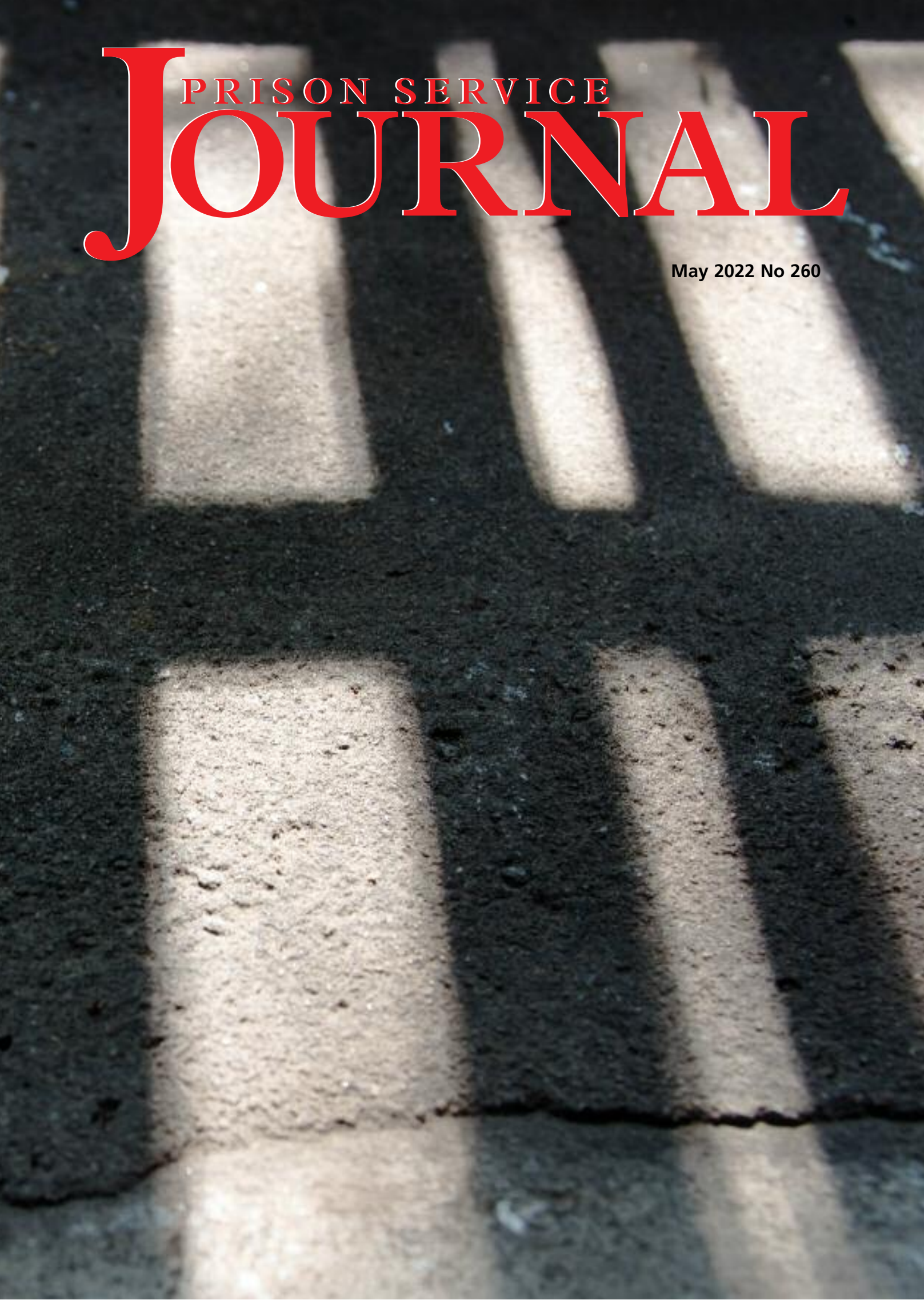

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Understanding and Preventing Drug-related Deaths, and Encouraging Treatment Uptake, after Release from Prison

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High rates of mortality after release from prison, many times higher than the death rates for the general population, have been recorded in many countries, including the UK.[1] In England and Wales the number of people who died under post-release supervision reached a record high of 526 in 2018/2019, falling to 458 in 2019/20.[2] In both of these years, 32-35 per cent of the deaths were self-inflicted (a definition which includes drug-related deaths), and 9-11 per cent were in the first two weeks post release. Definitions and recording of drug-related death (DRD) however vary across jurisdictions, so official figures may be underestimating the scale of the problem, and comparisons between countries can be problematic. The risk of DRD, especially opiate-related, is a particular concern. Restricted access to illicit substances while in custody can reduce physical tolerance, leading to greater risk of accidental death if the person relapses once back in the community. The risk is especially high, and the leading cause of death, in the first few days and weeks after release, after which this risk appears to gradually decrease.[3]

It is important to understand what factors are related to increased risk of DRD in the early days post-release, and the ways we can intervene to reduce this risk, including helping people enter into drug treatment upon release back into the community. Officially recorded data indicates that uptake of community treatment post-release is as low as 30 per cent in some areas.[4] The empirical evidence in this area is somewhat hampered by primarily relying on officially recorded data, which means we know less about people's circumstances and experiences leading up to their deaths, which could help us to better intervene. To date, there has been more focus on suicide in prisons and less focus on deaths immediately post-release.

