out of 33 youths aged 10-14 sniffed petrol (45.5 per cent), compared with 32 out of 41 aged 15-19 (78.0 per cent). Similarly, a recent study of sniffing in a Central Desert community found sniffing to be most prevalent among young men between 15 and 19 years of age (Shaw 1999). Some sniffers are as young as 6 years old (newspaper reports in McFarland 1999).

In some communities the 'sniffer group' is getting older (Nganampa Health Council 1996), and in recent years chronic sniffers over 30 years of age have been reported (Shaw 1999).

2.2.2 'Occasional' and 'chronic' sniffing

'Occasional' and 'chronic' are terms used to differentiate infrequent and less intensive petrol misuse from long-term and more problematic petrol sniffing. The term 'social sniffer' has also been used to describe those who sniff sporadically, sometimes over long periods of time (Mosey 1997). This latter category includes 'experimenters' and 'intermittent' or 'recreational' users. An alternative typology of 'experimental', 'recreational' and 'habitual' sniffers has also been used (Langa in Sandover et al 1997). Among urban young people volatile substance misuse appears to involve a relatively large number of experimental users and a very small number of chronic users. In Aboriginal communities, however, the sniffing population often contains a relatively high proportion of chronic sniffers, particularly among older age groups, although the proportion so labelled depends in part upon one's definition of a chronic sniffer.

Freeman (1986) relied in his Central Australian study on assessments by four Aboriginal people from different family groups in the community. They designated those who were nearly always seen with a can of petrol in hand or under their nose as chronic sniffers. Significantly, all four reporters identified the same chronic sniffers. Out of 105 residents aged 10-24 years, 56 were identified as sniffers, 30 of them (53.6 per cent) as chronic sniffers: the latter figure represented 28.6 per cent of the total youth population. The proportion of chronic users was similar among both male and female petrol sniffers, and rose as age increased, from 53.3 per cent of 10-14 year old sniffers to 66.7 per cent of sniffers aged 20-24 years.

Hayward and Kickett (1988), in their survey of Aboriginal school children from seven Western Desert communities in Western Australia, defined chronic sniffers as those who admitted to having sniffed petrol within the past week or the past month. Thirteen of the 32 sniffers identified, or 40.6 per cent, were 'chronic' sniffers.

Roper and Shaw (1996) found strong agreement within communities over who was a chronic and who was an occasional petrol sniffer. In a later study of a sniffing population in a Central Desert community, Shaw categorised 16 per cent as chronic, 28 per cent as regular and 56 per cent as occasional. Chronic sniffers were more likely to be older, most of them between 20 and 29 years (1999, 4).

A disturbing finding from this study was that more than two-thirds of occasional sniffers aged between 15 and 19 years of age were likely to become regular or chronic sniffers as they got older (Shaw 1999, 7). Sister Janette Berthelson, a nurse at Alice Springs Hospital, estimates that after five years of chronic petrol misuse a person is likely to have sustained neurological damage to the point that their ability to communicate with others is severely impaired (in McFarland 1999).

There is general agreement in the literature that the people who are the hardest to help stop sniffing are chronic sniffers. Shaw observed that among the sniffers and ex-sniffers she studied, only one in five had given up over the past five years (Shaw 1999, 15). Of those who had given up, two-thirds had been sniffing only occasionally. This is a critical point for those planning interventions: it is much easier to help people to stop sniffing if the practice has not yet become entrenched. By the time someone has become a chronic sniffer, the likelihood of their stopping is substantially reduced.

2.2.3 Distribution and trends

Estimates of numbers of petrol sniffers are notoriously imprecise and often conflict with one another. This is partly because in some communities sniffing is a semi-clandestine activity carried out at night, and also because in most communities where it occurs, its prevalence fluctuates widely even within a period of a few weeks. In some places the problem becomes quiescent for periods of time, perhaps with a small group of chronic sniffers maintaining their habit in an almost invisible way, and then will re-emerge, often as a result of movements of young people and their families between communities.

Petrol sniffing occurs in some Aboriginal communities and not in others. Brady (1988), using Department of Aboriginal Affairs 'community profiles', reported petrol sniffing in 1985 as being present in 29 Aboriginal communities in the Northern Territory, and 26 communities in other states. According to Brady (1989b), petrol sniffing was not a problem in the Kimberleys or the Pilbara region of Western Australia, or in the Barkly Tablelands, Northern Territory. It occurred mainly in Arnhem Land, and in Central Australia among desert Aborigines, and had also been reported in the Riverina region of New South Wales.

In 1994 Brady and Torzillo argued that petrol sniffing patterns had changed:

it appears that the intensity of sniffing has increased over the 20 years, with more users sniffing over longer periods, which has resulted in an increase in reported morbidity and mortality from the 1980s onward (Brady and Torzillo 1994, 176).

Because of the fluctuations in the prevalence of petrol sniffing, and variation between communities, it is extremely difficult to draw conclusions about whether it is increasing. It appears, however, that there has been a further shift in patterns and prevalence of petrol sniffing since 1994. This has been associated with the introduction of Avgas in conjunction with a range of community-based

interventions such as outstation programs. Maningrida, in Arnhem Land (NT), had a long and established history of petrol sniffing but has now managed to stop the practice (Burns et al 1995b). Another community, Yuendumu in Central Australia, substantially reduced it for periods of time (Stojanovski 1999). There are now fewer sniffers in the Anangu Pitjantjatjara Lands (Roper and Shaw 1996 - see discussion in this chapter). In one Central Desert community where prevalence data is available, sniffing has reduced and is also less intensive, although the practice remains entrenched (Shaw 1999).

However, some communities which had previously been free of petrol sniffing are now reporting the practice. Petrol sniffing has been reported in some communities in the Katherine region of the Northern Territory, Cape York in Queensland, south-west Queensland, western New South Wales and northern Victoria (Garrow 1997; Commonwealth Department of Health and Family Services 1998, viii). In town camps around Alice Springs (and also in some other urban centres) there has been a marked increase in volatile substance misuse (Joanne Townsend, pers comm). In Alice Springs this generally takes the form of paint sniffing but petrol sniffing is also reported. In some Northern Territory communities with a long history of petrol sniffing the practice has intensified since 1997 (Anne Mosey, pers comm).

Overall it appears that since 1994 there has been a reduction in intensity of sniffing in some of the areas where it has been prevalent for a long time, particularly in Central Australia, although some communities still experience high levels. This has occurred alongside a spread of Aboriginal volatile substance misuse to new localities in Australia, presenting a new and frightening problem for families and workers in these communities. There also appears to have been an increase in prevalence within some urban communities.

These shifts in prevalence form the context in which research conducted at various times has occurred, and are likely to have shaped observers' conclusions. For example, some observers of petrol sniffing in the Pitjantjatjara Lands in the 1980s were describing what they saw as a growing, epidemic-like problem. When considering these reports retrospectively, as we do in this review, it is important to try, wherever possible, to keep the contemporary context in mind.

In 1992 Brady estimated that there were between 600 and 1000 habitual petrol sniffers in Western Australia, South Australia and the Northern Territory. This constituted 2.3 per cent of the total Aboriginal population between 10 and 24 years of age in these jurisdictions (1992, 7). A census of petrol sniffers in the Central Australian region of the Northern Territory was undertaken in May 1997. A total of 140 petrol sniffers were reported in 10 remote communities, with ages ranging from 8 to thirty. In April 1997, 60 people were reported to be sniffing inhalants (mostly aerosol paints) in Alice Springs, with some (disputed) evidence that this number had dropped to 20 by August (Mosey 1997, 12). Mosey points out that although numbers of sniffers are relatively small, they have an effect on community life far beyond their numbers (1999, 12). Durnan (1999, 1) reports that in the Northern Territory section of Central Australia sniffing is heavily concentrated in the areas bordering Western Australia and South Australia. A conference held to discuss petrol sniffing in 1999 identified Alice Springs as the place with the most serious current petrol sniffing problem in the Northern Territory (NPY Women's Council 1999b).

The experience of the Anangu Pitjantjatjara provides an example of trends in petrol sniffing. The 1986 South Australian Aboriginal Customary Law Committee estimated that there were 254 sniffers on the Anangu Pitjantjatjara Lands (Roper and Shaw 1996, 15). Roper and Shaw calculate that this constituted at least 10 per cent of the total population of the lands. Petrol sniffing declined in prevalence in the Anangu Pitjantjatjara Lands with the introduction of Avgas as a replacement for petrol, which occurred in late 1994. By 1996 the petrol sniffing population had dropped to 85, or 3.6 per cent of the population. *Moving On* (Roper and Shaw 1996) found this population to be characterised by chronic long-term sniffing, with around 60 chronic sniffers. There are now fewer sniffers in the 10-14 year age group and more aged 25-29 years than in 1984 (Nganampa Health Council 1996, 16-17). Numbers of sniffers have remained lower than before the introduction of Avgas (Roper 1998); however, it remains a significant problem Anangu Pitjantjatjara communities, particularly those located close to petrol supplies.'

Interventions should be planned so that they are able to be implemented at times of the year when sniffing is most likely to occur. Waves of petrol sniffing in the Top End of the Northern Territory usually coincide with the wet season (November to March). This is due to markedly reduced mobility and an increase in community populations when people from outstations move back for the wet season and young people attending boarding schools return home for the long holiday break. At the same time, local schools are also closed and there are few recreational and other activities available (Garrow 1997). During the 1997 wet season, four Top End communities reported petrol sniffing with a total of 30-40 young people involved. Several other communities had a small number of chronic sniffers but did not report new recruits to the practice (Garrow 1997, 3).

In Central Australia, outbreaks of sniffing are usually associated with gatherings for ceremony or football, and with school breaks (Durnan 1999, 1). In one Central Desert community, however, sniffing does not seem to be related to seasons or yearly events (Shaw 1999, 7). 1996 saw a dramatic increase in sniffing in this community, attributable to a large group of boys with family ties to influential sniffers turning 15 and then leaving school with little else to do. These boys in turn encouraged or even strongly pressured others to sniff to the point where 84 per cent of boys and 32 per cent of girls between 15 and 19 years of age were sniffing, a clear majority of young people in that age group (Shaw 1999, 13).

Petrol sniffing tends to attract media interest, even though other substances such as alcohol are also used extensively. It also often occurs along with other forms of drug use. Marijuana is reported to be becoming more widely used by young people than petrol in the Top End of the Northern Territory (Garrow 1997), and in Alice Springs inhalation of other volatile substances also occurs.

3. Causes

Interventions addressing petrol sniffing are informed by beliefs about its causes. For instance, if boredom is seen to be the problem, recreational programs might be developed. If petrol sniffing is considered to be a disease or illness, a treatment program is the logical response. This section looks at some explanations for petrol sniffing and the solutions which they generate,

North American studies paint a grim picture of inhalant users, finding inhalant misuse to be a marker for other kinds of risk. Inhalant misusers are more likely to come from families of low socioeconomic status and with serious dysfunction and discord. Siblings and parents are likely to be problem users of alcohol, as are inhalant users themselves. Inhalant users are also often poly-drug users, likely to be involved in crime and other delinquent behaviour and to spend time with an inhalant-using peer group. They tend to have a poor record of school attendance, a low level of educational achievement, and are more likely to experience psychiatric dysfunction (depression and suicidality) and difficulty in interpersonal relations (Howard and Jensen 1999; May and Del Vecchio 1997; McGarvey et al 1996; Dinwiddie 1994; Mackesy-Amiti and Fendrich 1999).

The most common explanation for substance misuse in Australian Aboriginal communities is that it is an illness or addiction which occurs as a consequence of the cultural disruption (particularly to family structures) caused by colonisation and dispossession (Brady 1995c, 1494). For instance, Divakaran-Brown and Minutjukur (1993) argue that petrol sniffing must be seen as part of a process of social deterioration. In this analysis petrol sniffing is a malady which besets lonely young people who have experienced family breakdown or lost important care givers. The late Barry Cook from Intj arnama supported this view:

I've had tears in my eyes speaking to sniffers aged seven to 25 years, asking them why they're doing this dangerous thing and every single one says "because no one cares, or gives a damn about us". We say "look Elva and I care about you", but that's not what they're after. They want mum and dad and grandma and grandad back. That's who they want (in McBeath 1997).

Similarly paintings by Aboriginal artists associated with the Healthy Aboriginal Life Team (HALT) attribute petrol sniffing to contact with Europeans and adoption of aspects of European lifestyle and subsequent poor parental care for young people. Andrew Spencer Japaljarri's paintings about petrol sniffing show how the practice gains a foothold where families are not strong enough to resist it:

In some areas there are no sniffers because they've got a strong community and they have helpers. Where the red dots are (signifying petrol sniffing), that's where they've got weak communities; but people can stop the petrol sniffing there through family control (Spencer Japaljarri 1990, 85).

Eastwell (1979) has argued that petrol sniffing is a phenomenon of large settlements in which different clan-language groups live in unaccustomed mutual proximity, and in which traditional patterns of social order are threatened. He found that in two Arnhem Land communities, sniffing occurred most

frequently among clan-language groups that had not established outstations, and that were socially deprived in other respects. Elsegood (nd), however, has cast doubt on this thesis, and Brady (1985) points out that in several settings where petrol sniffing is a problem, no such association exists. Burns argues that the causes of petrol sniffing at Maningrida included conflicts between the landowners and other groups living in the community, government domination of community affairs, and the social and cultural dislocation experienced by people (Burns 1996, 234). Common to all of these views is a tacit recognition of an important characteristic of contemporary Aboriginal communities: most of them are products not of Indigenous social organisation and settlement patterns, but rather of colonising agencies, whether governments, missions or pastoral interests.

Some researchers believe that where parents are unavailable due to alcohol, cards, or cultural or community business, young people are more likely to misuse petrol or other substances. Craighead (1976), writing about petrol sniffers from an island community off the Amhem Land coast, reported that sniffers believed that they were not being looked after properly at home and that their parents did not seem to care about them. Wright (1998) asserts that sexual abuse and family violence are contributing factors in some instances and McFarland (1999) notes that young people have been reported to have been sniffing petrol to block hunger pains.

Osland (1998) found that sniffers tended to be isolated from other young people in the community. Many sniffers in the communities she worked with came from families which had experienced a breakdown of traditional roles and responsibilities and/or lacked power and status in the community, and some sniffers had no parents alive. The petrol sniffing group can come to replace family for young people involved (1998, 25). Others have referred to sniffers as the 'street kids' of their communities (Stojanovski 1999, 7). Stojanovski lists peer group pressure, experimentation, boredom, neglect, loneliness, hunger and sadness as reasons for petrol sniffing at Yuendumu (1999, 7).

There appears to be an association, both in Australia and overseas, between alcohol dependence of family members and petrol sniffing by young people (San Roque et al 1999, 20; Caputo 1997). Roger Sigston, coordinator of an agency running a rehabilitation program for tribally oriented Aboriginal substance abusers, testified to the Senate Select Committee on Volatile Substance Fumes in 1985 that in about 80 per cent of petrol sniffing cases, the young people concerned came from families characterised by social and cultural breakdown, usually associated with alcohol misuse. Central Australian Aboriginal Congress (1997b) argues that helping parents control their alcohol consumption is a critical means of intervening in their children's petrol sniffing.

Brady (1992) proposes a rather different approach to explaining petrol sniffing. She argues that the 'disease' and 'sociopolitical' models characterise petrol sniffers as victims and thereby construct them as powerless to control their drug use. She proposes that such explanations for sniffing have been given far more attention than factors related to the "individual's motivation and perceptions" (1992, 69), and that what is termed 'loss of culture' does not always cause young people to misuse drugs (1995c, 1491). She writes that petrol sniffing is prevalent in some of the most 'tradition-oriented' communities on Aboriginal owned land and often absent in communities with a long association with the pastoral industry, and that some sniffers come from families which provide them with good care (1992, 20; 1995c, 1491). Brady suggests that the role of peer groups and individual psycho-social issues in petrol sniffing have been under-investigated.

Brady considers sniffing to be a means for young people to express power over their bodies - one of the few forms of authority available to many Aboriginal young people. One interesting finding of Brady's work is that some sniffers are motivated by a desire to do this through becoming thin (which occurs as a result of petrol sniffing inhibiting appetite) (1992, 78-82). Petrol sniffing cultures and young people's explanations for petrol sniffing are considered in detail in her book *Heavy Metal* (1992), but the following is central to her argument:

Many of my informants argued that the young were neither unloved nor neglected, and perhaps it is time to deflect the focus in the analysis of Aboriginal drug use from a preoccupation with pathogenesis. Aboriginal society in these regions is not sick, but is engaged in a process of reworking itself and its values (1992, 97).

Willie Kaika, an Anangu health worker with petrol sniffers, points to this process of adaptation and change in the 1993 Nganampa Health Council Annual Report:

What I am trying to do is work out with sniffers, what might be the best thing for the future. Then maybe we will be able to get over this problem sooner (Nganampa Health Council 1993, 30).

The existence of large peer groups is clearly important in the maintenance of petrol sniffing: "in large modern settlements, children have been able to generate a life to a large extent independent of the dictates of tradition" (David Hope in Rowse 1996, 61). Solvent use, whether by Aboriginal or non-Aboriginal young people, is generally a social activity and undertaken within peer groups (Brady 1992; Carroll et al 1998). Interviews with sniffers and ex-sniffers at Maningrida revealed that peer pressure was the most frequently given reason that people had begun petrol sniffing (Burns et al 1995, 165).

Volatile substance misuse can function as a way of making a strong statement about oneself. A study of current, ex- and non-volatile solvent users in Perth (only a minority of whom were Aboriginal) found that volatile substance users both had and wanted a more "non-conforming reputation" than non-users (but not ex-users) (Houghton et al 1998, 205). The study found also that peer groups of volatile substance users are able to lend members a strong sense of identity: "adolescents are using specific substances, such as volatile solvents, as a means to attain an ideal reputation, one which allows them to both achieve and experience success" (Houghton et al 1988, 208). Although solvent users generally have a poor self-image, within peer groups of solvent users, chronic users have the highest status (Carroll et al 1998). Within some social groups, volatile substance misuse has come to be considered quite normal (Caputo 1993, 1028). These findings corroborate Brady's suggestion that petrol sniffing in Aboriginal communities provides a means of making a strong statement about both one's autonomy and membership of a peer group - often one that is oppositional to the mainstream (1992). Brady also found that people would stop sniffing after a major life change affecting their identity: such as getting married, having a child or becoming Christian (1992, 95).

Boredom and the lack of employment and other life options on remote communities provide a very compelling explanation for petrol sniffing. The National Aboriginal Health Strategy says of petrol

sniffing that "the problem basically stems from a complete sense of frustration and boredom" (National Aboriginal Health Strategy Working Party 1989). A report on a project at Mimili which aimed to address petrol sniffing through development of preventative activities states that young people sniff petrol chiefly due to boredom and loneliness (Almeida 1995).

Particularly intriguing is Brady's observation (noted above) that petrol sniffing is rare in Aboriginal communities which have an historical association with the pastoral industry (1992, 183-90; 1993, S58). She attributes the relationship to the traditions of "meaningful productive activity" (as distinct from work per se, which is not always perceived as either meaningful or productive). Aboriginal families associated with the pastoral industry were able to internalise some European values, maintain self-esteem, and at the same time maintain their own cultural practices (Brady 1993, S59),

Of course, one major reason that young people, Aboriginal and non-Aboriginal, use drugs is because it is exciting. Petrol sniffing produces hallucinations that can be both frightening and entertaining (Dunlop 1998). Marcia Langton makes this point in an interview:

There's no simple solution... If you look at why white kids do heroin, or coke or ecstasy, it's not necessarily because they're powerless. Some of them are quite powerful. So why do they do it? For pleasure. I think that fundamental factor is ignored in much of the discussion on alcohol and substance misuse (in Colligne 1991, 22)

Langton goes on to recommend that young people on communities be provided with other, more health promoting, opportunities for entertainment. In our view, (pleasure seems to be a more likely explanation for experimental and occasional use of petrol than for long-term chronic use to the exclusion of other activities - the propensity of drugs to block out reality is a more likely explanation here. The problem of developing activities which provide enough excitement to compete with petrol sniffing is, however, a very real one.'

Clearly, the causes of petrol sniffing are not only many, but also relate to each other in complex ways. As with other drug use, young people use experimentally and chronically for very different reasons. It is not easy to trace the causal theme of a single factor, such as historical dispossession or contemporary poverty. Furthermore, any analysis of causes of petrol sniffing will reflect the particular belief system ('traditional', scientific etc) of the person making it (Dunlop 1988, 86). In our view, the presence of petrol sniffing in indigenous communities of a number of developed nations suggests that social dislocation and acculturation and the suffering that these have brought are critical to the production of an environment in which petrol sniffing is attractive to young people. Communities do not need to be dispossessed of their land or forget traditional practices for their youth to be profoundly affected by colonisation and western 'youth' cultures, ideas and commodities. Petrol sniffing (or membership of the petrol sniffing group) appears to offer young people some kind of identity, albeit a negative one, amidst the massive change experienced by Aboriginal communities. Furthermore, the socioeconomic poverty experienced by Aboriginal people and communities has a profound effect on life opportunities, morale and health. Most people do not sniff petrol if they can access other substances. While poverty is unlikely to constitute a sole cause for sniffing, it warrants more attention than it has received in the literature, especially as options that address boredom and lack of life opportunities, such as recreational, educational and training programs, have, as we shall show, proved effective in some instances.

4. Problems associated with petrol sniffing

In identifying problems associated with a particular form of substance misuse, it is useful to distinguish between problems experienced by the users themselves and problems experienced by their families, the local community and the wider society of which they are part. These problems, as reported in the literature, are discussed in the following section. Table 1 provides a summary of reported problems. The table demonstrates that there is no such thing as a single, homogenous 'petrol sniffing problem' against which any single intervention program can hope to succeed. The table should also be read with two qualifications in mind. Firstly, the problems identified are not universal; that is, they are not reported as being experienced by all sniffers, all families of sniffers, or all communities. Secondly, no implications of causality should be read into the table. The problems identified have been *associated* with sniffing, not necessarily directly attributed to it. For example, it is not at all clear from the literature whether the alienation from families widely associated with sniffing is purely a result of sniffing, or whether it might not in some cases have been a factor leading to sniffing.

Table 1: Key problems associated with petrol sniffing

Those experiencing the problem	Problems
Petrol sniffers	<ul style="list-style-type: none"> • • intoxication, auditory and visual hallucination, irrationality, aggression, disinhibition, confusion, incoordination, headaches, poor memory, slurred speech, vomiting, headache, fits • • psychological addiction • • burns, severe pneumonia, increased incidence of STDs • • (chronic sniffers) cerebellar ataxia, grand mal epilepsy, encephalopathy, persistent psychosis, chronic disability including mental impairment, low body weight, hospitalisation • • possible effects on unborn children caused by sniffing during pregnancy • • poor school attendance and performance • • loss of opportunity to learn cultural knowledge • • alienation from family support • • ostracism from non-sniffing peers, kin, other families • • increased likelihood of involvement with the criminal justice system • • death
Sniffers' families	<ul style="list-style-type: none"> • · loss of control over sniffers, and associated shame • · grief and hardship due to caring for long-term disabled • · fear of violence if they intervene to stop sniffing
Local community	<ul style="list-style-type: none"> • · intensification of inter-familial fighting through blaming • · damage to property and other vandalism • · flouting of Aboriginal, and non-Aboriginal authority, and associated social disruption • · adverse effects on morale and turnover among non-Aboriginal staff • · loss, temporarily or permanently, of a proportion of the community's young people
Wider society	<ul style="list-style-type: none"> • · demands on hospital-based and other health resources, including aerial medical evacuations • · long-term health care for those disabled through petrol sniffing • · demands on criminal justice system, arising out of sniffing related crime

4.1 Problems experienced by petrol sniffers

Callas Tapau, a resident of a community that has experienced petrol sniffing, describes the effects as follows:

Because of petrol sniffing there are many problems in our community. We are losing our kids through petrol sniffing... When people sniff petrol in small amounts they feel excited and happy, but it damages your brain and parts of your body quickly.

The poisons in the petrol make it hard for the person to breathe and their heart stops working. It even gives them bad stomach pain and also headaches. Their eyes get watery so that they can't see properly and also they get dizzy and feel hot from the sunlight. When they sniff, it damages a person very quickly.

When people first sniff petrol they start to act differently, become noisier, they talk a lot and they fight. They think they see really good things, but their thoughts get mixed up and they don't know where they are. They don't see things clearly and can hear a ringing noise in their ears. The skin of petrol sniffers looks very pale. When they get a cut they don't feel any pain. This is dangerous because they don't feel anything and can lose a lot of blood. They can become very mixed up, stupid and very sleepy if they sniff too much (Tapau 1999).

There are two major syndromes associated with petrol sniffing⁹ (Eastwell 1985, 1064; Burns and Currie 1995, 197-8). The first comprises the acute side effects brought about as a result of the volatile hydrocarbons present in both leaded and unleaded petrol (hydrocarbons and tetraethyl lead are both intoxicants). Petrol inhalation causes an initial depression of the central nervous system. Intoxication is rapid: 15 to 20 quick breaths can produce intoxication lasting three to six hours (Chalmers 1991, 271). Initial intoxication is not unlike that brought on by alcohol consumption, with confused state, disinhibited behaviour and mild anaesthesia. Sniffers report euphoria, giddiness, increased libido, numbness, incoordination, aggression, irrationality, hunger, enhanced sensitivity towards light and sound, and aural and visual hallucinations (Goodheart and Dunne 1994, 180; Chalmers 1991, 271; MacGregor 1997; Burns et al 1995a). Intoxicated sniffers may also experience vomiting, ataxia and convulsions and become unconscious (Goodheart and Dunne 1994, 180). Some sniffers have a later amnesia for the period of time that they were intoxicated (MacGregor 1997). Intoxicated sniffers have suffered a range of traumatic injuries and burns through accidents where petrol has ignited.

Although these acute effects (other than burns and injuries) are normally resolved within a day or two of cessation of sniffing, the phenomenon known as 'sudden sniffing death' can occur, and has occurred, as part of this syndrome. Volatile substances may sensitise the heart to the point that sudden exercise or alarm may cause a fatal heart attack. Other causes of sudden death include respiratory depression, aspiration asphyxiation (suffocation on vomit) and anoxia (blocking of the oxygen supply) (Adgey et al 1995; Advisory Council 'on the Misuse of Drugs 1995). Fuel gas (butane) and aerosol propellants are particularly associated with sudden death as they can stop the heart through stimulating the vagal nerve (Dinwiddie 1994, 928). Adgey et al report that about 60 per cent of deaths due to inhalant misuse in their sample were due to inhalation of fuel gases (1995). Currie et al (1994) suggest, however, that sudden death is less common as a result of petrol sniffing than from other inhalant misuse. Of 70 encephalopathic petrol sniffers evacuated to Royal Darwin Hospital, the subsequent seven deaths reported by Currie et al (1994) were all related to septic

complications, most commonly aspiration pneumonia. The risks associated with inhaling fuel gases signal potential problems when young Aboriginal people transfer to other forms of volatile substance misuse.

The second and most serious syndrome is the result of organic tetraethyl lead contained in leaded petrol being absorbed into the body, where it can be stored for long periods, causing particular injury to the brain (Burns and Currie 1995, 198). There is some dispute about the relative roles of lead and hydrocarbons in causing this damage (Tenenbein, 1997), but current evidence is that neurological damage is less prevalent among those using unleaded petrol (Burns and Currie 1995; Burns et al 1995c; Maruff et al 1998)." The most severe form of the syndrome is called 'petrol sniffers' encephalopathy', which usually appears to correlate with heavy sniffing of leaded petrol over a prolonged period (at least months) (Burns et al 1995c).

