National Heroin Overdose Strategy

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Purpose

This National Heroin Overdose Strategy identifies nationally agreed priorities for reducing the incidence of heroin related overdose in Australia and for reducing morbidity and mortality where overdose does occur. The Strategy recognises that overdose has been identified as a key priority, both nationally and in particular jurisdictions, and seeks to build on and complement the work already underway, including that identified in related strategies such as the National Action Plan on Illicit Drugs, National Action Plan on Alcohol, National Mental Health Strategy and the Quality Use of Benzodiazepines Implementation Plan. The Strategy in no way condones the use of heroin and other illicit drugs, but rather identifies an effective, coherent, coordinated national response to overdose. In this regard, it complements and supports supply reduction and demand reduction strategies, including primary prevention initiatives that aim to reduce the uptake of heroin in our communities, as outlined in the National Drug Strategic Framework 1998-99 to 2002-03.

This Strategy has been prepared under the direction of the Ministerial Council on Drug Strategy, which brings together Commonwealth, State and Territory Ministers responsible for health and law enforcement to collectively determine national policies and programs designed to reduce the harms caused by drugs to individuals, families and communities in Australia. (Commonwealth, 1998)

The Strategy is comprised of three documents: this plan, which outlines priorities for action and examples of strategies, a foldout summary of the Strategy for quick reference and a companion document, commissioned by the Australian National Council on Drugs, that outlines the epidemiology of overdose in Australia and summarises the evidence regarding consequences and effective interventions. The target audience for this document is not simply government officials but also service providers, local councils, community groups, non-government organisations, families and people who use drugs.

While this Strategy is titled the National Heroin Overdose Strategy, it is recognised that a range of opioids are involved in overdose including methadone and morphine. This Strategy therefore encompasses all opioids. "Heroin" is used as a shorthand for the more technically correct "opioids" because the latter term is not widely understood by the public. It is further recognised that polydrug use plays a major role in overdose fatalities, particularly the use of central nervous system depressants such as alcohol and/or benzodiazepines in combination with opioids.

As a document that sets national direction, this National Heroin Overdose Strategy is not intended to be prescriptive or to define detailed, specific implementation strategies or timelines. Instead, it specifies priority areas for preventing overdose and reducing morbidity and mortality where overdose does occur. It provides examples of strategies to address each of the priorities. The Strategy thus provides a nationally consistent focus for determining resourcing priorities and also the flexibility to allow jurisdictions to pursue strategies appropriate to their particular circumstances.

The effectiveness of the National Heroin Overdose Strategy depends on cooperation between and within a wide range of sectors of Australian society – across the three tiers of government; between governments, community-based organisations and industry; between unions and employers; between health and welfare, law enforcement and education professionals; with families and communities; drug users and drug user organisations; and with all those affected by overdose.

Introduction

The 1998 National Drug Strategy Household Survey found that 2% of Australians had reported using heroin at some time in their life. This finding is similar to the last five surveys, conducted between 1985 and 1995, which have consistently reported lifetime population prevalence of heroin use at between 1 to 2%. In respect to recent use of heroin, the 1998 Household Survey found that 0.8% of those surveyed reported heroin use in the 12 months preceding the survey. Heroin use was more common amongst males and amongst those aged 20-29 years.

While there are many adverse health consequences associated with using heroin, including dependence, contracting blood borne infectious diseases through sharing injecting equipment, and premature mortality from a range of causes, overdose remains the major cause of death among heroin users in Australia and elsewhere. Over the last decade there has been a steady increase in the number of heroin related deaths. The Australian Illicit Drug Report (AIDR) 1999-00 indicates that in 1991, there were approximately 250 overdose deaths in Australia. In 1997, there were 600 overdose deaths in Australia, which accounted for 7.3% of all deaths among 15-44 year olds, 80% of all illicit drug deaths and 27% of all drug related deaths (McKetin et al, 1999). In 1998, 737 people died in Australia as a result of heroin related overdose, 23% more than in 1997 (McCormack, 1999). While in 1999, there were a total of 958 deaths attributable to opioid overdose among those aged 15 to 44 years (Warner-Smith M et al, 2000).

While heroin related overdose deaths are relatively small in number in comparison to the number of deaths arising from alcohol or tobacco abuse, they account for a significant number of potential life years lost. Given that the average age of those who die from heroin related overdose is 30 years, the potential life years lost per premature death is greater than that associated with death resulting from tobacco or alcohol abuse. In Australia it has been estimated (using 1992 data) that overdose deaths represent over 20,000 years of life lost (Warner-Smith M et al, 2000). According to the 1999 report from the Australian Institute of Health and Welfare on the burden of disease and injury in Australia, there has been significant increases in mortality burden from heroin dependence and abuse in both males and females. Heroin overdose deaths are in the top 20 causes of years of life lost for males, resulting in almost as many years of life lost as HIV/AIDS or leukemia. Heroin dependence and harmful use is the fifth leading cause of disease burden for 15-24 year olds, accounting for 6% of the total disease burden for this age group (Mathers, Vos, Stevenson, 1999).

