



PREVENTING OVERDOSE

Third edition

Introduction

In the future, cigarette smoking and viral infections such as hepatitis C and HIV will cause the death of large numbers of people who inject illicit drugs. However, at the time of writing, overdose is the largest cause of death amongst injectors.

The numbers of illicit drug users dying as a result of overdose rose steeply during the 1990s – doubling in the second half of the decade.

People who inject heroin are about 14 times more likely to die than their peers.

The average age of people dying through overdose in most studies is just 30. And, the number of life years lost through overdose amongst men is the same as those lost due to road traffic accidents.

The Advisory Council on the Misuse of Drugs report ‘Reducing Drug Related Deaths’ reported that **there were 2,300 drug related deaths in England and Wales in 1998**. Many of these deaths could have been prevented.

About a third of injecting heroin users report having experienced an overdose (some of them many times). And, about half have witnessed someone else overdosing and **more than three quarters knew someone who had died as a result of an overdose.**

Drug users, many of them in contact with drug services, are often present at fatal overdoses. If drug services provide appropriate information, training and support on how to respond to an overdose, it is likely that the number of deaths can be reduced.

We have designed this guide, and the campaign materials that accompany it, to help services working with injecting drug users to work in a concerted way to:

1. Get the key messages across to injecting drug users that:

- injecting drugs;
- mixing drugs and alcohol;
- mixing opiates and other drugs; and
- using opiates when tolerance is low, particularly after prison, detoxification or a break in use

all increase the risk of overdose.

2. Encourage people who might witness an overdose to give appropriate first aid and call an ambulance. These simple actions are life-saving responses.

3. Run first aid training for:

- staff;
- injecting drug users; and
- relatives of injecting drug users and others who may be likely to witness an overdose.

4. Maximise the availability of naloxone.

Causes of overdose

Only a minority of deaths that are reported as ‘heroin overdose’ or ‘methadone overdose’ are actually caused by taking just one drug.

More often, death is caused by using opiates in combination with other central nervous system depressants – especially alcohol, and benzodiazepines.

In the presence of other depressant drugs, a ‘normal’ or usual dose of heroin may prove fatal. Indeed the blood levels of heroin in those who die has often been found to be:

- less than that which would kill someone not used to taking heroin; and
- no different to those of other people with a similar level of tolerance, who use the same amounts and survive.

In many cases of overdose, death occurs more than three hours after the heroin is injected. This fact highlights some key issues in preventing death from overdose:

- people present at an overdose often have time to save life by putting the person in the recovery position and calling an ambulance; and
- combinations of sedatives (especially when they include heroin and alcohol) are particularly dangerous.

Risk factors

There are a number of risk factors and behaviours that, if identified, can predict those drug users who are at greater risk of dying from an overdose. Awareness of these amongst both those working with injecting drug users, and injecting drug users themselves, may help to reduce the number of deaths caused by overdose.

These risks can be summarised as:

- injecting heroin;
- history of previous non-fatal overdose;
- longer history of injecting;
- high levels of drug use or intoxication;
- high levels of alcohol use;
- low tolerance;
- depression, feelings of hopelessness and suicidal thoughts;
- a history of using combinations of drugs including benzodiazepines or alcohol;
- higher risk injecting behaviours, such as sharing or using used equipment;
- poor general health, physical illness (such as chest infections) and severe systemic illness (such as liver disease);
- injecting in an unfamiliar environment; and
- not being in a methadone or other treatment programme.

Injecting and mixing drugs

Injecting heroin greatly increases the risk of overdose. One study, carried out in London, found that 31% of injectors had experienced a non-fatal overdose, compared with just 2% of those who smoke heroin.

Just as talking to injectors about their experience of witnessing overdose can create opportunities to improve the first aid and other responses, so talking to injectors about their past history of non-fatal overdose may help to identify, and reduce, risk factors.

Using combinations of depressant drugs is a major cause of overdose. As well as the possibility of potentiating (increasing the effectiveness of) each other, **it is likely that drug users often do not fully appreciate the risks of:**

- mixing heroin (especially when injected) with other sedative drugs taken some hours earlier;
- mixing heroin and other sedatives with methadone, which is a very long-acting opiate; and
- using combinations of drugs and alcohol.