Survivors of acute encephalopathy often suffer permanent neurological effects and mental impairment (Brady 1989c). Long-term effects are described in Burns and Currie (1995) as: "behavioural changes, movement disorders (resting and action tremor, myoclonus, chorea and ataxia) as well as pyramidal signs and convulsions." Other symptoms described in the literature include: dementia, persistent organic psychosis, nutritional disturbances, anaemia, peripheral nerve damage, cardiac and liver problems and possibly leukaemia and other cancers (Chalmers 1991; Tenenbein 1997; Adgey et al 1995; Advisory Council on the Misuse of Drugs 1995). Tenenbein suggests that persistent organic psychosis is associated with long-term leaded gasoline inhalation, but not with other volatile substance misuse (1997, 218).

Maruff et al (1998, 1993) found the following cognitive and neurological abnormalities in current sniffers without acute toxic encephalopathy: "higher rates of abnormal tandem gait, rapid alternating hand movements, finger to nose movements, postural tremor, bilateral palmomental reflexes and brisk deep reflexes. Cognitive defects occurred in the areas of visual attention, visual recognition, memory and visual paired associate learning". Ex-petrol sniffers showed higher rates of "abnormal tandem gait" (difficulty with walking) and "bilateral palmomental reflexes" (presence of abnormal reflexes) as well as "cognitive deficits in the areas of visual recognition memory and pattern-location paired associate learning" (1998, 1993).

As the neurological damage caused by petrol sniffing is cumulative, chronic sniffers are more likely to sustain permanent brain injury or to die as a result of this activity than infrequent sniffers. Burns found that "the years spent petrol sniffing and duration of exposure to leaded petrol were both strongly predictive of neurocognitive outcomes" (1996, 228). Maruff et al (1998) found that blood lead levels and length of time sniffing correlated with the degree of neurological and cognitive impairment experienced by sniffers. They conclude that with abstinence from sniffing petrol, the severity of abnormalities is reduced and some degree of neurological and cognitive recovery is possible (Maruff et al 1998; Tenenbein 1997).

The degree to which intermittent sniffing over prolonged periods leads to long-term consequences is not clear from existing research. Recent studies of children exposed to lead indicate that blood lead levels well below standards considered acceptable by authorities in Australia and the United States

can affect cognitive development and behaviour in young children (cited in Goodheart and Dunne 1994, 181).

Australian literature suggests that petrol sniffing is not physically addictive, although it may lead to psychological dependence (Chalmers 1991, 269; Stojanovski in McFarland 1999, 31). However, two overseas studies of volatile substance misusers found strong evidence of tolerance and a 'withdrawal syndrome' of 2-5 days (cited in Dinwiddie 1994). One study dealt with toluene and butane users, and the other with inhalation of organic solvents. Dinwiddie acknowledges that polysubstance use makes it difficult to draw firm conclusions as to the pharmacological cause of this syndrome' (1994, 927). Further investigations into whether petrol sniffers experience withdrawal may be useful; however, it would appear likely that factors other than physical dependence play a far greater role in maintaining petrol sniffing.

It is difficult to assess accurately the morbidity and mortality resulting from petrol sniffing. This is in part because there is no specific code for volatile substance misuse (or petrol sniffing) in the International Classification of Diseases. Sniffers commonly present to clinics and hospitals with illness such as pneumonia or injury such as burns which have petrol inhalation as an underlying cause (Gell 1995).

Over the 18 month period September 1987 to February 1989, 20 Aboriginal young people were admitted to Royal Darwin Hospital acutely ill from toxic effects of petrol sniffing. Of these, 17 were male. Chambers (1989) conducted a study of the 17 males, and compared some of her findings with a normal Aboriginal hospitalised population. The 17 males ranged in age from 14 to 24, with an average age of 20 years; seven patients had previously been admitted to the hospital for sniffing related toxicity. Chambers found that a majority of patients were anorexic, with a mean body weight of 48.3 kg, compared with age-matched controls who had a mean body weight of 58.7 kg. She also found evidence of a mild microcytic anaemia which, she concluded, may have been due to nutritional factors or to complications of lead poisoning. Immunological tests suggested the possible presence of some degree of immunosuppression, although the results were reported by Chambers as inconclusive. Eastwell (1979), who studied a sample of 51 sniffers aged 9-14 in one Arnhem Land coastal community, also found evidence of low body weight among sniffers. Freeman (1986) also found a strong association between chronic sniffing and low weight-for-age levels for both sexes, especially for males.

Burns and Currie (1995, 201) studied 24 male sniffers admitted to Royal Darwin Hospital between January 1992 and December 1993. These patients were suffering symptoms of encephalopathy including "ataxia, hyper-reflexia, coarse tremor with or without extrapyramidal movements and frontal lobe signs" (199). Their median blood lead level on admission was more than 10 times the NHMRC target level'. The age range of these patients was 13-32 years.

Brady (1992, 55-7), on the basis of coronial and other evidence, lists 35 Aboriginal deaths as having occurred in Australia between 1980 and 1988 as a result of petrol sniffing, all but one of them involving males. Victims were aged between 12 and 30, with a mean age of nineteen. These figures, Brady points out, almost certainly underestimate the true extent of petrol sniffing mortality. She

estimates that between 1981 and 1991, 63 Aboriginal people died from petrol sniffing related causes in Australia (1995). Of these, only three were female. Two-thirds of these deaths involved people from a region spanning parts of South Australia and the Western Desert communities of Western Australia. Brady identifies eight petrol related deaths in the Northern Territory in 1990 and six in 1991 (1995). Gell (1995) reported that six young people from one remote community in South Australia had died from petrol sniffing related causes since 1988.

Of 70 people who were admitted to Royal Darwin Hospital for serious petrol sniffing related illnesses between January 1991 and January 1994, seven died (Currie et al 1994). All of these deaths were due to septic complications, with aspiration pneumonia the most common infection in fatal cases. In all, eight petrol sniffers died at Royal Darwin Hospital between January 1990 and June 1994 (Burns and Currie 1995). An additional four petrol sniffing related deaths were recorded in Top End Northern Territory communities during this period, two probably due to aspiration pneumonia, one dying violently and the other death indeterminate (Burns and Currie 1995, 201). Currie et al (1994, 800) hypothesise that the tendency of chronic petrol sniffers to aspirate oral secretion into their lungs results from "a combination of the encephalopathy, poor coordination of swallowing and excessive oral secretions".

Between January 1984 and December 1991, 25 patients were admitted to Perth teaching hospitals for petrol related illnesses. Eight of the 20 chronic sniffers subsequently died; all had altered mental state and most had generalised toxic-clonic seizures (Goodheart and Dunne 1994, 178)-"

The possibility of an association between dietary and nutritional factors and susceptibility to lead toxicity is explored by Brady (1989c, 1992). She cites research literature which has found that deficiencies in calcium, phosphorus, iron, zinc and vitamin E are all associated with increased susceptibility to lead toxicity. While diets involving moderate protein intake appear to have a beneficial effect, low and high levels of protein also appear to increase susceptibility. High fat diets also produce elevated tissue lead concentrations.

Brady notes that Aboriginal nutrition varies widely as a result of several factors, including the local ecology, seasonal factors, remoteness, the contents of, and prices charged by, community stores, and the accessibility of bush tucker. In some areas where research has been carried out, Aboriginal diets tend to be deficient in nutrients known to affect susceptibility to lead toxicity. Her own preliminary findings, she states, suggest that differences in petrol sniffing related mortality may be related to nutritional and dietary factors. Eating erratically or maintaining a diet of poor nutritional value can actually increase lead absorption. Nutritional supplementation (particularly thiamine) was discussed at the Workshop on Lead and Hydrocarbon Toxicity from Chronic Petrol Inhalation (Brady and Torzillo 1995, 35). No clear conclusions were drawn about the role of nutritional supplementation.

One behaviour pattern frequently associated with petrol sniffing is sexual promiscuity (Eastwell 1979; Brady 1989a; Mulvey and Manderson 1995), involving both the violation of traditional sexual mores and the aggravation of a public health problem, since such behaviour is also associated with a high rate of sexually transmitted disease. Eastwell (1979), in his study of 51 sniffers aged 9-14 in an Arnhem

Land community, found that 10 of the 19 girls and 4 out of 32 boys had been treated for secondary syphilis, as detected by a regular survey by the Northern Territory medical service. Although comparisons with control groups had not been carried out, he concluded that petrol sniffing appeared to entail a risk of venereal disease, especially among girls. Freeman's (1986) study of 30 chronic sniffers in a Central Australian community points to an even stronger association. Two-thirds of the male chronic sniffers (13 out of 19) had had syphilis diagnosed on the basis of VDRL titres over the preceding year and 2 had clinical secondary syphilis. All but one of the 11 females had had syphilis diagnosed on the same criteria.

The possible effects on unborn children of sniffing during pregnancy are discussed by Lipson (1984) in his submission to the Senate Select Committee on Volatile Substance Fumes. According to Lipson, the evidence available at that time did not enable firm conclusions to be drawn. Lipson cites reports from Canada of a 'foetal gasoline syndrome' among American Indian petrol sniffers, consisting of profound retardation, severe cerebral palsy and post natal microencephaly. Lipson states that the mothers concerned had also abused alcohol, but that the infants did not exhibit features typical of foetal alcohol syndrome. The effects may have been due to solvents present in the petrol (chiefly toluene and benzene), the additive tetraethyl lead, or ethyl alcohol, either singly or in combination. Toluene appears to cross the placenta to the foetus. Animal studies indicate that exposure to toluene and benzene do not induce major malformations, but may reduce foetal weight and affect skeletal development. If brain weight was also low, there could also be an adverse effect on the central nervous system. Lipson suggests that the period beginning 6 weeks after conception is the likely danger period, especially from 6 to 20 weeks, but also from 20 weeks to term, while the brain is still developing. He also stresses that the replacement of leaded with lead-free petrol would not remove these dangers (Commonwealth of Australia 1985, Evidence, 730).

Medrano (1996) has reviewed the medical literature for reports of pregnancy outcomes for women misusing volatile substances, to determine whether a discrete foetal solvent syndrome could be distinguished. She found reports of microcephaly, narrow bifrontal diameter, short palpebral fissure, small midface, lowset prominent ears, flat nasal bridge, micrognathia, spatulate fingers, deficient philtrum and epicanthal folds in foetuses exposed to solvents (1996, 72). Children of sniffers are also reported as having increased risk of developmental delay and behavioural problems (Dinwiddie 1994, 929). However, Medrano concluded that there was insufficient evidence that solvent misuse leads to a range of outcomes clearly distinct from those associated with Foetal Alcohol Syndrome, in part because the range of chemical compounds to be found in volatile solvents makes it difficult to determine exactly which ones (singularly or in combination) are responsible for abnormalities, and also because mothers in the study were commonly misusing alcohol as well as solvents. Indeed, the literature reviewed reported more similarities than differences in abnormalities found in foetuses exposed to volatile solvents and alcohol respectively. Medrano found reports that both maternal and paternal solvent exposure had been associated with spontaneous abortion; however, again, this could not be definitely attributed to solvents (1996, 71).

Writing about petrol sniffing in a remote South Australian community, Gell observes that women who sniff during pregnancy tend to have small babies (1995, 19). Sniffing presents additional complications to antenatal care, including maternal malnourishment, erratic behaviour including frequently missing antenatal appointments, often inadequate social support, and an increased likelihood of STDS.

The impact of chronic sniffing on individual health among communities which already have severe health problems is graphically described by Freeman (1986). Reporting on a Pitjantjatjara community where he was employed at the time as medical officer, he writes:

Not only do the petrol sniffers themselves suffer acutely from severe headaches, poor memory, slurred speech, acute visual and auditory hallucinations and (for chronic sniffers) cerebellar ataxia, grand mal epilepsy and lead encephalopathy but also the rest of the community suffers severe social disruption. Just as the young are getting over the high morbidity rates of childhood experienced in our area - gastroenteritis hospital admission rate of 26/100/year for the first three years of life - an X-ray proven pneumonia admission rate of 122/1000/year for ages 0-4 years; skin infection, ear disease and follicular trachoma prevalence rates of 37.5 per cent, 63.9 per cent and 55 per cent respectively for ages 0-9 years - 'petrol sniffing' blunts the normal development of their teenage and young adult years. Years of education in traditional ways and in skills to cope with the modern world are therefore lost from the vital ages of 10-20 years, indeed, they may be lost for good due to the poor attention span and high truancy rates associated with this affliction. The results are continued dependency on non-Aborigines and the disintegration of tradition norms. Beyond these vital growing years the Pitjantjatjara people face high adult morbidity rates - diabetes mellitus prevalence of 15-25 per cent ages 20 years plus, hypertension rates of 20 per cent for males and 18 per cent for females and high rates of renal disease. Thus petrol sniffing also robs the people of their only respite from ongoing high rates of morbidity (Freeman 1986, 88).

The consequences of petrol sniffing discussed above all involve the health of sniffers. However, as Table 1 indicates, regular petrol sniffing also entails a number of social consequences for sniffers. Sniffing has been associated with poor school attendance and school performance, with the latter described as a result rather than a cause of petrol sniffing.

Freeman (1986, 91), discussing petrol sniffing in a Pitjantjatjara community, states that many chronic sniffers were "lost to the normal family support mechanisms", living divorced from their families in gangs which perpetrated much of the violence and breaking and entering on the community. They had no money and were often hungry, a factor which, he suggests, may explain the association between sniffing and poor nutrition. Chronic sniffers suffer additional social problems such as social dislocation and an increased involvement with the criminal justice system. Petrol sniffing can be seen to undermine traditional structures of parental and kin authority, and lead to the isolation of young people from community life (Brady 1992). This is at its most extreme, when sniffers are so disabled that they are placed in full-time residential care away from their families and communities.

There is little written about Aboriginal perceptions of the spiritual effects of sniffing. Some Aboriginal people believe that petrol sniffing, like alcohol misuse, pushes out and replaces the spirit, and can eventually kill it (Brady 1995, 1494; painting by Minutjukur in HALT 1991, 6). Others have reported that sniffing petrol puts the snifter in touch with spirits of the dead (Tomlinson 1975).

4.2 Problems experienced by the families of sniffers

Much of the sadness and worry about petrol sniffing falls on the families of those involved. In the following chapter we discuss the difficulties experienced by families in stopping their children sniffing and the cultural norms which operate against forcing children to do things against their will. Except in a few instances where sniffers are so disabled that they are found places in long-term residential care, most of the responsibility for caring for disabled sniffers falls on families. Families in communities are caring for sniffers and ex-sniffers who cannot walk or communicate well, who are subject to fits and who are sometimes aggressive. Hospital care when these sniffers become acutely ill is often the only rehabilitation (or respite for carers) available (Roper 1998, 7 7-9).

Mosey's 1997 report includes a number of stories taken from family members of sniffers struggling to care for their severely disabled children with very limited resources. The following extract from a story told by an elderly Pitjantjatiara woman to the NPY Disability Project is particularly poignant: I have three sons who sniff petrol and I have to care for them on my pension. I have to lose sleep to look after them. They make me so sad the way they throw rocks around and axes. I feel so sorry for them now they've become really sick.

He was my sister's son but she passed away and he's mine now. I try to look after him and I **try** to take good care of him, but he keeps throwing stones, even though I ask him not **to**. **I give** him good food, which I cook for him from my pension money. It's not much but **I'm** doing **my** best. I've been on my own for many years now. My husband passed away. I have to spend a lot of time looking after my son, even though he is a grown man now. He's been sniffing **petrol for** a long time now, since his father passed away. I can't do anything about it now. **I'm** a **widow** now and a woman **alone**, looking after a sick son. He is nyumpu (sick spirit) and weak and he is so sad and depressed. Though I try to feed him food he can't stop sniffing, poor **thing**.

His older sister she tries to look after him too. She is a good sister to him. But he is getting weak now from years of sniffing. Too many years have passed by now. He's very thin. I keep asking for extra financial help but I haven't got any.

Petrol is killing him off and he is weakening. He's starting to refuse the food I make for him. He's too disturbed. He won't do anything for me and his older sister now. He can't understand anything any more. He can't talk, he doesn't ask about money, nothing. He can only see out of one eye and he is getting blind. I'm trying to get him to sleep more. His brain is beginning to shrivel and he's lost his mind.

He is very sick. Years ago when he was a child and living with his mother and father, grandmother and grandfather, he was a good kid and he did what he was told and he listened to us. My son listened to us properly. But as he grew up he started doing what he wanted to do and he demanded to have his own way. He'd say 'ngayuku kututu nyangatja! "this is my spirit not yours!" He used to say that to us (in Mosey 1997, 23-4).

4.3 Problems experienced by the local community

Often the concerns which precipitate calls for intervention against petrol sniffing are not the health related or social effects on individual sniffers, outlined above, or the problems experienced by the families of sniffers, but rather the social disruption and vandalism caused by sniffers (Watson 1986; Tomlinson 1975; Dalton-Morgan 1978; Craighead 1976; Brady 1989a; Clark 1984).

Brady (1985) states that petrol sniffing is normally associated with two types of illegal acts: tampering with vehicles in order to steal petrol, sometimes leading to stealing the vehicle itself, and engaging in illegal escapades when 'high' on petrol, usually by wilfully damaging buildings or breaking into food outlets and stealing food. In 1988, of 71 offences which came to police attention in Maningrida, 32 were related to petrol sniffing. Eighty per cent of a cohort of sniffers and ex-sniffers interviewed at Maningrida had been involved with the law as a result of petrol sniffing (Burns et al 1995a, 167). Petrol sniffers (or brain damaged ex-sniffers) have also committed crimes of violence such as murder (Stojanovski 1999; newspaper articles in McFarland, 1999).

Petrol sniffers can be unpredictable in their behaviour and people who try to stop them have occasionally encountered violence. Stojanovski relates a number of incidents where he was threatened as a result of his anti - petrol sniffing activities (1994).

A police officer at a coronial inquiry into the death of a petrol sniffer described the aggressive behaviour of petrol sniffers as follows:

The physical effects, apart from making them hungry, they become irrational. They start to see things if they're very intoxicated, become very violent. The wrong word just sends them right off. They'll become extremely violent. They pick up rocks, stones, axes, whatever they have handy. They're very intimidating (in Donald 1998, 22).

Mosey notes that concern on remote communities was fuelled by damage to houses, vehicles and stores by sniffers. Shortly before her visit to one Central Australian remote community, sniffers had caused \$150,000 of damage in one week (1997). A report to the Council for Aboriginal Alcohol Program Services (CAAPS) found that petrol related crimes had caused around one million dollars in damage in one community over a year period (Hudson 1994, 4).

While the target of vandalism is often non-Aboriginal property, the flouting of authority also associated with petrol sniffing appears to be directed at Aboriginal and non-Aboriginal institutions alike (Nurcombe et al 1970; Watson 1986; Tomlinson 1975; Freeman 1986; Mosey 1997). Brady (1992, 88-9) has also suggested that petrol sniffing is often an expression of opposition to mainstream Aboriginal culture.

Another problem Shaw (1999) noted in the community she studied was that petrol sniffing exacerbated already poor inter-family relationships. For instance, one family blamed another for the death of their son. Inter-family conflict is also caused by families blaming other people's children for community vandalism. The tensions created in this way made community cooperation on other matters very difficult.

In the light of these corollaries of chronic sniffing, it is not surprising that one also finds references to the generally deleterious effect of petrol sniffing on community morale, both among Aboriginal and non-Aboriginal residents (Watson 1986; Clark 1984).

4.4 Problems experienced by the wider society

Petrol sniffing also has an impact on institutions in the wider society, mainly in the criminal justice system, especially juvenile justice, and the health system. However, the death and disability of Indigenous young people through inhalant misuse is a loss also for the wider society. The distressing nature of petrol sniffing and the media treatment that it attracts means that its spectre often overshadows efforts to focus attention on positive achievements of Aboriginal communities, or deflects energy from other less sensationalist but nevertheless serious health issues, such as diabetes.

The Northern Territory Government, in a submission to the Senate Select Committee on Volatile Substance Fumes (1985), claimed that most juvenile offences that came before magistrates in communities where petrol sniffing was prevalent were related to petrol sniffing. Brady (1985) cites a study of dispositions from the circuit magistrate in the Pitjantjatjara Lands of South Australia undertaken in 1979-1980, which showed that of 103 cases before the court, 40 involved petrol sniffing, 32 of them being committed by juveniles. At Maningrida, the crime rate decreased dramatically from an average of 147 court files annually for 1987-1990 to 62 for 1991-1994 after the combined Avgas and employment and training program was implemented. (Burns et al 1995b, 83). Hudson calculated that the detention of young people with a history of petrol sniffing cost Correctional Services as much as three million dollars in 1994 (nd, 6).

The relationship between crime and petrol sniffing, however, is not a simple one. Other factors must also have been involved in the decreased crime rate at Maningrida, as the number of nonsniffing related files dropped similarly over the same time period (Burns et al 1995b, 83). Smith and McCulloch (1986), reporting on a cohort of young people from the Central Desert communities of Western Australia born between 1958 and 1966 - that is, aged between 19 and 28 years at the time of writing, found that 17 out of 30 chronic sniffers (56.7 per cent) had faced children's court charges. But so too had a similar percentage of young people identified as having sniffed petrol, but not on a chronic basis (10 out of 17, or 58.8 per cent).

Petrol sniffing poses particular problems to those involved in the criminal justice system largely because most of the options open to those in the system, such as imprisonment, are largely ineffective as deterrents (as the following chapter shows) - indeed, it was partly in recognition of this fact that one of the more innovative strategies to counter petrol sniffing, that associated with the Healthy Aboriginal Life Team (HALT)" in Central Australia, was initially developed (Franks 1989).

Petrol sniffing also generates demands on the health system, in particular through the need to hospitalise acutely affected sniffers as discussed previously. In the Arnhem Land community studied by Brady (1989a), which has a population of about 800, 24 evacuations to hospital occurred over four years, with one woman having four hospital admissions. In the East Arnhem Region, Northern

Territory, in just over 11 weeks between October 1990 and January 1991, seven young men and one woman were evacuated from Aboriginal communities to hospital as a result of petrol sniffing,

In her study of 17 male young people admitted to Royal Darwin Hospital between September 1987 and February 1989 for toxic effects of sniffing petrol, Chambers (1989) found that the duration of hospitalisation ranged from 4 days to 65 days, the average period being 25 days. She estimates the cost per course of chelation therapy at \$700 for medication alone, and points out that as a result of cranial nerve damage, some petrol sniffers lose their 'gag reflex' during therapy, which may cause them to 'inhale' food and drink." In this event, four additional paramedical staff become involved in treatment, namely, a dietitian, a speech therapist, a physiotherapist and an occupational therapist. "The treatment of acutely toxic petrol sniffers", she concludes, "is a time consuming and costly exercise involving many different paramedical staff as well as the medical team."

Across the Northern Territory from January 1993 to September 1997 there were 168 admissions in the category usually coded for petrol sniffing related illness (probably an under-count as sniffing leads to a range of maladies). These resulted in a total of 1938 hospital days. The median hospital stay for 24 sniffers evacuated to Royal Darwin Hospital between January 1992 to December 1993 was 26 days, with one sniffer hospitalised for 167 days (Burns and Currie 1994, 201). People who survived the treatment period for petrol sniffing related illnesses at Perth teaching hospitals between 1 January 1984 and 31 December 1991 averaged 33 days in hospital (Goodheart and Dunne 1994).

The nature of the long-term brain damage caused by petrol sniffing can make people erratic, sometimes violent and often extremely difficult to care for. In 1997 the Ngaanyatjarra Pitjantjatjara Yankunytjatjara (NPY) Women's Council, which covers the cross-border region of the Northern Territory, South Australia and Western Australia, had 43 people on their database of people disabled through petrol sniffing (Mosey 1997, 14). By 1999 this number has risen to 60, and of these, 7 were in institutional care. One such chronic sniffer was sent to detention in a mental health facility in South Australia because there was no other secure accommodation available (Oakley 1999, 15).

McFarland (1999) warns that in a few years there may be 120 'disabled' sniffers in the Northern Territory. He calculates this with reference to Roper's (1998) thesis which traced 100 chronic sniffers over 10 years, of whom 60 sustained serious disability. Using Mosey's (1997) estimation of approximately 200 sniffers in the Central Australian region of the Northern Territory, he concludes that 60 per cent of these people may also sustain permanent disability. However, it appears that occasional sniffers do not always suffer consequent health problems (Brady 1993). For 120 people to become disabled, the 200 Northern Territory sniffers counted in Mosey's study would have to be sniffing chronically (we do not know what proportion is doing so). Additionally, the long-term effect of sniffing unleaded petrol is unclear. Unleaded petrol is now more widely available than it was in the 1980s when Roper's study was conducted. Nonetheless, any increase in incidence of disability is a matter for great concern,

The cost of caring for those profoundly disabled as a result of petrol sniffing is high. Residential care in Alice Springs for one severely brain damaged young man costs Territory Health Services over \$160,000 per year, and secure accommodation for a violent ex-sniffer costs \$750,000 per year (McFarland 1999,19).

5. Who is responsible for stopping petrol sniffing.?

If young people who sniff petrol do not stop of their own accord, one, or a combination, of three groups is usually identified as being responsible for dealing with it: families, communities, or outside agencies such as police, non-government agencies and governments (Shaw 1999, 18).

It is sometimes suggested, often by non-Aborigines, that Aboriginal families somehow be 'made' to assume responsibility for their errant children's behaviour. People who make such suggestions fail to understand what is now a well-documented characteristic of chronic sniffing: the practice is at once a symptom of the inability of some families to control their adolescent members, and further aggravates that inability. Sniffers, already alienated from their families and the wider community, tend to form gangs, thus placing themselves further beyond the influence of their families (Commonwealth of Australia 1985, Evidence, 1398-9). As a result, families of sniffers are themselves exposed to shame and criticism at the hands of the community (Watson 1986; Franks 1989).

The notion that petrol sniffing is a product of familial neglect has also been criticised by Brady (1989a), who, as noted previously, points out that sniffers also come from well-respected, caring families. It has also been argued, notably by the Healthy Aboriginal Life Team (HALT), based in Alice Springs, that difficulties experienced by Aboriginal families in rearing and controlling their offspring are a product, not of any wilful abandoning of responsibility, but of the social impact of an earlier era of welfare policy. Under the 'assimilation' policy, traditional Aboriginal kinship structures, which allocated parenting roles among a number of relatives, were suppressed. An attempt was then made to supplant them by a European family model, in which responsibility for bringing up children rests almost entirely with the biological parents (Franks 1989; Lowe et al 1988). The upshot, according to this critique, is that not only have many Aboriginal families today not internalised the European model, but they also experience difficulties in drawing upon the extensive nurturing and controlling capacities of their own kinship systems. Bryce et al write that parents who are pressured by communities or outsiders to discipline children who are sniffing are caught between the contradictory messages of two cultures, as the Anangu way is for relatives to take over when parental authority fails (1991, 63).

Brady (1985, 1992) argues that there are also culturally based reasons for the reluctance -sometimes remarked upon by outsiders - of Aboriginal parents to take firm action against their offspring who are sniffers. She identifies three such reasons. Firstly, Aboriginal socialisation practices provide less scope than European traditions for using authoritarian measures to modify behaviour of young children. Secondly, children in Aboriginal society are perceived as people who have not yet learnt 'shame' and a sense of respect. Sniffers are likely to be tolerated and pitied as children who have not yet acquired, through having grown up, a sense of 'shame'. Among Pitjantjatjara people, sniffers are referred to as being *pina wiya*, which literally means 'no ears'. In Pitjantjatjara thought, the ears are the locus of understanding as well as listening: a child who is *pina wiya* is not capable of understanding rational

behaviour, and is therefore not to be held responsible for his/her actions. Thirdly, Aboriginal societies are governed by what Brady calls 'an ideology of non-interference' (1985), according to which no one has the right to tell others how to conduct themselves, or what they should do with their bodies. It is this ideology, Brady contends, which results in non-Aboriginal exhortations to communities to 'do something' about petrol sniffing falling on deaf ears, and also in the practice of communities inviting outsiders, such as the police, to assume responsibility for dealing with problems. Brady also refers to Maddock's (1984) distinction between 'public wrongs' and 'private wrongs' (1992, 104-6). Public wrongs involve breaches of binding norms, and tend to attract strong sanctions. Private wrongs, by contrast, involve breaches of non-binding norms, such as those that might be involved in a violent dispute. In these instances there may be no obligation on anyone to intervene.'