Non–fatal overdose is also common among heroin users. It has been estimated that between 12,000 – 21,000 non-fatal overdoses occur in Australia every year. Non-fatal opioid overdose can result in significant permanent morbidity such as brain damage (Warner-Smith M et al, 2000). Up to 60% of heroin users report having experienced at least one overdose while up to

70% have witnessed an overdose (Gossop et al, 1996; Darke and Ross, 1997; McGregor et al, 1988; Loxley and Davidson, 1998; Strang et al, 1999). Medical morbidity associated with non-fatal overdose may include pulmonary, cardiac, muscular and neurological complications (Warner-Smith M et al, 2000). The broad range of possible complications arising from overdose combined with the high incidence of non-fatal overdose points to a significant burden of morbidity associated with overdose in the heroin using population. Research indicates a lack of knowledge and understanding on the part of opioid users with regard to the range of medical complications that can result from non-fatal overdose, however the prospect of harmful neurological effects may be a more frightening consequence to users than the possibility of death (VIVAIDS, 2000). Research further indicates that morbidity is likely to be greater among older, more experienced and more dependent users (Warner-Smith M et al, 2000).

While overdose related morbidity has a major impact on the individual and their family and friends, it also impacts on the broader community as it may reduce the individual's capacity to participate fully as a community member and have cost implications for the public health system. While it is difficult to quantify the health care costs associated with treating heroin related overdose, Zook and Moore (1980) have estimated that drug users are high cost consumers of health care and that treatment for potential complications of overdose are likely to be relatively expensive. It has been estimated that the cost of ambulance attendance at overdoses in Australia in 1998-1999 was $7.7 million (Warner-Smith M et al, 2000).

As indicated above, the wider social and community consequences of overdose can be far-reaching, impacting on the families and friends of overdose victims, including their children; the public health system; and the broader community. This Strategy recognises that overdose and its associated consequences are preventable.

Many jurisdictions have already developed a range of strategies aimed at preventing overdose and/or improving the management of overdose incidents when they occur. It is important that strategies are evaluated in order to gain evidence of their effectiveness in preventing overdose and/or reducing morbidity. Some of the strategies that have been developed include peer education, support and follow-up programs, increased access to treatment, increased collaboration between law enforcement and health workers, changes in ambulance and police protocols for dealing with overdose situations, and intervention programs in hospital emergency departments. However, despite these efforts, there continues to be a high rate of mortality caused by heroin overdose.

The National Heroin Overdose Strategy aims to build on existing activity to address the complex issues associated with heroin related overdose. Clearly, there are no simple answers to address this epidemic. It is a complex problem with multiple risk factors and requires a range of coordinated, complementary intervention strategies. This can only be achieved through a partnership approach – a close working relationship between the Commonwealth, State and Territory, and local governments, drug user organisations, people who use drugs and others affected by overdose, business and industry, professional workers and research institutions.

Key Strategy Areas

Two key strategy areas have been identified for this National Heroin Overdose Strategy:

- preventing heroin related overdose; and
- improving the management of overdose.

In response to each key strategy area, the Strategy identifies a set of objectives, key action areas and examples of strategies to achieve the identified objectives.

1. Key Strategy Area: Preventing Heroin Related Overdose

In order to prevent heroin related overdose, it is important to increase understanding of the range of issues that are known to contribute to overdose, undertake research to fill identified gaps, and develop appropriate prevention programs that are based on evidence. While this document outlines examples of strategies to prevent overdose and improve its management among existing illicit drug users, it is recognised that preventing uptake to illicit drug use will result in a decrease in overdose, as the number of illicit drug users decreases. As such, this document complements, and is supported by, initiatives under the National Drug Strategic Framework that seek to reduce uptake to drug use.

This will involve the pursuit of partnerships between individuals, people who use drugs and others affected by overdose, families, communities, police, business and industry, service providers, local government and researchers to develop strategies for reducing the occurrence of fatal and non-fatal overdose. It is important to engage drug users in the development of strategies as this may enhance uptake and effectiveness, and accordingly drug users, and drug user organisations have an important role to play in this Strategy.

Risk Factors

The injecting environment has been shown to have an impact on the likelihood of overdose. Contrary to popular belief, the majority of overdose deaths occur in the home of the user. However, those who inject in public places are also at risk of overdose, as the injecting is often hurried and provides users with little control over the administration of their drug. Injecting heroin alone has long been identified as a risky behaviour that all but eliminates the possibility of help from others in seeking medical assistance. However, injecting with other people is not risk free – McGregor et al (1998) found that an ambulance was called in only a minority of cases of fatal overdose, even though others were present in two thirds of cases. A delay in seeking medical assistance is a significant risk factor in fatal overdose, as death rarely occurs immediately and there is often time to intervene (Hall, Lynskey, Degenhardt, 1999). Prompt and appropriate bystander intervention and the provision of basic life support before the arrival of ambulance paramedics are essential components in reducing the death rate of those suffering an opioid overdose.

