

Summary

This report describes the situation of drug-related deaths in Sweden and constitutes a basis for the expert meeting in Stockholm in September 2016 as part of an EMCDDA project on drug-related deaths, which will focus on seven European countries with high or increasing drug-related deaths.

According to official mortality statistics, drug-related deaths have more than doubled in Sweden over the last 10 years or so, mainly due to a higher number of deaths with opioids. However, the reliability of these statistics has been questioned due to methodological changes in the different indicators of drug-related deaths. This is also the main matter dealt with in this report.

In order to get a better understanding of the trends in drug-related deaths, and of the comparability of the Swedish with the data from other European countries, detailed analyses of mainly toxicological forensic data have been conducted. The data cover all forensically investigated deaths in Sweden over the past 15-20 years. According to Swedish regulations, all certified or suspected unnatural deaths must be reported to the Police by the physician issuing the death certificate. The Police will then request a forensic investigation. Almost all drug-related deaths in Sweden are subjected to forensic investigations, including toxicological analyses, and thus constitute the basis for all drug-related death indicators in Sweden. Out of a total of 90,000 deaths every year, more than 5,000 deaths are forensically investigated. These numbers have remained stable for over 20 years. Several of the data analyses in this study have been conducted by CAN in dialogue with the National Board of Forensic Medicine (RMV).

It is made clear in this report that death data that is directly based on toxicological analyses, and nothing else, shows the presence of different substances among the forensically investigated deaths. Since this selection is not based on any consideration of causality, these deaths are referred to as *drug deaths* (or e.g. opioid deaths). Selections from the general mortality register (GMR) (also known as the Cause of Death Register, CDR) are instead based on causes of death and are therefore referred to as indicators of *drug-related deaths* (or e.g. opioid-related deaths).

The estimations made in this report suggest that a real increase in drug deaths, and most likely drug-related deaths, has occurred, but that the previously reported increasing trends have been greatly exaggerated. The main reason for this exaggerated picture is that the changes – or improvements – in methods of analyses within forensic investigations (more cases tested, and lower threshold for drug detection) have led to the detection of more deaths with positive findings of drugs. As reported by the National Board of Health and Welfare (NBHW, 2016), changes in coding practices have also contributed to a false rate of increase. To the best of our knowledge, all major changes in methods of analyses implemented at RMV from 2008 to 2014 have been taken into account in this report. The conclusions made are based on that important assumption. In any case, the results and the exact trends should be interpreted with caution.

The increase that remains after controlling for changes in methodology is still rather substantial and is due to an increase in the number of opioid deaths (from 2008 to 2014 with approximately 33% in absolute numbers and 27%, per inhabitants aged 15 or over). Today, most drug deaths, and drug-related deaths, are tied to opioids, usually synthetic opioids such as methadone, buprenorphine and fentanyl.

Interestingly, the increase in drug deaths, and drug-related deaths, is observed among both men and women and across several age groups. It appears as if there has been a more or less collective shift upward in death rates, so that the gender and age distributions look much the same today as they did 10-15 years ago. However, data for 2014 showed a dramatic increase in drug-related

poisoning deaths (underlying cause of death) among young adults (20-24 years of age), from 51 deaths in 2013 to 102 in 2014. Here, follow-up is important, to see if the levels remain as high in 2015.

Studies of the combined use of opioids with alcohol and/or benzodiazepines revealed that alcohol involvement in opioid deaths (and all drug deaths) has decreased (from about from about 36% of all opioid deaths in year 2000 to less than 25% in year 2014), whereas benzodiazepine involvement has increased at more or less the same pace as opioid deaths (in 2014: ~65% of all opioid deaths). Interestingly, of the four groups of opioid deaths, with or without alcohol or benzodiazepine involvement, it is only the group of opioid deaths combined with benzodiazepines that shows a clear and substantial rising trend since 2006. Opioid deaths with no benzodiazepines and no alcohol show a modest increase, whereas the two groups of opioid deaths including alcohol, one including and one not including benzodiazepines, show no increase during the entire study period (here 1994-2014). The same patterns and trends for combined use are revealed for all drug deaths, i.e., opioid deaths plus deaths with illicit drugs.

The results on polydrug use in opioid deaths suggest that alcohol use cannot explain the increase in opioid deaths, while the use of benzodiazepines may have contributed to the increase. As a matter of fact, the combined use of benzodiazepines and opioids is more rule than exception in opioid deaths. The effect of this combined use in opioid-related deaths needs to be investigated much more in the future, but this also requires measures of the use of benzodiazepines among opioid addicts in general.

Analyses of manner of death in poisoning cases show clearly that it is the number coded as unintentional poisoning deaths that has increased for the past 10 years or so, whereas intentional (suicides) and undetermined poisoning deaths have both remained rather stable. This may suggest that the increase is mainly due to overdoses among drug addicts.

It is obvious from this report that the Swedish drug-related deaths statistics, and especially the handling and reporting of data, have been confusing. An important lesson for the future is that one must keep track of changes in statistics that are related to case ascertainment, investigation and recording practices. This has certainly not been done in Sweden. The inconsistencies revealed in the statistics are difficult to comprehend, given that Sweden is generally known for high-quality statistics. More or less all death data that could be needed are compiled and available from certain sources. The problem is that these data are spread out and not linked together, making it difficult to achieve a reliable assessment of drug-related death trends.

This report mentions several steps that should be taken in order to improve the situation. Perhaps the most important step would be to facilitate a linkage of forensic toxicological data with cause of death data, something that has been discussed for many years, is recommended by the EMCDDA, and is in place in several European countries, in the form of national technical working groups (EMCDDA, 2015: Assessment of the implementation of the five Key Epidemiological Indicators).

The National Board of Health and Welfare is in the process of developing their statistics based on causes of death. These statistics constitute the official and most important statistics in this field. CAN and RMV are considering development of the forensic toxicology data further, in order to create a special register to be used for regular monitoring. This could be an important complement to the official statistics on drug-related deaths and would be rather similar to the EMCDDA recommendations of selection criteria for special registers.

The inconsistencies in the Swedish data on drug-related deaths also question the comparability of the Swedish statistics with other European countries, both in levels for specific years and in country-specific trends. In addition, it cannot be ruled out that also other countries have done methodological changes (improvements) in their statistics over time which may further hamper the comparability. To this should also be added already existing country differences in many of

the stages of the collection of the drug-related deaths statistics, such as in the degree of forensic investigations and in the number of substances included in toxicological analyses.

Altogether this implies that country comparisons in the rate of drug-related deaths should be done very cautiously also in comparisons of trends in drug-related deaths. This is the implication drawn from the Swedish case. Similar assessments of the possible impact of methodological changes also in other countries would be needed in order to draw more certain conclusions of the degree of comparability.