Within this paper we aim to summarise the peer reviewed published literature on the risk factors related to DRD, as well as the literature around uptake of treatment post-release. A comprehensive literature search was conducted, primarily using EBSCO and Google Scholar. Approximately 140 published articles were sourced and read, and this paper summarises the findings from these. Not all papers are cited as we prioritised the more rigorous and most recent studies. The themes from this review have been grouped under the following sections: who is most at risk of DRD post-release, pharmacological interventions to reduce DRD, and continuity of care.

Who is at greatest risk of DRD post-release?

Whilst some factors associated with being at greater risk of DRD after release from prison have been identified, our understanding is far from comprehensive or complete. Factors that are more easily recorded (e.g. demographics) have been studied more than social, psychological or lifestyle factors. And within the existing evidence base there are some suggestions of different patterns relating specifically to different groups (to men

1. Graham, L., Fischbacher, C. M., Stockton, D., Fraser, A., Fleming, M., & Greig, K. (2015). Understanding extreme mortality among prisoners: a national cohort study in Scotland using data linkage. European Journal of Public Health, 25, 879- 885.
2. Ministry of Justice. (2020). *Deaths of Offenders in the Community, England and Wales, 2019/20.*
3. For example see: Zlodre, J., & Fazel, S. (2012). All-Cause and External Mortality in Released Prisoners: Systematic Review and Meta-Analysis. *American Journal of Public Health,* 102, 67-75; Merrall, E. L. C., Kariminia, A. Binswanger, I. A., Hobbs, M. S., Farrell, M., Marsden, J., Hutchinson, S. J., & Bird, S. M. (2010). Meta-analysis of drug-related deaths soon after release from prison. Addiction, 105, 1545–1554.
4. Public Health England (2021). Alcohol and drug treatment in secure settings 2019 to 2020: report. Found at: Alcohol and drug treatment in secure settings 2019 to 2020: report - GOV.UK (www.gov.uk)

or to women, for instance, or to people in different ethnic groups) that need further study.

Prior history of substance misuse

An assessment indicating a substance misuse disorder, problems with opioids/sedatives, a history of injection drug use, poly drug use, previous drug overdose, and pre-sentence daily opioid use have all been linked to significant greater risk of DRD.[5] Not using drugs in prison has also been found to be associated with increased risk; possibly due to decreases in drug tolerance while in custody.

Sentence length and conviction type

Spending longer in custody appears to be associated with lower risk of DRD immediately after release.[6] However, evidence is not currently available as to the sentence length thresholds that constitute a lower risk. Having more periods of incarceration, and multiple short periods, appears to be associated with higher risk.[7] Evidence relating to conviction type and DRD risk is sparse and often conflicting in its conclusions.[8]

Demographic variables

While increasing age is associated with increasing all-cause mortality rates for people leaving prison, a different pattern is found for DRD specifically.[9] Although there are some differences in research findings, multiple studies suggest that people in their late 20s and early 30s are at greater risk than those who are younger. The research is not clear about when (age-wise) risk declines. There is an unclear picture in relation to gender, and while differences in risk have been identified for different ethnic groups, the pattern is, again, not consistent within the current literature.

Mental health

Being treated for mental illness, prescribed psychiatric medication pre-release, and being hospitalised for mental illness while in custody, have all been associated with higher post-release DRD risk.[10]

Social and lifestyle factors

While some studies in this area are robust and use large samples, the number of studies is not high, and therefore findings should be considered tentatively.[11] Being single, having no qualifications, lacking social support, and living off crime were identified as significant predictors of DRD post-imprisonment in a UK study. Being married or in a common-law partnership was identified as protective in a Scottish sample. Factors such as disruption of social networks, interrupted medical care, poverty and stigma have also been associated with increased DRD risk. Qualitative research indicates the potential importance of family. For example, some family members report wanting to receive overdose prevention training, but in other cases family members may use drugs or alcohol and so heighten the presence of triggers for the released person. Family members may also have attitudes towards pharmacological treatment options that could influence help-seeking and treatment uptake.[12]