Although exhortations to Aboriginal families to 'do something' about sniffing are, on the whole, gratuitous and insulting, it certainly does not follow that the families of sniffers have no role in intervention strategies. Indeed, ex-petrol sniffers at one community told researchers that the top two reasons for giving up petrol were advice or direction from parents or senior relations, or family responsibilities (to wife or children) (Burns et al 1995a, 166). A process of adaptation in relations between youth and elders in response to new pressures and problems appears to be under-way in Aboriginal family structures (Rowse 1996; San Roque 1999). A number of programs attribute a central role to family and kinship systems, by attempting to build on what remains, even today, the single most important mechanism for care, control and nurturance in Aboriginal society."

Non-Aboriginal people often underestimate the level of activity against petrol sniffing which occurs in communities. Mosey points out that there have been "countless community generated initiatives which have not received publicity (or funding), despite the tendency for service providers, the media and new non-Aboriginal residents in remote communities to assume that nothing is being done" (Mosey 1997, 4).

Non-Aboriginal people often look to councils, wardens and organisations to do something about sniffing. However, these institutions are relatively new to Aboriginal people, and their authority within the community is often problematic. Where community councils are unable to act, elders may, in some cases, have more authority. In any case, community (rather than just family) action is necessary because of the changes that colonisation and the movement to larger settlements have wrought in Aboriginal society - particularly the formation of **larger**, more independent peer groups of young people. Mosey's research points to a tension in some communities between the council and families over the council's responsibility to 'do something' about sniffing, with council members stating that they are not funded to deal with social issues (1997, 22). Conversely, other consultations have revealed that parents of sniffers are sometimes angered by community efforts to control their children (Commonwealth Department of Health and Family Services **1998**, 108; Brady 1992). In some instances community censure of sniffing is awkward because other community members are all kin of the sniffers, making it inappropriate for them to confront them. Council members are also sometimes hampered by the involvement of their own children in sniffing (Brady 1992, 107-11).

Brady (**1989a**), writing about petrol sniffing in an Arnhem Land coastal community, cites two additional factors which can constrain a community's willingness or capacity to act strongly against petrol sniffing. The first is the fact that for many **people**, residence in the community is a part-time matter; much of their time is also spent on outstations and, as a **result**, their commitment to maintaining

wellbeing in the community is reduced. The second concerns the limitations inherent in traditional authority. While rejecting the view that social problems such as petrol sniffing reflect a breakdown in social organisation, she contends that traditional modes of authority are often not readily transferred from established contexts to new ones, such as petrol sniffing.

Nevertheless, community action has been, as we shall see in a later section, critical in some of the most successful anti-sniffing campaigns. Gill Shaw, a former member of the Petrol Link-up team, sees it as fundamental to useful change:

In interviews with informants in the community it was often put to me that "someone ought to take action" however people did not think it possible that they take action for themselves. Community meetings seem to be stuck at a point of enraged calls for action, and those who insist that it is a family responsibility.

Perhaps it is a feature of a large community with several powerful families that makes any joint action very very difficult. Be that as it may it is my belief that this direct community based action holds the key to reducing the current high levels of sniffing. Other communities have successfully used this style of program to effectively stop all but the chronic sniffers (1999, 19).

Governments have an important role in addressing petrol sniffing. The primary finding of a report on petrol sniffing in Central Australia conducted in 1997 was the need for continuity in service delivery by Territory Health Services and other government and non-government agencies in response to the issue. Another report dealing with health service delivery generally in Central Australia raised concerns regarding current models for service delivery in remote areas, equity in distribution of resources and the inadequacy of overall expenditure. The report advocated decentralisation of management and an increase in the opportunities for community control of services (Wakerman et al, 1997).

Cuts to funding to the Aboriginal and Torres Straits Islander Commission (ATSIC) have generally reduced resources on remote communities. Difficulties in accessing health and other services have real implications for petrol sniffers and for communities trying to address petrol sniffing. Hudson (rid) points out that funding for petrol sniffing programs is very scarce, despite the fact that governments spend millions of dollars dealing with the results of sniffing through the criminal justice and health systems.

Petrol sniffing does not fall neatly into the portfolios of either State, Territory or Commonwealth governments. This has led to confusion regarding who should do what, a tendency to shift responsibility, and a 'lack of institutional memory' of interventions (Brady in Donald 1998, 50; Robbins and Healy 1993). Further, petrol sniffing has impact on the work of a range of government departments, from those dealing with local councils and recreation to health, welfare and education, as well as on the work of many non-government organisations. Reports to Territory Health Services stress the importance of a collaborative approach within and between governments, and with nongovernment agencies (Garrow 1997; Mosey 1997). The Central Australian Inhalant Substance Abuse Network (see McFarland 1999) is a model for collaboration between agencies.

In line with principles of Aboriginal self-determination, much government policy on petrol sniffing states that Aboriginal communities must be responsible - as much as possible and with support - for generating and controlling solutions to petrol sniffing (Territory Health Services 1998; Commonwealth of Australia 1985). This is a delicate balance, as history tells us that interventions devised and implemented without community involvement will not be successful. However, overreliance on communities to solve new and very difficult problems such as petrol sniffing, sometimes without even extra funding, places unrealistic and often demoralising expectations upon them.

Every so often a shocking article appears in local and national newspapers decrying the incidence and impact of petrol sniffing in Aboriginal communities." Media interest was heightened in 1996, for example, as a result of a coronial inquest into the death of a 14 year old male snifter. This prompted a televised item on the ABC '7.30 Report' 14/11/96; radio coverage on 'PM' 7/11/96; and newspaper stories in The Advertiser 5/11/96 and the Weekend Australian (Review) 12-13/4/97, 'Death of a Petrol Sniffer'. Although it is critical that the wider community understands that Aboriginal communities are facing extremely serious health problems, sensationalist reporting can lead to a deepening of despair over the issue, rather than to constructive change such as increased funding for services and programs addressing the problems underlying petrol sniffing and other risk behaviours. It is true that some communities experience enormous trauma and disruption as a result of petrol sniffing; however, media interest in shocking phenomena like petrol sniffing tends to overshadow reporting of more prevalent lifestyle diseases (such as diabetes). Additionally, the more horrifically events are reported, the less people are likely to believe that solutions can be found. In some instances media coverage may serve to publicise, glorify and thereby increase drug use (Ives 1986).

Garrow (1997) makes the point that responses by communities and governments are often spasmodic. All too often, governments fund short-term projects in response to a wave of increased sniffing prevalence; without ongoing funding, however, these responses have little long-term influence (Mosey 1997, 10). Most programs, whether operated through government or non-government agencies, are reactive and inconsistent. When petrol sniffing is not present in a significant way, communities and governments move their attention to other issues, rather than establishing preventative interventions.

6. Petrol sniffing as a problem.. conclusions

A number of aspects of petrol sniffing have implications for intervention. In non-Aboriginal populations, volatile substance misuse is most frequently found among early adolescents, and chronic use is uncommon. Although sniffing in Aboriginal communities is also found early in adolescence and even before, it is also widespread among older adolescents and young adults, with both of these categories being more likely to include chronic sniffers. The experience of Anangu Pitjantjatjara communities, noted previously, is that the majority of chronic sniffers are in their mid- to late twenties. Young men still make up the majority of sniffers, but there are reports that the proportion of young women is increasing. This poses the need for interventions that meet the needs of a range of interest and age groups, and that address the levels of intensity of sniffing. Further, interventions must be sensitive to seasonal and social factors associated with waves of sniffing.

While across Australia the numbers of petrol sniffers compared with other drug users is small, in some Aboriginal communities the practice is widespread, and not merely the province of a deviant minority of young people. A few communities have managed to eradicate or dramatically decrease petrol sniffing for periods of time. In other areas it has decreased in prevalence and intensity but remains a serious problem. There is evidence of an increase in numbers of communities where petrol sniffing is practised. National monitoring is required to track the spread of petrol sniffing and to ascertain whether it is increasing.

Early intervention in petrol sniffing is critical, as people are much more likely to stop early in their career when they are only sniffing sporadically than when they have sniffed intensely or over a long time (Shaw 1999, 15). Accordingly, resources and attention must be focused on primary intervention to stop people sniffing in the first place, and secondary intervention to stop sniffers early in their careers.

A great many causes have been proposed for petrol sniffing, ranging from dispossession and cultural breakdown to individual psycho-social factors. While the nature and directions of the causal links between sniffing and social isolation are not always clear, a practical implication is the need for interventions which reintegrate sniffers with their families, kinship systems and the wider community. This point has been incorporated into some of the intervention approaches considered in the following chapters, but it also runs counter to some other strategies that in effect increase the isolation of sniffers by banishing them. Boredom is commonly thought to foster environments in which petrol sniffing becomes attractive. Any intervention in petrol sniffing must take account of the pleasures as well as the pains associated with sniffing petrol. This may seem an obvious point to make, but accounts that document the quite significant harmful effects of chronic sniffing often do not address it. Sniffing petrol is an exciting experience for those who indulge in it. It appears to offer young people a recognisable - if oppositional - identity, through membership of a petrol sniffing peer group, and any program

designed to deter sniffers must offer a counter-attraction to these experiences. Poverty must not be discounted as a causal factor in petrol sniffing.

Petrol sniffing poses not just one problem but a bundle of problems, each demanding different types of solutions. For individual sniffers, it poses significant threats to health, both short- and long-term, which require preventative and rehabilitative interventions. Petrol sniffing has resulted both in sudden death and in serious brain damage, as well as other forms of disability.

For the families of sniffers, petrol sniffing is a challenge to parental authority and often adds to difficulties and hardships already being experienced by those families. Although Aboriginal kinship systems have come under enormous strains as a result of past policies and rapid social change, they remain a key mechanism for providing care and control. Interventions should at best enhance, and at the least not undermine, these capacities of family and kinship systems. Any strategy which weakens them is to be avoided.

For Aboriginal communities, petrol sniffing by young people poses challenges both to traditional authority and cultural patterns and to more 'westernised' authority systems. Through its association with promiscuity and sexually transmitted diseases it poses dangers to public health, which are of particular concern given the threat of HIV and hepatitis infection. Petrol sniffing also results in social disruption and vandalism, the latter often involving public facilities and premises occupied by non-Aboriginal residents. It incites inter-family conflict and weakens morale among both Aboriginal and non-Aboriginal people in communities. As in the case of alcohol and other forms of substance misuse, an important goal of at least some interventions must be that of promoting the community's capacity to control petrol sniffing. This is so notwithstanding the fact that some (but not all) Aboriginal families will choose to solve problems such as petrol sniffing by leaving large communities and moving to outstations.

Finally, petrol sniffing generates demands within the wider society, particularly on the juvenile justice and health systems. For those working in the juvenile justice system, petrol sniffing poses a particular difficulty: petrol sniffing demands intervention not only, or even primarily, at the level of individual sniffers, but at that of the social environment - family, kin network and community within which the desire to sniff petrol has arisen and been fostered. Yet the juvenile justice system is, in effect, powerless to act except with respect to individual sniffers. Arguably, then, beyond actively pursuing diversionary programs as alternatives to imprisonment, it has little to offer to the problem of petrol sniffing. Within the health, educational and recreation systems there appear to be more opportunities for preventative interventions.

Families, communities, community organisations and governments each have a role in addressing petrol sniffing. Petrol sniffing cuts across the work of a range of Commonwealth and State/Territory departments, as well as that of many local community councils and non-government organisations. Cooperation and consistent action across all these agencies is therefore essential.

Interventions against petrol sniffing are all too often spasmodic and inconsistent. Communities, agencies and governments respond to crises when sniffing peaks and media attention is focused on the issue rather than implementing long-term preventative strategies.

PART TWO..

INTERVENTIONS

7. Approaches to intervention

In this chapter we review available evidence regarding the effectiveness or otherwise of a large range of petrol sniffing interventions. At the outset, however, we emphasise two general points that emerged clearly from our review. The first is that all successful campaigns against petrol sniffing appear to involve the use of a range of concurrent strategies. When Roper asked young people in South Australian communities why they had stopped sniffing petrol, a variety of explanations were proffered: "the introduction of Avgas, having babies, going to jail, physical punishment by families, the activities of certain community members in working with young people, drinking alcohol instead and ceremonial induction to manhood" (1998, 47). Stojanovski discusses diverse but complementary community actions at Yuendumu which included individual family actions, hidings, mothers and aunts searching for their sniffing children at night, marrying off of girls who sniff, and action by council organisations such as patrols by the School Council (1994).

Our second point is that interventions only work when they have widespread community support and include the participation of community members. Developing and fostering this support is therefore critical in any anti-petrol sniffing campaign.

Events at the Amhem Land community of Maningrida illustrate these two points. Maningrida once had a seemingly chronic petrol sniffing problem. In 1993, following the introduction of Avgas (aviation fuel) sniffing ceased. However, Burns et al argue that this was only one factor, along with the introduction of recreational and employment programs, in the community's success (1995b). Although many different means had been tried at Maningrida prior to the success of 1993, Burns suggests that these failed because, in the main, they were developed as a result of government and non-Aboriginal concern, rather than that of the community:

In particular, the support and involvement of Aboriginal residents and the commitment of local decision making bodies is critical to success. Finally a community environment capable of supporting these interventions is also important (Burns 1996, 247).

Burns draws further links between an increase in the power and self-determination of landowners at Maningrida and the cessation of petrol sniffing (1995b, 84; 1996, 245). Another initiative discussed in a later section - the Petrol Link-up project - focused on encouraging communities to develop and sustain a range of responses to sniffing and to support the enormous effort needed to stop petrol sniffing (Shaw et al 1994).

As no single intervention can solve 'the' petrol sniffing problem, a range of programs is required, firstly, so that particular needs associated with specific problems can be met, and secondly, so that three basic levels of intervention can be addressed: primary, secondary and tertiary intervention (see Table 2).

While some intervention strategies lie clearly within one of these basic levels (e.g. hospital treatment), others - such as counselling - can have a primary, secondary or tertiary focus. The following table,

which categorises the intervention strategies to be considered in this chapter in terms of the typology, should therefore be seen as a guide to the discussion that follows, rather than as a rigid classification.

Table 2: Levels of intervention, and associated strategies

Level of intervention	Strategies
<p>Primary intervention or primary prevention: actions taken to prevent the emergence <i>of a</i> problem, and/or to prevent it from spreading to new areas or groups (e.g. supply reduction, education)</p>	<p>Focusing attention and resources on young people Recreational programs School and training opportunities Employment Information and education about petrol sniffing Substitution of petrol with Avgas/Comgas Use of unleaded petrol Locking up petrol supplies Adding deterrents to petrol Movement to outstations/homeland centres Legal sanctions against petrol sniffing</p>
<p>Secondary intervention (also known as secondary prevention or early intervention): actions targeted towards a population either deemed <i>to be</i> at risk, or already in the <i>early stages of</i> exhibiting a problem, <i>designed to halt</i> further progress <i>of the</i> problem (e.g. community meetings, individual and family counselling)</p>	<p>Using Aboriginal culture and symbolism Individual and family counselling and care Counselling and community development: the HALT model Petrol Link-up Community action Initiation and other ceremonies Community-based sanctions Community wardens, night patrols and police aides Jail, treatment orders and other statutory sanctions Outstation programs Harm reduction and minimisation Diversionary activities such as sport or discos'</p>
<p>Tertiary intervention or treatment: actions targeted towards persons already misusing drugs, <i>designed to halt</i> further drug misuse or mitigate <i>illness and disability</i> (e.g. hospitalisation).</p>	<p>Town-based rehabilitation and respite Hospital treatment</p>

In the discussion that follows, each of these strategies is considered singly. It should be remembered, however, that sometimes they are to be found in conjunction with other modes of intervention.

8. Primary intervention strategies

8.1 Focusing attention on young people

Langton asserts that young Aboriginal people are now "the front line of potential social disintegration and collapse" (1991, 495). Petrol sniffing is only one of a range of 'risk' behaviours such as other drug use, suicide and self-harm, and drink driving which are causing enormous worry and grief to Aboriginal people.

Whether Aboriginal people had a concept of adolescence prior to colonisation is not clear. In any case it did not seem to be a time of particular stress or conflict (Brady 1993). In western cultures an important task of adolescence is to establish an identity and a sense of future for oneself. Perhaps for young Aboriginal people growing up in rapidly changing remote communities, surrounded by western and consumer cultures, as well as those of their own communities, this is more critical and problematic.

Brady suggests young people in Aboriginal communities have very little authority and that sniffing is one means by which they can exert power (1992, 179). Although the problems facing young people in Aboriginal communities, as elsewhere, cannot be reduced to the level of funding alone, several observers (Roper 1998; Brady 1992) have suggested that greater attention to young people's needs and opportunities may in itself be protective against petrol sniffing. McFarland suggests that the availability of basic food, shelter, education, youth workers and youth-focused programs in remote communities would substantially reduce sniffing: "the way forward is by improving the lot of all youth in remote communities" (1999, 7).

Waves of petrol sniffing usually coincide with periods of limited opportunity for other recreation for young people in communities. Mosey found that many communities and individuals whom she consulted in 1997 saw the lack of non-sporting focused recreational facilities and of youth support staff as an important factor in the wave of social sniffing which occurred that year (1997, 18). Even where communities had a sport and recreation officer, people felt that this person's time was largely consumed by the activities of the (adult) local football team, which left him or her without time to organise activities such as discos which might appeal to sniffers or young people at risk. Mosey found that there was only one identified youth worker in Central Australian remote communities (1997, 20). She reports this worker's experience that young people need activities which "actively and positively engage" them (1997, 20). To illustrate this, the youth worker drew the distinction between watching and actually making a video in explaining the difference between recreation and 'youth development' - the kind of activity which is stimulating enough to compete with petrol sniffing. McFarland, in a report to Territory Health Services, advocates funding for youth workers (rather than recreation workers) on all major remote communities. Youth workers, he argues, provide counselling, support and assistance with the range of issues young people face, as well as recreational opportunities (1999, 7).

The Ngaanyatj arra Pitj antj atj ara Yankunytj atjara (N PY) Women's Council Petrol Sniffing Support Project commenced in May 1999 and has received funding for four years. It is a regional project which attempts to tackle petrol sniffing in the 26 member communities of the Women's Council in the Yankunytjatjara, Pitjantjatjara and Ngaanyatjarra Lands. A decision to focus on youth work

has been made, with the initial youth worker focusing on one community. Working with the youth worker is a senior Aboriginal man from the community and a traditional healer. The youth worker is establishing a method of working that involves a combination of casual counselling, provision of diversionary activities such as running a radio program, and support for a community outstation for secondary and tertiary intervention. So far he has been very successful in reducing petrol sniffing in the community in question, although it should be noted that some reduction occurred before the youth worker started to work. The community had argued strongly that they should receive the youth worker, and received a huge morale boost when other communities agreed that they were well organised and ready for a program. They then united to reduce petrol sniffing on their own.

The Avgas Conference in Alice Springs in July 1999 fully endorsed moves to try and get youth worker positions for all communities. Following this lead the NPY Women's Council has gained funding for another position, and is in the process of applying for one more. These workers will form a network of mutual support and cooperation through their link with the Women's Council. The hub of this network is the coordinator of the program. This is an innovative approach that is slowly establishing a coverage of youth workers for the region (Maggie Kavenagh, pers comm).

The last few years have seen a range of events aimed at engaging youth being organised by nongovernment organisations. For instance, NPY Women's Council holds a Kungka Careers Conference at which high-achieving Aboriginal women from all over Australia come and speak to young women about options for their future. For details of additional community activities taking place in Central Australia, see other editions of Family News magazine produced by Waltja Tjutanku Palyapayi Aboriginal Association (1998b).

The Western Line Project, an activity of the Intjartnama Aboriginal Corporation (San Roque et al 1999b), takes as its premise the need to focus on young people to ensure a future for Aboriginal people of the area. The project has organised a series of events such as sporting functions, meetings, camps, dancing and dramatic performances and community visits, and the 'Four Winds Young People's Festival and Corroboree', which attracted 400 people. These events, as yet not formally evaluated, provide opportunities for exchange of information between and within families and resolution of disputes, and are eclectic enough to have everyone from traditional healers to western health professionals participating. Their aim is to "help set in place a framework or environment of willingness to give attention to care about harmful alcohol use and other substances" (1999b, 5).

A conference on petrol sniffing held in 1999 and attended by representatives of 40 Aboriginal communities recommended that:

With 45 per cent of people in most Aboriginal communities under the age of 18 (ABS) that as a matter of urgency, youth programs on our communities should be funded with identified youth funding in recognition of the current lack of resources to support young people on our communities (NPY Women's Council 1999b).

Brady (1992) reports that the only feasible long-term solutions to petrol sniffing lie in providing an environment in which alternative activities that are both meaningful and productive are offered. The development of diversionary recreational and employment programs has been particularly successful as a primary preventative measure in reducing the incidence of petrol sniffing in some communities

(Commonwealth of Australia 1985, 207-8). This presents a challenge, as people in the peak 'at risk' group for sniffing - those between 15 and 19 years of age - are often difficult to engage in community activities (Shaw 1999, 18). It is testament to the lack of employment and education and training opportunities in remote communities that so much more attention is paid in the literature to recreation than to these other occupations, which, albeit usually more expensive, are likely to have a longer-term impact on young people's lives.

8.2 Recreational programs

"We won the sniffers through disco, videos and football," said Lloyd Jungarai Spencer after a recreational program at Yuendumu helped reduce numbers of sniffers (in Stojanovski 1994).

On the basis of submissions placed before it, the Senate Select Committee on Volatile Substance Fumes specified several prerequisites for successful recreation-based interventions. These were:

- staff who were sensitive to the needs of the community, who understood something of the problems of petrol sniffing, and who would provide activities that were "purposeful, interesting, exciting and educational" (Commonwealth of Australia 1985, 207);
- the provision of activities during after-school hours, at evenings and weekends, and during school holidays;
- the need to include sniffers in activities, but not to **give** them preferential treatment; and
- the need for activities for females; in some instances separate programs and even youth workers of each sex may be needed.

The report argues that the provision of expensive recreational equipment or facilities without appropriate youth or recreation workers is not beneficial, and will probably merely create extra targets for vandalism. It also draws attention to the need to train Aboriginal people as sport/recreation and youth workers in communities.

In their review of several reports of recreational programs, Morice, Swift and Brady (1981) reach similar conclusions to those of the Senate Committee. Brady concludes that programs of recreational activity can help to combat petrol sniffing, provided that they offer a range of "exciting, daring, even dangerous recreational activities to counter the risk-taking behaviour of sniffing" (1984, 56). Pool tables and dart boards after school, she remarks, are simply not enough; nor, by implication, are recreational programs based on traditional arts, as advocated by Nurcombe (1974). A Central Australian station where young people are taught to break in horses, on the other hand, provides opportunities for risk and a real alternative to sniffing. Recreational programs must be relatively unstructured and informal if they are to attract the participation of young people at risk of sniffing (Stojanovski 1999).

A National Drug Strategy publication (Almeida 1994) describes a program to develop out-of-school activities for young people and create a 'stigma upon sniffing'. This program was non-competitive

rewarding group rather than individual achievement to ensure that no one felt 'shamed' as a result of participating - and activities included risk-taking experiences. The program targeted young people in the age range most vulnerable to sniffing (12-19 years) rather than known petrol sniffers. It attempted to 'empower' communities by identifying and training Anangu youth workers and teaching young people new skills.

Activities must be practical, utilise local resources and be sustainable (Osland 1998, 7). Osland's consultations at a Top End community revealed that recreational programs were viewed by the communities she worked with as having a key role in the prevention of petrol sniffing; however, the communities found it difficult to provide sustained recreational programs without the funding to employ a recreation officer (1998).

The Senate Committee observes that recreational programs are not likely to appeal to chronic sniffers. Sniffers are a particularly hard group to engage and are sometimes reluctant to participate in events which they perceive as being organised "for the good kids" (Osland 1998, 25). This presents a problem as other evidence suggests that programs specifically targeted at sniffers (which may be more likely to engage them) can act as a reward or incentive to sniff by making sniffing a criterion for eligibility; such programs are not recommended (Shaw et al 1994, 18). Community members interviewed by Roper and Shaw saw recreational programs as being more useful as preventative measures, appealing more to would-be sniffers and experimental sniffers than to current sniffers (1996, 16). Recreational programs are not a substitute for treatment and rehabilitation programs for chronic sniffers. Indeed, they may be of most value when they exist alongside more intensive programs for chronic sniffers, as happened in 1991 at Maningrida. Here, a family worker provided a counselling and support service to chronic sniffers and their families (see later section), and a recreation officer offered programs of activity to a broader section of youth (Brady 1989a).

The use of recreational programs as an intervention strategy has been criticised by Gluck, one of the founders of the family/kin network-based rehabilitation model associated with the Gordon Symons Centre in Darwin. Gluck argues that recreational programs draw people away from the proper focus of their activities - their families (Commonwealth of Australia 1985, Evidence, 1487). It is only within the family/kin network, according to this viewpoint, that a solution to the problem of petrol sniffing (or alcohol misuse) is to be found. Gluck's model - and this is a point taken up again later - goes a stage further than positing the kin network as the single most important mechanism for dealing with problems of substance misuse, and posits it as the sole mechanism. In doing so, it could be argued that he overlooks the fact that individual adolescents are not only members of families and kin networks; they are also members of peer groups. Such groups, obviously, will often be major sources of inducement to misuse substances, but they need not always be, and a strategy aimed at discouraging peer group activities seems hardly likely to lead to healthy integration of the individual within his or her society.

8.3 School and training opportunities

There are few opportunities for secondary education or training on remote communities. Even where schools are available, attendance is low and educational outcomes are extremely poor. A recent review of Indigenous education in the Northern Territory (Collins 1999, 1) found "unequivocal evidence of deteriorating outcomes from an already unacceptably low base, linked to a range of

issues, led primarily by poor attendance which has become an educational crisis" and "evidence of a long-term systemic failure to address this situation".

There is strong evidence that Aboriginal people are deeply concerned about this situation (Collins 1999, 1). In 1997 Central Australian Aboriginal Congress called for a literacy campaign targeted at both young people and their families, as a means of addressing substance misuse (Central Australian Aboriginal Congress 1997b). One of the major recommendations of a conference on petrol sniffing held in Alice Springs in 1999 was that a network be established to "ensure that appropriate youth training and employment programs are established, where needed in the region" (NPY Women's Council 1999b).

Mosey found that people in remote communities believe that the lack of opportunities for education contributes to their young people's sniffing (1997, 18). Interestingly, when one community did manage to get secondary education on site, most of the sniffers began attending (Mosey 1997, 22). Some outstation programs offer training opportunities as part of their overall program (Barrett 1994). Of course, schools will neither be effective in providing education, nor as a means of keeping young people from sniffing petrol, if what and how they teach does not seem relevant to their students.

The Detour Project in Alice Springs, run by Tangentyere Council, aims to provide education, recreation, food and support to young Aboriginal people from Alice Springs who have dropped out of mainstream secondary schools, many of whom have sniffed petrol. While the young people who have been sniffing are especially in need of care and attention, they place great additional strain on the program (Simpson 1995).