McGregor et al (1998) found that fear of police involvement was a major factor in reluctance to call an ambulance, while Loxley and Davidson (1998) found that young users in Western

Australia were more concerned that their parents or welfare would be informed if they were taken to hospital. As such, one strategy available to police to reduce the risk of overdose mortality concerns their approach to illicit drug overdose situations. Many jurisdictions have encouraged police to use their discretion and overlook self-administration or simple possession offences in these situations. In this way it was hoped to remove the fear of prosecution and therefore encourage individuals present at the scene of an overdose to call an ambulance immediately. Many jurisdictions now have formal police policies in relation to overdose situations (Australasian Centre for Policing Research, 2000).

In addition, studies have shown that it is common for drug users to refuse transport to hospital following the administration of naloxone. This refusal of transportation may be linked to user perception and experience of negative treatment in emergency departments. The cost of ambulance attendance at an overdose may also act as a barrier for seeking medical assistance. A strategy being developed and pursued in Victoria involves the establishment of Mobile Overdose Response Services to support the Ambulance Service in preventing and responding to overdose and providing follow-up services (including the provision of support, information and assistance with access to treatment services for overdose survivors) (State Government Victoria, 2000). It should be noted that each jurisdiction has different approaches in relation to further medical attention following ambulance attendance. For example, overdose victims in the Australian Capital Territory are virtually never transported to hospital, however, in Western Australia the reverse is true (Williams and Urbas, 2001).

The risk of overdose also increases with duration of use, with older more experienced users having higher rates of overdose than younger, less experienced users. Males account for the majority of heroin related deaths (McKetin, Darke, 2000), and there is a relationship between mental health and drug overdose, particularly with regards to suicide. The distinction between accidental and intentional overdoses is not always easily made but the majority of fatal and non-fatal overdoses are probably unintentional. Heroin dependent persons are nonetheless at increased risk of suicide and those who have had a non-fatal overdose are at even higher risk of suicide (Darke S, Ross J, 2000). It therefore appears that non-intentional overdose and suicide attempts are risk markers for each other (Vingoe L et al, 1999). The specific issue of mental health and drug abuse is incorporated in the National Mental Health Strategy, the National Suicide Prevention Strategy, and the National Drug Strategic Framework 1998-99 to 2002-03.

Injecting is currently the most prevalent route of administration of heroin, although there has been a reported increase in the prevalence of smoking rather than injecting, particularly among Indo-Chinese users in the Sydney region (Warner-Smith M, 2000). Injecting is substantially more dangerous than non-injecting routes of administration in terms of overdose (and other health risks). However, heroin overdose deaths are not restricted to the injection of heroin - current data indicates that there is no safe, overdose free way to use heroin (Darke, Ross, Zador, Sunjic, 2000).

There is a moderate correlation between heroin purity and overdose deaths. This is contrary to the common assumption that overdose is the result of an increased dose or an unusually pure batch of heroin. Variations in purity can cause overdoses but they do not appear to be a major factor of fatal overdoses (Hall, 1996). The risk of overdose is significantly increased however if other drugs are used in addition to heroin. The use of Central Nervous System (CNS) depressants, particularly alcohol and benzodiazepines with opioids, markedly increases the risk of overdose.

Darke and Ross (1999) found that in their NSW sample two thirds of deaths were associated with heroin plus other drugs. Of these 40% involved alcohol, 30% benzodiazepines and 9% antidepressants. Furthermore, when high blood alcohol concentrations or benzodiazepines are detected in victims of fatal overdose, blood morphine levels tend to be lower than the fatal level for naive individuals (Hall, Degenhardt and Lynsky 1999a). The increasing trend for users to inject drugs such as benzodiazepines, which are designed for oral administration, has also been associated with increased risk of overdose. The specific issue of benzodiazepines and overdose is also incorporated in the Quality Use of Benzodiazepines Implementation Plan.

A further risk factor for overdose is loss of tolerance to opioids. Studies in NSW and SA found that 7-12% of victims of fatal overdose had recently been released from prison and small numbers had resumed use after abstinence based treatment (McGregor, 1999; Darke and Ross, 1999). Findings from hair analysis to measure hair morphine levels provide added support for the importance of lowered tolerance after abstinence as a risk factor for overdose death. Hair morphine content in those who had died was significantly lower than that in current users, but was similar to former users, suggesting a reduction in heroin use in the month prior to death (Tagliaro et al, 1998) (Darke, Hall, Kaye, Ross, DuFlou, 2000). Lowering of tolerance most often occurs as a result of either a short-term reduction or cessation of drug use. Smaller quantities of a drug may have an increased effect following a reduction in use or a period of cessation of drug use. As such, individuals who have a reduced tolerance to opioids, such as those being released from prison, or who have been through detoxification, abstinence based treatment or naltrexone maintenance, are at particular risk of fatal and non-fatal overdose if they resume heroin use.

