



## Overdose — a major cause of avoidable death among young people

Drug-related death is a complex phenomenon that includes both deaths from overdose and deaths indirectly related to drugs, for example from diseases spread by the sharing of injecting equipment, such as AIDS and hepatitis, and from accidents, violence and suicide under the influence of drugs.

Considerable efforts have been directed at reducing HIV risk behaviour among drug users and these, together with improvements in drug therapies, have had an impact on overall mortality. To date, drug overdose has not received the same attention and now in the EU as a whole, overdose accounts for many more deaths among injecting drug users than does any other cause, including AIDS.

Since 1990, there have been almost 100 000 acute drug-related deaths reported

in western Europe, most of which can be described as drug overdoses associated with the consumption of opiates. In some countries, the number of years of life lost due to overdose among males is approaching that attributable to road traffic accidents.

The current European Union drug strategy and action plan specially target drug-related deaths. Although the extent to which the substantial reduction in overdose deaths called for has been achieved is debatable, many countries have put in place overdose reduction measures and state this as an explicit goal in their national drug strategies. In a recent recommendation, the European Council reinforces this objective and calls on Member States to make available a range of measures that can reduce overdose deaths.

These measures appear to be beginning to bear fruit, with some reduction in overdose

**Throughout the 1990s, drug-related deaths consistently rose in Europe. Now we are seeing data that show overdose deaths levelling off or even in decline. This is encouraging news, but we cannot afford to be complacent, as overdose deaths remain at historically high levels and drug overdose continues to represent one of the major causes of avoidable loss of life among young people in Europe.**

Marcel Reimen, Chairman  
EMCDDA Management Board

deaths now observable. However, the number of deaths remains at a historically high level and more systematic efforts are needed if the substantial reduction in overdose deaths called for in the action plan is to be achieved.

### Definition

**In this policy briefing, the term 'overdose deaths' refers to deaths that are caused directly by the consumption of one or more drugs. Overdose deaths occur, generally, shortly after the consumption of the substance(s). These deaths are known as 'poisonings' or 'drug-induced deaths'. The EMCDDA definition of drug-related deaths refers to these cases and does not include in this measure those deaths indirectly related to drug use.**

### Key issues at a glance

1. Drug overdose, mostly involving opiates, is a major cause of deaths among young people in Europe, where over 8 000 such deaths are recorded each year, and is currently the leading cause of death among drug injectors.
2. Overdose victims are mostly males aged between 20 and 40 years, who in most cases are opiate injectors, and often homeless or marginalised. Most heroin-related fatalities occur among more experienced and more dependent users who combine other drugs, particularly alcohol and benzodiazepines with heroin.
3. Progress that has been made in identifying and defining the risk factors and risk situations for drug overdoses indicates that a substantial proportion of overdose deaths can be prevented.
4. Evidence exists to show that a broad range of measures can be effective in reducing drug overdose. Furthermore, in general, overdose prevention interventions, including educational and strategic measures that can reduce mortality and morbidity, are becoming more common.
5. The reduction of drug-related deaths is a public health policy target of the EU and its Member States.
6. Although the overall number of overdose deaths in the EU remains very high, in recent years a positive trend has been observed in some countries. Some new Member States may face a development similar to the one observed in west European countries at the beginning of the heroin epidemic.

## 1. Overdose deaths and substances involved

More than 8 000 acute drug-related deaths are reported each year in Europe. Between 1990 and 2002, almost 100 000 acute drug-related deaths were reported to the EMCDDA by the 15 'older' Member States of the European Union. These figures represent the minimum extent of overdose deaths in Europe, because underreporting is likely in many countries. Overdose is the main cause of death among heroin users in the EU as a whole, far exceeding loss of life from other conditions such as AIDS. While HIV/AIDS continues to cause considerable health problems among injecting drug users, there were 1 507 deaths among AIDS cases due to drug injecting in 2000 compared to a total of 8 838 overdose deaths.

Opiates are present in the vast majority of the recorded overdose deaths in Europe and probably play a key role, although they are often found in combination with other substances in overdose victims.

Opiate overdose is one of the leading causes of death among young people, particularly males in urban areas, in many EU countries. Studies in some European cities have estimated that overdose deaths accounted for 15% (Munich in 1995), 17% (Barcelona in 1995) or 33% (Greater Glasgow in 2003) of all deaths among 15–35 year-old males.

Overdose deaths in a community will depend on the number of injectors (more than simply on the overall population) and on overdose incidence and lethality rates among injectors. Monitoring these parameters is necessary to understand changes in overdose deaths and the impact of interventions.