One innovative variant on a skills training approach was implemented at Yirkala in 1984, under the auspices of the Northern Territory Education Department. A teacher and an Aboriginal liaison officer worked with a group of 17 petrol sniffers who had not been attending school regularly, giving them the opportunity to develop work skills by engaging in tasks such as lawn mowing, house cleaning and repair jobs. The program is reported to have resulted in both improved school attendance and reduced sniffing among the youths concerned (Commonwealth of Australia 1985, Evidence, 1365).

8.4 Employment

Paid employment is very important in giving people (Aboriginal and non-Aboriginal) a sense of self-worth and an incentive to reduce the use of harmful drugs. A conference about petrol sniffing in Alice Springs (Central Australian Rural Practitioners Association 1998) identified 'proud work' for CDEP or other payment as a good way to divert sniffers. One suggestion was that sniffers be employed to clean up houses and the community, or for ex-sniffers to work in a paid capacity on the night patrol. Burns concludes that the introduction of Avgas in conjunction with employment programs was critical to success at Maningrida (Burns 1996, 247). Four months after Avgas was introduced at Maningrida in 1993 (along with employment and skills training programs), petrol sniffing ceased (Burns et al 1995b). When 27 sniffers from this community were interviewed in 1992, only 7 per cent were employed; however, in 1994 the proportion had risen to 63 per cent (Burns et al 1995b, 83; Burns et al 1993). Although this figure must reflect employment availability as well as individual changes experienced by young people, it is corroborated by a reduction in crime statistics (Burns et al 1995b, 83).

We have noted above Brady's observation that petrol sniffing is less of a problem in communities with an on going association with the cattle industry, providing occupation and excitement for young men. Some programs have attempted to reproduce this. A Petrol Link-up newsletter (1994a, no. 6) tells of three community members who took young men out to West Bore to work with camels. Other Petrol Link-Up newsletters tell of similar projects (no. 3 and no. 4). At Watarru Homeland "they keep the kids with them all day while they work. The kids are happy and don't sniff petrol" (Petrol Link-up 1994a, no. 4).

A program at Indulkana in South Australia is based on the belief that strategies must be able to be sustained in the long term by the community if they are to have more than a fleeting impact on sniffing: "petrol sniffing usually resumes when no ongoing sustainable programs are developed" (Aboriginal Drug and Alcohol Council (SA) Inc 1999). The Indulkana program entails the development of a cattle station and the provision of training to enable young people to run and maintain it. It is hoped that it will achieve two outcomes for the community: economic benefit as well as skills development and long-term employment for the community's youth. Evaluation is built into the program. It will be interesting to see its impact over the next few years.

8.5 Information and education about petrol sniffing

Smith (1986, 5), on the basis of a review of petrol sniffing literature, advances two pessimistic conclusions about educational strategies: first, too little is known about the causes and nature of petrol sniffing to enable soundly based educational programs to be designed; and second, few of the programs that have been implemented have been subjected to rigorous evaluations, with a result that little is known about the factors making for success or failure. While the former may no longer be the case, the latter has certainly not changed.

The Senate Select Committee on Volatile Substance Fumes (Commonwealth of Australia 1985, 217-18) was a little more hopeful, sounding both a warning and some positive guidelines. There was general agreement, the Senate Committee reported, that juvenile sniffers were well aware of the dangers of petrol sniffing, and that providing information on the dangers of sniffing was not only likely to be ineffective, but might prove counter-productive. This was especially the case, the Senate Committee suggested, with information in the form of scare tactics.

On the other hand, the Senate Committee saw a need for the education of parents, and of others associated with Aboriginal communities, such as health and welfare personnel, teachers, youth workers, police and counsellors.

Material such as films, videos and pamphlets need to be produced in languages appropriate for each region and should be presented in a way that encourages optimism and increases confidence, rather than generating despair and increasing the already evident sense of hopelessness in dealing with the problem (1985, para. 9.44).

Hayward and Kickett's (1988) findings add weight to the Senate Committee's conclusions. Hayward and Kickett interviewed 103 school children from seven Western Desert communities. They found that 72 per cent of petrol sniffers considered petrol sniffing to be harmful, and 77 per cent agreed that

'petrol sniffing can kill you' (1988, 27). Sandover et al (1997, 122) found that Aboriginal petrol sniffers interviewed in prison knew of the dangers of petrol sniffing but felt powerless to **cease** the practice. McFarland points out that young Aboriginal people's lives are full of danger and **risk** and in this context petrol sniffing does not appear to be particularly hazardous (1999, 5).

It does not, however, follow from these observations that preventative strategies involving education about petrol sniffing should not be pursued, nor even that all attempts to use educational shock tactics are doomed. Brady (1989a) suggests, for example, that the practice of taking young people to hospitals where they can see for themselves the acute effects of chronic sniffing may have a useful salutary effect. Sandover et al report that Aboriginal volatile substance users who were incarcerated were more likely to modify their sniffing if they had seen sniffing harm other people (1997). However, such strategies are not always successful. A group of petrol sniffers from one Central Australian community were taken to see burns victims in an Adelaide hospital. This trip had no impact on their subsequent petrol misuse (Macgregor 1997). It may be that the link between petrol sniffing and serious injury only seems real when they see the lead up to it, rather than just a person lying in a hospital bed.

In sum, scare tactics are inappropriate for two main reasons. Firstly, petrol sniffing for many young people appears to be intentional, rebellious, risk-taking behaviour; messages that emphasise the risks are therefore hardly likely to have a deterrent effect. Secondly, such messages often lack credibility. As Brady (1989b, 9) points out, in some communities sniffing has been present for over 20 years, with a result that some young sniffers today are the children or relatives of former sniffers, some of whom show no apparent signs of lasting damage.

Educational programs and campaigns must focus on effects of sniffing which are likely to be of concern to young people. Interviews with current and ex-petrol sniffers in Maningrida suggested that neurological effects such as impaired coordination worried petrol sniffers, and that this was particularly the case if they felt that it may impact on their ability to play sport (Burns et al 1995a, 166). The authors recommend that educational programs focus on this consequence rather than more dramatic sequelae such as gross brain damage and death.

Education about petrol sniffing for young people who are not themselves petrol sniffers must be undertaken with great caution, as it may risk encouraging them to begin sniffing. Roper and Shaw (1996, 15) suggest that preventative education only draws attention to the practice and that information about sniffing should not be offered where people are not sniffing.

The role of information and education aimed at the community, professional workers within the community and at parents is much dearer. Providing information to communities about the health effects of sniffing, what other communities have done in response to it, and fostering links between communities for exchange of such information has been a useful strategy in the past. This was a function previously undertaken in Central Australia by Petrol Link-up (discussed in a later section), which distributed a newsletter to keep people informed of what other communities were doing to stop petrol sniffing (Petrol Link-up 1994a). The need for a team to provide information and support to communities was the primary recommendation of Mosey's (1997) report to Territory Health Services.

Education and other forms of support for parents are useful, particularly as those who sniffed experimentally in their own youth may not be aware of the consequences of more intensive sniffing. Evidence from the UK suggests that government health education campaigns aimed at advising parents about volatile substance misuse have been effective in reducing associated mortality (Esmail 1997, 1771; Flanagan and Ives 1994, 62). We have found little evidence of resources specifically developed for parents in Aboriginal communities.

Morice, Swift and Brady (1981, 46) reported on a Canadian study of petrol sniffing in Manitoba which recommended that medical staff on communities organise workshops on the effects of sniffing, although they also cited the study's qualification that such an approach could not be a blanket solution. Morice, Swift and Brady suggested that, where nursing staff have formed a good rapport with community residents, and where those residents feel involved in local health issues, educational programs of this kind might prove helpful. Professional staff in contact with petrol sniffers, such as teachers, health workers and council staff can also benefit from education and training about sniffing. *Problems with Solutions* (Ives, 1995) is a manual produced in the UK for professionals working with solvents sniffers. Readers of the manual will be struck by the parallels between petrol sniffing in Aboriginal communities and solvent misuse among bored unemployed young people living in British housing estates.

Education and information are likely to be most effective if they are provided as part of an overall strategy against petrol sniffing. Dalton-Morgan (1978) reported on a program in a Central Australian community which utilised educational activities as one element in a three part strategy, alongside recreational activities in 'prime-crime time' (i.e. 6 pm till midnight) and personal interaction with individual sniffers. This program is discussed in section 9.5 'Other community-based initiatives'.

Educational initiatives that seek to impart life skills and work skills as well as knowledge about substance misuse are not widely reported in the literature but would appear to offer scope for development, as the two programs discussed previously under 'School and training opportunities' suggest. Although programs designed for use among youth in American Indian communities cannot simply be 'lifted' and used in an Aboriginal context, initiatives taken in this area could usefully be explored as a source for local, culturally relevant skills enhancement programs. For example, Gilchrist et al (1987) report on a program trialed among a number of American Indian communities. It consisted of 10 one-hour skills enhancement sessions, the overall purpose of which was to improve youths' skills for coping with environmental demands, interpersonal pressures and developmental stresses. In a six months follow up, the study found that, compared to young people in a control group, participants reported a significantly lower usage of alcohol, marijuana and inhalants (but not tobacco) - Participants also had significantly more knowledge about substance misuse, but assessment of self-esteem did not yield any significant difference between the two groups.

Although there are some generic educational resources about inhalant misuse (Australian Drug Foundation 1995; New South Wales Centre for Education and Information on Drugs and Alcohol 1991), few educational resources explaining the effects of sniffing are tailored for Aboriginal sniffers and their families. Some of the teaching tools developed by Aboriginal people are discussed later in the section 'Using Aboriginal culture and symbolism'. Of these, the 'Brain Story' (Petrol Link-up 1994b) is perhaps the best known resource. A video called 'Petrola Wanti' illustrates how the community at Yalata in South Australia struggled with the eradication of petrol sniffing (Yalata

Maralinga Health Service 1994). The West Australian Alcohol and Drug Authority has also produced two videos targeted at people who misuse solvents, and their families (Next Step Specialist Drug and Alcohol Services 1997). The Northern Territory Department of Education (1997) has produced 'Sniffing Story', an A3 sized plain-English booklet that describes the health and social effects of petrol sniffing. The use of this book should be evaluated, and in particular the effect of educating young people in communities where petrol sniffing is not prevalent needs to be carefully investigated.

Education-based interventions, in sum, appear to have a useful role to play, provided that they:

- are targeted at the community, and selected groups within the community such as parents of sniffers, rather than at sniffers or young people not sniffing;
- if directed at sniffers, focus on effects of petrol sniffing which are likely to deter rather than encourage the practice, avoiding shock tactics;
- promote caring and coping capacities within the community, rather than spread alarm and despondency;
- are culturally appropriate;
- occur in conjunction with other interventions aimed at reintegrating sniffers with their families and the community; and
- are evaluated, so that subsequent programs can learn from them.

8.6 Substitution of petrol with Avgas/Comgas

Supply restriction, where carefully targeted, has proved to be a useful harm minimisation strategy in the context of Aboriginal alcohol consumption (d'Abbs et al 1996), even though it does not address the underlying causes of substance misuse. The same is true to some extent in relation to petrol sniffing. In some communities, the most successful means of limiting young people's access to petrol has been the substitution of Avgas (or Comgas as it is called to distinguish its use by communities for non-aviation purposes) for petrol." Not only does sniffing Avgas cause severe head and stomach aches, but sniffers report little euphoric effect from its inhalation. Although some people tried sniffing Avgas, this did not seem to last. Twenty-eight Aboriginal communities are using, or have used, Avgas/Comgas as an anti - petrol sniffing strategy (OATSIH 1999).

Burns found that the use of Avgas as an aversion strategy was critical at Maningrida in eradicating petrol sniffing; however, community resolve and support were also key elements in this success (Burns 1996, 239). Four months after it was introduced at Maningrida in 1993 along with employment and skills training programs, petrol sniffing ceased (Burns et al 1995b). Although some sniffers tried Avgas, they did not persist. The success, however, could not be attributed to Avgas alone (Burns 1995b,1996).

Prior to its introduction at Maningrida, Avgas,had mixed success in other communities, particularly those where people could access petrol through other sources. In view of the Maningrida experience, Petrol Link-up (discussed in section 9.4) recommended that Central Australian communities consider using Avgas instead of petrol, as a means of tackling petrol sniffing. Like Burns, they cautioned against Avgas on its own being seen as the answer to petrol sniffing (Shaw et al 1994, 16).

In a period of less than two months, 22 Anangu Pitjantjatjara communities switched to Avgas as part of a regional strategy to combat petrol sniffing. *Moving On* (Roper and Shaw 1996) assesses the impact of the introduction of Avgas to all Anangu Pitjantjatjara Land communities. Many people consulted in this study mentioned Avgas as a significant factor in controlling petrol sniffing. The report found that there was a marked decline in petrol sniffing between 1984 and 1995, with a particularly steep decline occurring with the introduction of Avgas in 1994. In communities where sniffing continued, it had become episodic, as availability was irregular. Those who did continue sniffing were older, chronic sniffers; few young people commenced sniffing. Over the same period, petrol sniffing related arrests dropped dramatically.

In the two years subsequent to that report, sniffing increased; however, it remained at a much lower level than before Avgas had been introduced (Roper and Shaw 1996; Roper 1998, 88; Nganampa Health 1995, 1996 and 1997).

One Anangu Pitjantjatjara community provides an example of patterns experienced in the region. The sniffing population increased gradually in 1997, but remained at a lower level than it had been since 1995, and was less than half its prevalence in 1984 (Roper 1998, 41). However, it is testament to the sporadic nature of petrol sniffing that a conference in 1999 listed this community as one of four communities in Central Australia in urgent need of funding to deal with sniffing (NPY Women's Council 1999a).

Not all communities have benefited to the same extent. Communities on the Anangu Pitjantjatjara Lands which are easily accessible from main roads have experienced much less improvement than more isolated communities (Roper 1998, 65). Some Northern Territory Central Australian communities that converted to Avgas in 1993 have now reverted to the sale of petrol because sniffers were found to be accessing petrol from other places (Mosey 1997, 22).

Prior to its introduction, there was a concern that the substitution of Avgas would lead to an increase in other forms of drug or inhalant use. Roper reports that this did not appear to occur to any significant degree, and that there was little sniffing of Avgas itself (1988, 67-9). Stojanovski notes, however, that sniffers at Yuendumu would siphon mixtures of Avgas and petrol from cars, raising concerns as Avgas has a high lead content (1994).

There is currently concern that Avgas is being sniffed more commonly. This may be because of moves by the petroleum industry to put higher levels of toluene into Avgas. This makes it more attractive to sniffers. There is also some disparity in levels of toluene between different suppliers of Avgas.

In another Central Desert community, the introduction of Avgas was initially believed to have brought about a dramatic reduction in sniffing (Shaw 1999, 9). In an evaluation of the impact of Avgas some years later, Shaw suggests that Avgas was introduced at a time when the sniffing cycle was at a low ebb, but that it did have an impact for at least 18 months. Not only did people sniff less often, most importantly, they sniffed less, leading to decreased morbidity. Despite an alarming increase in numbers of young people sniffing petrol in 1996, the clinic staff reported in 1997 that they no longer had to treat people for petrol related fits. This is likely to have been due to their sniffing unleaded petrol."

Despite this, after the introduction of Avgas people continued to take up sniffing, and to cease at similar rates to previous periods. Avgas could not prevent the 1996 increase in sniffer numbers experienced in that community. Shaw concludes that Avgas is a useful harm-minimisation measure as it reduces availability of substances and the intensity of sniffing, but it does not have an impact on the social activity around sniffing (1999, 9-1 1). Petrol is still brought into the community, having been stolen from the local roadhouse or tourist cars or brought in in jerry cans to sell to sniffers (Shaw 1999, 2 1).

Some people have expressed concern about the effect on their cars of using Avgas. Avgas can be used in engines designed for both leaded and unleaded fuel (BP 1999b). In cold climates engines may initially run roughly on Avgas due to its lower volatility. This will improve as the engine warms up (BP 1999b). In accordance with 1986 Australian Design Rules, car engines built since 1986 are designed for unleaded fuel and contain catalytic converters to reduce toxicity of exhaust emissions. Most also have oxygen sensors which control the air/fuel ratio to minimise fuel emissions. While engines will be unaffected by Avgas, the catalytic converter and oxygen sensor will eventually be damaged by the lead content. Deterioration of the catalytic converter will increase exhaust emissions. Deterioration of the oxygen sensor may eventually cause an increase in fuel consumption or rough running (BP 1999b). In some jurisdictions catalytic converters may be removed after obtaining approval from the relevant authority. In the Northern Territory this is the Motor Vehicle Registry.

8.7 Using unleaded petrol

We have discussed some health effects of petrol inhalation in section 4. 1. As noted, there is a good deal of discussion about whether many of the adverse health effects associated with petrol sniffing are directly linked with lead contained in petrol, and if so, whether making only unleaded petrol available is an effective harm minimisation strategy.

After the introduction of unleaded petrol at Maningrida (prior to the switch to Avgas), petrol sniffing hospital evacuations dropped from 10 per year to none (Burns 1996, 225). Burns et al (1995c) found that sniffers of unleaded fuel did not suffer gross neurological defects experienced by sniffers of leaded petrol and that neurological and cognitive deficits "significantly correlated with blood lead levels, but not with toluene or benzene levels" (hydrocarbons present in petrol). This suggests that it is lead additives rather than hydrocarbons in petrol that are responsible for neurological illness requiring hospitalisation (1 995c, 2 1). It is indicative of the reduced morbidity associated with sniffing unleaded as opposed to leaded petrol that there have been no admissions to Royal Darwin Hospital in the last five years for patients suffering petrol sniffing related encephalopathy (Bart Currie, pers comm).

While recommending that communities experiencing ongoing petrol sniffing use unleaded petrol as a harm reduction strategy in association with prevention strategies, Burns acknowledges that the long-term effect of inhaling these substances are unknown: "it is likely that volatile hydrocarbons and tetraalkyllead compounds (and their metabolites) both contribute to the toxic effects commonly reported amongst users of leaded petrol" (Burns 1996, 226).

There is some evidence to support the notion that hydrocarbons present in both leaded and unleaded petrol are neurotoxic. Tenenbein (1997) suggests that both leaded and unleaded petrol contain toxic hydrocarbons, and although it is mostly tetraethyl lead inhalation which is responsible for long-term

psychosis, prolonged exposure to either leaded or unleaded petrol can cause neurological damage. Sniffers of unleaded petrol still experience inebriation, with associated health and social problems, and risk of coma or death (Goodheart and Dunne 1994, 181). Long-term users risk encephalopathy, cerebellar and corticospinal symptoms, dementia and mental status alterations (Tenenbein 1997). However, Goodheart and Dunne cite a number of studies which identify organic lead as the main factor in causing the long-term effects of petrol sniffing (1994, 180).

Brady and Torzillo (1995, 31) have expressed concern that advising communities to use unleaded petrol will cause them to believe that sniffing unleaded petrol is safe. Unleaded petrol has various additives which fulfil the role previously undertaken by lead (BP 1999a; Tenenbein 1997) and more research is needed on the possibly varying effects of inhaling different petrol blends.

Although the long term effects of unleaded petrol inhalation remain unclear, the available evidence suggests that at least in the short term it is less damaging to sniff unleaded than leaded petrol. It would therefore seem to be sensible for communities experiencing petrol sniffing to use (where possible) unleaded petrol in preference to leaded petrol. However, as Avgas is more difficult to sniff, it probably remains the best alternative.

In Western Australia it is now illegal to use leaded petrol. Petrol not containing lead has been developed for use in pre-1986 vehicles (BP 1999a). It will be interesting to trace the impact of this legislation on petrol sniffing and associated morbidity.

8.8 Locking up petrol supplies

Prior to the introduction of Avgas, the Northern Territory Government, in its submission to the Senate Select Committee on Volatile Substance Fumes, cited measures taken to restrict the availability of petrol as having been effective, albeit only in the short term; however, it adduced no evidence in support of this claim (Northern Territory of Australia 1985, 13). The Senate Committee concluded that the strategy of restricting or preventing access to petrol, being the most obvious response to sniffing, had been tried in just about every place that sniffing had become a problem - with just about universal lack of success (Commonwealth of Australia 1985, 203). As the Senate Committee pointed out, regardless of the measures employed - and these included fitting locking petrol caps, surrounding pumps with weldmesh cages and using guard dogs - sniffers would cut fuel lines, break into the pumps or break open petrol tanks. Morice, Swift and Brady (1981, 43) reported that on one occasion community residents began leaving small containers of petrol on their cars at night, rather than have their fuel lines wrecked by sniffers.

Watson (1986) documents the failure of protective measures at one Top End community in the early 1980s. Despite the fact that the local council had installed a second cyclone fence around the petrol pumps in the main vehicle yard, and employed both a guard dog and, subsequently, a patrolman, an estimated 600 litres of fuel were stolen each month.

8.9 Adding deterrents to petrol

Another strategy, which focuses on the substance rather than the sniffer or the community as a whole, is the addition of malodorous deterrents to petrol. The only substance used to this end to date is ethyl mercaptan, or 'skunk juice', which, when added to petrol and inhaled, induces nausea, vomiting and diarrhoea.

The Senate Select Committee on Volatile Substance Fumes reviewed four cases in which communities had added ethyl mercaptan to petrol (Commonwealth of Australia 1985, 204-6). In none of the four communities did the addition of ethyl mercaptan prove successful. In one instance, residents objected to the offensive smell of the additive; in another, parents became distressed at the sight of their children vomiting (which, as the Senate Committee suggests, may simply point to the need to educate parents prior to introducing the additive). In another there was no genuine community support for the intervention, and in yet another the resident medical officer concluded that the effects of the additive were no less harmful than those of petrol sniffing, particularly in the case of chronic sniffers who continued to inhale both petrol and the additive.

As an additive, ethyl mercaptan suffers from another defect. As the Executive Director of the Australian Institute of Petroleum reported to the Senate Committee, sniffers have discovered that it can be removed from petrol by 'weathering'; that is, leaving the petrol out in the open, which causes the ethyl mercaptan to evaporate preferentially (Commonwealth of Australia 1985, 895).

The Senate Committee concluded that the addition of ethyl mercaptan provided, at best, a temporary abatement in sniffing. Faced with the additive, resourceful sniffers would invariably find other, untreated sources. Similarly, Brady (1985) concludes that adding ethyl mercaptan as an emergency measure can provide short-term relief, but does nothing to address the underlying causes. She also points to the danger that communities who have introduced the additive, even if they viewed it initially as a stop-gap measure only, will then fail to follow through with longer-term interventions. In any case, the strategy appears to have been abandoned in the 1990s.

8. 10 Movement to outstations/homeland centres

Outstations, or homeland centres, are seen as offering a means to combating petrol sniffing in two ways: first, as a primary preventative measure, in that families who move to outstations are less likely to be plagued by petrol sniffing or alcohol misuse or other symptoms of familial dysfunction, and are more likely to lead healthy and satisfying lives, and second, as a remedial centre to which petrol sniffers can be sent for a time in the hope that they will mend their ways - as either secondary or tertiary intervention. With such a continuum of uses it is difficult to categorise outstations using our typology; however, outstations are discussed here as primary interventions, while their deterrent and rehabilitative functions are discussed under the section of this chapter addressing secondary intervention.

Eastwell (1979) attached importance to the outstation movement, on the grounds that petrol sniffing is a phenomenon of large settlements in which different clan-language groups live in unaccustomed

mutual proximity, and in which traditional patterns of social order are threatened. Underlying his view is the observation that in two Top End communities, petrol sniffing was most frequently to be found among those clan-language groups that had not established outstations.

Freeman (1986), writing in support of outstations as an essential element in any long-term solution to petrol sniffing and similar problems, suggested that their function was not to 'block out' the modern world but rather to cushion the conflict caused by the clash of cultures and to allow young people to choose what they want from both worlds.

The Senate Select Committee on Volatile Substance Fumes pinned great hopes on the homelands movement, describing it as 'the only apparent solution to petrol sniffing in the long term' (Commonwealth of Australia 1985, 210). It did point out, though, that the homelands movement entailed problems of its own, notably with regard to provision of primary health care and educational facilities. Morice, Swift and Brady (1981, 46-7) attached similar importance to the homelands movement as a means of revitalising clan and family life and thereby strengthening the capacity and motivation of individuals and groups to abandon destructive practices such as petrol sniffing. In a later report, Brady (1985) expressed cautious support for the capacities of outstations, but also warned against viewing them as solutions to all Aboriginal social problems.

Elsegood (1986) was more sceptical. He acknowledged that outstations provided a more rewarding and cohesive social environment than large communities, and that as a result petrol sniffing was virtually unknown in them. He also argued, however, that the movement of some families to outstations had made no difference to the prevalence of petrol sniffing in the host communities - at least in one large Amhem Land community - for four main reasons. First, despite attempts to extend services to outstation areas, there was still substantial movement of people between the outstations and the main community, in part because of the excitement associated with the larger settlement. Second, many outstations lacked amenities which, over the past few decades, Aboriginal people had come to expect, such as good water, electricity and mosquito-proof housing. Third, for Aboriginal people who wanted their children to be educated, there was no real alternative to the large settlement, and fourth, some Aboriginal people, including many of the older sniffers, had effectively lost the skills of living in the bush. Stojanovski (1999) also adds his experience to this scepticism by pointing out that many petrol sniffers refuse to accompany their family to the outstation, preferring to remain in town.

In short, families who move to outstations are less likely to exhibit and suffer from a range of social ills, including petrol sniffing. This is a significant reason for supporting the outstation movement and attempting to resolve the problems of service provision which it generates. At the same time, the outstation movement is not a panacea. Not all people have the right under European/Australian law to occupy their traditional lands. Many people will continue to reside in large communities, and measures to control petrol sniffing and other problems in these social settings are therefore needed.

8. 11 Legal sanctions against petrol sniffing

A number of Aboriginal communities have called for the right to make by-laws against petrol sniffing. A conference of representatives of 40 Aboriginal communities recommended "that the Northern Territory, South Australian and West Australian Governments be instructed that uniform legislation to enable community by-laws in relation to sniffing should be enacted for the tri-state region" (NPY Women's Council 1999b). However, the failure of legislative controls to reduce other forms of drug use, concern about incarcerating Aboriginal youth, and ambivalence about the effect of such bylaws where they have operated, have tended to discourage policy makers from supporting this option.

Petrol sniffing is illegal on the Pitjantjatjara Lands in South Australia (SA), where by-laws under the *Pitjantjatjara Land Rights Act 1981* make it "an offence to possess or supply petrol for the purpose of inhalation" (Commonwealth Department of Health and Family Services 1998, 108). Brady writes that these by-laws enable magistrates on the Pitjantjatjara Lands "to make a variety of orders regarding the treatment or rehabilitation of sniffers" although actual options are generally limited to imposing fines and good behaviour bonds (1992, 123). There is disagreement over whether these by-laws should be maintained. Some government officials and magistrates in South Australia believe that by-laws do not deter petrol sniffing, but rather have the effect of relieving the community of a sense of responsibility for doing something about it. In any case, police are reluctant to enforce the bylaws and place young people at risk in custody (Drug and Alcohol Services Council 1998). However, a representative of the Anangu Pitjantjatjara Lands Council is quoted in a letter from Drug and Alcohol Services Council as strongly opposing revoking of the by-laws without alternatives in place to combat petrol sniffing (Watts 1998).

It is also illegal on the Ngaanyatjarra Lands in Western Australia. For many years convicted petrol sniffers received jail terms. Collectively more than 100 years of jail terms have been ordered in one of the Ngaanyatjarra communities (Gill Shaw, pers comm). In November 1996 the West Australian Sentencing Act was amended so that any offence attracting a three month jail term would no longer attract a custodial sentence. This meant that petrol sniffing offences no longer attracted a jail term. This change did not effect juveniles, as a jail sentence for petrol sniffing did not apply to them. Community members considered that the change led to an increase in petrol sniffing and related problems (Peter Rapkins in Stojanovski 1999, 18). McFarland quotes police and other sources in support of this view (1999, 28). However, arrest statistics from one Central Desert community suggest that the change did not increase the number of adults sniffing, and the author concludes that jail probably did not act as a strong deterrent to adults (Shaw 1999, 19-20).