A history of recent heavy drinking is one of the most consistent predictors of how likely a heroin user is to overdose. This is an issue that all drug services need to tackle, in terms of assessment and advice and information giving.

Contrary to popular belief, variations in drug purity only account for a small proportion of overdose deaths.

Deliberate overdose

While impossible to quantify, it is thought that deliberate overdose – with some degree of prior suicidal thought or intent – may account for up to a third of overdose deaths.

Suicidal thoughts can be an important factor in overdose, and workers should make sure that clients have the opportunity to explore this area. Talking about these problems is likely to reduce the risk.

People who are in methadone treatment appear to be more likely to attempt suicide than people who are opiate dependent and are not in treatment. This may be because they have more severe problems. However, as they should also have access to counselling and support, this is an area of risk that it should be possible to reduce.

For those heroin injectors who feel that life has little to offer, there may be a grey area between suicidal intent and neglecting personal safety. A feeling that life is not worth protecting can hamper efforts to get injectors to act on life-saving messages. Services which improve the quality of life for their clients are probably indirectly helping to reduce the risk of overdose.

Cocaine and crack overdose can cause strokes and heart problems. They can also play a role in deaths due to sedative overdose drug use by temporarily masking sedative effects and contributing to a feeling that reckless behaviour will be safe.

Drug treatment and overdose

Although methadone is dangerous in overdose (particularly for people who are not tolerant to its effects), scientific evidence shows that **being in effective methadone maintenance treatment** (that is treatment with adequate doses, high levels of supervision, support and retention) **greatly reduces the risk due to overdose in heroin injectors.**

Heroin injectors not in methadone treatment are around four times more likely to die than those in treatment. This is mainly because of the increased risk of overdose.

The start of treatment is associated with a higher risk of overdose than later in treatment. It is possible to reduce the risk of death at the start of treatment by:

- careful assessment;
- limiting starting doses to less than 50 mg; and
- where necessary, supervised consumption of initial doses.

Ending treatment prematurely is also associated with increased overdose risk.

This may be due to a number of factors including loss of tolerance if the treatment has ended following detoxification, and increased poly drug use as the cause, or consequence, of treatment ending.

Treatment services can cut the number of deaths by being attractive to drug users and by retaining them in treatment. Conversely, services with high rates of discharge put patients at risk.

Detoxification programmes have a strong relationship with overdose deaths. In the period following treatment, death rates of up to 22 times those of patients who stay in methadone maintenance treatment have been reported.

It is important that services offering opportunities for people to become drug free, tackle the issue of helping clients to manage the overdose risk if they return to drug/alcohol use.

Responding to overdose

In the mid 1980s it became clear that drug injectors were prepared to change their behaviour in order to reduce HIV risk. Reassuringly, current injectors also seem open to messages about preventing overdose and first aid.

Studies have shown that in up to 97% of cases where an overdose was witnessed, someone did something to try to help. And over half of all injectors say they would go to a workshop on overdose aid.

It may be that heroin injectors witnessing overdoses, having seen non-fatal overdoses before, are over-optimistic about the probable outcome.

There is also evidence that deep snoring, associated with breathing difficulties, is sometimes thought to be someone sleeping soundly.

Many drug users do not realise that there is often a long time delay (often several hours) between injecting heroin and overdose death. People who witness overdoses may wrongly assume that, following survival of the initial 'hit', the risk of death reduces.

All potential witnesses of an overdose including:

- drug workers;
- injecting drug users; and
- their family and friends;

should be aware of the signs of overdose. The signs of unconsciousness they should be able to identify include:

- deep snoring;
- unwakeable;
- turning blue; and
- not breathing.

People who witness overdoses need to be able to identify the transition from sleep to unconsciousness so that they can give appropriate first aid.

If someone is unconscious and lying on their back, their airway can become blocked by their tongue, vomit or saliva in the back of the mouth. This can stop them breathing and result in death.

This type of death can be avoided if someone puts the unconscious person into the recovery position.

All staff in contact with injecting drug users should be able to teach this skill.

Injectors should be encouraged to practice the recovery position and to teach it to their peers.

The poster, booklet and intervention pad that accompany this campaign are available as teaching aids to help workers and drug users to pass on this skill among people who take heroin.

Learning how to put someone in the recovery position is something that is best learnt in practice. Where appropriate, workers should teach this skill by example.

