



PERSPECTIVES ON DRUGS

Preventing overdose deaths in Europe

The heroin epidemics that spread across Europe in the 1980s resulted in increasing numbers of overdose deaths among opioid users ⁽¹⁾. Although the annual number of reported deaths peaked around the turn of the millennium, drug overdose still claimed more than 70 000 in Europe in the subsequent decade. Despite the fact that recent data show some promising signs, with the number of reported overdose deaths falling from around 7 700 to 6 500 between 2009 and 2011, stable or increasing death tolls continue to be reported, for example in Estonia, Sweden and the United Kingdom (Scotland).

Drug overdose continues to be a major cause of death, especially among young people in Europe, with recent data showing that it accounts for approximately 4% of all deaths in adult males under 40 years of age (Eurostat, 2012). European countries have implemented a variety of approaches in their attempt to reduce overdose deaths at the national level using evidence-based interventions drawing on an understanding of individual and environmental risk factors.

Which factors increase the risk of fatal and non-fatal overdose?

The type of substance used, the route of administration and the health of the user all have an impact on the risk of overdose. Most overdose deaths are linked to the use of opioids, primarily the injection of heroin. Heightened levels of risk are also associated with the misuse of certain prescription drugs (e.g. benzodiazepines) and the non-medical use of prescribed substitution medications. In addition, a substantial number of deaths involve polydrug use, particularly heroin in combination with other central nervous system depressants such as alcohol or benzodiazepines.

A number of environmental factors increase the risk of drug overdose death, including, in the case of opioid users, disruption of treatment provision or discontinuity of treatment and care. And in certain situations, for example following detoxification or discharge from drug-free treatment, the tolerance of drug users to opioids is greatly reduced and as

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⁽¹⁾ In this analysis, the term 'overdose deaths' refers to deaths that are caused directly by the consumption of one or more drugs. Generally, overdose deaths occur shortly after the consumption of the substance(s). These deaths are also known as 'poisonings' or 'drug-induced deaths'.

a result they are at particularly high risk of overdosing. For these same reasons, inadequate throughcare between prison and community has also been identified as an important environmental risk factor (Zlodre and Fazel, 2012).

Finally, the lack of response or inadequate interventions by those witnessing overdoses, whether due to poor first aid knowledge, lack of access to effective medication or fear of legal repercussions, increases the risk of an overdose event having a fatal outcome.

A range of responses: reducing the number of overdoses and preventing deaths

Drawing on the insights gained from risk and protective factors, the prevention of overdose deaths is generally addressed at two levels: the first involves a set of interventions geared towards the complete prevention of overdoses, while the second focuses on reducing fatal outcomes when overdoses do occur (Fisher et al., 2012). At both levels, strategies used include the scaling-up of known protective factors and the reduction of existing risks. Below, we introduce some of the most important strategies used by countries to address these intervention levels.

Increasing awareness of and information about overdose risks

As many drug users either are unaware of or seriously underestimate overdose risks, effective communication with users can act as a catalyst for reducing harm. Ideally, overdose prevention, education and counselling interventions would be provided by trained professionals as a matter of routine in the relevant health and primary care settings. Screening for overdose risk by those treating heroin users may contribute to reductions in overall mortality (Darke et al., 2011), while the use of overdose risk assessment interventions can assist the early identification of high-risk individuals. Most European countries now report the distribution of overdose risk information, which is sometimes also available in different languages in order to reach migrant drug users. There is increasing use of the Internet and new channels of communication in this field, for example an e-health overdose risk assessment tool (<http://orion-euproject.com/download-software/>) and overdose awareness videos, which may be projected in the waiting rooms of drugs facilities (e.g. <http://vimeo.com/album/1655129>).

Facts and figures

1.4 million problem opioid users

6 500 overdose deaths in 2011

More than **70 000** overdose deaths during the first decade of the twenty-first century

4% of all deaths in adult males under 40

730 000 clients in opioid substitution treatment in 2011

5 countries with take-home naloxone programmes

7 countries, including Switzerland, with drug consumption rooms

Provision of effective drug treatment and retention in treatment

There is convincing evidence that opioid substitution treatment (OST) substantially reduces the risk of mortality, as long as doses are sufficient and continuity of treatment is maintained (e.g. Degenhardt et al., 2011). A prospective observational cohort study conducted in Edinburgh recently confirmed that survival is increased by cumulative exposure to treatment (Kimber et al., 2010). As retention in drug treatment is a protective factor against overdose deaths, many European countries have given priority to increasing access to and coverage of treatment services.

With OST provision high, medical staff and service planners face the challenge of minimising the diversion of substitution medications to those without prescriptions while continuing to ensure that access to treatment is not impeded. Another widely used approach to reduce the risk of overdose is the implementation of good treatment practice, which involves the use of clinical guidelines and training doctors in prescribing practices (including benzodiazepine prescribing).