Protective Factors

A known protective factor for overdose is participation in methadone maintenance treatment. Follow up of cohorts of users admitted to methadone maintenance in the early 1970's found that subjects were 3-4 times as likely to die when not in treatment than when they were receiving methadone maintenance (Caplehorn et al 1994, 1996). Subjects who completed a methadone maintenance program and were voluntarily discharged had low rates of death similar to those in treatment, while those who were involuntarily discharged had similar death rates to untreated controls (White, 1997). While methadone maintenance is protective overall, there is a risk of accidental overdose particularly during the induction phase. There is, therefore, a need for careful prescribing and monitoring of clients to reduce the risk of accidental death during this period (Preston, 1996).

Other pharmacological treatments such as buprenorphine maintenance may confer similar protection to methadone. The rate of death due to heroin overdose in France has decreased sharply in recent years, coincident with the introduction of readily available buprenorphine treatment, although it is difficult to determine whether the introduction of buprenorphine treatment is causally related to the reduction in overdose deaths (Auriacombe et al, 1999).

PREVENTING HEROIN RELATED OVERDOSE *

What is to be achieved	Key action areas	Examples of Strategies
Reduction in the incidence of fatal and non-fatal heroin related overdoses	Increase the number of drug users entering and remaining in drug treatment	Provide timely access to a diverse range of evidence based treatment services for opioid users, including pharmacotherapies. Implement programs that will result in the diversion of opioid users away from the criminal justice system into treatment. Expand the provision of drug treatment services within prisons, including methadone maintenance treatment. Ensure that prison treatment services are linked with drug treatment services in the community. Provide priority access to drug treatment programs for individuals being released from prison. Undertake research to identify factors that act as barriers to, or facilitate entering and remaining in drug treatment (including issues affecting specific population groups such as people from culturally and linguistically diverse backgrounds, Aboriginal and Torres Strait Islander peoples etc).

What is to be achieved	Key action areas	Examples of Strategies
	Assist drug users to reduce their risk of overdose and increase awareness regarding the consequences of overdose	Provide information to opioid users through a range of means, including peer education, regarding factors that contribute to overdose or death from overdose and the potential consequences of overdose. Such information should address: • Factors such as polydrug use, using alone, using following a period of abstinence etc, and • Possible consequences of non-fatal overdose, including the risk of long term disability resulting from, for example, neurological or muscular complications. Provide education to families and friends of opioid users, needle and syringe program workers, health workers, police and others who regularly come into contact with opioid users, regarding factors which increase or reduce the risk of overdose. Education materials need to be appropriately disseminated using a range of mediums and produced in commonly spoken languages. Provide targeted education to general practitioners on the factors impacting on overdose. This education should include advice on appropriate prescribing practices aimed at reducing the risk of overdose by injecting drug users.

What is to be achieved	Key action areas	Examples of Strategies
		Engage drug users, drug user organisations and families and friends in the development of education programs to ensure that they adequately reflect target group needs. Develop pre-release and post-release education, information and support programs for prisoners and individuals completing detoxification programs. Disseminate to opioid users and their families and friends, information on the increased risk of overdose where opioids are consumed following use of naltrexone. Develop an information kit on overdose for the media to improve the accuracy of reporting and reduce the spread of misinformation, which may put users at greater risk. For example, responsible reporting on new pharmacotherapies. Assess existing offences of self administration to determine their impact on overdose.

What is to be achieved	Key action areas	Examples of Strategies
	Improve the evidence base to inform strategies and programs to reduce overdose	Undertake research into key areas such as: • Evaluation of the impact of police protocols, and other policing strategies on the attitudes and behaviours of users, including the potential to deter users from contacting emergency services in an overdose situation; • The role of ambulance officers in attending and treating overdoses and outcomes for clients managed at the scene of overdose versus hospital admission; • Assessment of whether there is any relationship between presence of active hepatitis infection in drug users and incidence or outcome of overdose; • Evaluation of the impact of supervised injecting facilities, if introduced, on the prevalence of overdose; • The role of concurrent drug use, including tricyclic anti-depressants and other drugs, in overdose; • An exploration of the relative impact of particular behaviours on the occurrence of overdose – through systematic research into circumstances surrounding non-fatal and fatal overdose;

What is to be achieved	Key action areas	Examples of Strategies
	Increase the timeliness and reliability of data in respect to overdose	• The relationship between local street heroin markets, purchasing decisions, consumption and overdose; • The pharmacokinetics of heroin in heroin-dependent people in order to increase understanding of the nature and development of tolerance in heroin users; • The impact of periods of abstinence on risk of overdose, including the impact of naltrexone treatment; • Investigations of interactions between stimulant drugs and CNS depressants in terms of impact on overdose (eg. increased or decreased risk); and • Barriers to seeking medical assistance when overdose occurs. Encourage uniformity in coronial reporting of overdose deaths through further development and ongoing support of an illicit drugs module in the National Coroners' Information System. Implement or maintain data collections on overdose from ambulance services, police services and hospital emergency departments.