For some time now, a small number of community government councils have been calling for the Northern Territory Government to allow them to make by-laws against petrol sniffing (Mosey 1997; Stojanovski 1999). Rather than wishing to send petrol sniffers to jail, one community has requested by-laws which will give it the capacity to force anyone found sniffing petrol to receive treatment at an appropriate outstation (Stojanovski 1999). It is not clear yet who would enforce the by-law, or indeed whether the Northern Territory Government will allow its enactment. This also raises the question of whether or not a criminal conviction would have to be recorded in the event of an offender repeatedly 'breaching' the conditions of a treatment order."

Petrol sniffing, unlike some other forms of drug misuse, is not illegal under the criminal code of any Australian jurisdiction. The Commonwealth Senate Select Committee on Volatile Substance Fumes concluded that it would be inappropriate to treat sniffers as criminals, in part because such a policy would possibly have a counter-productive effect of adding to the danger of an already rebellious act, and partly because, in the absence of rehabilitation facilities, it would have no lasting deterrent effect. Brady (1985) opposed making sniffing illegal on similar grounds. Sanderson et al, in a study of incarcerated Aboriginal inhalant users, suggested that criminalising volatile substance use would force sniffers to seek out isolated locations where medical help was less likely to be available if they got into trouble (1997, 127). It should be kept in mind that the introduction of legal sanctions against glue sniffing and a large-scale public education campaign in Britain coincided with an increase in deaths from butane and aerosol inhalation (Dinwiddie 1994, 928).

Critics of criminal sanctions against recreational drug use contend that such measures are of questionable effectiveness, and often actually increase the harms associated with use. Stoianovski argues that these concerns are not relevant to legal sanctions against petrol sniffing. Since petrol is readily available, he claims, demand for it would be unlikely to entail criminal activities, adulteration, or the emergence of a black market (1999, 19).

Knowingly supplying petrol in the Northern Territory is, however, illegal. Under the *Misuse of Drugs Act 1993*, it is an offence to sell or supply a volatile substance to another person if the supplier "knows or ought to know that the other person intends to use the substance by administering it to himself or herself or a third person". To the best of our knowledge this legislation has not been used to prosecute suppliers. This is partly because petrol sniffers do not normally rely upon suppliers, and partly because of probable difficulties in establishing to the satisfaction of a court what a supplier knew or ought to have known in particular circumstances. However, the law does serve the purpose of giving legal backing to vendors of petrol wishing to refuse to supply petrol which they suspect might be misused. The impact of jail, treatment orders and other statutory sanctions on petrol sniffers is discussed in the next section of the review.

9. Secondary intervention strategies

9.1 Using Aboriginal culture and symbolism - *tjukurpa*, paintings and events

This section describes some of the art forms and events that have been developed and used by Aboriginal people and non-Aboriginal people working with them to talk and teach about petrol sniffing. The devices span a range of functions such as teaching, counselling, cultural revival and strengthening communities.

The use of *tjukurpa*, paintings, and cultural events to address petrol sniffing is not, of course, confined to the activities discussed in this section of the review. These cultural forms are used by Aboriginal people in all kinds of contexts, as part of many of the interventions discussed in this document and, undoubtedly, many more that are not.

The impact on petrol sniffing of planned interventions involving painting, telling of stories and events on petrol sniffing is particularly difficult to evaluate and may not be immediately discernible in the behaviour of any individual or group. Indeed, very little such evaluation exists, and most of this section consists of description rather than assessment. Such interventions do, however, offer the potential to influence ways in which people think about substance misuse and intoxication through harnessing resources to be found within Aboriginal culture, as well as through promoting family and community ties and systems of care.

Devanesen (1983, 1985) remarks that traditional art plays an important role in storytelling and communication; to say something using sand markings is to 'talk' in the Warlpiri way. The Healthy Aboriginal Life Team (HALT) in Central Australia used traditional paintings with specific reference to petrol sniffing. In 1984 an Aboriginal member of the team and respected Warlpiri leader, Andrew Spencer Japaljarri, painted a picture using the 'dots and circles' symbolism of Western Desert art to portray the incidence of petrol sniffing in some Aboriginal communities (HALT 1988, 21). This painting, according to HALT, redefined the problem of petrol sniffing in Aboriginal terms, and suggested that solutions be sought within the social structures that had been damaged by sniffing.

The painting served as a health promotion instrument which triggered recognition that traditional styles of problem-solving - consultation to achieve consensus, social cohesion and cooperation - would generate effective controls to stop the sniffing (HALT 1988, 2 1).

Spencer Japaljarri characterises paintings as an attempt by Aboriginal people to solve their own problems and to share ideas in a way which can be widely understood (1990). The introduction to his discussion of his paintings notes that the use of this medium to convey information about problems such as family breakdown has spread to other Aboriginal communities (Thompson 1990, 83). Bryce, Scrimgeour and Rowse (1991), in an evaluation of HALT, report a degree of scepticism among some residents of Yuendumu community about the effectiveness of the paintings and, by implication, about the degree to which "appropriation" occurred in that community. This would seem to indicate not that the paintings are without value, but rather that the linkages between interpretation of the paintings and

interpretation of the problem of petrol sniffing may be more complex than HALT's writings would allow.

The 'Brain Story' developed by the Petrol Link-up team (1994b) follows the HALT tradition of using Aboriginal art styles. It has been widely used in Central Australian communities as a catalyst to get people talking about petrol sniffing in their community (Anne Mosey, pers comm). It depicts the effects of petrol sniffing on the brain in terms of successive loss of functioning of different faculties.

People involved with the Intjartnama Aboriginal Corporation have also produced a series of paintings and performances about substance misuse. Andrew Spencer Japaljarri has continued his work on petrol sniffing with *Thinking about Young People and Family Breakdown* (Spencer 1990). *Thinking About Young People* depicts the dilemma for young people who are caught in the transition between traditional values and an unknown future. The painting describes four different family reactions to sniffing. It urges both Aboriginal and European adults to meet together to think about their young people's future. Bertha Nakamarra Dixon's painting *Petrol Sniffing* describes how the practice spreads (HALT 1991, 18). Elva Cook painted *Fire Painting One* and *Fire Painting Two* in 1996 and 1997. These paintings are based on the symbolism of a fire which burns up women and young people. The fire is used to represent both Alice Springs and the effect of intoxicating substances on youth, with suggestions towards restoring the balance of family life. Marlene Nampijimpa Ross's *Lonely Boy*, painted in 1994, describes some scenarios associated with petrol sniffing.

Trouble Story is a six metre long painting developed by the Petrol Link-up Project and its collaborators, including Aboriginal and non-Aboriginal people. *Trouble Story* represents both a workshop scenario and a condensation of key factors in dealing with young people in trouble. It includes recognition of family of origin, current multi-cultural influences, agency and family networks of care, and suggests sources of intervention and healing stories. It is used to "hold ideas, put them into a sequence for discussions and facilitate discussions" without requiring its audience to read or understand English (San Roque 1996, 11). *Two Laws*, painted in 1994 (again under the auspices of Petrol Link-up), depicts the problems faced by custodians of both Aboriginal and European law when dealing with criminal offences, including those committed under the influence of petrol or alcohol.

Telling young people stories can function as an expression of care and instruction. For instance, participants at a workshop on petrol sniffing held in Alice Springs in 1998 identified telling stories, either from *tjukurpa* or the Bible, as a strategy for dealing with petrol sniffers (Central Australian Rural Practitioners Association). Aboriginal people have developed *tjukurpa* to explain some of the animals and other phenomena introduced by Europeans. However, at least in the Central Desert area there appear to be no *tjukurpa* dealing with alcohol or petrol (San Roque et al 1999a).

The Intjartnama Group's Western Line Project, based on a concept from Elva Cook's painting *in Story About Intjartnama* (Cook et al 1994, 48), is a further attempt at cultural healing, this time through mobilising already existing networks and relationships of care across country and between families: "Knowledge of and ability to work within these 'lines' is an essential part of the Intjartnama strategy and is a privilege based upon the Intjartnama family's own connections" (Cook and Cook 1997). The project centres its activities around new events such as sporting meetings as well as traditional occurrences in "Aboriginal country and according to the Aboriginal seasonal calendar" (LeFay nd) which provide opportunity for teaching young people and transmitting law. Activities have

included forums for elders, discussions about night patrols, community visits and meetings, development of recreational opportunities and health promotion materials, and organising 'events' for sport and artistic and cultural activities. These events provide venues for discussion about substance misuse (Cook and Cook 1997).

The programs discussed above are, in the main, controlled by Aboriginal people. Governments and organisations outside Aboriginal communities must be sensitive to the possible impact of the way in which they endorse programs aiming to reinstate Aboriginal 'culture' or 'tradition' in order to strengthen community responses to problems such as petrol sniffing. O'Malley (1994) points to some problems inherent in government-controlled efforts of this nature. In one such program, officials emphasised aspects of 'tradition' consistent with their program aims, and ignored or discredited others (such as the use of violent punishment or tolerance of sniffing). He concludes that the government department involved "cannot escape the fact that while setting out to shore up Ngaanyatjarra cultural and social autonomy, paradoxically it is setting itself as arbiter of another people's tradition" (1994,138).

In all, these projects are both interesting and innovative. However, as far as we **know**, almost none of these initiatives have been evaluated. How broad their potential appeal to various age, language and other groups might be, we cannot gauge. Some form of culturally appropriate evaluation would be useful.

9.2 Individual and family counselling and care

Tomlinson (1975) criticised interventions based on counselling individual sniffers on the grounds that by focusing on the pathology of the individual, they tended to divert attention from more important social factors. Morice, Swift and Brady (1981, 41), however, argued that while these dangers should not be overlooked, therapeutic strategies had a useful role to play. San Roque notes that one of the primary needs of sniffers is for "psychological or personal attention, i.e. the chance to be listened to and 'tell their story'" (1999b, 20). Brady (1985) also suggests that regular sniffers may benefit from skilled counselling.

Franks (1989), a trained counsellor and member of the Healthy Aboriginal Life Team (HALT), has provided a useful account of the application of counselling techniques in two Central Australian communities. Central to the HALT approach was the combination of individual and family counselling with community development techniques (see section 9.3). The twin goals were to promote the community's capacity to control petrol sniffing at the community level, and to help kin networks to regain their capacity to care for and control their members. The particular role of counselling in this context was to "re-include the sniffers within the extended family group from which they had become alienated" (Franks 1989, 17). Another important aspect of the HALT approach was the presence in the team of a respected Aboriginal member, who worked in close cooperation with the counsellor.

Franks describes two types of individual counselling, as well as family counselling. Simple support counselling is used where the family is strong and can mobilise support; the counsellor's role is one of helping persons to reach decisions and giving encouragement. Where family functioning has become distorted, in-depth counselling is used. In these cases, parents, kin and children are often angry, afraid or apathetic, and may harbour unresolved grief for the loss of children or relatives. Counselling involves "validating feelings; clarifying the problems; setting and prioritising goals; and actively moving

towards the achievement of these goals by agreeing to undertake specific tasks" (Franks 1989, 19). Individual counselling was used in conjunction with family counselling; in this, the Aboriginal member of the team, Andrew Spencer japaliarri, played a major role, identifying family and community supports which could be mobilised. Family counselling also involved teaching crisis procedures which could be used to deal with intoxicated sniffers.

Franks stresses that counselling in this context requires training and **experience**, both in counselling techniques and in cross-cultural intervention. It is not a role for amateurs, however well-intentioned. Herein may lie a significant constraint on this approach: within northern and Central Australia there are few counsellors who (a) have the necessary training and experience, and (b) are willing to employ these skills in Aboriginal communities.

The kinds of talk which Aboriginal people use to support others and clarify and solve problems are rarely discussed in the literature or given the status accorded 'counselling'. The following suggestion was made at a workshop addressing petrol sniffing held in December 1998:

Community people to elect a committee of 2 men and 2 ladies (like councillors) [Sic] to help sniffers. Sit down with them and ask them why they're doing it. They might say "I'm sniffing because I'm hungry; or I've got no money, I've got no family... These 4 councillors can be employed on CDEP by the community and paid CDEP Supervisor wages. Make sure these councillors have patience and understanding (Central Australian Rural Practitioners Association 1998).

The same workshop also recommended that community councils arrange trips for young people to enable them to talk about their feelings and be counselled by older community members. A painting by Tjunkaya Tapaya shows how attention and care from older relatives can help sniffers to feel part of the family network (HALT 1991, 12).

Clearly, there is a need to train Aboriginal and non-Aboriginal people alike in specific counselling skills for use in Aboriginal communities, particularly, but not exclusively, in skills related to substance misuse.

Brady points out that brief and minimal intervention strategies are rarely utilised in Aboriginal drug and alcohol treatment services (1995). The potential of these strategies in relation to petrol sniffing could usefully be examined, and any existing programs evaluated.

9.3 Counselling and community development: the HALT model

Without doubt the intervention approach that attracted more interest than any other in the 1980s and early 1990s was the model developed by a Central Australian trio who, following their official formation in November 1985, initially called themselves the Petrol Sniffing Prevention Team, and later, the Healthy Aboriginal Life Team, or HALT (Franks 1989). HALT was a family counselling and education program based on the principles of community development. It grew out of a community-based program initiated at Yuendumu in 1984, initially as an attempt to formalise the Yuendumu program and apply it to other communities.

The model developed by the team was based upon a view of petrol sniffing as "a systemic disorder arising from and contributing to a degree of broad social dependency which has resulted from many harmful forms of interaction with outsiders" (Franks 1989, 15). In other words, the explanation for petrol sniffing was to be found, not in the pathology of individual sniffers, or in particular types of families (e.g. fatherless families, alcohol-abusing families), but in the historically conditioned patterns of interaction between Aboriginal society and white-Australian institutions.

Under the policy of assimilation, according to HALT's critique, Indigenous social institutions were undermined. In particular, the nurturing and controlling capacities of the family and kinship systems were attenuated; important social roles, particularly those occupied by males, were effectively abolished and, in their place, emphasis was placed on the importance of biological parents (in keeping with western family ideology) (Lowe et al 1988). The outcome was a society characterised by "systemic social dependency" (HALT 1988, 9), fragmented and demoralised kinship systems, apathy, and a retreat into alcohol and other substance misuse as well as violence in an attempt to regain lost power and cope with unresolved grief.

Although the policy of assimilation had ended, HALT argued that the conventional mode of interaction imposed on Aboriginal communities by non-Aboriginal institutions continued to sustain dependency. From the standpoint of these communities, outsiders function as "provider or control agent" (HALT 1988, 61). HALT claimed to operate from a radically different perspective to those of conventional service providers, one governed by reciprocity rather than provision and control. Its role as an outside agency was not to deliver a service, but to release capacities inherent in the

community. It aimed to work with Aboriginal family systems in order to help them recover their capacity to resolve problems; specifically in the case of petrol sniffers, it sought to reintegrate sniffers with their family systems and to promote the nurturing and controlling capacities of those systems (Lowe et al 1988, 228; HALT 1988, 10; Franks 1989, 15). HALT utilised counselling techniques to enable communities and families to redefine petrol sniffing as a problem which could be rectified by families: "this process then led to authentic initiative and motivation to address the problem" (Franks in Rowse 1996, 56). Central to this approach was a belief in the capacity of Aboriginal family and kinship systems to recover their lost capacity.

The model, as outlined by Bryce et al (1991), consisted of the following steps:

- 1 Initial engagement: HALT required that a community had already identified petrol sniffing as an issue that it wanted to work on before the team would commence its program. The team would meet with community leaders and be asked to help solve the petrol sniffing problem. At this point HALT was careful not to mistake the patronage of one or a few powerful community members for community acceptance.
- 2 Community engagement: HALT convened community meetings to explain and confirm community commitment to the process. The team made use of Indigenous symbolism in paintings and diagrams, and other media and messages in the cognitive style of Aboriginal society in order to ensure that problems were defined in Aboriginal terms (Franks 1989). HALT encouraged the community to have faith in the power of traditional kinship relations to revive adult authority over sniffers.
- 3 Recruitment: HALT trained and arranged for the employment of chosen community members who would continue the work after they had withdrawn from the community. This included the establishment of Aboriginal night patrols. HALT also held meetings with workers from other community agencies to invite their support.
- 4 Counselling by HALT principals and community workers for both individuals and families experiencing more pervasive sniffing related problems.
- 5 Withdrawal of HALT principals: HALT's work was continued by the local community workers with the support of the community council. Original HALT workers provided additional support to these community workers (Bryce et al 1991; Franks 1989).

Two components of this model - individual and family counselling, and the use of Indigenous symbolism - are discussed elsewhere in this review; the present focus is on the model as a whole.

The team's initial interventions at Yuendumu and, subsequently, at Kintore appear to have been successful, according to both the team's own and external assessors. Smith and McCulloch (1986), who examined the team's operations on behalf of the West Australian Department of Community Development, reported that in Yuendumu there had previously been 40 sniffers, and in Kintore fourteen. Both communities at the time of assessment were free of sniffing, although at Kintore two sniffers had moved to outstations and a third was in gaol. Similarly, an evaluation report prepared for the departments of Aboriginal Affairs and Community Development (1986) stated that sniffing appeared to have ceased in both communities.

HALT was evaluated again in 1991 by Bryce, Scrimgeour and Rowse (1991, 1992). The evaluation gives a thorough description of HALT practice and outcomes and provides a critical analysis of HALT theory. The evaluators held discussions with people at Yuendumu, who recalled a number of interventions in the mid- 1980s, including HALT, as having contributed to successes achieved during this period. It appears that prior to HALT's time at Yuendumu, community concern about sniffing had come to a head; the report lists a range of interventions which the community had implemented prior to

and alongside HALT's work (1991, 36-7). Bryce et al conclude that HALT was one factor in Yuendumu's success:

HALT can rightly claim to have been a part of a powerful mobilisation of community concern about petrol sniffing at Yuendumu. However we should not see HALT as having authored and orchestrated that process; HALT does not control all the conditions which determine its success or failure. It can help a community to focus, to resolve attention into a temporary unanimity of purpose which adults, in various ways, find empowering' (1991, 45).

The evaluators found, moreover, that the successful Yuendumu actions departed at some points from HALT's suggestion that adults nurture petrol sniffers. Adults had used terror and corporal punishment to discourage sniffing, and some sniffers appeared to have 'graduated' to alcohol when they were considered to have reached manhood (Bryce et al 1991, 2).

In 1985 HALT commenced work at the Central Australian communities of Kintore and Kiwirrkurra. Here the team further developed the technique of 'family mapping', where a child's relationships was painted or drawn to reaffirm the role of kin in child rearing (Bryce et al 1992, 391). They also appointed community workers and supported people in sending sniffers to stay with other family members. Bryce et al reported that HALT had contributed to a reduction in petrol sniffing, but that a core of sniffers remained (1991, 53).

In the late 1980s the HALT model was also applied on the Anangu Pitjantjatjara (AP) Lands, where, in contrast to Yuendumu and Kintore, HALT did not have prior relationships with community members. Bryce et al conclude that this factor, along with competition from two other models favoured by Anangu Pitjantjatjara communities for dealing with petrol sniffing, led to HALT's failure to influence petrol sniffing significantly. The two rival models, in Bryce et al's terms, were the 'work model' and the 'Police aide/surveillance' model. ²⁸

HALT's experience suggests that, in the hands of a skilled counsellor, orthodox counselling and community development techniques can be effective, if used with sensitivity and respect for Aboriginal perceptions and values. Stojanovski, a worker at the Mount Theo outstation of Yuendumu, suggests that HALT was successful at Yuendumu because that was where the model had been developed (McFarland 1999, 31). However, the failure of HALT to impact significantly on the Anangu Pitjantjatjara Lands suggests that its use as a model for other groups and communities is limited.

In a later discussion of HALT, Rowse (1996,48-81) has argued that in emphasising the imperative for Aboriginal people to solve problems through reactivating traditional social authority structures, HALT may have underestimated the usefulness to Aboriginal people of outside, or new, interventions when dealing with new problems such as petrol sniffing. Rowse cites a study by Dunlop where Aboriginal people told the researcher that petrol was a threat which required non-traditional responses (1996, 68). He argues that 'traditional' child rearing practices may discourage parents and elders from censoring petrol sniffers, through fear of losing the goodwill of young people (1996, 71). Brady has also criticised an uncritical belief in the power of a revival of 'culture' to heal Aboriginal people of modern ills (1995c). Mobbs, on the other hand, in a response to the Bryce et al evaluation, argues that it is unfair to condemn HALT for its failure to assist communities to stop chronic sniffers (1993, 80).

Perhaps HALT's ambitious claims for its program attracted more critical commentary than might otherwise have been made. Bryce et al point out that a change in petrol sniffing prevalence is unlikely ever to be attributable to one intervention alone (1992).

Although petrol sniffing has since recurred in waves at Yuendumu since the time of HALT's work, adults have succeeded in containing it through complementary programs in the community and at Mount Theo outstation. While Stojanovski was compiling his most recent report, there were no sniffers at Yuendumu and HALT's activities were among a range of interventions to which Stojanovski attributes the community's success (1999,23). This suggests at least that HALT may have contributed to the Yuendumu community's ability to "shore up or to restore adult authority over recalcitrant children who sniff petrol" - the criterion for success used in Bryce et al's evaluation (1992, 390).

9.4 Petrol Link-up

The other petrol sniffing program that has operated across a region, rather than focusing on a particular community, was Petrol Link-up, which was funded between July 1994 and March 1995 and operated in the Northern Territory, South Australian and West Australian cross-border region of Central Australia. Unlike HALT, which attracted the three external evaluations discussed above, there has been no external evaluation of Petrol Link-up.

Where HALT concentrated on families and individuals, Petrol Link-up's main focus was on creating mechanisms for the sharing of information between communities about petrol sniffing related interventions, and on encouraging and supporting community action, in the belief that not all sniffers could be stopped by family action. Petrol Link-up also provided administrative assistance and liaison for communities in their search for funding. The program was also associated with the adoption of Avgas by Anangu Pitjantjatjara communities, the Ngaanyatjarra communities and Western Desert communities in the Northern Territory, which, along with other community-based programs, proved very effective in reducing sniffing.

The 'Three Ways' model developed by the Petrol Link-up team advocates the use of a range of strategies in dealing with petrol sniffing (a view consistent with the main thrust of this review). The model entails:

- 1 reducing the availability of petrol by its substitution with Avgas;
- 2 rehabilitating sniffer through removing them to outstations - giving respite to communities and giving sniffers an opportunity to 'break' their behaviour; and
- 3 providing positive alternatives through youth programs, recreational activities, employment opportunities and the like within communities (Shaw et al 1994, 19).

The model thus addresses the three levels of drug, set and setting, and spans both primary and secondary intervention.

The Petrol Link-up team contends that stopping petrol sniffing requires an enormous effort by adults; their major strategy involves fostering and supporting these endeavours (Shaw et al 1994, 13). Where families are unable to stop their children sniffing, community action is most useful:

Essentially the community action makes the statement that petrol sniffing is not acceptable... We believe it is important to encourage the community to try something, and whatever *it is* to support them. An intervention that is up and running and experiencing problems can be changed according to people's perception of a more positive approach. In communities that currently have no intervention we have found that there are invariably plans and dreams. We have encouraged people to embark on their plans and given every support we can. It is also clear that people have been inspired by the stories from other communities... Activities of a program such as Petrol Link-up are a catalyst for reactivation of community will (1994, 13-14) (their emphasis).

Petrol Link-up was involved in producing a number of resources still in regular use in Central Australia, most notably the Brain Story, discussed earlier under 'Using Aboriginal Culture and Symbolism'.

The Petrol Link-up team were keen to redeem the outstation movement which, as discussed elsewhere in this review, was not viewed positively in the literature at that time. Petrol Link-up organised a workshop at Winbarrku for outstation managers and others thinking of establishing outstations for young people (Shaw et al 1994, 1 1; Winbarrku Outstation Meeting 1994; Petrol Link-up 1994). Since the demise of Petrol Link-up there is no designated position in Central Australia for providing support and advice to outstations.

It is difficult to assess the overall impact of Petrol Link-up. However, two of the strategies that it advocated - Avgas and outstation programs - were critical in reducing petrol sniffing in Central Australian communities in the late 1990s. There appears to be an ongoing need for services such as those provided by Petrol Link-up. The major recommendation from Mosey's (1997) consultation over what should be done about petrol sniffing was the establishment of an inhalant substance misuse team to support communities and act as a conduit for information, quite similar in function to Petrol Link-up. Outstation managers continue to call for town-based support (Cook and Cook 1998). The Central Australian Inhalant Substance Abuse Network in Alice Springs has recommended to governments that a Youth Link-up (based on an earlier proposal from the Petrol Link-up team) be funded, a proposal that was supported by a conference representing 40 Aboriginal communities (McFariand 1999; NPY Women's Council 1999b).

9.5 Other community-based initiatives

A number of community-based initiatives are discussed throughout this review. The following examples illustrate the potential strength of community campaigns and some difficulties which have arisen for communities in implementing action against petrol sniffing.

In 1986 the West Australian Government established a Working Party on Petrol Sniffing. In the following year, following consultations involving the working party and communities in the Eastern Goldfields region of Western Australia, a community-based program was inaugurated to reduce petrol sniffing among the Ngaanyatjarra people. The area included eight communities with a combined Aboriginal population estimated in 1988 at 1388 (Lang and Kickett 1989). The program took as its starting point the disempowerment and disintegration which, the working party argued,

afflicted Aboriginal communities as a result of the imposition of European dominance (Lang and Kickett 1989). To counteract these effects, the program sought not only to impart skills which could be used to combat petrol sniffing, but also to promote the capacity of communities to act collectively to prevent petrol sniffing, support families who needed help, and to generate a sense of collective and individual pride.

The approach involved a number of key components. The first of these was the compilation of data for use as a baseline against which to measure any progress which might occur. The working party gathered hospital morbidity and mortality data and information from police records. A second component involved convening community workshops at which community members identified a range of possible strategic options and then selected one for action. One community, for example, decided to establish a camp for sniffers on a remote outstation. Sniffers would not only be given time to dry **out**, but also to work on tasks such as fencing, and to learn traditional culture and bushcraft. A third component involved the production of educational materials which in turn sought to impart skills, promote self-esteem, and disseminate information about the effects of petrol sniffing on the body. Finally, key informants in communities were selected as sources of information about the effects of the programs.

In an early report (Lang and Kickett 1989), members of the working party presented an optimistic account of the program. Later, however, the same authors were much more critical of their own approach (Lang and Kickett 1990). It had been a mistake, they now argued, to regard the community as the 'primary system' on which to focus the program; beneath a veneer of homogeneity, communities were in reality too divided - by language, religious affiliation, generational loyalties, to mention a few factors - to be able to act cohesively. Instead, the authors continued, the family should have been regarded as the major system. They pointed out that after two years, the working party had been unable to establish a single core working group in any community. They also stressed, on the basis of their experience with the project, the need for effective evaluation mechanisms to be built in from the outset of any project of this nature. Had this been done, they argued, those responsible for the program would have been much less likely to have misinterpreted early signs of community action.

Relying on families to stop petrol sniffing does not always work. Rowse notes that there is often conflict between family and community authority in Aboriginal communities (1996, 68). Petrol sniffing requires Aboriginal people to reconsider old and current child rearing patterns, and this process is currently occurring in Central Australian communities (Rowse 1996). Although family is obviously critical in addressing petrol sniffing, and must remain a major focus of interventions, community action can sometimes be an extremely powerful tool for change where families have been unable to influence their children.