5. For example see: Binswanger, I. A., Nguyen, A. P., Morenoff, J. D., Xu, S., & Harding, D. J. (2020). The association of criminal justice supervision setting with overdose mortality: a longitudinal cohort study. *Addiction, 115*, 2329–2338; Spittal, M. J., Forsyth, S., Borschmann, R., Young, J.T., & Kinner, S. A. (2019). Modifiable risk factors for external cause mortality after release from prison: a nested case–control study. *Epidemiology and Psychiatric Sciences*, 28, 224–233; Leach, D., & Oliver, P. (2011). Drug-Related Death Following Release from Prison: A Brief Review of the Literature with Recommendations for Practice. *Current Drug Abuse Reviews*, 4, 292-297; Singleton, N., Pendry, N., Taylor, C., Farrell, M., & Marsden, J. (2003). Drug-related mortality among newly-released offenders. *Home Office Online Report, 16/03*.
6. For example see: Graham, L., Fischbacher, C. M., Stockton, D., Fraser, A., Fleming, M., & Greig, K. (2015). Understanding extreme mortality among prisoners: a national cohort study in Scotland using data linkage. *European Journal of Public Health,* 25, 879-885.
7. For example see: Bukten, A., Riksheim Stavseth, M., Skurtveit, S., Tverdal, A., Strang, J., & Clausen, T. (2017). High risk of overdose death following release from prison: variations in mortality during a 15-year observation period. *Addiction, 112*, 1432–1439.
8. For example see: See Binswanger, et al. (2020).
9. For example see: Binswanger, I. A., Blatchford, P. J., Lindsayd, R. G., & Sterne, M. F. (2011a). Risk factors for all-cause, overdose and early deaths after release from prison in Washington state. *Drug and Alcohol Dependence,* 117, 1– 6; Kariminia, A., Butler, T. G., Corben, S. P., Levy, M. H., Grant, L., Kaldor, J. M., & Law, M.G. (2007a). Extreme cause-specific mortality in a cohort of adult prisoners – 1988 to 2002: a data-linkage study. *International Journal of Epidemiology*, 36, 310-316.
10. For example see: Binswanger, I. A., Stern, M. F., Yamashita, T. E., Mueller, S. R., Baggett, T. P., & Blatchford, P. J. (2015). Clinical risk factors for death after release from prison in Washington State: a nested case–control study. *Addiction, 111*, 499–510; Leach, D., & Oliver, P. (2011). Drug-Related Death Following Release from Prison: A Brief Review of the Literature with Recommendations for Practice. *Current Drug Abuse Reviews*, 4, 292-297.
11. For example see: Joudrey, P. J., Khan, M. R., Wang, E.A., Scheidell, J. D., Edelman, E. J., McInness, D. K., & Fox, A. D. (2019). A conceptual model for understanding post-release opioid-related overdose risk. *Addiction, Science and Clinical Practice*, 14, 17; Singleton, N., Pendry, N., Taylor, C., Farrell, M., & Marsden, J. (2003). Drug-related mortality among newly-released offenders. *Home Office Online Report, 16/03*; Graham, L., Fischbacher, C. M., Stockton, D., Fraser, A., Fleming, M., & Greig, K. (2015). Understanding extreme mortality among prisoners: a national cohort study in Scotland using data linkage. *European Journal of Public Health*, 25, 879-885.
12. For example see: Strang, J. (2015). Death matters: understanding heroin/opiate overdose risk and testing potential to prevent deaths. *Addiction, 110*, 27–3; Millings, M., Taylor, S., Burke, L., & Ragonese, E. (2019). Through the Gate: The implementation, management and delivery of resettlement service provision for short term prisoners. *Probation Journal, 66*, 77–95; Bunting, A. M., Oser, C. B., Staton, M., Eddens, K. S., & Knudsen, H. (2018). Clinician identified barriers to treatment for individuals in Appalachia with opioid use disorder following release from prison: a social ecological approach. *Addiction Science & Clinical Practice, 13,* 23-33.

Drug-misuse pharmacological interventions

A summary of the different types of pharmacological treatments used in prisons worldwide can be seen in Table 1.

Table 1: Types of pharmacological treatments

Opioid substitution therapy (OST)	Methadone and buprenorphine are synthetic opioids, usually taken orally and daily, to alleviate withdrawal symptoms and cravings. Methadone is a full 'agonist', which means it binds to and activates the same receptors which opioids do, creating an opioid-like effect, but more slowly and not leading to the same euphoric feeling. Buprenorphone is a partial opioid 'agonist' which attaches itself to receptors of the brain. It works as an opiod maintenance treatment because of its pharmacological properties of high affinity and slow dissociation from the receptor. There is a new preparation of buprenorphine (new prolonged-release formulation) that is injected by a nurse or doctor once a week or monthly, and further types are in development.
Relapse prevention	Naltrexone is an 'opioid receptor antagonist' which means that any use of an opioid doesn't produce the expected 'rewarding' effect. It is taken daily or every few days and is recommended for people who were formerly dependent on opioids, have completed withdrawal (at least 7 days) and are motivated to not revert to using. Another version of naltrexone is 'extended-release naltrexone' (ERN) and its effects last for weeks, usually delivered via injection or implant. The use of naltrexone isn't common in England and Wales, and currently ERN is not supported under NICE Guidelines.
Overdose reversal/treatment	Naloxone is another form of antagonist which blocks the effects of opioids, but it acts very fast. It is administered by injection or nasally and can be used by anyone in an emergency to reverse respiratory depression caused by overdose and can thus prevent death. 'Take home naloxone' programmes train people how to use naloxone and respond to someone else having an overdose, so there is no need to wait for emergency service responders to provide treatment.

Impact of OST

Several large studies from the US, UK and Australia have found methadone and buprenorphine treatment in prison to be associated with significantly fewer DRDs on release compared with rates for people not receiving treatment. Reported reductions in DRDs from these studies range from 61 per cent to 85 per cent.[13]

The evidence suggests that OST is most beneficial if started in prison and continued on release. In one study comparisons were made between three groups: those who did not receive OST, those who received OST in prison only, and those who received OST in prison and on release. Mortality rates were highest for those not receiving OST; remaining in treatment post-release was associated with significantly lower DRD rates than those who received only prison-based OST.[14] The impact of OST was found to be broadly similar for people with different demographic and criminogenic characteristics, suggesting this is an effective treatment option for most people.

However, it is important to note that prescribing OST does not mean people are risk-free from DRD. Also there are differences in toxicity between methadone and buprenorphine, with the result that the latter may be safer for those with an opioid use disorder. As the dose of methadone increases, so can its effect on respiratory depression, whereas with buprenorphine,