Improving throughcare between prison and community

A number of interventions are recommended to help reduce the high numbers of overdose deaths associated with the period just after leaving prison (Merrall et al., 2010). These include pre-release education on overdose risks and prevention, continuation and initiation of substitution treatment and improved referral to aftercare and community treatment services (WHO, 2010). A randomised trial (N-ALIVE

trial) is under way to test the hypothesis that giving naloxone on release to prisoners with a history of heroin injecting will reduce heroin overdose deaths in this population during the most risky period — the first 12 weeks after release (2).

| Prevention of deaths in overdose situations

A second set of responses focuses on the prevention of fatalities when overdoses occur. These include a range of targeted interventions, the purpose of which is to enhance safety and ensure a rapid and effective response in emergency situations.

Supervised drug consumption rooms

More than 90 facilities for supervised drug consumption operate across seven European countries, including Switzerland, serving specific subgroups of highly marginalised and homeless drug users. Among other goals, they aim to reduce morbidity and mortality among this group (Hedrich et al., 2010). Consumption rooms are highly targeted services, usually integrated within facilities that offer a range of other health and social services. They provide a safer injecting environment and medical supervision and are equipped to manage drug overdoses and reduce related morbidity and mortality. Millions of injections have been supervised and no overdose fatalities have occurred in the facilities. An ecologically based time series analysis across four German cities reported reductions in the number of overdose fatalities where coverage and capacity were sufficient and opening hours appropriate (Poschadel et al., 2003). Similarly, a reduction in overdose mortality at population level was documented in the area of Vancouver, where a supervised injecting facility operates (Marshall et al., 2011).

Improved bystander response

Most overdoses occur when others are present and most injecting drug users have witnessed or experienced overdoses. Therefore, drug users themselves, or their friends and family, are likely to be both bystanders and potential first responders in emergency overdose situations (Strang et al., 2008). These human networks, with appropriate training and awareness raising, can be utilised to prevent overdose



deaths. Interventions that aim to improve bystander responses consist of training peers and family members of drug users in overdose prevention, recognition and response. This can include developing skills in rescue breathing, cardiopulmonary resuscitation and the administration of naloxone while waiting for emergency medical help to arrive.

| Conclusions

Drug overdose deaths are preventable, and there is good evidence to show that specific interventions can both reduce the occurrence of overdose events and prevent fatal outcomes in overdose situations. Although the overall numbers of drug-induced deaths remain high, Europe has seen some positive trends and developments in recent years. The accumulated knowledge about risk and protective factors associated with overdoses, and about the successful management of overdose situations, has grown. Access to OST, which constitutes an important protective factor, has been substantially scaled up across the region. In addition, some countries have introduced new and targeted approaches, searching for innovative ways to identify those at risk of overdose, to raise risk awareness and to enable those who witness overdoses to intervene and prevent fatal outcomes.

(2) See <http://www.controlled-trials.com/ISRCTN34044390> and <http://www.kcl.ac.uk/iop/depts/addictions/research/drugs/N-ALIVE.aspx>.

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Interactive element: video



Video: example of an overdose awareness video projected in waiting rooms of drugs facilities available on the EMCDDA website: emcdda.europa.eu/topics/pods/preventing-overdose-deaths

Peer naloxone distribution

Naloxone (Narcan®) is an opioid antagonist medication used worldwide in emergency medicine to reverse respiratory depression caused by opioid overdose. Naloxone is listed by the World Health Organization as an essential medicine ⁽¹⁾ and is available in injectable form (intramuscular and intravenous) and in some countries as an intranasal spray. The effectiveness of concentrated intranasal naloxone has been shown to be similar to that of intramuscular naloxone as a first-line treatment for heroin overdose (Kerr et al., 2009). When used in peer programmes, naloxone distribution is accompanied by training drug users and their peers and family on how to administer the drug in order to reverse the effects of opioid overdose.

At present, there is insufficient review-level evidence to draw conclusions about the effectiveness of peer naloxone distribution programmes on overdose mortality at population level, but results from individual studies appear promising. A recent US survey among 48 community-based naloxone distribution programmes documented over

10 000 overdose reversals (CDC, 2012). In addition, evidence from an ecological study suggests that the operation of a large-scale peer naloxone distribution programme can be effective in reducing overdose deaths at community level (Maxwell et al., 2006).

Currently, five European countries (Denmark, Germany, Italy, Romania and the United Kingdom) report the existence of naloxone programmes, some of them small and time limited. Scotland and Wales have recently launched a nationwide programme of naloxone distribution to high-risk users in the community and to inmates released from prison. In some countries, legislative reform may be needed to allow the low-threshold provision of naloxone, but the measure is regarded as a low-cost approach that can empower healthcare workers and people who use drugs to save lives.

⁽¹⁾ <http://www.who.int/medicines/publications/essentialmedicines/en/index.html>