This brief intervention can make a big difference to overdose fatalities. At the time of writing, less than half of all injectors know how to put someone in the recovery position.

Through concerted overdose awareness campaigns, drugs services should aim to achieve 100% awareness of how to put someone in the recovery position amongst injectors in contact with the service. Drug services should also encourage wider knowledge of this important first aid message.

Mouth-to-mouth resuscitation and Cardio-Pulmonary Resuscitation (CPR)

When people have stopped breathing, mouth-to-mouth resuscitation is a simple technique which can save lives.

Training in mouth-to-mouth resuscitation (artificial respiration) and cardiac massage or cardio-pulmonary resuscitation (CPR) should be done in a workshop situation with a qualified trainer (see page 8).

First aid training

First aid training covering:

- risks and signs of overdose;
- the recovery position;
- mouth-to-mouth resuscitation; and
- cardio pulmonary resuscitation (CPR)

is essential for both injecting drug users and staff who work with them.

First aid training should also be offered to the family and friends of injecting drug users.

Many drug users who have witnessed overdoses would have been willing to resuscitate the victim, but couldn't because they did not know how.

Staff need quality training in first aid, both to teach the skills to drug users and also to deal with overdose situations in the workplace.

Training can often be provided by the local ambulance service. This can have the added benefits of fostering understanding and trust between injecting drug users and ambulance staff.

If this is not possible or practical, almost all acute hospital trusts have qualified Resuscitation Training Officers. And, St. John Ambulance and the Red Cross have a national network of qualified first aid trainers who may be able to tailor courses to the needs of your staff and client group.

Courses for injectors can range from a single 90-minute session through to a series of six or seven sessions which train drug users in a range of skills and techniques to prevent overdose.

Longer courses can also train participants to provide overdose response training to their peers.

Consideration should be given to paying service users to come to first aid courses, as this can be a cost-effective way of saving lives.

There are full trainers notes for running an overdose awareness and response course for drug users on our website: exchangesupplies.org

Calling an ambulance

Dialling 999 and calling an ambulance to an overdose should be an instant response. In overdoses where opiates are involved, a simple injection of the short-acting opiate antagonist ‘naloxone’ usually brings the person round.

All paramedics should carry this drug and, as long as it is given in time, it is a life-saving intervention.

One study found that 71% of people who had witnessed an overdose thought that the emergency services should be called but only 44% had done it. This reluctance to call an ambulance is costing lives.

As discussed on page 6, it may be that some people witnessing overdoses, having seen non-fatal overdoses before, are over-optimistic about what will happen.

However, in some places the main reason ambulances are not called may be fear on the part of drug users. This is usually fear that the police will attend and possibly:

- arrest witnesses;
- search the premises;
- execute outstanding arrest warrants; and
- pass information to the drug squad.

In some areas the control room staff routinely call the police to overdose incidents. Some ambulance control rooms have a list of addresses (or even streets) to which the police are called. These are usually addresses where there has been some history of violence or other problems.

Although this type of list may be necessary for operational reasons, it should be reviewed regularly with the police and used very selectively in cases of overdose.

In Nottingham the practice of having a list of ‘problem addresses’ and of calling the police routinely to overdoses was identified as a factor which was putting drug users’ lives at risk.

Changing the practice involved:

- training for control room staff and police;
- formal and informal liaison between the drug service and control room staff;
- preparing appropriate policies; and
- passing on information to drug users about the change of policy.

Inter-agency co-operation of this kind usually needs involvement at Drug Action Team level.

The result of such collaboration should be a policy whereby the police are only called to those incidents where there has been a death or where there is risk to the ambulance crew or children.

Every drug service should work with the police and ambulance service to establish good practice.

Drug users should be informed of the local policy and encouraged to make sure that everyone who overdoses receives appropriate medical help.

Myths

As well as promoting appropriate responses to overdose, it is important to counter common myths and dangerous practices about how to respond to overdose situations.

The most usual of these centre around the idea that someone who is overdosing can be stimulated into regaining consciousness.

Practices to do this include:

- putting people in cold baths;
- walking (or dragging) them around the room; and
- inflicting pain through hitting or even burning.