13. For example see: Green, T. C., Clarke, J., Brinkely-Rubinstein, L., Marshall, R. D. L., Alexander-Scott, N., Boss, R., & Rich, J. D. (2018). Post incarceration fatal overdoses after implementing medications for addiction treatment in a state-wide correctional system. *JAMA Psychiatry,* 75, 405-407; Marsden, J., Stillwell, G., Jones, H., Cooper, A., Eastwood, B., Farrell, M., Lowden, T., Maddelena, N., Metcalfe, C., Shaw, J., & Hickman, M. (2017). Does exposure to opioid substitution in prison reduce the risk of death after release? A national prospective observational study in England. *Society for the Study of Addiction, 112*, 1408-1418; Bird, S. M., Fischbacher, C. M., Graham, L., & Fraser, A. (2015). Impact of opioid substitution therapy for Scotland's prisoners on drug-related deaths soon after prisoner release. *Addiction, 110,* 1617–1624; Degenhardt, L., et al. (2014). The impact of opioid substitution therapy on mortality post-release from prison: retrospective data linkage study. *Addiction, 109*, 1306-1317.
14. Gordon, M. S., et al. (2014). A randomized controlled trial of prison-initiated buprenorphine: Prison outcomes and community treatment entry. Drug and Alcohol Dependence, 142, 33-40.

there is a ceiling effect - during clinical pharmacological studies in opiate-dependent subjects, buprenorphine demonstrated a ceiling effect on a number of parameters, including positive mood, ''good effect" and respiratory depression.

Impact of Naltrexone

Whilst not licensed for use in the UK, extended-release injectable naltrexone (ERN) has been found effective at reducing drug use on release from prison. However, evidence of the effect of ERN on DRDs is currently an evidence gap.[16] There are particular issues with the use of this treatment, including the need for 7-10 days of abstinence before commencement, people discontinuing treatment prematurely, and risk of opioid overdose (if individuals try to challenge the opioid blockage associated with naltrexone by taking more opioids).[17] However, there appears to be a receptiveness to ERN, in principle at least, amongst prison residents.[18]

Impact of Naloxone

There is some evidence that naloxone use can reduce DRD. A naloxone programme, including training, launched in Scotland in 2011 aimed to make this available to anyone at risk of opioid overdose. The initial two years saw a 36 per cent reduction in DRDs in the first month after release.[19] This was consistent across gender and age groups. With around 12,000 naloxone kits issued between 2011 and 2013 the scheme may have prevented 42 deaths in the first month post-release. In a US study, of 637 prisoners who received an overdose kit and education programme, 32 per cent reported reversing an overdose and 44 per cent received refills from community-based programs.[20]

Continuity of care

In England and Wales the Advisory Council on the Misuse of Drugs has repeatedly called for greater care provision for people leaving prison to reduce their risk of relapse and DRD, and to facilitate treatment uptake. Good communication and collaboration between prisons, health and community service providers to deliver coordinated and continuous care has been identified as vital to this work.[21] Actively involving prison residents in their care plans is also important,[22] so they know about the community services available and they can help shape services to best meet their needs. The following interventions have been found to improve continuity of care relating to substance misuse services.

> Buprenorphine also provides a more consistent 'blockade' effect meaning that using illicit opiates 'on top' of OST is less likely to result in overdose.

Pharmacological interventions

Pharmacological treatment can increase recovery treatment uptake and is therefore a potential means of reducing the risk of DRD in the most risky days and weeks after release. In a large UK study residents exposed to OST in prison were twice as likely to enter drug misuse treatment in the first month post-release.[23] In a series of randomised controlled trials (RCT) in the US, the

15. Whelan, P. J., & Remski, K. (2012). Buprenorphine vs methadone treatment: A review of evidence in both developed and developing worlds. *Journal of Neurosciences in Rural Practice,* 3, 45-50.
16. For example see: Jarvis, B. P., Holtyn, A. F., Subramaniam, S., Tompkins, D. A., Oga, E. A., Bigelow, G. E., & Silverman, K. (2018). Extended-release injectable naltrexone for opioid use disorder: a systematic review. *Society for the Study of Addiction*, 113, 1188-1209.
17. For example see: Binswanger, I. A., & Glanz, J. M. (2018). Potential Risk Window for Opioid Overdose Related to Treatment with Extended Release Injectable Naltrexone. Drug Safety, 41, 979-980; Velasquez, M., Flannery, M., Badolatol, R., Vittitow, A., McDonald, R.D., Togihil, B., Garment, A.R., Giftos, J., & Lee, J.D. (2019). Perceptions of extended release naltrexone, methadone, and buprenorphine treatments following release from jail. *Addiction Science & Clinical Practice*. 14, 1-12.
18. Murphy, P. N., Mohammed, F., Wareing, M., Cotton, A., McNeille, J., Irving, P., Jones, S., Sharples, L., & Monkg, P.E. (2018). High drug related mortality rates following prison release: Assessing the acceptance likelihood of a naltrexone injection and related concerns. *Journal of Substance Abuse Treatment,* 92, 91–9.
19. Bird, S. M., McAuley, A., Perry, S., & Hunter, C. (2016). Effectiveness of Scotland's National Naloxone Programme for reducing opioid-related deaths: a before (2006–10) versus after (2011–13) comparison. *Addiction, 111*, 883–91.
20. Wenger, L. D., Showalter, D., Lambdin, B., Leiva, D., Wheeler, E., Davidson, P. J., Coffin, P. O., Binswanger, I. A., & Kral, A. H. (2019). Overdose Education and Naloxone Distribution in the San Francisco County Jail. *Journal of Correctional Health Care,* 25, 394-404.
21. Stöver, H., Jamin, D., Sys, O., Vanderplasschen, W., Jauffret-Roustide, M., Michel, L., Trouiller, P., Homem, M., Mendes, V., & Nisa, A. (2019). Continuity of care for drug users in prisons and beyond in four European countries final report. *Frankfurt am Main*.
22. MacDonald, M., Williams, J., & Kane, D. (2012). Barriers to implementing throughcare for problematic drug users in European prisons. *International Journal of Prisoner Health*, 8, 68-84
23. Marsden, J., Stillwell, G., Jones, H., Cooper, A., Eastwood, B., Farrell, M., Lowden, T., Maddelena, N., Metcalfe, C., Shaw, J., & Hickman, M. (2017). Does exposure to opioid substitution in prison reduce the risk of death after release? A national prospective observational study in England. Society for the Study of Addiction, 112, 1408-1418.

