Does exposure to opioid substitution treatment in prison reduce the risk of death after release? A national prospective observational study in England.

John Marsden, King's College London

Background

- Illicit heroin associated with high risk of death due to overdose/poisoning, especially among injectors **1**, men and in older age.**2**
- Very high prevalence of drug use disorder (OUD) in the prison population (globally: 10–48% for men; 30–60% for women. **3**
- Prisoners with OUD face an acute risk of death on their release to the community, particularly during the first month. **4,5**

1 Darke; Addiction 2006; 101: 1299–305. **2** Cochrane Database Syst Rev 2016; 5: CD011117.**3** Fazel; Addiction 2006; 101: 181–91. **4** Farrell; Addiction 2008; 103: 251–255. **5** Merrall; Addiction 2010; 105: 1545–54.

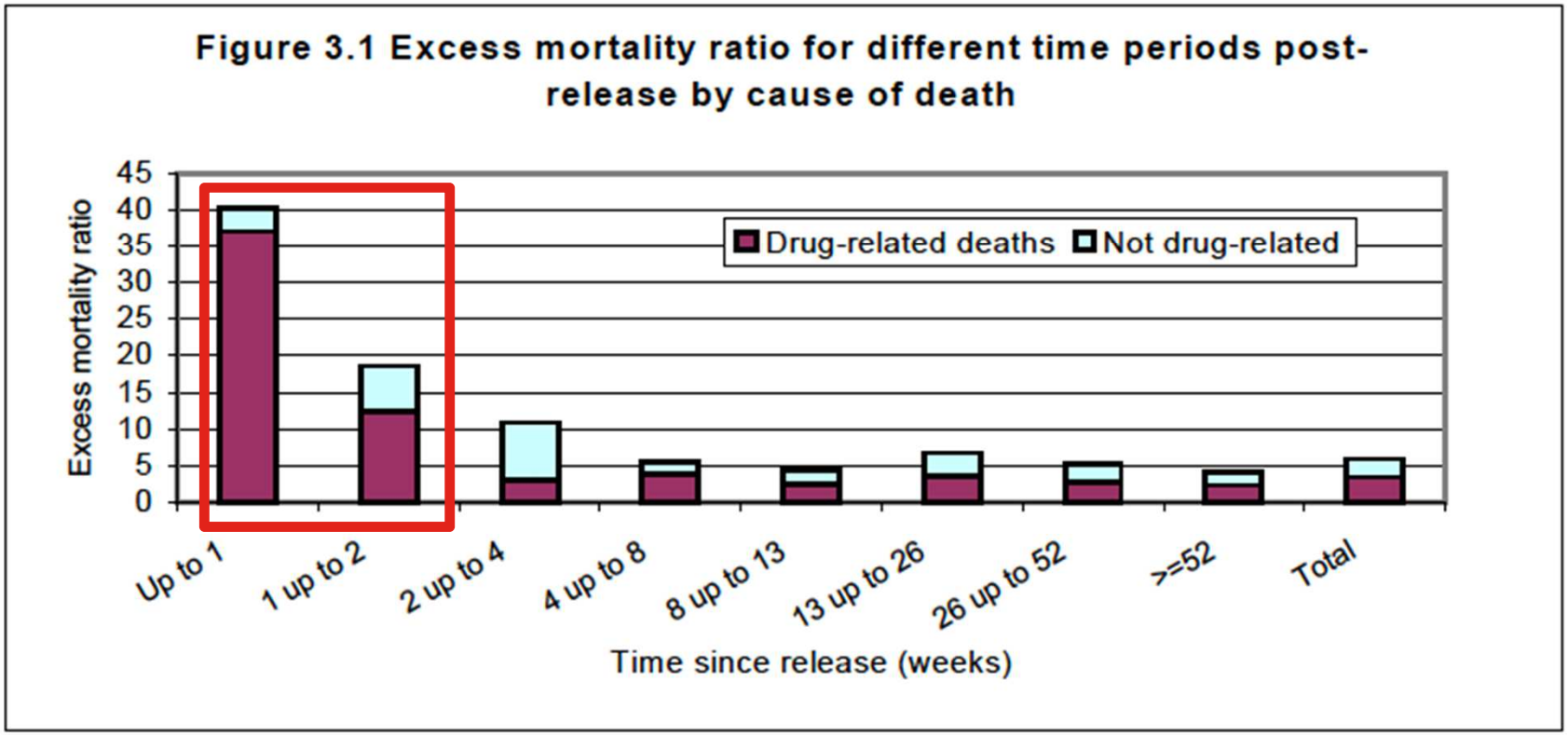
Background

Farrell & Marsden (2008) [1]

- English database linkage study of 48, 771 prisoners released during 1998–2000 with all recorded deaths included to November 2003.
- 442 recorded deaths (261; 59%) drug-related.
- All-cause mortality in the first and second weeks following release was 37 and 26 deaths per 1000 per year for men (95% drug-related) and 47 and 38 deaths per 1000 per year for women (all drug-related).

[1] Addiction 2007; 103, 251–255

Background



1 Singleton. Home Office online report 16/03

Mechanism mediated by reversal of opioid tolerance

ADDICTION

SSA SOCIETY FOR THE STUDY OF ADDICTION

RESEARCH REPORT

doi:10.1111/add.13779

Does exposure to opioid substitution treatment in prison reduce the risk of death after release? A national prospective observational study in England

John Marsden[1], Garry Stillwell[1], Hayley Jones[2], Alisha Cooper[3], Brian Eastwood[3], Michael Farrell[4], Tim Lowden[3], Nino Maddalena[3], Chris Metcalfe[2], Jenny Shaw[5] & Matthew Hickman[2]

