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Sentenced to death—after release!

Kariminia et al.1 present the results of a large register study of Australian prisoners’ long-term mortality where they linked the prison record system with the register of death certificates. The most striking results are the elevated mortality rates exceeding by far the mortality in the general population. Among 85,203 prisoners with a mean follow-up of 7.7 years, they observed 5137 deaths corresponding to a crude mortality rate of 7.9/1000 person-years, confirming that (ex)prisoners are a high risk group. Although the crude mortality was slightly higher for men, the standardized mortality rate (SMR) was twice as high for women ex-prisoners (3.7 vs 7.8).

Due to the size of the study, the authors were able to produce stable estimates of cause-specific mortality rates and analyse how these changed over time. One-third of deaths were drug related and overdose, suicide and accidental death contributed to 57% of all deaths. SMRs for alcohol, homicide and liver related deaths were five times higher for males and twice as high or more for women compared with the general population. The only good news was that over time a decline was seen in overall mortality primarily due to a decrease in overdose deaths. One would hope that this reflects an increased prevention and treatment effect in prisons and in the community. However, it may also be the result of a cohort effect with diminished prevalence of active drug use as the cohort grows older.

Mortality increased with number of convictions but not by duration of imprisonment. In this population, mortality was only half inside prison compared with outside, but still twice as high as in the general population. Compared to post-release mortality, death in prison is the lesser problem. Still is it acceptable that prisoners have twice the mortality of the general population—when this mortality is related to preventable causes such as suicide and overdose?

The standardized mortality rates observed in the Australian study are comparable to a British study among 12,500 released prisoners where a crude mortality of 8.0/1000 person-years (SMR 5.9) and drug related mortality of 4.6/1000 (SMR 3.4) was found.2 Also in a recent US study of 30,000 prisoners a SMR of 3.5 was found.3

The major limitation of the study is that the prisoners could not be classified according to drug use so the denominator of persons at risk for drug-related deaths was unknown. Therefore, the true mortality rate is probably even higher among drug users. Drug use was probably the reason for the elevated SMRs for women as they were more often drug users compared to men. In a 1996 representative survey in NSW prisons by Butler4, 41% of male and 64% female prisoners reported injecting drug use.

In a comparable Danish study of 6000 drug users, the post-release mortality was 16.8/1000 person-years (SMR 88.4).5 Assuming the 1996 IDU prevalence in NSW to be valid for the whole study period, the crude mortality rate would be close to 20/1000 person-years for drug users in the current study and in agreement with most IDU mortality studies.

The importance of drug use was illustrated in a publication of cause-specific mortality for 118,000 persons with hepatitis B or C in New South Wales between 1990 and 2002 (by some of the same authors). For hepatitis C positives (80% drug users), an observed mortality rate of 9.3/1000 was reported of which 4/1000 was drug related. Also, in this cohort a decline in drug-related deaths was seen from 1998 to 2002. But not surprisingly liver-related death was significantly increased in the hepatitis C cohort (SMR 16.2).

How many of the drug users were in treatment programmes? Did this population increase in the period of observation? This is not known. Substitution treatment is lifesaving for drug users and it is possible that this could be part of the reason for the observed decline in drug related deaths.6–8

The decline in drug-related deaths is very interesting and should be investigated further. Have the drug using population diminished, have they stopped injecting or have they stopped going to jail? A positive answer to any of the three questions would have important implications to harm reduction initiatives worldwide. We hope that Kariminia et al. will continue analysing the cohort and publish answers to these questions. As a surrogate of specific drug use registration, linkage with the hepatitis C register would be feasible as a surrogate marker for a drug use, as a hepatitis C positive prisoner is highly likely to be an injecting drug user at some time.5,9

Ninety-four per cent of observed deaths took place outside prison, but unfortunately, relation to time of release was not addressed. Several studies have demonstrated that drug-related mortality is associated with release and the first two weeks...
are an especially vulnerable period where mortality rates of 130–140/1000 person-years have been reported.\textsuperscript{3,5,10} This relates to drug users, who have lost their opioid tolerance in prison and therefore are exposed to an overdose when reassuming usual drug use.

How can we change these dire results? Dolan\textsuperscript{6} reported that the NSW prison system in 1997 treated 9\% of the prison population with methadone and during a 4-year follow-up study no deaths were seen among persons maintained on methadone compared to 20/1000 person-years among not treated. Therefore, improved access to methadone or buprenorphine treatment should probably be part of the prevention initiative in this group. This article illustrates the urgent need for improved prevention and treatment of drug-related morbidity and mortality among (ex)prisoners. As illustrated by Kariminia, these initiatives need to be extended far beyond release and into society if we want to diminish mortality in a vulnerable social group.

References