percentage of people entering treatment within a month of release was 8 per cent for those receiving only counselling in prison, 50 per cent for those receiving prison counselling and transfer to methadone treatment after release, and 69 per cent for those having prison-based counselling and methadone treatment which was continued on release.[24] Similarly, another US RCT reported initiating methadone treatment in prison to significantly increase treatment uptake in the community, and significantly reduce the time taken to enter treatment, compared to people simply referred to treatment post-release.[25]

Similar positive treatment uptake outcomes have been reported in a robust study of buprenorphine compared with counselling for men and women in prison.[26] Buprenorphine, compared to methadone, may be more effective in impacting treatment uptake in the community because it has less stigma associated with it, and milder withdrawal symptoms and side effects.[27] In Scotland, the recent roll out of prolonged-release buprenorphine where clinically appropriate (as a contingency measure in response to COVID-19), has been received well by prisoners and may lead to improvements in the health and wellbeing of patients, and whilst there is no evidence as yet on its impact on DRD or uptake of treatment in the community it is a promising treatment option worthy of further research.[28]

Buprenorphine, compared to methadone, may be more effective in impacting treatment uptake in the community because it has less stigma associated with it

And the same results have been found with the use of ERN (although not licensed for use in the UK). Those who receive ERN before release have greater treatment retention four weeks post-release than those who receive ERN only after release, most importantly in the first two weeks which is the riskiest time for DRD.[29]

Community and throughcare support

A recent systematic review found that interventions which increase treatment uptake in the community include those which enhance support after release using case management, and those which focus on health service provision.[30]

Programmes or services which connect those released from prison with support in the community can be particularly beneficial. In a systematic review of international qualitative evaluations of re-entry programmes, the key factors relevant to successful community re-entry (reduced substance use and increased treatment uptake) included: case worker interpersonal skills, housing and employment, continuity of case worker relationships throughout pre- and post-release periods, and access to social support.[31] There has been little research on such programmes in the UK to-date, although pilots are underway.[32]

Other research has stressed how important it is for re-entry programmes to focus on multiple domains (e.g. employment, education, health, housing and recidivism), recognising that many people on the CJS caseload have multiple needs and issues that will be best met through improving partnerships across multiple agencies.[33]

24. Kinlock, T. W., Gordon, M. S., Schwartz, R. P., O'Grady, K., Fitzgerald, T. T., & Wilson, M. (2007). A randomized clinical trial of methadone maintenance for prisoners: Results at 1-month post-release. *Drug and Alcohol Dependence,* 91, 220-227.
25. McKenzie, M., Zaller, N., Dickman, S. L., Green, T. C., Parihk, A., Friedmann, P. D., & Rich, J. D. (2012). A Randomized Trial of Methadone Initiation Prior to Release from Incarceration. *Substance Abuse*, 33, 19–29.
26. Gordon, M. S., et al. (2014). A randomized controlled trial of prison-initiated buprenorphine: Prison outcomes and community treatment entry. *Drug and Alcohol Dependence,* 142, 33-40.
27. Magura, S., Lee, J. D., Hershberger, J., Joseph, H., Marsch, L., Shropshire, C., & Rosenblum, A. (2009). Buprenorphine and methadone maintenance in jail and post-release: A randomized clinical trial. *Drug and Alcohol Dependence*, 99, 222-230.
28. Scottish Government (2021). Coronavirus (COVID-19) opioid substitution treatment in prisons – evaluation: patient experience follow-up report. Health and Social Care. Found at: Coronavirus (COVID-19) opioid substitution treatment in prisons - evaluation: patient experience follow-up report - gov.scot (www.gov.scot)
29. Lincoln, T., Johnson, B. D., McCarthy, P., & Alexander, E. (2018). Extended-release naltrexone for opioid use disorder started during or following incarceration. *Journal of Substance Abuse Treatment,* 85, 97-100.
30. Kouhoumdjian, F. G., MsIsaac, K. E., Liauw, J., Green, S., Karachiwalla, F., Siu, W., Burkholder, K., Binswanger, I., Kiefer, L., Kinner, S. A., Korchinski, M., Matheson, F. I., Young, P., & Whang, S. W. (2015). A Systematic Review of Randomized Controlled Trials of Interventions to Improve the Health of Persons During Imprisonment and in the Year after Release. *American Journal of Public Health,* 105.
31. Kendall, S., Redshaw, S., Ward, S., Wayland, S., & Sullivan, E. (2018). Systematic review of qualitative evaluations of re-entry programs addressing problematic drug use and mental health disorders amongst people transitioning from prison to communities. *Health and Justice,* 6, 4.
32. See NHS England » RECONNECT – Care After Custody.
33. Lattimore, P. K., & Visher, C. A. (2013). The Impact of Prison Reentry Services on Short-Term Outcomes: Evidence from a Multisite *Evaluation. Evaluation Review*, 37, 274-313.

Capability, opportunity and motivation of people post-release

Research confirms that capability, opportunity and motivation are three key conditions for behaviour change.[34] For opportunity and motivation, one study in the US interviewed 122 people released from custody and found that when given the opportunity, many chose to take part in programmes aimed at helping them transition more successfully into society even if they were not required to as a condition of parole. Of the people who used substances during the programme, 61.8 per cent voluntarily participated in treatment. However, 47 per cent continued to use drugs throughout the programme, highlighting the challenges faced of continuing drug use when returning to the community.[35] It is unlikely that motivation and opportunity on their own are enough.