Affecting mainly younger people, opiate overdoses account for a considerable number of potential years of life lost. For example, in England and Wales in 1995, opiate overdose was estimated to represent 5% of all years of life lost by males, approaching the loss through road traffic accidents.

In addition to overdose, opiate users, particularly those injecting, are at increased risk of death from AIDS and other causes, including violence, accidents and suicides. Their overall mortality is roughly 10–20 times higher compared to the general population of the same age.

Some studies found that 20–30% of active heroin users experienced a non-fatal overdose in the previous year, and 50–70% at least once in their life. It is estimated that about 5% of opiate overdoses are fatal.

## 2. Characteristics of overdose victims

In the EU, most overdose victims are younger people, aged from 20 to 45 years, with a mean age in their thirties. In most cases, the victims are males, ranging between 70 and 93% in different EU countries.

Various studies have found higher mortality among male opiate users when compared to female users. Some of these gender differences might be explained by higher levels of risky behaviour among males, including early initiation of use, polydrug and alcohol use, injecting alone and a higher level of incarceration.

Overdose deaths tend to happen among experienced users, and users with more severe addiction, rather than among younger and inexperienced users.

In most EU countries, overdose victims appear to be getting older, suggesting an 'ageing cohort effect'. Finland and, to a lesser extent, Greece and the United Kingdom are exceptions to this trend, which might signal an increased incidence of opiate use in recent years in these countries.

## 3. Circumstances of overdoses are well known

Using opiates by injection increases considerably the risk of overdose; heroin use by smoking or inhalation may cause overdoses but the risk is considerably lower.

Although the amount of heroin consumed seems to play a role in overdose deaths, heroin levels in the blood of overdose victims vary considerably and in many victims are found to be relatively low. The combination of heroin with other drugs, leading to polydrug toxicity, is considered a major risk factor in heroin overdoses. Drugs particularly associated with polydrug toxicity include other CNS depressants, notably alcohol and benzodiazepines.

Resuming heroin use following a period of abstinence, in particular after detoxification treatment or time spent in prison, has been identified as another important risk factor

**A real concern must be that without timely investment in proven and effective responses the new EU Member States may now be about to face increases in overdose deaths similar to those observed in the 1980s and 1990s in west European countries.**

Georges Estievenart,  
EMCDDA Executive Director

for drug overdose. During periods of abstinence, the user's tolerance to opiates is lost, a fact that users may be unaware of or ignore.

Suicide rates are high among injecting drug users. Drug users with a history of depression are particularly vulnerable.

Those who inject in public places appear to be more at risk of overdose; public injecting is more likely among the homeless and particularly marginalised.

Some opiate users report frequent non-fatal overdoses. This group is likely to be disproportionately at risk of experiencing a subsequent fatal overdose.

Because many opiate overdoses happen in the presence of other users, an opportunity exists for timely intervention. However, studies show that those witnessing drug overdoses often react inappropriately or do not react in a timely fashion. Reasons for this include lack of knowledge, difficulty in identifying an overdose situation and fear of police intervention.

## 4. Many overdose deaths can be prevented

Research into the circumstances of overdoses has supported the development of interventions that target risk situations or individuals and taken together are capable of achieving a considerable reduction in the deaths occurring from the immediate effects of drug taking.

Increasing the proportion of drug users in treatment, especially the proportion of heroin users in opioid substitution treatment, can reduce the frequency of overdose deaths.

Reaching out to untreated populations of drug users and bringing them into contact with drugs services is an important step to help educate drug users about how to avoid risk situations and to motivate them to enter into care. Individual overdose risk assessments should become a priority issue.

Drug users need to be exposed to appropriately constructed prevention messages that address different aspects of risk behaviour. Repeated exposure is most likely to result in behavioural change. The message to reduce injecting should be emphasised.

There is a need to improve drug users' skills to recognise overdoses in their peers and how to react appropriately. This includes providing basic first aid, such as placing victims in the recovery position and waiting with the victim until the ambulance arrives. Protocols for police attendance at overdose events should ensure that those who witness an overdose are not afraid of calling an ambulance. Some countries have introduced facilities for the supervision of drug consumption by trained staff. Drug injectors using these facilities avoid the risks that are associated with injecting in public places. However, the provision of this kind of measure remains controversial.

The potential of other measures for which there appears to be a sound rationale needs to be exploited. For example, research is needed to resolve important questions about peer-distribution of opiate antagonists (naloxone).

Overall, the evidence strongly suggests that a significant reduction in drug overdose will only be achieved by the implementation of a range of interventions that can target different aspects of the associated risk

behaviours. Overdose prevention needs to form part of a comprehensive approach to responding to drug users that includes measures to address the wider health and social problems this group faces.