As a number of observers point out (e.g. Smith and McCulloch 1986; Brady 1985, 1992), Aboriginal residents of communities do not always share the perceptions of non-Aborigines about the seriousness of petrol sniffing as a problem. The danger is that intervention strategies which purport to be dealing with a 'community' problem may not, from the point of view of Aboriginal residents of that community, have any such claim on their support.

Watson's (1986) account of an attempt to eradicate petrol sniffing from a Top End community demonstrates this point. As the regional medical officer at the time, Watson was called in to help the

community to end sniffing. Acting on his advice, the community decided to add ethyl mercaptan, or **tskunk** juice', to the local petrol storage facility as a deterrent against sniffing. In moves initiated by the local council, a public meeting was held and a decision taken (a) to add ethyl mercaptan to the local petrol supply, and (b) to institute a publicity campaign, using a locally written and recorded song and a poster, prepared by the Australian Institute of Petroleum telling youths **DON'T SNIFF PETROL**. Subsequently, ethyl mercaptan was injected at a concentration of 1 ml per 100 litres of petrol to the main petrol storage tank in the community.

Initially, the prevalence of petrol sniffing dropped sharply, presumably as a result of the initiative, although Brady (1985) points out that just prior to the additive being introduced, several sniffers had been beaten by Aboriginal adults, including a police aide, and that this too might have contributed to the observed fall off. The effect, however, was short-lived. Shortly after the initial injection of ethyl mercaptan, the council experienced financial difficulties and was unable to refill the main storage tank. Petrol was then purchased in 20 litre containers from another community, and sold without the additive. Sniffing resumed shortly afterwards.

Watson argues that the program did not have genuine community support, but rather was agreed to by the community through deference to the Europeans, and the latter's concerns about vandalism. The program might have succeeded, he argues, if it had had local support, and if it had been combined with a rehabilitation program for sniffers. Watson's account points to the need to distinguish genuine community concern and participation from the appearance of consultation which, at the hands of non-Aboriginal professionals and bureaucrats, all too often passes for the same thing.

One Central Australian community established a successful three-part program in 1977 (Dalton-Morgan 1978). Prior to the program there were 63 young people known to sniff petrol, nine of them regularly. In contrast to many accounts, females outnumbered males, although all of the regular sniffers were male. Dalton-Morgan states that the sniffers were held in low esteem in the community and tended to be excluded from social activities by peers, kin and other families. It is not clear from his account, however, whether isolation was regarded as a cause or consequence of sniffing (or both).

A community petrol-sniffing committee was established, made up of 10 people, including fathers or brothers of sniffers, trainee community development workers, health workers, teachers, police trackers and one reformed sniffer. The committee then initiated a three-pronged intervention strategy, comprising:

- a program of recreational activities in 'prime-crime time'- i.e. 6 pm till midnight - offering films, volleyball, a darts competition, and similar activities (always, according to Dalton-Morgan, with a choice of activities available);
- a policy whereby committee members gave attention to individual sniffers, in order to 'de-isolate' them; and
- educational courses on legal education and community health, the first dealing with links between legal and social responsibilities, the second with the damaging effects of petrol sniffing.

Six months after the program commenced, petrol sniffing was a rare event and when it did occur, it usually involved no more than one or two individuals. According to Dalton-Morgan, the community as a whole was heartened by its success in tackling petrol sniffing, and was prepared, as a result, to deal with other social problems.

He attributes the program's success to four main factors: first, the community regarded petrol sniffing as a serious problem and was motivated to take action; second, the program was designed to achieve some visible results quickly; third, the problem was reasonably well-researched in the local community before intervention began; and fourth, the committee was encouraged to proceed in its own preferred manner.

Providing communities with small grants to fund anti-sniffing activities is a model which is currently popular with governments. In Alice Springs, for instance, Waltja Tjutangku Palyapayi Aboriginal Association, Drug and Alcohol Services (DASA) and the NPY Women's Council have all received 'brokerage' funding, designed to support "community driven projects and training to address substance misuse" (Waltj a Tjutangku Palyapayi Aboriginal Association 1998a, 27). It is argued that the benefit of this style of funding is that it is easy for communities to access money quickly. This means that when the community is ready to take action it can receive quick and efficient support. One of the recommendations of a recent conference on petrol sniffing was that funding given to the NPY Women's Council be increased in order that it be able to offer brokerage funds to West Australian communities (1999b). An evaluation of the impact of brokerage funding would be useful.

We have discussed few interventions undertaken in an urban context. A greater range of volatile substances is often available in urban areas, and it is more difficult to restrict supply. Helfgott and Rose (1994) describe a campaign undertaken in the Midland area of Western Australia to assist a hardware store to develop strategies addressing its concern that young people were stealing or attempting to buy volatile substances for the purpose of inhalation. Through the use of dummy cans on display, staff education, signs and liaison with relevant services, the store was able to reduce its problem substantially; however, the authors of the report wonder whether young people might, as a result, be accessing volatile substances elsewhere.

It is not surprising that some communities need ongoing outside support in dealing with petrol sniffing. Some communities have a 20 year history of entrenched petrol sniffing, making it hard for people to imagine that things will ever change (Brady 1992, 16-17). Petrol sniffing can be distressing and confronting for families and elders, but it is only one of many serious issues that Aboriginal people are forced to deal with, and it cannot always be the priority. Furthermore, unacceptable levels of sickness and early death in Aboriginal communities add to the difficulties in working consistently. As San Roque et al remark:

The accumulating grief, loss of reliable colleagues and family through death or alcoholic carelessness, and the increasing level of collective, exhausted despondency has to be recognised as a significant factor of existence and an important chronic element in the systemic problems of Aboriginal people (San Roque et al 1999b, 8).

However, within many communities there are groups of people who are highly concerned about sniffing. This comes particularly from families of sniffers who have tried many treatments and

responses to their children's drug misuse (Mosey 1997, 11). Osland observes that the communities with which she worked care about petrol sniffing and have some ideas about what could be done, but are at a loss as to what the next step should be (1998). The Intjartnama team found in one community that efforts were needed to "construct a viable structure for action, in terms of enabling competing and feuding family groups to work out better ways of living and working together" (in Duman 1999, 7), prior to addressing petrol sniffing.

This suggests that in some communities, extensive community development and work with families is needed before the community can be mobilised to deal with sniffing. Without genuine and cohesive community support, interventions are doomed to failure.

9.6 Community-based sanctions

Closely allied to the notion of employing legal sanctions as a deterrent to petrol sniffing is that of employing non-statutory, community-based sanctions, such as flogging, banishment, shaming at public meetings, or denial of access to the local store and other facilities. In one Arnhem Land community the names of known petrol sniffers were publicly listed (Eastwell 1979). In another, the parents of sniffers were denied the use of community facilities (Northern Territory Department of Health 1982, 23). These and other similar measures are often reported as having an apparent short-term impact, but little long-term effect. The Senate Select Committee on Volatile Substance Fumes noted that many communities had tried such measures, with little success (Commonwealth of Australia 1985, 201-2). Some councils have conducted public floggings, which may have deterred some casual sniffers, but which also appear to have had the counter-productive effect of glorifying the act of sniffing as daring and dangerous, at the same time increasing the gulf between sniffers and non-sniffers, and between adolescents and parents. A recent conference about petrol sniffing (Central Australian Rural Practitioner's Association 1998) identified "aggression/violence, kicking out of community, rejection and shaming in public" as strategies which had not worked.

Morice, Swift and Brady (1981, 41-3) reviewed the use of community-based punishments, and concluded that on the whole they do not have long-term benefits. Brady, however, has suggested that the use of community-based sanctions may have some beneficial effects in settings where there are few chronic sniffers and where, as a consequence, most of those who do sniff are experimenters (Brady 1985). More recently, she has identified four cultural sanctions which, she suggests, could be used effectively as a response to petrol sniffing: shaming, cursing, ceremonial instruction, and the imposition of compensation payments (1992, 180). Mosey, in her study of petrol sniffing in Central Australian communities, found that communities experiencing small outbreaks of sniffing were often able to quash the practice through "publicly shaming, hitting or chastising" the young people involved (1997, 21).

One of the most frequently employed community-based sanctions is banishment. The practice of banishing petrol sniffers to outstations is discussed below. Another strategy is to banish sniffers to uninhabited islands or remote parts of the bush, usually in the company of a supervising relative. Tomlinson (1975) described a program devised in an island community off Arnhem Land, in which five boys who were sniffing petrol at least once a day were banished for six months to an island 100 kilometres away, while a sixth boy was banished to an outstation. Tomlinson reports on the outcomes 6-12 months later: of the five who had been banished to an island, two had resumed

sniffing in their home community, and a third had moved elsewhere and done the same. Two had returned, taken jobs, and not resumed sniffing. The youth who had been banished to an outstation had also returned and not resumed sniffing. Another report of the use of banishment stated that, upon their return, the youths were greeted as heroes, since they were thought to have demonstrated enhanced survival skills (Eastwell 1979).

Morice, Swift and Brady (1981, 412-13) reviewed several reports of banishment and concluded that, while it may bring about a temporary cessation of sniffing by denying people access to petrol, it was unlikely to have lasting benefits, unless the period in exile was used to bring about a major change in attitudes on the part of former sniffers. For this to be achieved, the authors suggested, close supervision would be needed, both during the period of banishment and subsequently, following return to the home community.

One situation in which expulsion appears to have beneficial effects - for the community if not for the young person concerned - is when petrol sniffing is introduced by visitors from other communities. According to Brady, quick action to send them back before the practice gains a foothold in the community is essential to prevent its spread (Brady 1997b).

An interesting example of community-based sanctions comes from Mimili in the Anangu Pitjantjatjara Lands in South Australia. After experiencing two deaths of teenage petrol sniffers the community elders decided that they would no longer tolerate the practice. They told the families of sniffers that sniffing was no longer allowed, and that anyone continuing to sniff would have to leave. They reinforced this by sending any visiting sniffers back to their home community. This community is still without sniffing five years later. Critics have argued that all their sniffers moved to a nearby community and continued to sniff. Evidence from family members suggest that some did this; however, many stayed and stopped sniffing (Gill Shaw, pers comm, 1999).

Flogging, regardless of its human rights implications, does not seem to be a helpful response. A report on a program addressing petrol sniffing in the Katherine region states that flogging petrol sniffers had been effective in the past, but not recently. Some community members reportedly felt that it had not been done in a traditional manner, while others argued that sniffers needed love rather than punishment (Osland 1997, 12). The Review of the Commonwealth Aboriginal and Torres Strait Islander Substance Misuse Program (Commonwealth Department of Health and Family Services 1998, 107) was told by community members that floggings only pushed petrol sniffing further underground. Stojanovski tells of young people flogged at Yuendumu who were sniffing petrol again later the same day (1994).

Strategies involving banishment and/or other punishments run the risk of accentuating one of the key conditions associated with chronic sniffing: the social isolation of the sniffer - from their families, kin networks and the community. It is for this reason that a number of workers have preferred a variety of other strategies, all of which are designed to 'reintegrate' the sniffer with his/her family, kin and community (e.g. Dalton-Morgan 1978; Franks 1989), both by providing alternative recreational activities and through counselling or attendance at an outstation program.

9.7 Initiation and other ceremonies

A number of writers have observed that petrol sniffing among boys often ceases when the initiation process starts. Morice, Swift and Brady described the significance of initiation training for young boys as "probably inestimable, and ... difficult to communicate directly in writing", although they stopped short of advocating initiation as an explicit anti-petrol sniffing strategy (1981, 47). In a later publication, however, Brady describes as 'naive' the belief that young men undergoing initiation will necessarily subsequently agree to forgo the privileges of youth and adhere to expected social norms (1992, 96). The Senate Select Committee on Volatile Substance Fumes noted that some people had advocated utilising traditional ceremonies such as initiation as a means of deterring sniffers from continuing the practice. In some instances, the Senate Committee stated, the strategy was reported to have been effective.

There is of course a huge difference between observing that some young people stop sniffing in order to undergo initiation on the one hand and, on the other, 'sentencing' youths to initiation in order to punish them for sniffing. It is analogous to observing that some people stop abusing alcohol when they become Christian, and arguing that therefore people should be made to become Christian as a punishment for excessive alcohol consumption (see Brady 1992 for discussion of the role of Christianity in helping some people stop sniffing petrol).

The Senate Committee pointed out that some Aboriginal people were reluctant to use initiation as a punishment, on the grounds that it devalued the spiritual context of the ritual. Elsegood (1986) also opposed the measure, arguing that it was likely to make already rebellious young people even more antagonistic to traditional Aboriginal culture. He cited one instance of a 'business camp' being abandoned after one young offender attacked the older men with a shotgun. "Participation in initiation or any other ceremonies", he asserted, "is a matter for appropriate Aboriginal people to decide away from the legal arena."

9.8 Community warden schemes, night patrols and police aides

Many communities have instituted 'warden' or 'night patrol' systems, under which selected persons are assigned to patrol the community at night, apprehend sniffers and, usually, return them to their families. Unfortunately, little effort appears to have been directed to evaluating night patrols and warden programs, although Aboriginal people have often described them as being critical in efforts to combat substance misuse.

Clark (1984) refers briefly to one such program in a Central Australian community; the program failed because, according to Clark, the men chosen as wardens lacked authority. A workshop on petrol sniffing convened by the Northern Territory Department of Health in 1982 was told of a program in an island community under which orderlies kept young people on the move at night, to prevent them from sniffing. The program, it was stated, had been successful, but no further details are given (Northern Territory Department of Health 1982, 23). Franks (1989) reports on a program implemented at a Central Australian community between 1982 and 1984 which included, alongside other interventions, a two-pronged patrol system. While a male patrol assigned by the local council moved openly through the community, returning sniffing youths to their camps, groups of women crept through the bushes to surprise secret sniffing groups. As a result of the program under which the patrol system

was set up, the number of petrol sniffers in the community dropped from 40 in 1982 to 12 by July 1984. A later report, which praises the efforts of night patrols in deterring petrol sniffers, found that patrols in vehicles were less effective than foot patrols with lights turned off, as headlights alerted the sniffers to the imminent arrival of patrollers, resulting in a "spotlight and chasey" game (Stojanovski 1994, 3).

Shaw et al found that night patrols had a role in returning sniffers to their families. They reported that some communities called meetings the next morning to shame sniffers and their families, with sniffers often given a 'hiding' (1994, 18). Brady reported, however, that wardens often encounter opposition from family members of sniffers (1992; 1993, S58). Dealing with petrol sniffers can be stressful and difficult for night patrol workers (Central Australian Family Resource Centre 1994).

Bryce et al reported on the use of police aides in Anangu Pitjantjatjara communities (1991, 68). Like warden scheme or night patrol members, police aides never have a neutral role in a community, as they are always in kinship relations to other people and so are already implicated in disputes. Thus the police aides' authority, grounded in western notions of policing, sits somewhat uncomfortably with Pitjantjatjara values of individual autonomy and interconnectedness through relationship with others. Bryce et al found that rounding sniffers up and locking them up became more problematic for police and police aides after the Royal Commission into Aboriginal Deaths in Custody, particularly with successive South Australian governments refusing community requests to write petrol sniffing into the Public Intoxication Act. Bryce et al saw the work of police aides as being in opposition to other moves which attempt to reinforce the power of the family to control sniffers (such as HALT's work), and argued that while police aides were an important part of the community response, they were limited in their effectiveness.

9.9 Jail, treatment orders and other statutory sanctions

Since sniffing petrol is not generally illegal, sniffers normally appear before the courts only when they are charged with committing an offence related to sniffing, usually breaking-and-entering and/or stealing or arson, and occasionally a more serious offence such as rape, indecent assault or murder (Elsegood 1986; McFarland 1999). In fact, most chronic sniffers are involved with the law and its institutions in some way (Stojanovski 1999). The literature which we have surveyed for this review has not provided an indication of the effect of mandatory sentencing legislation in the Northern Territory and Western Australia on petrol sniffers. As many of the crimes committed by sniffers are property offences, the legislation must have led to an increased rate of incarceration.

Though not intended as a form of punishment, under the Northern Territory Community Welfare Act (and, probably, corresponding legislation in other jurisdictions), a petrol sniffer aged less than 18 can also be declared to be 'in need of care' and dealt with as a matter of statutory child protection if there is evidence of family neglect or misuse. These provisions are unlikely to be used except where the sniffer is very young (see interviews with Family, Youth and Children's Services workers in McFarland 1999).

Neither of these statutory avenues has proved particularly helpful as a response to petrol sniffing, and there is little reason to believe that they could become so. It is widely recognised that imprisonment is not an effective deterrent with respect to young Aboriginal people. Some observers have suggested

that incarceration is often perceived by young people as an attractive alternative to the boredom, family dislocation and social anomie of community life, offering as it does companionship, regular food and recreational activities (Dalton-Morgan 1978; Elsegood 1986). Magistrates, uncomfortably aware of this, have cast around for alternative sanctions. However, incarceration poses a range of risks, not least of which is death in custody. Indeed, Dunlop (1988, 85) found that the deleterious effects of spending time in jail was a causal factor in some young people's sniffing. In the next section we discuss the use of outstations as respite and rehabilitation services for petrol sniffers. The Mount Theo Petrol Sniffer Program (described in section 9. 10. 1) is sometimes used by magistrates as a sentencing option for young people in Central Australia who have been convicted of crimes associated with petrol sniffing. Bond and bail conditions include terms such as "not to sniff petrol and to reside at Mt Theo or elsewhere at the direction of the Outstation Manager" (Stojanovski 1999). However, outstations are only suitable for the accommodation and care of some young people. They are not, for instance, usually suitable for serious offenders, or seriously ill or brain damaged young people:

We can look after offenders and criminals but not if that person is really bad, like a murderer or sexual assault or too much brain damage. We've got too many young kids here. We've got to think of them too, and our own family (Cook and Cook with San Roque 1994, 53).

We have already discussed the belief of Aboriginal families in their children's rights to personal autonomy. Stojanovski argues that this can make it very difficult for families to stop children sniffing or to make them go to an outstation, and that young people sometimes react to parental direction with violence or anger (1999, 14). Because of this, families sometimes look to outside agencies such as police to control their children (1999, 16). According to Stojanovski, young people are often relieved when police intervene and send them to Mount Theo, something that can only occur when they have been convicted of a crime.

In order to have jurisdiction over sniffers not yet convicted for committing crimes, the Yuendumu Community Government Council has requested that the Northern Territory Government allow it to create a by-law making petrol sniffing illegal in the community. This by-law would empower police to support families by taking young people to Mount Theo as soon as they are found sniffing at Yuendumu (1999, 18). There are, however, real problems in increasing police involvement in young people's lives, and police reluctance to enforce such by-laws is understandable. In a Ministerial Statement, the (then) Minister for Family, Health and Children's Services, Denis Burke, suggested that community by-laws not requiring police enforcement be implemented to "enforce treatment requirements on identified sniffers" (1998). The difficulty here will be to work out whether there are any enforcement options which do not involve the police as a last resort. The question 'what is treatment?' also needs to be raised. Is spending time with relatives on an outstation sufficient, or does a formal program need to exist in order that a sniffer can be said to be receiving 'treatment'?

It is sometimes argued that, even if they lack deterrent **power**, legal sanctions should be used as a means of removing petrol sniffing ringleaders from communities. In this view, whatever the effect or lack of it on the ringleaders themselves, their removal from communities reduces the likelihood that other young people will sniff. The Senate Committee investigating volatile substance misuse recommended that greater use be made of statutory care and custody provisions as a means of removing petrol sniffing ringleaders from communities. It claimed that removal of ringleaders "is paramount to the effective control of sniffing" (Commonwealth of Australia 1985, 222),

This argument suffers from three important flaws. Firstly, it is based on a simplistic notion of the nature of petrol sniffing gangs. While a number of observers have documented the hierarchical structure of these gangs and the important role played by dominant older youths in recruiting younger sniffers (e.g. Nurcombe et al 1970; Craighead 1976; Spencer japaljarri **1990**), the presence of ringleaders' is merely one among several factors which give rise to petrol sniffing. In a study of one Arnhem Land community where petrol sniffing virtually ceased during the 1988 dry season, Brady (1989a, 1992) encountered and examined the thesis that sniffing had ceased because the ringleaders were absent from the community during the period concerned. She concluded that the absence of certain individuals had indeed been a factor in the virtual disappearance of sniffing. However, she also found that some of the alleged ringleaders were not absent throughout the entire period, and warned that relationships between peer group leaders and their followers were more complex than the 'ringleader' thesis allowed. Watson (1985) asserted that new petrol sniffers are often recruited by older siblings who already sniff. The Yuendumu community was surprised when sniffing did not stop after the removal of 'ringleaders' in 1994 (Stojanovski 1994). As discussed in section 8.11, Shaw found that in her community of study, jail did not deter adults from petrol sniffing. Despite this, Shaw believes that jailing sniffers is helpful to the community in two ways. Firstly, it keeps people alive by enforcing time out from sniffing. Secondly, it removes influential sniffers from their communities so that they are unable to recruit others to the practice. Shaw concludes that in conjunction with community-based programs, jail is a last resort option for very persistent sniffers or those who are actively recruiting others (1999). In our view, if such legislation were to be introduced it would be important to draft it in a manner that ensured that sniffers could not be jailed simply as a matter of course.

Secondly, the use of statutory care and custody provisions with respect to young Aboriginal people - except where families themselves request placement in an Aboriginal-run institution - runs counter to the whole purpose and rationale underlying contemporary Aboriginal child welfare legislation. This rationale emphasises the need to maintain the integrity of Aboriginal family, kinship and community structures, in contrast to the earlier era of assimilationist welfare policies, under which children were readily removed from their social environments and placed in European-run institutions. Thirdly, even if the above objections were to be set aside, and one or more ringleaders removed, a practical problem remains: when they return to their communities, as they must eventually be permitted to do, there is no reason to suppose that they will not resume old habits.

Legal sanctions, in short, offer few keys to the petrol sniffing problem. Sanctions currently available can certainly deprive petrol sniffers of access to petrol for a limited period, but offer little prospect of inducing any longer-term behavioural change. Nonetheless, the search for suitable diversionary schemes should continue on the grounds that they are less wasteful and more constructive than incarceration for minor crimes and might, in some circumstances, impart skills and attitudes which lead some young people to reappraise the attractions of sniffing petrol.

9.10 Outstations

Outstations have been used both for early intervention with people who have just started sniffing and (less commonly) as tertiary intervention to help sniffers who have been using petrol for some time. Young people who have committed offences are also sometimes sent to outstations instead of jail. Although the use of outstations for people who are already sniffing can be considered as both secondary and tertiary intervention, for convenience both of these uses will be discussed here.

Outstations have been used for some time as a means of diverting sniffers, and are gaining in popularity. Craighead (1976) described a scheme in Galiwinku, Elcho Island, involving a rehabilitation camp for petrol sniffers located 12 miles (20 kilometres) from the main settlement. The camp was of three days duration, and was run by Craighead himself (a recreation officer), and three Aboriginal members of the community, including a reformed petrol sniffer. Establishment of the program seems to have been somewhat casual: 28 boys aged 7-17 who happened to be sniffing on a particular day were rounded up and, after their parents' permission had been obtained, taken to the camp. There they underwent a program run on a Christian basis, with each day including an early morning run and physical exercise, Christian devotions, sporting activities, hunting, fishing, Aboriginal singing and dancing, and lectures about petrol sniffing.

Craighead's report appears to have been written about one month after the program took place hardly long enough to assess the program's impact. Nonetheless, within the time surveyed, he reported that 5 of the 28 participants resumed sniffing within a few days of returning to the community, and were subsequently exiled to a group of remote islands. Another 5 became involved in a robbery at the post office and were subsequently sentenced to gaol by a court in Darwin. Those who remained in the community stopped sniffing - for how long, we do not know; however, the number of later interventions reported as having been attempted in this community suggest that the effects of the rehabilitation camp, however marked, were short-lived.

In 1985 the Senate Committee warned against the use of outstations as early intervention facilities into petrol sniffing on two grounds: firstly, because it simply transfers the problem rather than solves it, and in so doing tends to place stress on the newly emerging social systems and authority structures of the outstations, and secondly, because, even if sniffers do sometimes mend their ways, they usually resume sniffing upon return to their main communities (Commonwealth of Australia 1985, 209).

Elsegood (1986) criticised the practice of placing young people who commit petrol sniffing related offences on a bond, with one condition being that the offender reside in an outstation. He argued that the practice was inappropriate, in part because it failed to consider the effect on social harmony in the outstation, and in part because the bond condition was frequently disobeyed; young people returned to resume petrol sniffing in the main community. This in turn was a result, he argued, of the pervasive norm of non-interference within Aboriginal culture, already alluded to above:

No-one has authority to tell anyone else where to live, how to live, or who to live with. No-one will restrain another person if they wish to relocate even though they know such a relocation may prove injurious. On numerous occasions, 11 and 12 year old boys have returned to major urban areas on supply vehicles to resume sniffing, and when the police demanded an explanation from the adults they were told 'The boys wouldn't get off the truck'. No-one was prepared to accept the responsibility of removing them. The reasons why are quite complicated and involve the Aboriginal notion of responsibility for injury and death, and the consequences involved in being judged as responsible for 'causing' harm to another (Elsegood 1986).

More recently, however, a report prepared by the Petrol Link-up team (Shaw et al 1994) has criticised earlier research that tends to dismiss the use of outstations. The report argues that outstation programs can assist people to achieve long-term petrol sniffing abstinence, but note that there are no specific evaluations of outstation programs to substantiate this. In a later document, Shaw writes of a community which sent sniffers to an outstation for a four week stint, and returned them whenever they recommenced sniffing. This program cut sniffing in the community by three-quarters (1999, 16). Evaluation of one 'dry out camp' at Yalata and Oak Valley where sniffers spend 3-12 months showed that after attending the camps many young people became involved in positive community activities, helping the night patrol and attending school instead of sniffing (Sputore et al, 1997)."

According to the Petrol Link-up team, communities consider that outstations give young people a chance to "get away from petrol and to become involved in more constructive activities", and at the same time allow communities a break from petrol sniffers (Shaw et al 1994, 14). They are also symbolically important as a "statement by the community that petrol sniffing is not acceptable" (1994, 15). Sending young people to outstations reasserts the power of adults over young people. As one Pitjantjatjara man put it: "they are not big men - I am a big man and I tell them what to do" (1994, 15). It also demonstrates to young people the community's concern and care.

Outstations are also important for cultural reasons. Shaw et al state that they "fit the cultural model of banishment" (1994, 14). Brady reports that travelling or moving to significant locations is often seen by Aboriginal people as a solution to substance misuse problems as "the land itself is understood to nurture and heal those who live upon it and partake of its resources" (1995, 1949). San Roque et al note that some Central Australian outstations that provide care for people affected by substance misuse are linked with each other by family ties and dreaming lines (1999b, 5). Bryce et al believe that the outstations model for care of petrol sniffers has community support in the Anangu Pitjantjatjara Lands because "its true worth is that its implementation takes people back to traditional learning, authority and discipline structures" (1991, 61). Programs for boys replicate nyinka, the training period for manhood where boys were segregated and taught hunting and survival skills and cultural knowledge by male relatives. Beyond all these reasons, outstations are often the strategy preferred by communities, and to dismiss them as unworkable does not help stimulate communities to become active in controlling their petrol sniffers.

A consultation conducted by Mosey in 1997 for Territory Health Services found that communities identified the use of outstations as their preferred strategy for dealing with petrol sniffers. DivakaranBrown and Minutjkur (1993), in an evaluation of petrol sniffing programs on the Anangu Pitjantjatjara Lands, argued that a two-pronged approach was needed: provision of community counsellors/family workers and a short-medium term homeland-based prevention program.