Capability is also key but hampered when people are balancing many needs, as demonstrated in a study of 577 people with substance misuse issues released from prison in Azerbaijan, Kyrgyzstan, and Ukraine. Researchers found respondents prioritised finding a source of income, reconnecting with family, and staying out of prison over receiving treatment for substance use disorders, general health conditions, or initiating methadone treatment.[36]

Health record transfer and treatment referrals

In 2018 Public Health England found the 'transfer' or 'referral' stage from prison to community substance misuse treatment services was the highest point of treatment attrition.[37] Treatment engagement rates appeared to increase when community workers visited residents in custody to support release planning. Lack of information sharing and joined up IT systems between prisons and the community is a frequently identified barrier to joint planning, alongside data/record sharing issues.[38]

Navigating and accessing healthcare

Difficulty accessing SMS services or getting GP appointments, and accessing the right medication at the right time, have been reported by people after release from prison.[39] These delays are particularly problematic for medication continuity, as often only a short supply (usually 7 days) is provided and a GP appointment is needed to renew the prescription.

A study with US criminal justice employed clinicians in the community flagged available treatment and staffing as problematic.[40] These professionals identified insufficiently resourced specialist treatment, few appropriate self-help groups, long waiting lists, high caseloads, and lack of knowledge (or misunderstanding) of treatment needs and options amongst parole and probation officers to impede referrals to evidence-based treatment. The complexity and resourcing of the management of prison health generally might also be a contributing factor to the difficulties of accessing the right healthcare in prison and on release.

Accessing support for multiple complex needs

Interviews with men and women with substance use difficulties in a number of countries (including the UK) highlight the range of inter-related challenges and barriers experienced as they moved from custody to community settings.[41] These made successful resettlement more challenging, and influenced their risk of, and triggers for, substance use: These included: difficulties with social support, safe and stable

34. Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, 6, 1-11.
35. Morani, N. M., Wikoff, N., Linhorst, D. M., & Bratton, S. (2011). A Description of the Self- Identified Needs, Service Expenditures, and Social Outcomes of Participants of a Prisoner-Reentry Program. *The Prison Journal*, 91, 347 –365.
36. Rozanova, J. Morozova, O., Azbel, L., Bachireddy, C., Izenberg, J. M., Kiriazova, T., Dvoryak, S., & Altice, F. L. (2018). Perceptions of Health-Related Community Reentry Challenges among Incarcerated Drug Users in Azerbaijan, Kyrgyzstan, and Ukraine. *Journal of Urban Health*, 95, 508–522.
37. Public Health England. (2018). Continuity of care for adult prisoners with a substance misuse need Report on the London 'deep dive'.
38. Millings, M., Taylor, S., Burke, L., & Ragonese, E. (2019). Through the Gate: The implementation, management and delivery of resettlement service provision for short term prisoners. Probation Journal, 66, 77–95; MacDonald, M., Williams, J., & Kane, D. (2012). Barriers to implementing throughcare for problematic drug users in European prisons. *International Journal of Prisoner Health*, 8, 68-84.
39. For example see: Binswanger, I. A., Nowels, C., Corsi, K. F., Glanz, J., Long, J., Booth, R. E., & Steiner, J. F. (2012). Return to drug use and overdose after release from prison: a qualitative study of risk and protective factors. *Addiction Science & Clinical Practice*, 7, 3-12; Carswell, C., Noble, H., & Farrow, D. (2017). Barriers between offenders and primary health care after release from prison: A case study. *Practice Nursing,* 28, 386-389.
40. Bunting, A. M., Oser, C. B., Staton, M., Eddens, K. S., & Knudsen, H. (2018). Clinician identified barriers to treatment for individuals in Appalachia with opioid use disorder following release from prison: a social ecological approach. *Addiction Science & Clinical Practice*, 13, 23-33.
41. For example see: Binswanger, I. A., Nowels, C., Corsi, K. F., Long, J., Booth, R. E., Kutner, J., & Steiner, J. F. (2011). "From the prison door right to the sidewalk, everything went downhill." A qualitative study of the health experiences of recently released inmates. I*nternational Journal of Law and Psychiatry,* 34, 249–255; Cepeda, J. A., Vetrova, M. V., Lyubimova, A. I., Levina, O. S., Heimer, R., & Niccolai, L. M. (2015). Community reentry challenges after release from prison among people who inject drugs in St. Petersburg, Russia. *International Journal of Prison Health*, 11, 183–192.

accommodation, finances, employment, and physical and mental health. Many reported not knowing how to access needed support, and that they felt insufficient support was offered or available. People described feeling 'dumped', frightened, despairing and hopeless. Factors perceived to be protective included: avoidance of old neighbourhoods, strong family relationships, religion and spirituality, housing, support from friends, a highly structured residential treatment program, a patient navigator, community-based organisations and programmes, and self-help groups.

Release timing

The day of the week people are released from custody can affect treatment continuity.[42] More than a third of people leaving custody in England and Wales are released on a Friday. People may have long distances to travel to the area they are being resettled to, leaving them limited amount of time before many services close for the weekend (and exacerbated further on bank holidays).