## 5. Reduction of deaths — a key European public health policy target

The European Union drug strategy 2000–04 addresses the reduction of severe health consequences of drug use and includes the substantial reduction over five years in the number of drug-related deaths as a target. An EU Council recommendation of 18 June 2003 emphasises the need to prevent and reduce health-related harm associated with drug dependence and calls on Member States to implement a range of concrete services and facilities, particularly aimed at reducing overdose deaths.

It is encouraging that this target has found rapid acceptance among Member States and most countries have included the reduction in the number of deaths as an objective into their national drug strategies.

## 6. Trends in overdose deaths in Europe

The number of deaths from drug overdoses in the 15 older EU Member States increased

markedly during the 1980s and early 1990s, probably reflecting rapid expansion of heroin injection in many countries. The overall increasing trend continued in the mid- and late 1990s, although at a less marked rate. In the year 2000, 8 838 deaths were reported in the EU countries, in contrast with 6 284 in 1990, which implies a 40% increase in overdose deaths during this period.

Between 2000 and 2001/02, many EU countries reported some decreases in the numbers of overdose deaths; more recent but preliminary data suggest that this trend is continuing. However, at EU level, deaths from overdose remain at historically high levels (8 306 in 2001, the most recent year with comparable data).

These recent decreases were attributed by some countries to increased treatment provision and, in particular, substitution treatment, harm reduction measures, reduced levels of drug injecting and decreases in availability and purity of heroin.

For example, France and Spain have reported consistent decreases in overdose deaths since the mid-1990s. Although coverage or reporting in these countries may be limited, it is worth noting that both countries are among those with higher estimated proportions of opiate users in substitution treatment (over 50%). The five-fold decrease in overdose deaths recorded in France between 1994 and 2002 is considered to result from drug users' increased access to care, following the massive expansion of substitution treatment. In Spain, the considerable shift away from injection that has been noted since the early 1990s is also likely to have played an important role in the overall reduction in deaths from overdose.

New Member States and candidate countries may be at risk of an increasing trend in overdose deaths, similar to that observed in western Europe. Some worrying signs that this might already be happening are observable in Estonia and Slovenia. If the new Member States are to avoid the 'overdose epidemic' experienced by western Europe, then the implementation of a range of effective measures to reduce overdose risk is now urgently required.

**Number of drugs overdose deaths reported to the EMCDDA in the 'old' 15 EU countries and Norway (1985–2001)**



Notes: Based on national definitions, as used in the 2004 EMCDDA annual report. In a few countries, the national figures include some cases of deaths indirectly related to drug use.

Source: Reitox national reports 2003, taken from general mortality registries or special registries (forensic or police).

*Drugs in focus* is a series of policy briefings published by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Lisbon. The briefings are published three times a year in the 20 official languages of the European Union plus Norwegian. Original language: English. Any item may be reproduced provided the source is acknowledged.

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## Conclusions

### Overdose — a major cause of avoidable death among young people Policy considerations

1. The importance of drug overdose is becoming increasingly recognised, but has not yet received adequate attention as a public health issue.
2. Further improvements in the reporting of drug-related deaths at population level are required, especially in those countries where registers remain poor. Assessment of other aspects of drug-related mortality is needed, including follow-up studies and the further assessment of innovative interventions, such as the use of opiate antagonists.
3. Factors associated with overdose are known, both at individual and community levels. Opiates still account for most overdose deaths, but awareness of the role of other illegal and legal substances in overdose deaths needs to be heightened.
4. That overdose is avoidable must become a central message and a priority issue for drugs services. To have a substantial impact on overdose-related morbidity and mortality, not just a single measure but a range of interventions are likely to be required.
5. Recent reversals in the long-term upward trend in overdose deaths observed in some Member States are likely to reflect increased treatment coverage and decreased levels of risk taking, especially injecting.
6. The new EU Member States that may face an increase similar to the ones observed earlier in west European countries are in a position to avoid this if they invest in comprehensive programmes informed by the available evidence on effective practices.

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Publications Office  
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**OFFICIAL PUBLISHER:** Office for Official Publications of the European Communities.  
© European Monitoring Centre for Drugs and Drug Addiction, 2004.  
**EXECUTIVE DIRECTOR:** Georges Estievenart.  
**EDITOR:** Peter Fay.  
**AUTHORS:** Dagmar Hedrich and Julian Vicente.  
**GRAPHIC CONCEPTION:** Dutton Merrifield Ltd, United Kingdom.  
Printed in Italy