* Note: The determinants of overdose are multiple, interactive and complex. It follows that effective policies and strategies to prevent overdose or improve the management of overdose must match this complexity. The key strategy areas are not mutually exclusive, and actions and strategies listed in one area may also affect other strategies. The plan is not intended to be prescriptive, and provides only examples of strategies, allowing flexibility for sectors to respond to community needs. Since integrated action is needed to address overdose, implementing most actions and strategies relies on partnerships across all levels of government, the non-government sector, drug users and drug user organisations and communities and families. In recognition of this, actions have not been designated to particular groups or agencies.

2. Key Strategy Area: Improving the Management of Overdose

Despite significant efforts to prevent overdose, rates of overdose and deaths from overdose continue to rise. Research indicates that approximately 60% of overdose deaths occur in the presence of others (Darke and Zador, 1996; Darke and Ross, 1996) and sudden death immediately after injecting is rare, occurring in about 15% of cases (Zador et al 1996), suggesting opportunities for intervention. Despite this, research has indicated that there is no intervention before death in up to 79% of cases (Darke and Zador, 1996). Accordingly, strategies that improve the management of overdose, thus reducing overdose related morbidity and the risk of fatality need to be further developed, trialed and evaluated.

Recognition that overdose has occurred is a vital first step in appropriate management. While users' recognition of the symptoms of overdose is generally high, many are unaware of the significance of snoring and noisy breathing in those who are asleep (McGregor et al, 1999). Non drug using family and friends may be less able to recognise overdose symptoms and thus delay seeking assistance.

As indicated above, those present at an overdose are often reluctant to seek medical assistance. According to a study by the Australian Institute of Criminology, using data from the 1998 National Drug Strategy Household Survey, one in five (21.7%) witnesses to heroin overdose did not call for medical assistance because they "didn't want to get involved", and another third (39.6%) thought they were "capable of handling the overdose" (Williams and Urbas, 2001). Other reasons for not calling an ambulance include fear of police involvement, ambulance costs and previous negative experiences with hospital staff (Gore, 1997). Police protocols in most jurisdictions explicitly note this fear and express a commitment to harm reduction and a focus on suppliers rather than users. In several states police only attend an overdose if a death has occurred or ambulance personnel request support (Collins, 2000). Analysis of police actions at 81 suspected overdose events in Cabramatta indicated that police called the ambulance and/or rendered first aid in over half the cases of non-fatal overdose and that no charges were laid in 62% of cases.

Prompt and appropriate bystander intervention and the provision of basic life support before the arrival of ambulance paramedics are essential components in reducing the death rate of those suffering a potentially fatal opioid overdose. A study conducted by the National Drug Research Institute found that breathing assistance was only employed in 24% of cases and the coma position in only 2% of cases where respondents had witnessed an overdose. Emphasising the importance of expired air resuscitation and airway maintenance as an overdose management strategy may improve the outcome for many of those who experience an overdose.

Presentations at hospital emergency departments for treatment of overdose provide a unique opportunity for intervention with drug users who may have no other contact with health and welfare services (Davidson, 1999), yet it is common for drug users to refuse transport to hospital following an overdose. This puts users at risk, as the potential for a further overdose exists if long acting opioids such as methadone are involved or the person administers more drugs. It also reduces opportunities for the provision of appropriate support and follow up post overdose.

A number of programs throughout Australia have indicated possible benefits from following up users post overdose. The Opioid Overdose Prevention Strategy (OOPS) in WA has developed a project to provide peer support and follow-up to users discharged from hospital emergency departments following treatment for overdose. Acceptance of the project by both users and hospital staff has been high and there are indications that the program has increased the likelihood that users will call an ambulance as a first response to another's overdose and that it has reduced the frequency of overdose among those who have received the intervention (Davidson, 1999).

Since the early 1990s some experts have suggested naloxone hydrochloride (Narcan), which has long been used to treat opioid overdose, should be provided to heroin users for administration by their peers in an overdose situation (Darke, Hall, 1997; Strang, Farrell, 1992; McGregor, Darke, Ali, Christie, 1998; Strang, Darke, Hall, Farrell, Ali, 1996; Strang, Powis, Best, Vingoe, Griffiths, Taylor, Welch, Gossop, 1999). Recent experience of naloxone provision to heroin users in other countries suggests that the provision of naloxone for peer administration may impact on overdose fatalities, however a carefully controlled trial would be a first step (Lenton, Hargreaves, 2000).

