DRUG & ALCOHOL FINDINGS *Research analysis*

This entry is our analysis of a study considered particularly relevant to improving outcomes from drug or alcohol interventions in the UK. The original study was not published by Findings; click Title to order a copy. Free reprints may be available from the authors – click prepared e-mail. Links to other documents. Hover over for notes. Click to highlight passage referred to. Unfold extra text The Summary conveys the findings and views expressed in the study. Below is a commentary from Drug and Alcohol Findings.

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▶ A randomized, open label trial of methadone continuation versus forced withdrawal in a combined US prison and jail: findings at 12 months post-release.

Brinkley-Rubinstein L., McKenzie M., Macmadu A. et al.

Drug and Alcohol Dependence: 2018, 184, p. 57–63.

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From the USA, a rare randomised trial found in favour of continuing methadone maintenance when patients entered prison rather than compulsory withdrawal. The potential benefits were most apparent in the near-100% continuation of protective treatment during the highly overdose-prone weeks after leaving prison.

SUMMARY Pre-prison heroin use is common among prisoners in the USA [and the UK], and they are at extreme risk on leaving prison. Methadone maintenance – long-term prescribing at stable doses of the heroin substitute methadone – helps prevent overdose and has extensive benefits when implemented in prisons with linkage to community services on release, but little is known about its long-term effects.

To shed more light on this issue the featured study recruited prisoners in the USA's Rhode Island prison system on short sentences (one week to six months) who were being prescribed methadone immediately before starting their sentence, and for whom this had continued during their first week in prison, preparatory to the standard compulsory tapering-dose detoxification. They had to endorse a desire to be maintained on methadone throughout their time in prison and after release.

Key points
From summary and commentary

US prisoners on short sentences prescribed methadone before starting their sentence were randomly allocated to continue their treatment in prison versus compulsory detoxification.

In the first month after leaving prison virtually all maintained prisoners continued their treatment compared to 71% allocated to detoxification, and about half as many had used opioids or injected, differences which can be expected to have protected them against overdose and infection.

Results were complicated by the fact that many detoxification patients actually left prison still being prescribed methadone. Combining these with the maintenance patients suggested that leaving while still on methadone reduced non-fatal overdoses after release and promoted continuous methadone treatment.

Over the year after they left prison the featured study evaluated the benefits of randomly allocating some to continue be maintained on methadone in prison (if stabilised, at about the same dose) versus detoxification. After the first week in prison, the latter gradually reduced methadone doses to zero over typically four to six weeks or sometimes longer depending on the starting dose, meaning some prisoners allocated to detoxification were still taking methadone on their last full day in prison. All the study's participants were helped to transition to methadone treatment after leaving prison by arranging transport and appointments and (for patients without medical insurance) funding the first 10 weeks of treatment. In addition to interviews with the prisoners, administrative records were available of their methadone treatment after release, their re-imprisonment, emergency department attendance, and any deaths.

An earlier report on the trial had assessed outcomes up to one month after leaving. Both articles are drawn on in this account.

Between 2011 and 2013, 506 prisoners were assessed for the study of whom just 25 refused to join it or withdrew. Some were also excluded due to too short or too long a sentence, leaving 223 randomly allocated to the treatments, of whom 179 completed the 12-month follow-up interviews, though administrative data was available for other prisoners. The 179 represented 85% of the 211 prisoners alive at the time and not continuously incarcerated between the six- and 12-month follow-ups. There were no statistically significant differences between those who completed a 12-month interview and those who did not. Participants were typically white men in their early 30s serving sentences averaging 45 days. About 4 in 10 had not completed their high school education. On average they were being prescribed 93mg methadone daily before entering

prison.

Though 83 of the followed-up prisoners had been allocated to detoxification, just 51 had completed it and were no longer taking methadone the day before their release. On average they had been methadone-free for 52 days. As well as dividing the sample according to their random allocation, the researchers also divided them into the 51 actually no longer on methadone when they left prison versus the remainder who were, regardless of their random allocation – effectively dividing the sample into those who in practice had been prescribed methadone through to the end of their imprisonment and those who had not.

Main findings

In the first month after leaving prison the benefits of being allocated to maintenance were apparent even when the 'detoxification' comparator included patients still on methadone when they left. Over the year after leaving, statistically significant benefits only emerged when the comparison was between patients actually on versus no longer on methadone when they left prison, a comparison which might have been affected by other factors, notably those related to the longer prison terms of patients no longer on methadone. Among the 179 interviewed a year after leaving prison, those fully withdrawn from methadone before leaving had typically served 80 days, those still on methadone, just 30 days.