One outstation program was termed the 'workmodel' by Bryce et al (1991,61). It involved rounding sniffers up and gaining parental permission for their care at an outstation or other location with a bore, where they were nurtured and put to work so "their lungs and noses will forget petrol" (1991, 60). These programs were usually run by a husband and wife team, who sometimes received funding for wages, fuel, vehicle costs and food. Girls and boys were usually segregated. The programs were popular because they gave communities respite from sniffers, safe in the knowledge that sniffers were in the care of kin. Bryce et al interviewed people running these programs, who reported great satisfaction in teaching young people hunting skills (1991, 61). In the eastern Anangu Pitjantjatjara

Lands, cattle work provides challenges and self-esteem boosts for sniffers. Bryce et al did not comment on the success rate of these programs, although they did report that only a few months after one husband and wife team at Pipalyatjara failed to secure funding to keep 15 boys at their outstation, all the boys involved were in jail at Port Augusta.

The 'Aboriginal and Torres Strait Islander Drug and Alcohol Projects Database' (Sputore et al 1997) developed by the National Drug Research Institute at Curtin University, Perth, lists a number of projects in remote communities and towns dealing with petrol sniffing. Many of these utilise 'camps', taking people away from large communities and spending time engaging them in cultural and other activities and intensive talking. A common theme of these camps is that they involve teaching young people hunting and survival skills and arranging other activities which it is believed will raise their self-esteem and lend a sense of purpose to their lives. One program at Dareton used older boys regularly attending school or employment as camp facilitators and role models. Another project at Yalata involved ex-sniffers working with current petrol sniffers - a process that reportedly enhanced the ex-sniffers' self-esteem.

Two important aspects of outstation or homeland programs are, firstly, the need for funding, infrastructure and other resources and, secondly, the need for community support.

Shaw et al suggest that where outstation programs fail, they do so often because of lack of secure funding or through disputes over access to resources such as vehicles. Outstation programs tend to operate episodically, when needed, and this makes funding them difficult for bureaucracies. Shaw et al (1994) and Stojanovski (1999) also suggest that too much funding can jeopardise programs.

A meeting of outstation managers at Winbarrku, organised by Petrol Link-up in 1994 (Petrol Linkup Project 1994), concluded that outstations taking petrol sniffers needed support in relation to liaising with court and welfare bodies over referral and placement of young people, seeking funds, establishing income for young people in their care, and for facilitating information exchange. The meeting recommended that a permanent service be established to support outstations; however, this is yet to occur. Petrol Link-up wrote a further report on options for funding and income sources for young people being cared for at outstations (Barrett 1994).

Mosey, in her 1997 consultation, also recorded community concerns regarding resourcing of outstations. Among these were the lack of infrastructure and educational opportunities on outstations, and a need to investigate where money to provide food and other basics for petrol sniffers should come from.

A coronial inquiry in Alice Springs conducted into the death of a petrol sniffer who sustained a severe injury at an outstation found that the absence of trained medical personnel to conduct assessments prior to sending young people to outstations, along with inadequate communication technology at the outstation, contributed to his death (Donald 1998, 28). The coroner found that outstations have no formal procedures for medical or psychological assessment of sniffers prior to sending them to isolated locations and strongly recommended that this be made available, and that staff be trained in first aid and have access to appropriate telecommunication facilities (Donald 1998, 37). Mosey (1997) also reported that outstation workers required first aid training and clinical backup.

The support of elders is a critical element in all programs. An outstation for girls at Marla Bore failed due to lack of support from parents, who 'felt sorry' for their daughters and brought them home (and sometimes other girls also) (Stojanovski 1994). Finally, outstations must be isolated to prevent people escaping and petrol coming in. Those located close to main roads or communities have not been effective (Mosey 1997).

Available evidence, in particular the coronial inquiry referred to above, suggests that outstations are generally not equipped to cope with long-term sniffers or with serious offenders.

Mosey (1997) found that three outstations were caring for petrol sniffers in the Northern Territory segment of Central Australia, mainly taking in young people from their own language groups. Two of these outstations are discussed in greater detail below.

9.10.1 Mount Theo Petrol Sniffer Program

Mount Theo, an outstation of Yuendumu community, has been taking petrol sniffers since 1994, under the care of Peggy and Barney Brown. One of those who has been closely involved with the Petrol Sniffer Program is Andrew Stojanovski, on whose account we draw in the description below.

Mount Theo is seen as a sacred and spiritually powerful healing place (Stojanovski 1999). Sniffers and other young people at risk are taken there and looked after by tribal elders until they have recovered from the effects of sniffing and are ready to move back to Yuendumu (1999, 1). Although Mount Theo now receives funding, the program has always been very much owned by Aboriginal people from the Yuendumu community. Senior Aboriginal people run the programs and, importantly, give the young people lots of love (Stojanovski 1999, 13).

The outstation is a considerable distance from the community and any main road, making it very hard for young people to leave without adult assistance. According to Duman, the program "includes both preventative and harm minimisation elements in a sensible array of interrelated programs and procedures" (1999, 3). Activities include gardening, CDEP, traditional activities and courses. Importantly, the program is complemented by youth activities in Yuendumu itself, intended as alternatives to sniffing.

Stojanovski credits the program with bringing about "a remarkable change in the petrol sniffing situation at Yuendumu" (1999):

Before the program began operating in early 1994 Yuendumu Community was plagued with problems associated with petrol sniffing. There were gangs of petrol sniffers roaming the streets every night. They would often commit crimes and create disturbances. School attendance was low as petrol sniffers would actively recruit students from the school to join them in sniffing petrol. The community tried many strategies to deal with these problems including banishment and public floggings of sniffers, night patrols and the introduction of Avgas. The most successful strategy proved to be having a petrol sniffer program running at Mount Theo and a proactive youth and recreation program running in Yuendumu... By taking the young people who sniff petrol away from Yuendumu to Mount Theo we not only allow their bodies to detoxify and recover from petrol inhalation, but we also prevent them from getting into trouble in Yuendumu

and recruiting more young people to sniff with them. This is a very important aspect of the program which works to prevent a culture of petrol sniffing from becoming entrenched amongst the young people of Yuendumu (Stojanovski 1999, 1-2).

In 1998, at the time Stojanovski wrote his report, the number of sniffers in Yuendumu had fallen from 44 prior to commencement of the program in 1994 to zero. The program has been particularly successful with children whose families were traditional owners for the area, because of their links to this country and their care during that time by family members (Stojanovski 1994). Stojanovski attributes the program's success to several factors, including:
community confidence from past success in dealing with sniffing;

- initiation and ongoing control of the program by families of sniffers;
- appropriate support from non-Aboriginal people;
- whole community backing; and
- attainment of quick results (1999, 23).

Stojanovski stresses the importance of relationships between staff members. Implicit in the program is "recognition of Aboriginal culture and cross cultural relationships of mutual obligation". He provides this advice about sustainability for those wishing to establish a similar program:

While people like getting paid wages, wages do not carry the same weight and meaning as personal relationships. Wages will not keep my co-workers working through the difficult times. Emotional support and relationships of mutual obligation do...

This is what I really believe sustains our program. It is the love and the relationships that we hold for each other as co-workers and for our clients - the petrol sniffers. This is a difficult thing for governments to grasp. A structure like our program is easy to model and reproduce but the motivation care and love that holds it together is difficult to duplicate.

My advice to people trying to set up similar projects is to sit down in a community for a long time, to build relationships, to never stop trying (Stojanovski 1999, 26).

9.10.2 Intjartnama Aboriginal Corporation

The Intjartnama Program has four main areas of activity: a residential outstation; consultancy to other communities over substance misuse matters; community youth support (mainly at Hermannsburg); and, lastly, acting as a "think tank" on petrol sniffing in its area of operation (Duman 1999, 7).

Traditional custodial rights to Intjartnama outstation are held by Elva Cook who, together with her husband Barry (now deceased), decided to establish an outstation for their family and for other people wanting to recover from substance misuse (Cook and Cook 1994, g). The Cooks started caring for alcohol-affected people at Intjartnama around 1988. The program was formally established in 1991, and an active petrol sniffing focus developed gradually from 1992 (Craig San Roque, pers comm). As

sniffers tend to be disruptive, they are kept at a youth camp some kilometres away from the adult alcohol program.

We found that immediately they came out here it was better than using valium or just keeping people on alcohol and bringing it down bit by bit. Just to be in the bush and free, in a good atmosphere, in an Aboriginal atmosphere, people calmed down almost immediately when they came (Cook and Cook with San Roque 1994, 18),

Intjartnama's approach to substance misuse treatment is documented in *Story About Intjartnama* (Cook and Cook with San Roque 1994). The program operates as an 'Aboriginal family group', utilising a bi-cultural approach that combines Aboriginal cultural values and the family kinship system with European therapeutic communities:

Maybe we see some young kids petrol sniffing and nobody looking after them so we find out who their family is and we arrange for them to come and stop with us. We work this out Aboriginal way. We know what to do (Cook 1994, 5 1).

We don't use magic, we just stick to the small details of everyday life so people begin to recover and act responsibly and meet their Aboriginal duties in every day life... (Cook and Cook with San Roque 1994, 42).

Recovery is achieved though helping the person to think about five aspects of healing: care for family, care for self, care for land, place and travelling, care for Tjukurpa (dreaming) and care of spirit... (Cook and Cook with San Roque 1994, 40-2).

It is difficult to gauge the impact of the program, as Intjartnama takes people from a range of communities and language groups. However, a 1999 report claims that its impact on nearby Hermannsburg is apparent, with about half the number of chronic sniffers compared with a few years ago (Durnan 1999, 6-8).

Harm minimisation

One strategy which has attracted little attention is that of 'harm reduction' or, as Brady calls it, 'casualty reduction' (1985). Harm reduction is an approach to substance misuse that rests on an acceptance that total prevention or eradication is not always possible, and that therefore health educators and others should introduce strategies to minimise harmful consequences. Making only unleaded petrol or Avgas available in communities are harm minimisation strategies which have been discussed earlier. Brady suggests that the following factors should also be considered:

- 1 Sniffers should be discouraged from sniffing in small, secret, enclosed spaces such as caravans and cupboards, as the presence of several sniffers in such a place is more likely to lead sniffers to lose consciousness.
- Sniffing from large containers, with larger surface areas, is more dangerous than small tins; the combination of a large container in a small space can prove, and has proved, fatal. (Volatile substances may also be sniffed from a soaked rag, be placed in a bag and inhaled or sprayed

directly into the mouth. These means result in a higher vapour concentration than sniffing from an open container and hence present greater risk [Dinwiddie 1994].

- Children should not be surprised or given a scare when sniffing, or engage in violent physical exercise after sniffing, as sudden sniffing deaths appear to occur when sniffers receive a shock, jump up and run away.
- Precautions should be taken against accidental burning as a result of sniffers spilling petrol.

In another paper (1989c), Brady advances some further suggestions, drawing on research findings which point to an association between susceptibility to lead toxicity and nutritional and dietary factors.

One harm minimisation measure that has been proposed is that young people be advised that some volatile substances are safer to sniff than others. However, the British Advisory Council on the Misuse of Drugs has concluded that the overall danger of volatile substance misuse is such that messages of this nature are not generally advisable, particularly as the evidence regarding relative safety is weak (1995, 57). While it is unclear whether some volatile substances are safer to inhale than others, it is apparent that spraying gases (such as lighter fuels) directly into the mouth is particularly dangerous and should be strongly discouraged.

Some of the cultures associated with volatile substance misuse have evolved their own harm minimisation measures. A study of incarcerated Aboriginal volatile substance users in Western Australia found that these people practised harm minimisation through their choice of inhalant, rejecting, where possible, petrol in favour of (they suggest) less harmful inhalants such as 'kwikgrip' (Sandover et al 1997, 121). The study found that young people in remote areas, where other volatile substances are hard to procure, sniffed petrol, while those in urban areas preferred more readily accessible toluene and glues. However, as noted above, there is insufficient evidence to advise users that these other inhalants are comparatively safe. Petrol sniffers in the Sandover et al study also alternated sniffing through the nose and mouth to reduce harm and sniffed in public places or in company so that help could be sought if necessary (1997, 126). It would be useful to find out how these strategies for harm minimisation developed within this group, in order to see whether they could be fostered in other communities of young people.

Some youth cultures impose negative sanctions on inhalant misuse. Trotter et al reported that inhalant users were looked down on by Navajo American Indian young people. However, they also concluded that this made sniffers harder to reach by isolating them from other teenagers and, in the process, leaving them less influenced by changes in peer norms (1997, 55).

In some circumstances, non-intervention itself can be a form of harm minimisation. It has been argued that strategies addressing volatile substance misuse should be targeted carefully to existing users, to avoid encouraging others to try it themselves: "solvents and aerosols are seen by young people as 'gutter drugs' and the best way of making sure they don't become big in the drug culture may be to allow these in-built cultural sanctions to operate without interference" (Munday 1995, 7-9). The UK experience has been that the introduction of legal sanctions and a public campaign against glue sniffing in Britain coincided with an increase in deaths from other inhalants (Munday 1995, 8).

Harm minimisation measures inevitably raise ethical issues. In our view, ignoring petrol sniffing in Aboriginal communities is usually not appropriate, for three reasons. Firstly, petrol sniffing is a

particularly damaging form of inhalant substance misuse and has serious social and health consequences. Secondly, in-built sanctions such as those discussed above do not always exist in relation to petrol sniffing, or if they do they may be weak. In some communities petrol sniffing is part of a powerful culture of rebellion among young people, and these cultures serve to reinforce rather than undermine the practice. Thirdly, the 'sniffing career' of a young person in a remote Aboriginal community is likely to be both more intensive and sustained over a longer period than that of an urban inhalant abuser. For instance, a study of sniffers in Maningrida found that the mean period which current sniffers had been inhaling petrol was eight years (Burns et al 1995a), giving them far greater opportunity than most urban sniffers to sustain neurological and other damage.

10. Tertiary intervention strategies

While some people take up and later abandon the practice of sniffing petrol without apparent long term effects, others need rehabilitation or even hospitalisation. Three basic approaches appear in the literature: the use of outstations or other remote settings as rehabilitation camps (discussed in the previous section), town-based residential rehabilitation, and treatment in hospital.

There is little literature on the role of Aboriginal traditional healers and healing practices in dealing with petrol sniffing, although some mention of this is made by Brady (1995). Dunlop (1988) found that petrol sniffing is considered to be an introduced disorder, and therefore outside the power of traditional healing practices:

Before ngangkari (traditional healer) fix'em up if start get rama rama. Now ngangkari can't fix'em up, sniffers, ngangkari can't see petrol, petrol only wind, walpa. Doctor can't fix'em either. If sick, ngangkari can fix, but not from petrol (respondent in Dunlop 1988, 14 1).

Much of the health care of sniffers occurs in community clinics. The Central Australian Rural Practitioners Association (CARPA) Standard Treatment Manual (1997, 206-9) includes advice for health staff on acute and ongoing care of petrol sniffers. It lists the three main acute health issues for sniffers as fits, strange or violent behaviour and, in the longer term, weakness and infections. Currie et al (1994) stress the importance of airway protection in the care of acutely affected petrol sniffers. The literature on petrol sniffing has little else to say with regard to the care of sniffers in their communities.

10. 1 Town-based rehabilitation, 'sobering-up' and respite services

There are very few models available to draw upon in assessing the efficacy of treatment programs for Aboriginal petrol sniffers, or indeed for people who misuse any kind of solvent. The international literature is not encouraging. Beauvais and Trimble, writing in America, state that solvent users "defy conventional treatment and prevention efforts" (1997, xi). Elsewhere Beauvais notes that sniffers referred to treatment have often sustained neurological damage, meaning that many strategies in conventional drug treatment will prove too cognitively complex to be useful (1997, 106). A review of the international literature addressing inhalant misuse programs for the general community found that there was little data to draw on in relation to treatment, and that what was available suggested that outcomes were disappointing (Dinwiddie 1994, 993).

The Senate Select Committee on Volatile Substance Fumes in 1985 was opposed to residential rehabilitation programs, claiming that most people believed that removal of petrol sniffers to urban residential institutions was not desirable, except in the cases of chronic sniffers requiring hospital treatment.

One residential facility in the Northern Territory for petrol sniffers is the program for tribally oriented Aboriginal people run by the Council for Aboriginal Alcohol Program Services (CAAPS). An evaluation of the program conducted in 1990 found that between its establishment in 1985 and March 1990, after which the program was restructured to become a 'family program', CAAPS's Gordon Symons Centre Dependents' Education-Recovery Program for Men catered for some 475 admissions, just under a quarter of which involved petrol sniffers; most of the remainder were admitted on account of alcohol misuse (d'Abbs 1990, 47-9).

The treatment program combined elements of a 'family/kin network' (Gluck 1985a, 1985b) with a model that viewed alcohol and drug dependence as instances of chemical dependency, a progressive disease which could be arrested but never cured. The evaluation, however, found no evidence of program effectiveness with respect to petrol sniffers. Between 1994 and 1996 CAAPS stopped admitting petrol sniffers because of inadequate funding (Donald 1998, 4 1).

In Alice Springs, the Central Australian Aboriginal Alcohol Programs Unit (CAAAPU) accepted half a dozen petrol sniffers into its residential treatment program at one stage. A paper from Central Australian Aboriginal Congress states that this program had "reported short term positive results" (1997a, 1). There is now some consideration of whether or not CAAAPU will once again accept sniffers.

Whether or not a residential rehabilitation service for petrol sniffers should be established in Alice Springs remained a highly controversial issue in Central Australia in the late 1990s, and was hotly debated during the hearings of a coronial inquest held in 1997 into the death of a young petrol sniffer (Donald 1998). The inquest recommended that a central facility be established in Alice Springs to provide medical, psychological and counselling support to sniffers, with outstations used for longer-term aftercare and rehabilitation (Donald 1998, 44). However, some controversy exists over whether, in fact, people in remote communities want town-based care for their young people, with some Aboriginal organisations pushing strongly for such facilities, while other organisations especially government agencies - are equally adamant that such services would swallow up large amounts of scarce funding for programs which are neither appropriate nor effective. It is significant that this debate occurs in the context of a national move away from residential rehabilitation services as a favoured strategy in substance misuse treatment (National Drug Strategy 1993).

Some research supports the latter view. A study of petrol sniffing on the Anangu Pitjantjatjara Lands (Divakaran-Brown and Minutjukur 1993) found that people did not want children removed and 'fixed up' in places away from their 'proper country'. The establishment of a residential rehabilitation facility was not suggested by members of remote communities consulted in 1997 by Mosey over what should be done about petrol sniffing (1997, 18). However, some service providers consulted strongly expressed the need for such a facility for long-term 'chronic' and urban-based sniffers. Others argued that a residential facility was a poor use of scarce funds and would serve to isolate sniffers further from their family networks (Mosey 1997, 18).

Central Australian Aboriginal Congress, in a response to a draft of Mosey's report, argues that remote area Aboriginal people who request treatment services out bush are unaware that governments are unlikely to fund adequate services in all remote communities. Once this issue is discussed, people will opt for a town-based unit (1997a, 3). Furthermore, as Congress points out, Alice Springs is the

largest Aboriginal community in Central Australia. Many Alice Springs residents do not have access to an outstation and these people need to be resourced to deal with substance misuse problems such as sniffing. Both Congress and CAAPS stress that the willingness of remote Aboriginal people to send sniffers to town-based services at CAAAPU and CAAPS indicates that such services are acceptable to remote area people (Central Australian Aboriginal Congress 1997a; Donald 1998, 41-2). Hudson, a consultant to CAAPS in 1994, found widespread support from communities (presumably in the Top End of the Northern Territory) for an "intermediary central facility to be complemented by community based programs" (nd, 9), although she does not describe the consultations on which her finding was based. She reported that magistrates indicated that they would sentence young people to such a facility rather than to detention services.

A review of detoxification and treatment services for Aboriginal solvent abusers by the Aboriginal Drug and Alcohol Council in South Australia describes residential treatment services in other countries (Lehmann 1998). Of particular interest are eight residential treatment facilities for Indigenous youth in Canada, which the author claims appear to be highly successful (1998, 38) - in contrast with other findings from the international literature noted above (Beauvais 1997; Dinwiddie 1994).

Typical of these is the Whiskeyjack Treatment Centre, which utilises a blend of First Nation and western healing traditions. It is multi-disciplinary in approach and addresses physical, social and spiritual aspects of wellbeing through education about solvents, counselling and native healing techniques. The program accepts solvent users between 8 and 17 years of age, generally for a period of six months, and families are encouraged to be involved (Lehmann 1998, 37-41). The Okonagegayin Project, also in Canada, has a healing program for solvent abusers based on traditional healing taking place at a bush camp (Brady 1995, 1493).

Brady's insightful article 'Culture in Treatment, Culture as Treatment' warns of challenges to be negotiated in developing treatment strategies based on 'cultural healing'. She criticises a tendency within Aboriginal alcohol treatment services for relying too exclusively on a "single disease-based residential stay model" (1995c, 1496).

There appears to be some disagreement about the appropriate objectives of a town-based residential facility for petrol sniffers in Alice Springs, in particular over whether attendance should be voluntary or involuntary, and whether its purpose should be for detoxification or treatment, or both. Some view it as a service that provides short-term secure care where people could be detained to detoxify and 'sober up'. As the effects of petrol inhalation do not last longer than about six hours, this part of the process would be over relatively quickly (see Stojanovski in McFarland 1999, 31). To have more than a few hours effect, then, such a facility would have to detain people to force them to take a break from continual sniffing. Others believe that chronic sniffers could receive treatment on a voluntary basis at such a facility along the lines of that provided at residential drug and alcohol rehabilitation services, or that the facility could act as an alternative sentencing option for sniffers. A further and different need is for respite care for sniffers who have become disabled. Current thinking in Central Australia is that the establishment of such a service in Alice Springs might provide sniffers with a safe place to 'sober up' and with short-term accommodation. This service could cater for urban sniffers and also support outstation programs and would only be effective if primary and secondary interventions were also in place (McFarland 1999).

In short, there is little evidence regarding the efficacy or otherwise of residential rehabilitation programs. At the same time, while the value of residential care for rehabilitation of sniffers remains open to question, no one denies that it serves a useful purpose in offering respite to communities and parents, and to enforce a break for sniffers. However, the limited outcome data available suggests that such a use of resources for residential care, particularly if only for short-term benefit, may be less effective than a program based on recreation, community development, and individual and family counselling.

Four caveats must be added to this assessment, however. Firstly, further study of North American models may provide more information about the potential effectiveness of rehabilitation services. Secondly, in the absence of residential facilities, urban centres such as Alice Springs and other communities without outstations often have nowhere to send young people to get them away from inhalant misuse and engage them in other activities in a positive and caring environment. Thirdly, regardless of the value of residential services, safe and secure places for sobering up are required. And finally, long-term care will continue to be essential for those who have become so severely disabled that they can no longer be looked after in their communities, particularly where brain injury has rendered them unpredictable and violent.

10.2 Hospitalisation

As indicated earlier, some sniffers require hospital treatment, usually as a result of chronic intake of organic lead contained in petrol. The main hospital treatment used is chelation therapy, which involves use of a chemical compound (a chelating agent) which binds heavy metals. However, as leaded fuel is being phased out in Australia, chelation therapy will have a limited role in the future care of petrol sniffers. In Australia, chelation therapy has been used primarily in Perth and Darwin.

Chelation therapy has been extensively used in the treatment of inorganic lead poisoning, but its use as a response to organic lead poisoning has aroused controversy. Morice, Swift and Brady (1981, 29-33) argued against its use, partly in light of possible side effects of the treatment, and partly on the grounds that most of the organic lead absorbed through chronic sniffing becomes lodged in the brain, from where it is essentially irretrievable, with neurological consequences that are therefore largely irreversible. Burns (1996) cites evidence suggesting that there is a level of harm sustained beyond which it is difficult to obtain improvement. Valpey et al (1978) drew similar conclusions from a case study of a chronic sniffer admitted to hospital four times for acute encephalopathy. However, a later paper coauthored by Burns (Maruff et al 1998) notes that the severity of cognitive and neurological abnormalities is reduced by abstinence.

Brady (1992,47-52) raised concerns about possible toxicological side effects of chelation **therapy**, including its potential to increase the body's ability to absorb lead, and called for a review of **its** use in cases of petrol sniffing.

Freeman (1986) reported on two petrol sniffers from a Central Australian community who received chelation therapy in hospital. He stated that the drop in whole blood levels achieved by this method corresponded to the drop achieved by another group of five chronic sniffers who were sent to Adelaide (but not hospitalised) for two months, where they abstained from sniffing. In a gloomy

sequel, he stated that all sniffers from both groups resumed sniffing following their return to the community.

As discussed in section 8.7, the relative contribution of tetraethyl lead to sniffing related brain damage is a matter of continuing debate. Tenenbein claims that lead chelation therapy is not rational, as much of the damage is due not to lead poisoning, but to hydrocarbons present in both leaded and unleaded petrol (1997).

Goodheart and Dunne reviewed the cases of 25 patients admitted to Perth tertiary referral hospitals for petrol sniffing related illness between 1 January 1984 and 31 December 1991, 8 of whom subsequently died. They concluded that chelation therapy did little to improve the poor prognosis of petrol sniffers admitted to hospital with high blood lead levels, although they acknowledged the findings of other studies which suggested that it may have a role in the treatment of those less severely affected (1994, 181). In a later publication, Dunne states that the efficacy of chelation therapy in removing lead from the brain remains unknown; severely affected sniffers appear to gain little improvement from it, although a randomised controlled trial would be necessary to confirm this (1995).

A study of 20 petrol sniffers who received chelation therapy at Royal Darwin Hospital in 1992-93 is more optimistic. Burns and Currie (1995) found that clinicians working with hospitalised petrol sniffers with very high blood lead levels believed that patients recovered more quickly if they were given chelation therapy, but again they could not validate this without a controlled trial (Currie et al 1994). They did find, however, that petrol sniffers experienced similar reductions in blood lead levels as did people chelated with inorganic lead poisoning, for whom chelation therapy was originally developed (1995, 202). Because of the high risk of asphyxiation, Currie et al (1994) advise early evacuation of acutely affected petrol sniffers to a high dependency ward with staff experienced in the care of petrol sniffers and with access to intubation and ventilation facilities. They argue that death is not inevitable for encephalopathic chronic sniffers and that "early access to aggressive hospital management should be made available" (Currie et al 1995; Burns and Currie 1995). However, like Goodheart and Dunne (1994), Burns and Currie (1994) concluded that the role of treatments such as chelation therapy is limited and that primary preventative measures have the most potential to reduce petrol sniffing related harm.

One aspect of rehabilitation which appears to have been neglected to date, both by existing services and in the literature, is the need for intensive physiotherapy for chronic sniffers, to enable them to restore wasted muscles, regain coordination, and overcome symptoms of neuropathy. Brady (pers comm) remarks that this has become a major concern in Canada; she also reports on complaints from several Aboriginal communities that sniffers had been 'dumped' on them after being hospitalised, without any intensive physiotherapy having been undertaken, or any advice or assistance with dietary or other needs. Peggy Brown, of the successful Mount Theo Petrol Sniffer Program, advised a meeting of families working with sniffers to "work them hard: walking up the river bed a lot, wearing rucksacks on their backs with stones in" (Winbarrku Outstation Meeting 1994). Roper and Shaw (1995) also pointed out that Nganampa Health would need to examine the possibility of employing a physiotherapist to work with damaged sniffers. NPY Women's Council employs a physiotherapist in its Disability Support Program, and reports that 40 per cent of her workload is in improving mobility for damaged sniffers (Gill Shaw, pers comm).

