ALCOHOL DRUG FINDINGS *Research analysis*

Impact of opioid substitution therapy for Scotland's prisoners on drug-related deaths soon after prisoner release.

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Failure to find effects concentrated in the first two weeks after release persuaded analysts that widespread methadone prescribing in Scottish prisons from 2002 did not reduce the rate of drug-related deaths after release. But over 12 weeks the rate did fall substantially, and methadone treatment may have helped.

SUMMARY Especially in the first two weeks, recently released prisoners – notably those with a history of injecting heroin – are at very high risk of drug-related death due to resumption of opiate use after while in prison losing their acquired ability to survive large doses of these drugs ('tolerance'). Opioid substitute prescribing programmes like methadone maintenance mounted in prison might help prevent these deaths by sustaining tolerance. If there was such an impact, it is likely to be most noticeable in the first two weeks after release; after this tolerance is likely to be re-established in any event due to regular opiate use.

However, studies from New South Wales in Australia have cast doubt over whether prison methadone does protect against post-release overdose. The main Australian study had compared the post-release death rate among formerly opiate-dependent prisoners who had versus had not been prescribed methadone or buprenorphine in prison. Instead the featured study from Scotland compared death rates among all newly released prisoners in the period 1996–2002 – before the widespread introduction of methadone maintenance in Scottish prisons – with the rate in 2003–2007 after this policy had been introduced in 2002.

From 2002 prisoners were eligible for methadone maintenance if they had been in the treatment before starting their sentence and tested positive for methadone. Other opiate-dependent prisoners were instead offered detoxification treatment. By 2003, 14% of all prisoners received methadone rising to 21% by 2010. That year a study found that 57% of prisoners with a history of injecting drugs were in an opioid substitute prescribing programme while in prison.

Key points
From summary and commentary

In Scotland the rate of drug-related deaths shortly after release from prison fell after the advent in 2002 of widespread methadone prescribing in prisons for offenders prescribed methadone before starting their sentences.

However, the reduction was no greater during the highest-risk first two weeks after release than in the next ten, leading to the conclusion that the prison programmes had not caused the fall in the death rate.

Nevertheless these programmes may have helped save lives across the 12 weeks after release, and if they did not, the reason might have been a failure to capitalise on the opportunity they gave to seamlessly transfer prisoners to continued treatment.

To assess whether this rapid expansion reduced drug-related deaths during the first 12 weeks after release from prison, the featured study linked the records of all prisoners in custody between 1 January 1996 and 31 December 2007 to registrations of deaths which occurred outside prison. To give time for any impacts to emerge, the study was limited to releases after at least two weeks' imprisonment and which occurred at least 14 weeks after any previous release. Among the deaths, 'drug-related deaths' were identified as those due to poisoning by psychoactive drugs or to drug dependence or abuse or other drug-related disorders.

The death rate was calculated in two ways: firstly, as the number of deaths per 1000 releases from prison; secondly, as equivalent to the number of deaths per 100 people at liberty for a year – '100 person-years'. The second calculation takes into account the fact that different prisoners were at risk of drug-related death for differing periods.

Main findings

During 1996–2007 there were 150,517 releases from prison in Scotland (involving 131,472 individuals) after at least two weeks in prison and at least 14 weeks after any previous release. On 817 occasions the former prisoner died within 12 weeks of their release, of which 459 were drug-related deaths, including 70% of all deaths among 15–34-year-olds. From 2002 opioids contributed to 86% of the drug-related deaths.

Per 1000 prison releases, the rate of drug-related deaths in the 12 weeks after release fell from 3.8 in 1996–2002 to 2.2 in 2003–2007 after the introduction of the opioid substitute treatment policy, a statistically significant reduction evident among younger (15–34) and older prisoners. Similarly, expressed as per 100 person-years, the rate also fell from 1.9 to 1.2. However, the introduction of the prescribing policy in 2002 was not followed by any material change in the proportion of these deaths which happened in the highest risk period – the first two weeks after release. This remained at around 56–57%, and remained static when restricted to deaths related to opioid use.

The authors' conclusions

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After the introduction of the opioid prescribing policy in Scottish prisons the post-release drug-related death rate fell substantially and significantly, but the proportion of these deaths which occurred in the first two weeks did not appreciably reduce. This pattern does not suggest the policy was responsible for the fall in post-release drug-related deaths.