In more detail, in the first month after leaving virtually all (97%) the prisoners allocated to maintenance attended a methadone clinic to continue their treatment compared to 71% allocated to detoxification, and about half as many had used opioids (8% versus 18%) or injected drugs (17% versus 32%). The contrast in treatment uptake was sharper still when the comparison was between patients actually on versus no longer on methadone when they left; every one of the patients on methadone at release attended a clinic but just under half (48%) who had completed detoxification.

By a year after leaving – well after the 10 weeks of funded treatment had expired – there remained slight differences between the randomly allocated groups, but none were statistically significant, meaning according to the study's criteria that chance findings could not be ruled out. About 44% allocated to maintenance had continually been in methadone treatment since the month after leaving compared to 39% of the compulsory withdrawal group. In the final month of the 12-month follow-up, roughly equal proportions had been prescribed methadone or buprenorphine (around 70%) or used heroin (28–29%).

There were, however, statistically significant differences at one year between the 128 patients actually on versus the 51 no longer on methadone when they left prison. Proportionately fewer on-methadone patients had used heroin (24% versus 39%) or injected drugs (18% versus 39%) over the last of the 12 months. Over the entire 12 months, they were less likely to have experienced a non-fatal overdose (7% versus 18%) and more likely to have continually been in methadone treatment since the month after leaving prison (45% versus 26%). Though all relevant measures favoured the on-methadone group, there were no statistically significant differences in the proportions re-imprisoned or arrested.

Based on actual methadone status on release, 22% of those still on methadone had started a drug-free outpatient programme, over twice the proportion not on methadone at release, and proportions starting residential or detoxification treatments were roughly the same regardless of methadone prescribing at release.

The authors' conclusions

Providing methadone maintenance to prisoners can affect outcomes over the following year including continuous methadone treatment engagement, using heroin, injecting drugs, and non-fatal overdose. Based on these findings, such programmes should be extended and linkage provided to continued treatment on release.

The results corroborate previous research which found pharmacotherapies for opioid dependence in prison significantly reduce mortality in prison and after release, and the likelihood of engaging in behaviours which risk infection with blood-borne diseases.

Prisoners still being prescribed methadone on the day before their release were more likely to engage in continuous treatment during the follow-up period, but effects were modest. One reason could have been the need to pay for treatment after the 10 weeks funded by the study. Most leavers did not have medical insurance and before imprisonment had been enrolled in a state-funded treatment programme to which they lost access when imprisoned. Supportive services that address financial and other barriers that may prohibit long-term engagement in methadone treatment should be considered essential.

Differences in the lengths of their prison terms between those who received methadone the day before their release and those who did not could have affected results of the analyses based on this distinction. The study did not address the issue of methadone treatment for prisoners in prison for over six months.

FINDINGS COMMENTARY The featured study adds to the evidence reviewed in 2012 which found potential health benefits from prison methadone and buprenorphine programmes, largely contingent on the treatment being seamlessly continued. Across the reviewed studies, about 85% of maintenance patients continued treatment versus just 15% of comparison prisoners, and six months after release over 50% versus less than 5% were in treatment. All but one of five relevant studies found significant reductions in heroin use among maintenance patients versus comparison prisoners; the exception was a low-dose (30mg daily) programme. The weight of the evidence indicated (but inconsistently) that patients who had received opioid maintenance in prison were less likely than comparison prisoners to return to prison over generally the following year. One study found prisoners offered maintenance in prison plus guaranteed continuation on release were far less likely to die over the following year than prisoners offered neither.

Other reviews (1 2) have found evidence that maintenance in prison could help prevent spread of blood-borne diseases by reducing heroin use in prison (one review found the reduction was by 55–75%) and also injecting and the sharing of injecting equipment, without in other ways adversely affecting the health of staff or prisoners.

About the featured study

The featured study does not just add to but extends this evidence. It is a rare example of a trial which tried to eliminate differences between maintenance and comparison prisoners by random allocation. It was confined to patients being prescribed methadone before entering prison, the prime candidates in UK policy for maintenance treatment in prison. Comparison prisoners were not left to their own devices but underwent gradual detoxification, and both sets of patients were offered facilitated access to free methadone treatment on release, testing maintenance against a relatively strong comparator.

The standard treatment in the prison system was gradual detoxification. Prisoners who wanted to detoxify had little to gain from joining the study, and only prisoners who endorsed a desire to be maintained were allowed to join. Effectively the study tested what happens when prisoners who want maintenance are given they want or denied it. For this reason the results were almost certainly tipped in favour of maintenance, but in a way which would usually be replicated in normal practice; if either treatment option is to be denied in prisons, it will usually be maintenance, and no prisoner who wanted to be detoxified would be forced to be maintained.