10.3 Conclusion

It is clear that the above survey of interventions has brought to light no single off-the-shelf, comprehensive solutions to petrol sniffing. On the contrary, it indicates that many of the interventions tried have been ineffective, and that very few have been adequately monitored or evaluated. When signs of success do appear, it is often difficult to attribute outcomes to a particular intervention. Nonetheless, some communities over the past few years have significantly reduced or even eradicated petrol sniffing with some innovative and exciting programs. Past experiences hold lessons for those contemplating future interventions. In the final chapter we attempt to identify these.

11. Learning from the past

The manner in which a mind-altering substance is used in any social setting and the consequences of these patterns of usage are a product of the interrelated effects of three sets of variables, labelled by Zinberg (1979, 1984) as 'drug, set and setting'. By these he means the pharmacological-toxicological properties of the substance concerned (drug); the attributes of the persons using the substance, such as personality and physical health (set), and aspects of the social and physical environment in which consumption occurs (setting). None of these factors, by themselves, accounts adequately for the impact of a mind-altering substance on users, their families or their society.

It follows that no intervention strategy is likely to ameliorate petrol sniffing and its associated problems unless it addresses each of these factors, and the interrelated effects engendered by them. This does not mean that a single program must attempt to bring about change in all three domains, even if it could do so. But it does mean that any intervention strategy, of which particular programs will form a part, must begin by identifying the factors in each of these domains that shape the usage patterns and consequences of petrol sniffing in the community concerned.

Many of the interventions considered in the previous chapter addressed only one of the three factors: e.g. adding ethyl mercaptan to the petrol (drug), residential rehabilitation (set), or banishment to remote islands (setting). In each of these cases, lack of any significant outcome effect could be attributed, at least in part, to a failure to take account of more than one of the three sets of factors.

A critical component of successful strategies is that they enjoy strong community support and include participation by community members. Interventions proposed by the community need to complement those of families and vice versa. It follows, therefore, that community development work that enhances community cohesion, strengthens community resolve in addressing sniffing and gives the community hope is likely to contribute to helpful change. There need to be mechanisms in place for the sharing of information between and within communities so that people are aware of what has been successful in the past. Often what communities need is someone to kick-start their enthusiasm, and a process through which to work cooperatively.

In concluding this review of interventions, we summarise the findings from the previous chapters, using the 'drug/set/setting' framework with respect to primary, secondary and tertiary interventions respectively.

11. 1 Primary Intervention

Any primary intervention program must address the setting in which sniffing is liable to occur; that is, it must look to the range of opportunities and constraints that present themselves to young residents, especially the opportunities for rewarding and exciting activities.

There are many difficulties facing young people growing up on Aboriginal communities and a channelling of adult attention to these issues by communities, agencies and funding bodies may impact on 'risk' behaviours including petrol sniffing. The participation of Aboriginal elders and other community members has been a critical element of a number of programs described here.

Recreational facilities and workers not focused on sport are in short supply. Some people have suggested that youth workers on communities would be able to help young people deal with a range of issues, providing counselling and support as well as recreational opportunities.

Recreational programs have been part of most successful campaigns and have a useful primary intervention role to play, provided they meet the conditions set out in the previous chapter, namely: that staff are sensitive to the needs of the community and provide a range of programs (not just football) that are genuinely engaging and exciting, and provide opportunity for risk-taking; that activities be provided during after-school hours, at evenings and weekends, and during school holidays; that sniffers are encouraged to take part, but not given preferential treatment; and that activities for girls and young women be included in the program. Some recent programs have entailed training community workers as youth/recreation workers, and if ongoing support is provided, this is a sensible move.

Secondary education options are very limited in remote Northern Territory communities. Along with training opportunities, appropriate schooling may act as a diversion from petrol sniffing. Employment options that engage young people can make petrol sniffing relatively less attractive and perhaps foster a sense of optimism about the future. It must be remembered, however, that recreation, education, training and employment will not meet the needs for secondary and tertiary intervention measures created by the presence of chronic sniffers. In most settings, therefore, these elements should only constitute part of the intervention strategy.

Provided that factors present in the setting are addressed, then interventions focusing on the attitudes, knowledge and behaviours of individuals have a useful role to play; however, there is general agreement that young people already know that sniffing is dangerous and that strategies relying on scare tactics are likely to be counter-productive. Educational interventions are valuable, provided that: they are targeted at the community and selected groups within the community such as parents, rather than at sniffers or other young people; they promote caring and coping capacities within the community, rather than spread alarm and despondency; they are culturally appropriate; they occur in conjunction with other interventions aimed at reintegrating sniffers with their families and the community; and they are evaluated. Where aimed at sniffers, programs should focus on effects (such as decreased fitness) which are likely to be of immediate concern to young people, rather than being alarmist or focusing on dramatic consequences.

Interventions that focus on the substance itself - either by restricting its availability or adding deterrent chemicals to it - cannot be effective unless accompanied by interventions at the level of set and setting. Locking up petrol supplies or adding deterrents to petrol has not proved useful in the past. However, interventions which include restriction of access to petrol through its substitution with Avgas have been an integral part of the most successful anti-petrol sniffing campaigns over the last decade. These campaigns have not relied solely on Avgas, but have been accompanied by a concerted effort to increase recreational and employment opportunities. Substitution of leaded with unleaded petrol has been associated with a significant reduction in petrol sniffing mortality and morbidity, but this is not reason for complacency about the health effects of sniffing unleaded petrol, as the longterm effects of inhaling unleaded petrol are largely unknown.

The movement of families to outstations represents another action with useful primary preventative consequences and, within the constraints created by the need to provide services to many small, remote communities, should be encouraged. However, this action does not solve the sniffing problems of those who remain in the host community, who will therefore continue to require recreational and other programs.

Petrol sniffing is not illegal under the criminal code of any Australian jurisdiction. There is currently some dispute over whether legal sanctions have the capacity to deter sniffing. Some people (particularly Aboriginal community representatives) claim that by-laws function to reduce petrol sniffing; others believe that they either have little impact, or even serve to reduce the sense of community responsibility for addressing the issue. There has been some discussion in the Northern Territory over allowing communities to create by-laws imposing treatment orders to be served at an appropriate outstation. The usefulness of this approach, and whether indeed it is possible without police involvement, remains to be seen. Other legislative measures do not seem to reduce the incidence of petrol sniffing. Fear of incurring punishment for crimes does not seem to have a significant impact on preventing the practice, and legal prohibitions against supplying petrol for the purpose of inhalation are very difficult to enforce.

Primary preventative measures are important and should form part of any intervention strategy; they should also be monitored and evaluated. At the same time, they should not be assessed on the basis of unrealistic criteria. In general, they will not meet the needs of chronic sniffers, and they will probably not always succeed in preventing some young people from becoming chronic sniffers. Thus, however comprehensive the primary intervention program, a need will remain for secondary and, probably, tertiary measures.

11.2 Secondary intervention

Secondary intervention (also called secondary prevention or early intervention) measures directed at those who are already sniffing, in some cases heavily, should address both the needs and problems faced by the sniffer and his or her family (set) and those faced by the wider community (setting).

There is a movement among artists and community workers in Alice Springs to use tjukurpa and Aboriginal art forms (often paintings) to teach and counsel about social problems including petrol sniffing. The Intjartnama Aboriginal Corporation currently seems to be the most visible proponent of this activity, but the practice occurred previously in the work of both HALT and Petrol Link-up. The 'Brain Story' (Petrol Link-up 1994) is a widely used educational resource of this nature. While some of the paintings are produced by Aboriginal artists, other projects are developed by a range of collaborators, many of whom are non-Aboriginal, and some projects require outside funding. We could find no evaluation of these activities and resources, and culturally appropriate evaluation would be useful here. Some have expressed the need for care to be taken to ensure that projects such as these are carried out with great sensitivity and genuine Aboriginal control, otherwise they run the risk of appropriating Aboriginal culture and alienating community members.

A program involving skilled individual and family counselling, particularly if accompanied by appropriate community development, is potentially effective. It is clear that family and kin networks represent the most important vehicles for counselling and other supportive interventions, but they should not be the sole focus of attention. Discussion of counselling as a strategy should not discredit the importance of simply talking with and listening to young people and this is a vital part of many programs. Whatever methods are adopted, the goals of counselling (apart from bringing about a cessation of sniffing) should be to reintegrate the snifter with his or her family and kin network, and to promote the caring and controlling capacities present in both family and community.

Two programs to support Aboriginal people in preventing petrol sniffing have been discussed here: HALT and Petrol Link-up. While HALT had some success and may well have contributed to the long-term ability of the Yuendumu community to act against petrol sniffing, Petrol Link-up's focus on supporting community action, encouraging the development of outstation programs and acting as a conduit for information appears to have been associated with a more widespread community mobilisation and reduction in petrol sniffing. In this, the Petrol Link-up team was fortunate that its work was timed so that it was able to support the introduction of Avgas in Central Australian communities.

Where families are unable to stop substance misuse, community councils and other community organisations have an important role. However, actions are generally unsustainable without genuine community support, and communities will not act unless they regard petrol sniffing as a serious problem. When communities decide that it is time to respond, conflicts can arise between families and community power structures over what should be done and who is responsible for doing it. Community action requires much hard work and persistence. There is a clear role for community development in helping communities to come to an agreement about what should be done and then implementing decisions, and communities have indicated that this support should be funded on an ongoing basis. A process to develop the capacity of the community to act cohesively is sometimes required prior to any other interventions.

Initiation and other ceremonies may well act as a prevention measure against petrol sniffing, but it cannot be harnessed to perform this function in the service of non-Aboriginal judicial or other systems.

Despite the appeal they have for desperate elders (both Aboriginal and European), measures based upon shaming, banishing or ostracising sniffers offer little prospect of success, except (a) in the very short term and/or (b) in the unusual situation where sniffing is a new phenomenon, where most sniffers are experimenters, and where the local leaders wield a high degree of authority and administer the sanctions, (c) where a visitor to the community introduces sniffing, or (d) where there is a functional outstation program to send them to. Sanctions which further alienate sniffers from their family and community are not likely to be useful. We have found no evidence to support flogging of petrol sniffers.

Community warden schemes and night patrols have a limited but useful role, particularly if they form part of a broader strategy. If they merely bring pressure to bear on the families of sniffers, without any provision being made to assist those families, they are likely to be ineffectual. If additional measures are adopted, then warden schemes may in the short term (a) reduce the incidence of

sniffing, (b) reduce the level of sniffing related vandalism, and (c) give the community a sense that something can be done about sniffing. In the longer term they may also enhance the community's confidence and willingness to deal with other related issues.

Incarceration does not appear to help in early intervention, other than by enforcing a break for both sniffers and their communities. However, as discussed previously, some Northern Territory communities are requesting the right to make by-laws to enforce treatment orders. If this is implemented, it will be important to evaluate it carefully. There is disagreement over the efficacy of removing alleged 'ringleaders' from petrol sniffing groups, but the balance of opinion is that petrol sniffing is a group activity rather than being behaviour that is led by specific individuals, and therefore removing apparent 'ringleaders' is not usually advised.

Outstations or homelands have an important role to play in combating petrol sniffing as a primary, secondary and, for some young people, possibly also tertiary intervention. However, it is critical that such measures do not focus exclusively on the sniffer and ignore the community. Outstation programs may assist in the rehabilitation of some young people and certainly provide a restorative break from the practice; however, most will return to sniffing if complementary changes have not been made in the home community.

Where outstations are used for these purposes, they must be adequately resourced with proper access to medical support, first aid training and telecommunication facilities. Funding for essentials such as food, and in most cases salaries for staff, is also necessary for outstations to maintain a consistent capacity. Although their function in giving communities a break from sniffing is important, outstations must never merely be dumping grounds for sniffers. In particular, they are not generally appropriate places to send seriously disabled or unstable young people, and petrol sniffers must be appropriately assessed before being sent to isolated locations. Finally, they need to provide a meaningful program of activities, cultural or otherwise, to engage young people's interest.

Outstation programs depend on the ongoing commitment of a family group, and this can place a lot of strain on individuals. Outstations are an Aboriginal initiative and the needs and wishes of Aboriginal staff working at outstations must be respected. Although governments can support them, outstations must be initiated, controlled and maintained by Aboriginal people. They appear to be most successful in helping young people with family ties to the land on which they are based, and so communities made up of different language or clan groups may need a number of outstation programs. Many people do not have access to an outstation to which to send their children or, where they do, funding to sustain it, and most outstation programs need more financial support and backup than they currently receive. Two quite different outstation programs at Intjartnama and Mount Theo have been described.

Measures aimed at reducing the harm that sniffers may inflict upon themselves should be adopted as a matter of course. These were itemised in the previous chapter as: discouraging sniffers from sniffing in small, secret, enclosed spaces such as caravans and cupboards; not surprising or scaring sniffers, as sudden sniffing deaths appear to occur when sniffers receive a shock ')ump up and run away; discouraging sniffing from large containers, with larger surface areas, as the combination of a large container in a small space can prove, and has proved, fatal; not sniffing from a rag or plastic bag, or by spraying fumes into the mouth; and taking precautions against accidental burning.

Spraying inhalants directly into the mouth appears to be more dangerous than other means of inhalation. Gas fuels and aerosols are more likely to lead to 'sudden death' (although it is not known what their long-term effects are compared with petrol sniffing). This raises particular concerns for young people reported to be sniffing aerosol paints in Alice Springs. Some glues have been said to be safer than some other inhalants, but a British committee concluded that misuse of all inhalants was so hazardous that no relatively safe option could be recommended (Advisory Council on the Misuse of Drugs 1995).

Harm reduction interventions should be adopted in addition to, rather than as a substitute for, other secondary intervention measures aimed at bringing about a cessation of sniffing.

In some urban centres, simply ignoring volatile substance use can be justified as a harm minimisation approach. This is not true of Aboriginal communities, for three reasons: firstly, because young people's sniffing 'careers' tend to be more intensive and prolonged than those of urban volatile substance users; secondly, the toll in terms of social disruption, disability and death is very high; and thirdly, because the cultures within peer groups of sniffers do not seem to operate to contain the practice as they do among some other groups of young people.

11.3 Tertiary intervention

Unless primary and secondary intervention measures prove remarkably successful, a need will remain for treatment and rehabilitation programs. The main hospital treatment method for sniffers with organic lead poisoning has been chelation therapy, despite doubts as to its effectiveness in the treatment of organic lead poisoning. The role of chelation therapy in the care of petrol sniffers is decreasing with increased use of unleaded petrol. Currie et al (1994) advise airway protection, early evacuation to a high dependency ward and aggressive hospital management for acutely affected petrol sniffers.

Most of the responsibility for care of chronic and disabled sniffers falls to families, with much-needed physiotherapy and other allied health in short supply in remote communities. Most outstation programs are unsuitable places to care for very 'difficult' or brain damaged sniffers. It has been suggested that the next decade will see a significant increase in the number of disabled sniffers requiring longterm residential care (McFarland 1999).

Rehabilitation raises a number of difficult issues. The first concerns the role of residential programs. These involve treating the person outside of his or her setting. In the absence of follow-up intervention in that setting, the effectiveness of such programs appears to be very limited. A second issue concerns the theoretical models underlying rehabilitation: to what extent are residential models which have been developed primarily in the context of adult substance misuse among urban, western societies appropriate for young Aboriginal people? To what extent are addiction-based models of substance misuse relevant to petrol sniffing?

These questions cannot be answered with the information that is currently available. What is required is an assessment of rehabilitation options. Such an assessment should not be based on prior ideological commitments to particular models or theories, or on what might be possible with

unlimited funds; rather, it should be an empirically based assessment of the likely outcomes of feasible options, and comparisons should be made with outcomes obtained from alternative arrangements such as respite and dry out services and outstation programs.

The issue of rehabilitation also poses policy questions for government departments. In the Northern Territory at least, current policy favours outstation rehabilitation facilities over town-based residential services. This may be justified in the light of available evidence regarding treatment outcomes, but it also means, as pointed out earlier, that people and families without access to outstations may thereby be left without tertiary intervention options.

11.4 Conclusions

This review was written in 1989, updated initially in 1991 and again in 1999-2000. Over that period there have been fluctuations in the prevalence of petrol sniffing, a spread to some communities which previously were not affected and reductions in sniffing in others. Although sniffing remains a matter of despair for many communities and there are concerns over numbers of chronic sniffers currently acquiring brain damage, on the whole the outlook for those trying to reduce petrol sniffing appears perhaps a little brighter in than it did a decade ago. At first glance the main success stories in the prevention of petrol sniffing have been the introduction of Avgas to reduce petrol availability, the development of a few outstation programs as early intervention, detoxification and, it appears, rehabilitation programs, and reduced morbidity and mortality due to sniffing of unleaded rather than leaded petrol.

We have seen that petrol sniffing is very difficult to eradicate permanently, and no individual intervention should be judged unsuccessful for failing to stop sniffers across the continuum of use, or for all time. Although there is no blueprint for action against petrol sniffing, there are some campaigns which have managed to stop or reduce it substantially; for instance, the range of programs run at Maningrida (Burns et al 1995b) and Yuendumu (Stojanovski 1999). Programs are often developed by family groups to suit their specific context and therefore cannot be exactly reproduced elsewhere; however, factors which are believed to have led to their success can be kept in mind by others wishing to do similar work.

Those involved in the introduction of Avgas or the further development of outstation facilities stress that on their own neither is a solution to petrol sniffing. This review demonstrates that when communities have been successful in doing something about sniffing, two conditions have been present. First, there has been sufficiently strong community resolve for families and community decision-making structures to act cohesively in deciding on and supporting strategies, and community members are actively involved in implementing them. Second, not just one or two interventions are introduced but a range of concurrent activities affecting the drug, the users and the social setting in which use occurs.

Perhaps the most exciting development over the past decade has been the leadership of Aboriginal people in designing and implementing programs addressing petrol sniffing. This can be seen in the use of paintings as counselling and teaching tools, at outstation programs where the care and teaching of tribal elders is critical to the rehabilitation and reintegration of petrol sniffers, and in the strong cross-community action involved in introducing Avgas to many communities. In many ways the challenge is

to combine the old with the new, mixing strategies and practices from Aboriginal culture that are seen to help sniffers together with whatever can be found to be useful from western systems.

Aboriginal drug and alcohol policy is developed 'in the shadow' of wider Australian debates. We need to look thoughtfully at whether current policy directions (such as the move away from residential rehabilitation treatment programs and concern over problems associated with legal sanctions against drug use) are appropriate to the context of Aboriginal drug and alcohol use and misuse. We cannot be sure that developments in mainstream approaches will work for Aboriginal people - or that they are irrelevant. Similarly, where an approach has proved helpful for Aboriginal adults, we cannot assume that it will apply to the different circumstances of the younger generation. The reported experiences of other countries in addressing petrol sniffing can also usefully inform Australian initiatives, although they cannot be assumed to be directly transferable.

There remain clear gaps in the research, both here and overseas. To start with, very few Australian programs have been evaluated or reviewed. Many programs would benefit from evaluation that is sensitive to the aims of those involved, and to the constraints under which the programs operate. In particular, the respective capacities of outstation programs and town-based residential programs to rehabilitate sniffers require evaluation if their roles are to be properly recognised by funding bodies, and rational resource allocation decisions made.

Current knowledge about the pharmacology of inhalant misuse - what chemicals are responsible for causing what harms - remains patchy. We need to know more about the long-term effects of inhaling unleaded petrol, and the health impact of occasional sniffing. Further research may help people to advise sniffers which substances might be least harmful to them.

The establishment of a clearing house for literature about petrol sniffing would make the task of gathering information about petrol sniffing much less time-consuming and ad hoc. At present there are few mechanisms in place for sharing information and fostering cooperation among State and Territory government departments, Commonwealth departments and non-government agencies.

Finally, we should not lose sight of the relationship in Aboriginal communities, as elsewhere, between socioeconomic disadvantage and volatile substance misuse. We believe that strategies which improve young Aboriginal people's lives and the health and wellbeing of their families and communities will be most effective in combating substance misuse among young people. Recreational, educational and employment opportunities, funding for youth workers on remote communities, parental and community attention and the positive regard of the wider Australian community are critical in giving young people engaging things to do with their lives and a sense of optimism that such activities can be part of a meaningful future.

12. Appendix One., Organisations contacted in updating this review

- Aboriginal Drug and Alcohol Council of South Australia
- Aboriginal health or drug and alcohol sections of the South Australian, West Australian, New South Wales and Queensland Governments
- Alcohol and Drug Council of Australia
- Alice Springs Youth Accommodation and Support Service
- Anyinginyi Congress
- Apunipma Cape York Health Council
- Arranda House
- Australian Drug Foundation
- Australian Institute of Aboriginal and Torres Strait Islander Studies
- Central Australian Aboriginal Alcohol Programs Unit
- Central Australian Aboriginal Congress
- Central Australian Inhalant Substance Abuse Network
- Council for Aboriginal Alcohol Program Services
- Danila Dilba Medical Service
- Drug and Alcohol Services Association, Alice Springs
- Intjartnama Aboriginal Corporation
- Menzies School for Health Research
- Miwatj Health Aboriginal Corporation
- Mount Theo Outstation Program
- National Centre for Research into the Prevention of Drug Abuse
- Ngaanyatjarra Health Service
- Ngaanyatjarra Pitiantjatjara Yankunytjatjara (NPY) Women's Council
- Nganampa Health Council
- Office of Aboriginal and Torres Strait Islander Health Services of the Commonwealth Department of Human Services and Health

- Pitjantjatjara Council
- Tangentyere Council
- Territory Health Services: Alcohol and Other Drugs Program, Alcohol and other Drug Services and Central Australian Alcohol and Other Drug Services
- Waljarta Pitjantjatjara Palyapayi
- Wurli Wurlijang Health Service
- Yalata Maralinga Health Service

13. Appendix Two.. Definitions of petroleum

Fuel	Composition	Purpose
petrol	Petrol is a processed blend of volatile (evaporative) products of crude oil distillation. Petrol is made up of a mixture of different aromatic hydrocarbons (including toluene, benzene and xylene) and naphthalenes, paraffins and alkenes (Goodheart & Dunne 1994)	Petrol is used to power cars, trucks, tractors, motor bikes, portable generators and stationary equipment. With the addition of two stroke oils in a required ratio it can be used in two stroke engines for lawn mowers, brush cutters, chain saws and outboard motors. As petrol is volatile, it can mix with air in an engine to combust (BP 1999a)
leaded petrol (Super)	Petrol with added organic lead (tetraethyl lead). Lead is added as an “anti knock” agent. Lead additives boost octane levels to; optimise engine efficiency.	Most cars manufactured before 1986 run on leaded petrol. Specialised non-leaded petrols have now been designed for use in pre-1986 cars.
unleaded petrol	Petrol without lead. Some brands contain additives to keep inlet valves and injectors clean (BP 1999a). Others increase levels of toluene and benzene or add additional components to boost octane levels (Tenenbein 1997)	Unleaded petrol was introduced in 1986 to allow new vehicles to be fitted with catalytic converters in accordance with the 1986 Australian Design Rules. The rules are codified in State/Territory legislation. Most vehicles produced since 1986 are designed to run on unleaded fuel. Catalytic converters substantially reduce fuel emissions (BP 1999a).
diesel fuel	High density fuel	Designed for use in high-speed diesel engines (cannot be used in engines designed for petrol).
Avgas/ Comgas	Comgas is a name for Avgas (aviation fuel), supplied to assist prevention of petrol sniffing. It has a low volatility, which makes it more difficult to sniff, and 'contains higher levels of lead and octane than leaded petrol (BP 1999b). There is a range of blends with various levels of toxic components.	Developed for high performance engines with high compression rates. Comgas will perform exactly as leaded super petrol in car engines with no change required to engine tune. It is suitable for all pre- 1 986 cars as well as two stroke engines.' Avgas/Comgas can also be used in vehicles designed for unleaded fuel. It will not damage the engine; however, catalytic converters and oxygen sensors fitted to minimise exhaust emissions will be affected after a period of use, with some impact on vehicle function.' Rebates are available for fuel excise paid on Avgas/Comgas for approved use (BP 1999b).

'Lead fouling of spark plugs may occur in two stroke engines designed for leaded or unloaded fuel.

'Deterioration of the catalytic converter will increase exhaust emissions. Deterioration of the oxygen sensor may eventually cause an increase in fuel **consumption** or rough running (BP 1999b).

14. Endnotes

1. The CRCATH is a joint initiative of six institutions, namely, Danila Dilba Medical Service, Central Australian Aboriginal Congress, the MSHR, the Northern Territory University, Flinders University of South Australia and THS.
2. Also published in Garrow and Mosey 1999.
3. In this review we generally refer to 'young people' or 'youth' when talking about petrol sniffers. We recognise, however, that these concepts have different meanings for Aboriginal and European societies.
4. Surveys of all school students over a certain age can be misleading, insofar as experimental sniffing tends to occur among younger secondary school students, many of whom leave school upon passing the minimum leaving age.
5. In April 2000 there were 68 Aboriginal communities in the Northern Territory that had a population of more than one hundred.
6. Also published in Garrow and Mosey 1999.
7. See also section 8.6.
8. See section 8.2 Recreational Programs.
9. As noted in the introduction, the purpose of this review is not to provide specialist medical and scientific information about petrol sniffing related morbidity and mortality or treatment. Information of this nature can be found in the following references: Goodheart and Dunne 1994; White and Proctor 1997; Tenenbein 1997; Johns 1991; Flanagan and Ives 1994; Chalmers 1991; Dinwiddie 1994; Burns and Currie 1995; Maruff et al 1998; Brady and Torzillo 1995; Adgey et al 1995.
10. See also the discussion on unleaded petrol in section 8.7,
11. See section 10.2.
12. See section 9.3.
13. See Currie et al 1994.
14. McFarland does not define 'disabled' here.
15. See section 9.3 - discussion of the Healthy Aboriginal Life Team (HALT).

16. Rose and Midford (1994) provide advice to workers who are asked to speak to the media about solvent misuse.
17. See Appendix Two for definition of Avgas.
18. Discussed under section 8.2.
19. See section 10. 1.
20. Some of the community resources described in section 9.1 are likely to be relevant to parents. See also discussion of HALT in section 9.3.
21. See Appendix Two - Definitions of petroleum products.
22. See section 8.7.
23. See section 9.5.
24. The proposed by-laws are discussed in greater detail in section 9.9 jail, treatment orders and other statutory sanctions.
25. Tjukurpa has been defined as:
 - i story; tjukurpa numutjara 'a story about mamu (monsters)'; tjukur kura-kura panya, yankunyntja yankunyntja nyinanyntja murka'ordinary unimportant stories, about comings and goings, various activities'.
 - ii Dreaming, Law (often, and appropriately, spelt with a capital letter in this usage). Note that there seems to be an emerging Aboriginal preference for this use of the word not to be given an English equivalent at all; wati Tjukurpa, tjalku nyinanyntja. Tjalku Tjukurpa'this is where a Dreaming man, a bilby camped. It's bilby Dreaming'.
 - iii individual word; wiya, ngunti palatja. Tjukurpa wiya'no that's wrong. That's not a word' (e.g. of a language learner's mistake) -
 - iv what someone says, things said; palu tjukur ngayulu wangkanyntja wiya'of course I can't say a thing' (to my father-in-law)...
 - v birthmark, wart. Regarded as something distinctive and personal (Institute for Aboriginal Development 1987, 145).

Tjukurpa has various spellings.

26. Thanks to Craig San Roque for condensed explications of paintings discussed here.
27. See section 9. 1 0 Outstations.

28. See section 9.8 Community warden schemes, night patrols and police aides.
29. See discussion of Avgas/Comgas in section 8.6.
30. This camp is discussed in the video 'Petrola Wanti Petrol Story 1993-94' (Yalata Maralinga Health Service 1994).
31. See discussion in section 9.1 Using Aboriginal Culture and Symbolism.

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