IMPROVING THE MANAGEMENT OF OVERDOSE*

What is to be achieved	Key action areas	Examples of Strategies
Reduction in overdose related morbidity and mortality	Increase the confidence of drug users, family and friends in respect to identifying and managing an overdose	Widely disseminate information to opioid users, family and friends on the signs and symptoms of overdose and actions to take should an overdose occur. Such information should: • Clearly articulate the signs and symptoms of overdose, including the significance of snoring and noisy breathing in those who are asleep; • Address barriers to bystanders seeking medical assistance, including clarifying the circumstances under which ambulance services may call on police to attend drug overdoses; • Emphasise the importance of basic life support while waiting for medical assistance; and • Articulate the need for longer term supervision post-recovery, as there is a risk of a second overdose where long acting opioids, such as methadone, have been consumed or where other drugs, such as alcohol and benzodiazepines, are involved.

IMPROVING THE MANAGEMENT OF OVERDOSE*

What is to be achieved	Key action areas	Examples of Strategies
		Encourage opioid users, family (including children of users), friends and the wider community to undertake training in basic life support that would assist in an overdose situation, such as maintaining an airway, expired air resuscitation etc. Such training could be provided through existing treatment services, such as methadone maintenance and needle and syringe programs.
	Increase the confidence of opioid users, family and friends in contacting emergency services in the event of an overdose	Development of protocols between police and ambulance services which clarify the circumstances under which ambulance services may call on police to attend drug overdoses. Development of police protocols for attendance at overdose (whether called by ambulance or other means), including use of discretion. Development of clinical protocols, supported by training which addresses attitudes, knowledge and skills, for accident and emergency workers in respect to managing overdose.

IMPROVING THE MANAGEMENT OF OVERDOSE*

What is to be achieved	Key action areas	Examples of Strategies
		Development of local level partnerships between police, paramedics, accident and emergency staff and specialist drug treatment services which encourage provision of information, referral and follow-up of opioid users who experience an overdose.
	Development of evidence base to inform improved management of overdose	Consider conducting carefully evaluated trials of peer administered naloxone. Develop, implement and evaluate follow up support programs for those who experience an overdose, or others that may be affected by witnessing an overdose.

* Note: The determinants of overdose are multiple, interactive and complex. It follows that effective policies and strategies to prevent overdose or improve the management of overdose must match this complexity. The key strategy areas are not mutually exclusive, and actions and strategies listed in one area may also affect other strategies. The plan is not intended to be prescriptive, and provides only examples of strategies, allowing flexibility for sectors to respond to community needs. Since integrated action is needed to address overdose, implementing most actions and strategies relies on partnerships across all levels of government, the non-government sector, drug users and drug user organisations and communities and families. In recognition of this, actions have not been designated to particular groups or agencies.

Performance Measurement

A number of monitoring and performance measures will be used to assess the effectiveness of efforts to reduce overdose in Australia. These measures will be based on analysis of existing data sets and consistent with measures identified in other related strategies such as the National Action Plan on Illicit Drugs.

Performance Measure	Data Source	Frequency of Data Collection
• Number of fatal overdoses	• Australian Bureau of Statistics • National Coroners' Information System (Illicit Drug Module)	Annually
• Trends in self-reported overdose	• Illicit Drug Reporting System (IDRS)	Annually
• Trends in ambulance call outs to overdose	• Ambulance Services	Annually

Reporting of achievements in respect to the strategy will form part of the annual report to the Ministerial Council on Drug Strategy regarding progress under the National Drug Strategic Framework.

References

Australasian Centre for Policing Research. 2000 'The role of police in reducing harmful illicit drug use practices'. Drug Policy Subcommittee of the Conference of Commissioners of Police of Australasia and the South West Pacific Region

Auriacombe M, Franques P, Daulaouede J-P, Tignol J. 1999 'The French Experience' *Research and Clinical Forums* 21(3) 9-16

Benzodiazepines Working Party to the Pharmaceutical Health and Rational Use of Medicines (PHARM) Committee. 2000 'Quality use of benzodiazepines – an implementation plan'

Caplehorn JRM, Dalton SYN et al, 1994 'Retention in methadone maintenance and heroin addicts risk death' *Addiction* 89: 203-207

Caplehorn J et al. 1996 'Methadone maintenance and heroin users risk of fatal heroin overdose' *Substance Use and Misuse* 31(2): 177-196

Commonwealth Department of Health and Aged Care, 1998 'National Drug Strategic Framework 1998-99 to 2002-03'

Commonwealth Department of Health and Aged Care. 2000 'Submission to the House of Representatives Standing Committee on Family and Community Affairs Inquiry into Substance Abuse in Australian Communities'

Collins L. 2000 'Police initiated overdose prevention – review of activity by jurisdiction. Unpublished paper 28th February 2000

Darke S and Hall W. 1997 'The distribution of naloxone to heroin users' *Addiction* 92 (9): 1195-1199

Darke S and Ross J. 2000 'The relationship between suicide and overdose among methadone maintenance patients'. *National Drug and Alcohol Research Centre Technical Report No. 100*, Sydney.