Nevertheless, whether maintenance was rapidly taken up after leaving prison substantially depended on whether the during their sentence the prisoner had been allocated to maintenance rather than detoxification, and even more so, on whether they were actually taking methadone at the time of their release. Rapid post-release treatment entry almost certainly was the reason why in the weeks after leaving – a period when they would have been highly vulnerable to overdose – fewer heightened their risk of death by using opioids or injecting. Regardless of longer term findings, these are important advantages gained by allowing their choice to prisoners who want to continue their maintenance throughout a short prison sentence, a very common situation in British prisons.

Given the need later in the follow-up year for many to pay for treatment, it not surprising that in months two to 12 there was little difference in the proportions in continuous methadone treatment and (probably as a result) also little on other measures. Importantly, there was no indication that maintenance in prison either as a random allocation or as it turned out in practice deterred entry into drug-free treatments on leaving.

The contrast between the treatments was muddied by the fact that so many of the prisoners allocated to detoxification were still being prescribed methadone at their release, itself a function partly of much shorter average prison terms than the remainder of the sample. In turn this may indicate less serious criminality and a greater chance of their overcoming their dependence due to a shorter time for disruption of their lives outside prison. If this was the case, it would mean the comparison between patients on versus not on methadone at release would have been biased towards finding good outcomes among those on methadone, undermining somewhat the validity of this comparison, the only one which found significant longer-term benefits from maintenance.

UK policy and practice

Rejection of needle exchange in UK prisons leaves opiate substitute prescribing as the main at least modestly evidence-based way (1 2 3 4 5) to reduce the spread of infections related to drug injecting and to gain other benefits including overdose prevention. It seems likely that the main way opioid maintenance in prisons saves and improves lives on leaving is by promoting

continued treatment of the same kind, benefits contingent on this being easily accessible and of acceptable quality and dosage. In the UK, prisoners released on licence can be required to attend certain treatment services, but this applies only to sentences of over a year, and methadone-maintained patients leaving prison have no guaranteed immediate access to similar treatment in the community.

For prisons UK policy advocates the 'equality' principle, meaning that if circumstances are the same, so too should be the health care inside and outside prison. However, in the case of addiction treatment, circumstances are *not* the same due to impeded access to illegal drugs in prison and discipline and control requirements. Interpretation of what this means for treatment has differed. Across Britain the generally short terms served by opioid-dependent prisoners have become dominated by substitute prescribing rather than detoxification, a reversal from the balance in the mid-2000s. Though there is no single set of figures to answer this question, from the patchwork we have it seems likely that treatment provision in UK prisons for opiate users does not lag very far behind treatment need. The success rate of transfer to treatment after leaving prison for opiate users may in England be around 60%. In Scotland with a dedicated service to help ensure this, one would hope figures were at least as good, but none have been published. Details below.

England and Wales

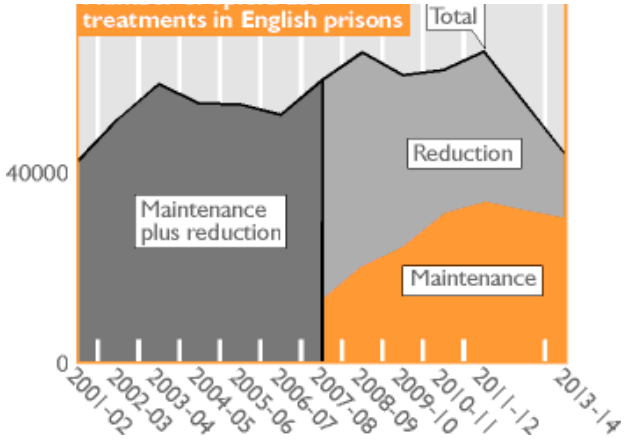
In 2006 official clinical guidelines on prison treatment in England said pre-prison opioid maintenance programmes should normally be continued, and that maintenance should also be offered to dependent opiate users on short sentences. Another option was raising pre-release doses to previous maintenance levels as a form of post-release overdose protection for offenders prone to relapse. In contrast, in 2010 an 'update' expressed concern that "some prescribing may be clinically inappropriate," and in particular wanted to "ensure that prisoners do not remain on open-ended maintenance regimes when detoxification or a gradual reduction tailored to the individual's need would be … more appropriate". In line with policy outside prison, it sought to tip the balance towards non-drug based treatment, most firmly for prisoners on sentences exceeding six months who "should be made aware [that] they will be expected to work towards becoming drug free".