While it is important to assess the level of consciousness of someone who may have overdosed, **if they cannot be roused when rubbed by knuckles on the sternum (centre of the rib cage), they are unconscious – further stimulation will not change this.**

Just as it is impossible to resist the effect of an anaesthetic through willpower, so it is impossible to overcome the effects of overdose by willpower or stimulation.

Putting people in cold baths is a particularly dangerous practice because:

- it may take some time to run the bath – and the person may die during this delay;
- there is a risk of drowning; and
- there may be a risk of hypothermia.

Trying to walk people around may also make the situation worse because the increased heartbeat may increase absorption of drugs from the intestine, and the helpers may drop the casualty.

There is some understanding of this amongst drug users – in one study 92% of people who had witnessed overdose had tried stimulation, yet only 62% maintained that this was the right thing to do.

It is likely that with better information and first aid training, the desire to help can be turned from an intervention that may increase risk, into life-saving action.

Another dangerous practice which has been reported is that of injecting someone who has overdosed with salt water.

There is no medical basis for this practice.

One explanation for it may be that drug users have seen people in hospital having a ‘drip’ put up. This is done to make sure medical staff are able to give intravenous medication. The fluid in the ‘drip’ is usually ‘normal saline’. This has tiny quantities of salt added to prevent disrupting the chemistry and fluid balance of the blood – it does not affect the overdose at all.

Injecting people with salt water is dangerous because it:

- wastes time that should be spent putting the person in the recovery position and calling an ambulance; and
- may result in exposure to viral infection if, in the haste and panic, the salt water is given in a used syringe.

10 key strategies for reducing overdose deaths

- 1 Staff at drug treatment agencies (and other agencies working with injecting drug users) should have first aid training so that they can pass these skills on to injecting drug users and respond to overdose situations within the workplace.
- 2 All injecting drug users in contact with services should be given written and spoken information on overdose risk factors and how to avoid them.
- 3 First aid training should be made available to all injecting drug users, their relatives and friends who are likely to witness an overdose.
- 4 First aid training must be delivered by qualified and competent staff (although they might usefully be helped by a drug worker or peer educator). Organisations that can provide this training include ambulance services, St. John Ambulance, Red Cross and acute hospital trusts.
- 5 Every prisoner with a history of opiate use and every opiate user leaving residential or other detoxification facility must be given information (such as the materials which accompany this guide) on the risks of overdose following a break in use and loss of tolerance.
- 6 High-quality, accessible methadone treatment that keeps patients in treatment, reduces injecting, prioritises overdose risk and improves quality of life, should be available in all areas.
- 7 Every accident and emergency department should give written and spoken information to every opiate user they see, about preventing and managing overdose.
- 8 Drug Action Teams should make sure that local procedures covering police involvement in emergency calls for overdoses have preventing death as the first priority. Police should not be called to the scene of an overdose unless it is essential.
- 9 Services should communicate local policies regarding the involvement of the police in overdose emergency calls to drug users.
- 10 All ambulance crews should carry the opiate antagonist naloxone and be trained in how to use it, and naloxone kits and training should be delivered to as many opiate injectors as possible.

Bibliography and further reading

Best D, Man L, Zador D, et. al. (2000) Appreciating the extent and understanding the causes of opiate overdose: A thematic review. *Findings*, 1 (4), 1–4.

The Advisory Council on the Misuse of Drugs. (2000). Reducing drug related deaths. The Stationary Office. London.

Bennett G A, Higgins S. (1999) Accidental overdose among injecting drug users in Dorset UK. *Addiction* 94 (8), 1179–1190

Caplehorn J R, Dalton M S, Haldar F et al. (1996) Methadone maintenance and addicts' risk of fatal heroin overdose. *Substance Use & Misuse*, 31 (2), 177–196.

Darke S, Zador D (1996) Fatal heroin 'overdose': a review. *Addiction* 91 (12), 1765–1772.

Neale J, (2000). Suicidal Intent in non-fatal illicit drug overdose. *Addiction*. 95 (1), 85–93.

Strang J, Best D, Man L et al. (2000) Peer-initiated overdose resuscitation: fellow drug users could be mobilised to implement resuscitation. *International Journal of Drug Policy*, 437–445.

Strang J, Griffiths P, Powis B et al. (1999) Which drugs cause overdose among opiate misusers? Study of personal and witnessed overdoses. *Drug and Alcohol Review* 18, 253–261.