Darke S and Ross J. 1999 'Heroin related deaths in South Western Sydney, Australia 1992-96' *Drug and Alcohol Review* 18:39-45

Darke S and Zador D. 1996 'Fatal heroin 'overdose': a review' *Addiction* 91: 1765-1772

Darke S and Ross J, et al. 1996 'Overdose among heroin users in Sydney, Australia: I Prevalence and correlates of non-fatal overdose' *Addiction* 91: 405-411

Darke S and Ross J, et al. 1996 ' Overdose among heroin users in Sydney, Australia: II Responses to overdose' *Addiction* 91:413-417

Darke S and Zador D. 1996 'Fatal heroin 'overdose': a review' *Addiction* 91: 1765-1772

Darke S, Hall W, Kaye S, Ross J, DuFlou J. 2000 'Hair morphine concentrations of fatal heroin overdose cases and living heroin users' *National Drug and Alcohol Research Centre*, Sydney

Darke S, Ross J, Zador D, Sunjic S. 2000 'Heroin-related deaths in New South Wales, Australia 1992-1996. *Drug and Alcohol Dependence* 60:141-150.

Davidson P. 1999 'Design and implementation of the OOPS emergency department project: review to December 1998. Next Step Specialist Drug and Alcohol Services, Perth WA

Farrell M, Neeleman J et al. 1996. 'Suicide and overdose among opiate addicts' *Addiction* 91: 321-323

Gossop M, Griffiths P, Powis B, Williamson S, Strang J. 1996 'Frequency of non-fatal heroin overdose: survey of heroin users in non clinical settings' *British Medical Journal* 313:402

Gore C. 1997. 'Development and delivery of peer education approaches' Curtin University of Technology

Hall W, Degenhardt L and Lynskey M. 1999 'Trends in opiate overdose deaths among young Australian adults 1964-1997'. Paper presented at the Epidemiology of Drug Use Satellite Meeting of the International Epidemiology Association, Florence, Italy August 30 1999

Hall W. 1996 'How can we reduce the number of heroin 'overdose' deaths?' *Medical Journal of Australia*: 164: 197-198

Lenton S, Hargreaves K. 2000 'Should we trial the provision of naloxone to heroin users for peer administration to prevent fatal overdoses?' *Addiction* 173: 260-263.

Lenton S, Hargreaves K. 2000 'A trial of naloxone for peer administration has merit, but will the lawyers let it happen? *Editorial: Drug and Alcohol Review* 19: 365-369.

Loxley W and Davidson P. 1998 Forgetting to Breathe: opioid overdose and injecting drug users in Perth. National Centre for Research into the Prevention of Drug Abuse, Perth

Mathers C, Vos T, Stevenson C. 1999 'The burden of disease and injury in Australia' Summary Report. Australian Institute of Health and Welfare

National Drug and Alcohol Research Centre. 2000 '1999 Australian Bureau of Statistics data on opioid overdose deaths'

National Drug and Alcohol Research Centre, University of New South Wales 2000, 15

McKetin R, Hall W, Darke S, Dietze. 1999 'Illicit Drug Reporting System Drug Trends Bulletin May 1999', Commonwealth Department of Health and Aged Care, Canberra

McKetin R, Darke S, et al. 2000 'Australian Drug Trends 1999'. Findings from the Illicit Drugs Reporting System (IDRS). Sydney, National Drug and Alcohol Research Centre. Monograph 43.

McGregor C, Darke S, Ali R, Christie P. 1998 'Experience of non-fatal overdose among heroin users in Adelaide, Australia' *Addiction* 93(5): 701-711

McGregor C, Hall K, Ali R, Christie P, Braithwaite R and Darke S. 1999 'It's rarely just the 'h': addressing overdose among South Australian heroin users through a process of intersectoral collaboration' *Drug and Alcohol Services Council Monograph No. 2 Research Series*

Preston A. 1999 'The New Zealand Methadone Briefing', Drugs and Health Development Project. Wellington NZ

Strang J and Farrell M 1992 'Harm minimisation for drug users: when second best may be best first' *British Medical Journal* 304: 1127-1128

Strang J, Darke S, Hall W, Farrell M, Ali R. 1996 'Heroin overdose: the case for take-home naloxone' *British Medical Journal* 312:1435

Strang J, Powis B, Best D, Vingoe L, Groffiths P, Taylor C, Welch, Gossop M. 1999 'Preventing opiate overdose fatalities with take-home naloxone: pre-launch study of possible impact and acceptability' *Addiction* 94(2): 199-204

Strang J et al. 1999 'Preventing opiate overdose fatalities with take-home naloxone: pre-launch study of possible impact and acceptability' *Addiction* 94(2): 199-204

State Government Victoria 2000, 'Response to the second stage report to the drug policy expert committee'