Prompted by the prison service being sued for enforcing 'cold-turkey' withdrawal, in 2006 another development in England sought to improve prison treatment, especially by stabilising withdrawal symptoms after prison entry. Another aim was to improve continuity of care between prisons and the outside community. With this also in mind, in 2016 the Welsh prison service joined with the South Wales Police and Crime Commissioner to commission a case-management system spanning prison and the outside community to promote continuity of care.

In their 2016–17 annual report the prisons inspectorate judged substance misuse services in England Wales "generally of high quality and easily accessible," though there was still some poor practice in arranging prescribing after prison entry and in supervising the consumption of medication. At a few prisons, "high levels of drug availability and a poor regime made it difficult for prisoners to work towards abstinence".

For only the second year we get a picture of how these service and policy developments have panned out in practice from statistics on adult substance use treatment in prisons and other secure settings (the term 'prison' is used here for all these) in England. Covering 2016/17, they record that 20,218 prisoners with opiate use problems newly started treatment, of whom 11,406 did so after being taken into custody rather than transfer from another secure setting. Adding in prisoners already in custody during the year, 59,258 were in contact with prison drug and alcohol treatment services, half (29,626) with problems related to opiate use. Of these, 79% were prescribed medications as part of their treatment, nearly all for under 12 months, seemingly mostly in the form of opioid substitution treatment. This cannot generally have lasted very long, because nearly two-thirds of the latest treatment episodes in the year involving opiate users lasted 12 weeks or less, and the average length of an opioid maintenance treatment episode for opiate users was 58 days, curiously less than the 74 days for withdrawal. Interpretation of these figures is obscured by not knowing how long each offender served and what proportion of their sentence was spent in treatment. Most offenders receiving drug treatment in prison are there for three months or less and often for just a few weeks on remand, suggesting that a 58-day maintenance regimen could have occupied all or most of many sentences.

The statistical report above does 



not give a figure for opioid maintenance treatments, but we can find those by going back a few years. A reply to a question in Parliament revealed that in 2013/14 in English prisons, 29,717 opioid maintenance treatments had been provided, well over double the number of opioid reduction (ie, detoxification) treatments. The balance has shifted dramatically since 2007/8, when there were just 12,518 maintenance treatments versus 46,291 detoxifications. By 2010/11 the figures were roughly even at just over 30,000. The following year 64,916 treatments were provided of which 33,198 were on a maintenance basis. By 2013/14 the combined number of interventions had fallen to 43,372 largely due to the rapid reduction in detoxifications from 31,718 in 2011/12 to 13,655, while maintenance treatment reduced only slightly from 33,198 to 29,717 ▸ chart. How reliable figures before 2013/14 are is unclear.

The brevity of most prison terms for opioid users makes follow-on treatment a priority because a full course of treatment is generally not possible while in prison. Of the 29,626 opiate users in treatment in England during 2016/17, 11,882 were still in treatment at the same prison at the end of the year. Another 11,501 had left and been referred to treatment outside prison and 2,808 to treatment in another secure setting.

Two sources indicate how successful referrals to community treatment were. In 2016/17, 6,880 adults with opiate use problems started treatment in England after being referred from prison, suggesting that around 60% (6,880 of 11,501) of referrals from prison resulted in treatment entry. Across all substances including alcohol, in 2016/17, 30% of prisoners assessed as needing treatment were engaged in treatment within three weeks of leaving prison, totalling 9,005 individuals, implying that about 29,719 had left prison in need of treatment.

For figures on the need for treatment among prison entrants we must turn back to an analysis published in 2013 of a survey of adults newly sentenced to between one month and four years in England and Wales in 2005 and 2006. It found that 40% of the sample had ever used heroin, and that of these, 83% had done so in the past 12 months, and of these, 90% in the four weeks before custody. It means that of this sample, about 30% entered prison having used heroin in the past four weeks.

In 2016, 86,258 people were received into prisons in England and Wales of whom 41,496 had been sentenced, 13,549 to between six months and four years. Applying the 30% to the total suggests about 25,900 had used heroin recently enough to be possibly be in need of treatment, but this assumes that the proportion applied beyond the population sentenced to four months to four years from which it was derived. This speculative estimate can be compared to the 11,406 people newly imprisoned in England in 2016/17 who were actually treated for opiate use problems during the year.