Conclusions

DRD is a significant risk for people with opioid use disorders released from prison, particularly in the first few weeks. Getting people in contact with the right services and treatment within that period is critically important. This review has drawn together evidence around who is most at risk of DRD, which includes those with a substance misuse disorder, those serving short or more frequent times in prison, those who are younger, and those with a history of mental illness. It is important that such factors, and others not yet fully understood, are identified so that we are able to identify who most needs specific and timely support. However, further research is needed to bring this evidence together to help practitioners do this in a meaningful way, such as through the development of a screening tool.

Many reported not knowing how to access needed support, and that they felt insufficient support was offered or available. People described feeling 'dumped', frightened, despairing and hopeless.

This review has also found good evidence around the effectiveness of pharmacological treatment, including use of methadone and buprenorphine, started in prison and continued on release, on reducing DRD and improving uptake of treatment post-release. However, OST requires adequate funding and support. In the UK OST has been shown to be cost-effective for the treatment of opioid use disorders.[43] The savings associated with OST were between £14,000 and £17,000 over one year (based on 2016 cost/prices), primarily driven by a reduction in victim costs, and healthcare resource use. This approximation is based on a one-year timeframe meaning that true costs are likely much greater when longer term costs and benefits are included. Although ERN has some advantages over methadone or buprenorphine, including the fact that it gives prison residents 'protected time' after release, it has been shown to be significantly more expensive than treatment-as-usual opioid substitutes in a randomised trial in the US.[44] No economic analysis for naltrexone or naloxone have yet been done in the UK.

Services which connect those released from prison with support in the community and which target multiple domains (e.g. employment, education, health, and housing), are also critical. Continuity of care can be improved by ensuring health records are transferred, treatment referrals are made, health services are accessible, and support for additional and complex needs are provided. This needs a partnership approach. The recent review by Dame Carol Black highlights many of the continuing issues around transition and drug treatment uptake.[45] With political interest in this topic and the healthcare integration agenda, we are optimistic that now is the time where we can strive forward with making positive changes.

Based on this review we have made some recommendations for ways which may help to reduce the risk of DRD in the early post-custody period and

42. NACRO (2018). *Barriers to effective resettlement: Friday prison releases.* Policy Briefing. Policy Analysis from NACRO.
43. Kenworthy, J., Yi, Y., Wright, A., Brown, J., Madrigal, A. M., & Dunlop, W. C. N. (2017). Use of opioid substitution therapies in the treatment of opioid use disorder: results of a UK cost-effectiveness modelling study. *Journal of Medicine Economics*, 20, 740-748.
44. Murphy, S.M., Polsky, D., Lee, J.D., Friedmann, P.D., Kinlock, T.W., Nunes, E.V., Bonnie, R.J., Gordon, M., Chen, D.T., Boney, T.Y., & O'Brien, C.P. Cost-effectiveness of extended release naltrexone to prevent relapse among criminal justice-involved individuals with a history of opioid use disorder. *Addiction,* 112, 1440–1450.
45. Black, C. (2021). Independent report. Review of drugs part two: prevention, treatment and recovery. Found at: Review of drugs part two: prevention, treatment, and recovery - GOV.UK (www.gov.uk)

enhance the provision and take-up of services to bring better outcomes for many in the longer term (see table 2). All of these recommendations are grounded within the empirical evidence. Further research that follows people over time, both in and out of custody, and brings in more reliable data from a wider range of sources would help build the picture of effective practice in this area.

Table 2: Evidence-informed recommendations

Increase rates of diversion away from prison and into community treatment[46]	Work across the CJS to develop knowledge and practices for diversion to treatment (Community Service Treatment Requirements) and other support services, recognising this may bring better outcomes than imprisonment for some (especially for people in scope for a short prison sentence, or serving multiple short prison sentences). Develop public trust in diversion schemes and community options through education and knowledge about drug treatment, and their efficacy and value for money.
Provide and support people into evidence-based treatment[47]	Improve screening and data capture for substance misuse needs on entry into prison (and on transfer), ensuring this is recorded and treatment options discussed. Judicious use of the evidence-base on who is most at risk of DRD to identify people for support (but with the careful understanding there are likely factors that increase risk that we don't yet properly understand).
	Facilitate conversations about substance related needs, treatment options, and provide support for referrals during routine stages or meetings during someone's sentence.
	Increase funding and deliver OST, starting in prison and continuing into the community. Where possible try to link these programmes so people can move from one to another on release.
	The provision of prolonged-release buprenorphine should be made more widely available in the UK.
	Consider the expansion of naloxone programmes, in prison and in the community, for service users and their families/support networks.
	Prior to release, set up community treatment/assessment appointments for all people in prison with ongoing substance misuse needs. The new telemedicine SMS project to be launched in England and Wales has great potential in helping link people up with community treatment teams pre-release.
	Make every effort to avoid failure to attend the first community treatment appointment post-release, but if this does happen establish pro-active follow up contact and appointment procedures.
Improve the collection, monitoring and publication of data[48]	Record specific causes of death after release (in this case, DRD), rather than using umbrella terms or broader categories.
	Record and publish group-based risk, need and responsivity profiles of people with drug use disorders in custody and the community, enabling services to tailor their support and resources.

46. For example see: Spittal, M. J., Forsyth, S., Borschmann, R., Young, J.T., & Kinner, S. A. (2019). Modifiable risk factors for external cause mortality after release from prison: a nested case–control study. *Epidemiology and Psychiatric Sciences*, 28, 224–233.
47. For example see: Marsden, J., Stillwell, G., Jones, H., Cooper, A., Eastwood, B., Farrell, M., Lowden, T., Maddelena, N., Metcalfe, C., Shaw, J., & Hickman, M. (2017). Does exposure to opioid substitution in prison reduce the risk of death after release? A national prospective observational study in England. *Society for the Study of Addiction*, 112, 1408-1418.
48. For example see: Canzater, S. L., & LaBelle, R.M. (2020). Championing change to save lives: A call to action to implement reforms to increase use of medications to treat opioid use disorder in correctional settings. *Criminal Justice Review*, 1-9.