The most likely alternative explanation is that during the study period methadone prescribing outside prison became more accessible and quality assurance procedures improved, helping protect newly released prisoners by making more and safer methadone treatment available to them after release. These developments are also thought to have helped reduce the rate of methadone-related deaths nationally per dose prescribed.

FINDINGS COMMENTARY The featured article found the post-release rate of drug-related deaths fell after the expansion of prison methadone programmes and that it did so by about the same degree in the highest-risk first two weeks after release as in the next ten. This equality of reduction across the 12 weeks led to the conclusion that the prison programme did not cause the fall in the death rate. Instead, the authors thought, increased access to and safety of methadone programmes *outside* prison offered an improved safety net to newly released prisoners.

Nevertheless it remains possible that prison methadone programmes in Scotland did save lives on release, and also that if they did not, the reason might have been a failure to capitalise on the opportunity the programmes afforded to seamlessly transfer more prisoners to continued treatment on release. These possibilities are explored below.

Did prescribing end before release?

One decisive factor would have been whether methadone prescribing typically continued to within days of release. Protective tolerance to opiate-type drugs induced by regular use of methadone is lost to a degree which (if previous doses are resumed) risks overdose after just three days, and is more or less completely lost after about a week. Prisoners optimistic that they could manage without opiate-type drugs after prison, or who feared they would not be able to quickly re-enter methadone treatment, may have been tempted to cut their dose of methadone in the final weeks of their sentence or stop treatment altogether.

How often this happened in Scotland is not known, but in New South Wales we know that generally prisoners prescribed methadone in prison were still being prescribed it at their release. In that study, having been prescribed methadone in prison *was* associated with a dramatically reduced chance of dying in the first four weeks after release. After then, it seemed only modestly and non-significantly protective. These associations held regardless of whether the prisoner continued or rapidly resumed their treatment on release.

The importance of continuity

Apart from any direct effect, encouraging and/or facilitating seamless transfer to post-release treatment is one way prison programmes can reduce harm and potentially save lives. In the featured study, a break in treatment after release of just a few days would have been enough to escalate the risk of overdose death. Any such deaths would still have been counted within the first two weeks after release. The implication is that the pattern of death rate trends which convinced the analysts that methadone in prison did not save lives may have been partly due to a failure to immediately follow this with methadone treatment on release.

In New South Wales, regardless of whether the prisoner had been prescribed opioid substitutes in prison, receiving this treatment during the four weeks following release was associated with a greatly reduced death rate during those weeks and in the remainder of the study period. In a US randomised trial, compared to just having a funded treatment slot arranged on release, starting methadone in prison meant that within the first month another 45% of offenders took up that slot; even by the end of the six-month follow-up the difference was 21%. The result was reduced heroin and cocaine use, and the findings also offered a strong indication that ensuring seamless transfer to methadone saved lives. If this mechanism was also at play during the featured study in Scotland, it is likely that it would have helped save lives not just in the two weeks after release, but also in the subsequent weeks, helping account for why the reduction was no greater in the first two weeks.

How far continuity of treatment was maintained during the years examined by the featured study is unclear. In the years after methadone prescribing expanded in Scottish prisons the Transitional Care Initiative sought to link problem drug users leaving prison to community services, but just 28% of offenders attended a post-release appointment. Such appointments would not be needed to restart methadone treatment, but they were designed to pave the way to seamless care. After that scheme was replaced in 2005 it was found that 41% of former prisoners kept their initial appointments under the new scheme, though only 15% attended all six scheduled appointments. Transfer from November 2011 of prison health care from the Scottish Prison Service to local health service boards would it was hoped improve continuity of treatment between prison and the community. At that time improving continuity was still seen as a priority by Scotland's National Forum on Drug-related Deaths.

Prison methadone has other benefits

Preventing overdose deaths after release is one of the possible benefits of in-prison maintenance prescribing, but there are others. A review judged the evidence for post-release overdose prevention inconsistent, but found stronger evidence that while patients are still in prison these programmes reduce opioid use, injecting, and sharing of injecting equipment, and that after release they promote treatment entry and retention and generally too are associated with reduced opioid use. See the Effectiveness Bank commentary on that review for UK policy.

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