Scotland

It was hoped that transfer from November 2011 of prison health care from the Scottish Prison Service to local health service administrations would improve continuity of treatment between prison and the community. Before the transfer, in 2011 health care standards for Scottish prisons said opioid substitute prescribing “should be offered where appropriate and where a community prescriber has been identified to continue treatment after release,” interpreted in practice as not offering the treatment unless it can be confirmed that a community prescriber will continue it on release. After the transfer the Scottish Prison Service and health partners recommended that prisons “Support recovery through secure substitute prescribing of methadone.” The rider that “There

should be a clear policy for reduction in order for prisoners not to feel anxiety and to reduce the likelihood of their topping up on illegal drugs" seems (if ambiguously) to advocate reassuring prisoners that they will not be withdrawn from methadone.

The recommendations refer back to the pre-transfer Scottish Prison Service strategy released in 2010. The strategy was, it said, built on "the principles of recovery". It promised to ensure "equity of access to treatment and rehabilitation services, which are broadly equivalent to those available in the community" and to link prisoners to "vital throughcare [continuity of care after leaving prison] services". In 2018 the Scottish Prison Service identified a further turn towards a recovery focus since the transfer of responsibility to local health administrations, and highlighted the service's Throughcare Support Service. Implemented in 2015, this was intended to promote a coordinated approach to the provision of support to prisoners serving less than four years, bridging their entry into prison, their sentence, and their transition back to the community and initial resettlement. An evaluation of the service noted that there were 42 throughcare support officers in 11 prisons. Their work was hands-on, including meeting prisoners at the prison gate and taking them to appointments at addiction treatment and other services, and supporting them to engage with these services. By prisoners among others, the initiative was thought to have had a positive impact on tackling problem substance use.

Some figures help gauge the need for and provision of opioid use treatment in Scottish prisons. On entry to prison, in Scotland in 2016 33% of prisoners tested positive for opiates, up on 25% the year before. In 2017 a survey of prisoners found 39% of respondents admitted to illegal drug use in prison. A fifth of respondents reported being prescribed methadone in prison, just under half (48%) on a maintenance basis, almost a third (32%) on a stabilising dose, and just over a fifth (21%) on a reducing dose.

A report on hepatitis C in Scottish closed prisons explicitly made the links between the high coverage of methadone maintenance in the prisons, the resulting low level of injecting, and the very low incidence of new infections. It was based on a survey of prisoners in 2010 and 2011, responded to by 68% of the prison population on survey days. About a third of the respondents had a history of injecting drugs, of whom 57% were currently in prison-based opiate substitute prescribing programmes, amounting to 18% of all prisoners. Three-quarters of the injectors reported receiving methadone in prison within the last six months. Just three of over 5000 prisoners were likely to have become infected with hepatitis C during their current spells in prison, thought related to the fact that very few (2.5%) said they had injected during these imprisonments, and those who had, usually only a few times. However, when injecting happened, most (58%) of the time it was with equipment previously used by another injector. The proportion of prisoners who had injected was unrelated to whether in the last six months they had been in a prison methadone programme.

Together with the previous figures, the implication is that treatment provision in Scottish prisons for opiate users is behind, but not very far behind, treatment need.

Threats to effective maintenance

In the name of abstinence-based recovery, opioid maintenance prescribing in prisons is under attack in England and Wales and in Scotland. For these critics, prison is a prime opportunity to break entirely from the use of opiate-type drugs, legal or illegal, an opportunity squandered by extended prescribing of substitute drugs. However, the figures given in the sections above suggest these attacks have not prevented a move away from detoxification to maintenance.

From April 2013, in England the commissioning landscape changed in ways which may erode the gains made in recent years in securing a place

for methadone maintenance in English prisons. National expertise, specialist national services, and advice and support to local commissioners, are being provided by Public Health England, which absorbed the National Treatment Agency for Substance Misuse. Locally the treatment budget formerly administered by that agency has been allocated to local authorities to help fund their public health responsibilities, including the prevention and treatment of alcohol and drug problems. Criminal justice treatment-support funding is now under the control of police and crime commissioners, and prison health services (including drug and alcohol treatment) have become the responsibility of NHS England, formerly known as the NHS Commissioning Board.

This fragmentation of commissioning for treatment in prison, as part of community sentences, and in routine medical care, was in 2012 seen by the National Treatment Agency for Substance Misuse as a "potential threat to the gains made through integration" which might "jeopardise existing improvements to the continuity of care created through the local integration of commissioning".

Apart from these specific threats are the pressures on overcrowded prisons and the withdrawal of funding from community treatment provision. All else being equal, these pressures would tend to make it more difficult to successfully mount in-prison treatment programmes and to continue these on release.

For more on opioid substitution treatment of offenders run this search in the Effectiveness Bank.

Thanks for their comments on this entry in draft to Sarah Larney of the National Drug and Alcohol Research Centre at the University of New South Wales in Australia. Commentators bear no responsibility for the text including the interpretations and any remaining errors.

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