	Routinely monitor changes in the data being recorded, in light of the evidence-base around who is most at risk of DRD, and what helps to reduce this.
Improve healthcare and drug treatment referrals from custody to community[49]	Establish alert systems or communication channels so release numbers and dates are provided to local treatment services in sufficient time to enable treatment place offers, or alternative support to be put in place if there are waiting lists.
	Create a referral process collaboratively with local authorities and drug treatment services. Monitor this often, to check people do not fall through the cracks.
	Continue to improve GP pre-registration systems and/or provide clear information for people in prison about how to register with a GP after release, and confirm this with local surgeries.
	Where appropriate, issue sufficiently long prescriptions pre-release, to minimise risk of delays in getting repeats authorised.
	Ensure consistency in prescriptions from prison into the community (ensuring that access to different medication is equivalent in both settings).
Reduce potential barriers that may interfere with planning and support delivery[50]	Identify and share contact details for at least two points of contact within each relevant partner organisation, enabling faster communication about referrals, assessments and releases, and ensure there is cover during absences from work.
	Avoid releasing people from custody on Fridays whenever possible, or if on a Friday early in the day.
Improve continuity of care during transition, prioritisation of need/support[51]	On release from prison, a focus on planning and responding to people's physical, practical, psychological and social needs, will mean treatment take-up becomes more likely, and risk of DRD reduced.
	Extend services for additional needs, such as housing, employment, and financial support into prison for people pre-release. Implement face-to-face meetings before release with services and key actors involved in the person's re-entry. In conjunction with the service user, agree a realistic release plan, ensuring they have a good understanding of their plan.
	Include people's families and support networks in pre-release planning. Consider the value of peer mentors, who have experience of transition, to support, reassure, encourage and guide people pre/post their release.
	Collaborate with partner agencies, enabling multi-disciplinary planning and support provision, share risk and need assessments, and facilitate support/treatment referrals.
	With all parties, establish very clear roles and responsibilities, so that actions are not missed, everyone understands what is needed, when and why, and people in prison and on re-entry do not fall through the cracks.

49. For example see: Public Health England (2018). Continuity of care for adult prisoners with a substance misuse need report on the London 'deep dive'. Found at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/760266/ContinuityofCareinLondon.pdf
50. For example see: NACRO (2018). *Barriers to effective resettlement: Friday prison releases.* Policy Briefing. Policy Analysis from NACRO.
51. For example see: Kendall, S., Redshaw, S., Ward, S., Wayland, S., & Sullivan, E. (2018). Systematic review of qualitative evaluations of re-entry programs addressing problematic drug use and mental health disorders amongst people transitioning from prison to communities. *Health and Justice*, 6, 4.

Improve education on overdose, services and treatment options[52]	Provide information on treatment services in each prison, and the local area people are returning to, including: different treatment options, referral processes and contact details for treatment providers.
	Provide information for individuals, their families/support networks, prison and probation staff on the different treatments available, their effectiveness to enhance motivation and support to engage, and also to counter myths/stigma associated with some treatments.
	Provide education on risk of DRD, harm reduction methods, overdose symptom recognition and prevention, and first aid techniques. This should include education for people who have been abstinent in prison, as well as those with ongoing drug use difficulties, and families.
Continue to build the evidence base[53]	Building the evidence base requires first and foremost better coding and recording of meaningful and reportable data.
	Conduct robust quantitative trials of interventions, including in the analyses risk, need, responsivity and demographic variables, to develop the evidence base for what works, for whom, and when.
	Conduct up-to-date economic analyses also for different treatment options, to help policy makers make good quality cost-effectiveness decisions.
	Conduct qualitative research to understand how people can be helped into treatment services, and how to deliver effective continuous care between custody and the community.
	Conduct case study research when someone dies from DRD soon after release from prison, to help us get a better understanding of the circumstances, and learn about opportunities to improve our care.
Promote and strengthen the recovery agenda[54]	Develop strong leadership and vision, to bring people on board, create trust, and determine shared direction and priorities.
	Engage staff in all relevant organisations in understanding recovery, treatment options and how they can play a part, thereby overcoming potential conflict between security, enforcement or rehabilitative staff orientations.
	Openly discuss and tackle stigma and philosophical opposition to pharmacological treatment, in order to bring people on board with encouraging delivery and uptake of evidence-based interventions.
	Create and routinely review a local drug strategy that clearly and explicitly communicates to all staff how they contribute to it, and why this is important. Collaborate with people living in prison, those who have left, and staff in prisons, probation and partner agencies, in shaping this and suggesting practical and innovative solutions and ideas.

52. For example see: Wenger, L. D., Showalter, D., Lambdin, B., Leiva, D., Wheeler, E., Davidson, P. J., Coffin, P. O., Binswanger, I. A., & Kral, A. H. (2019). Overdose Education and Naloxone Distribution in the San Francisco County Jail. *Journal of Correctional Health Care,* 25, 394-404.
53. For example see: World Health Organisation (2010). Prevention of acute drug-related mortality in prison populations during the immediate post-release period.
54. For example see: Public Health England (2018). Continuity of care for adult prisoners with a substance misuse need report on the London 'deep dive'. Found at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/760266/ContinuityofCareinLondon.pdf.