Tagliaro F, De Battista Z, Smith F, Marigo M. 1998 'Death from heroin overdose: findings from hair analysis' *The Lancet* 351:1923-25

Teeson M. 2000 'Comorbidity in mental health and substance use: causes, prevention and treatment' National Drug and Alcohol Research Centre, University of New South Wales

VIVAIDS. 2000 'Heroin overdose prevention project – final report' 29

Vingoe L, Welch S, Farrell M and Strang J 1999 'Heroin overdose among treatment sample of injecting drug misusers: accident or suicidal behaviour?' *Journal of Substance Use* 4(2): 88-91

Warner-Smith M, Lynskey M, Darke S, Hall W. 2000 'Heroin overdose: prevalence, correlates, consequences and interventions Monograph No. 46' National Drug and Alcohol Research Centre, University of New South Wales 2000

White J. 1997 'Does increasing the availability of methadone reduce heroin deaths?' Lenton & Stockwell T (eds) Proceedings of a National Workshop on the Prevention of Heroin Overdose. Sydney 15th August 1997. National Centre for Research into the Prevention of Drug Abuse, Perth, WA

Williams P, Urbas G. 2001 'Heroin overdose and duty of care'. Australian Institute of Criminology, No 188:2.

Zador D, Sunjic S, Darke S. 1996 'Heroin-related deaths in New South Wales, 1992: toxicological findings and circumstances' *Medical Journal of Australia* 164: 204-207

Zook CJ and Moore FD. 1980 'High-cost users of medical care' *The New England Journal of Medicine'* 302: 996-1002

Bibliography

Alcohol and other Drugs Council of Australia. 2000 'Drug Policy 2000: A New Agenda for Harm Reduction' *Alcohol and other Drugs Council of Australia*

Australian National Council on Drugs. 2000 'Heroin related overdoses: position paper'

Australian Health Ministers, Second National Mental Health Plan, Mental Health Branch, Commonwealth Department of Health and Family Services, July 1998

Australian Institute of Health and Welfare. 1999 '1998 National Drug Strategy Household Survey: First Results'

Bammer G, Sengoz A. 1995 'The Canberra Christmas overdose mystery' *Drug and Alcohol Review* 14: 235-237

Benzodiazepines Working Party to the Pharmaceutical Health and Rational Use of Medicines (PHARM) Committee. 2000 'Quality use of benzodiazepines – an implementation plan

Coleridge J, Cameron PA, Drummer OH and McNeil JJ. 1992 'Survey of drug-related deaths in Victoria' *Medical Journal of Australia* 157: 459-462

Commonwealth Department of Health and Aged Care. 2000 'Submission to the House of Representatives Standing Committee on Family and Community Affairs Inquiry into Substance Abuse in Australian Communities'

Commonwealth Department of Health and Aged Care. 1998 'National Drug Strategic Framework 1998-99 to 2002-03'

Commonwealth Department of Health and Aged Care. 2000 'Life: Living Is For Everyone: A framework for prevention of suicide and self-harm in Australia, Areas for Action'

Darke S, Ross J. 2000 'Fatal heroin overdoses resulting from non-injecting routes of administration, NSW, Australia, 1992-1996' *Addiction* 95(4): 569-573

Drug Policy Expert Committee. 2000 'Developing a framework for preventing drug problems: an issues paper' 1-14

Drug Policy Expert Committee. 2000 'Drugs: Responding to the Issues: Engaging the Community, Stage One Report' 5-8

Hall W, Degenhardt L and Lynskey M. 1999 'Opioid overdose mortality in Australia, 1964-1997: birth-cohort trends' Medical Journal of Australia 171: 34-37

Hall W, Degenhardt L and Lynskey M. 1999 'Opioid overdose & suicide mortality in young adults in Australia, 1964-1997' *National Drug and Alcohol Research Centre Technical Report No. 67*

Hall W, Ross J, Lynskey MT, Law MG and Degenhardt LJ. 2000 'How many dependent heroin users are there in Australia?' *Medical Journal of Australia* 173:528-531

Henry-Edwards S. 2000 'Responding to heroin' Paper prepared on behalf of the National Expert Advisory Committee on Illicit Drugs'

McGregor C, Darke S, Ali R, Paul R, Paul C. 1998 'Experience of non-fatal overdose among heroin users in Adelaide: circumstances and risk perceptions' *Addiction* 93

National Expert Advisory Committee on Illicit Drugs. 2000 *'National Action Plan on Illicit Drugs'*

National Expert Advisory Committee on Alcohol. 2000 *'National Action Plan on Alcohol'*

Seaman SR, Brettle RP, Gore SM. 1998 'Mortality from overdose among injecting drug users recently released from prison: database linkage study' *British Medical Journal* 316:426-428

Western Australian Drug Abuse Strategy Office. 2000 'Pre-hospital management of opiate overdoses in Perth, Western Australia'