Addictions Department, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK,[1] School of Social and Community Medicine, Faculty of Health Sciences, University of Bristol, Bristol, UK,[2] Alcohol, Drug and Tobacco Division, Health and Wellbeing Directorate, Public Health England, London, UK,[3] National Drug and Alcohol Research Centre, University of New South Wales, New South Wales, Australia[4] and Institute of Brain, Behaviour and Mental Health, University of Manchester, Manchester, UK[5]

ABSTRACT

Background and Aims People with opioid use disorder (OUD) in prison face an acute risk of death after release. We estimated whether prison-based opioid substitution treatment (OST) reduces this risk. **Design** Prospective observational cohort study using prison health care, national community drug misuse treatment and deaths registers. **Setting** Recruitment at 39 adult prisons in England (32 male; seven female) accounting for 95% of OST treatment in England during study planning. **Participants** Adult prisoners diagnosed with OUD (recruited: September 2010–August 2013; first release: September 2010; last release: October 2014; follow-up to February 2016; n = 15 141 in the risk set). **Intervention and Comparator** At release, participants were classified as OST exposed (n = 8645) or OST unexposed (n = 6496). The OST unexposed group did not receive OST, or had been withdrawn, or had a low dose. **Measurements** Primary outcome: all-cause mortality (ACM) in the first 4 weeks. Secondary outcomes: drug-related poisoning (DRP) deaths in the first 4 weeks; ACM and DRP mortality after 4 weeks to 1 year; admission to community drug misuse treatment in the first 4 weeks. Unadjusted and adjusted Cox regression models (covariates: sex, age, drug injecting, problem alcohol use, use of benzodiazepines, cocaine, prison transfer and admission to community treatment), tested difference in mortality rates and community treatment uptake. **Findings** During the first 4 weeks after prison release there were 24 ACM deaths: six in the OST exposed group and 18 in the OST unexposed group [mortality rate 0.93 per 100 person-years (py) versus 3.67 per 100 py; hazard ratio (HR) = 0.25; 95% confidence interval (CI) = 0.10–0.64]. There were 18 DRP deaths: OST exposed group mortality rate 0.47 per 100 py versus 3.06 per 100 py in the OST unexposed group (HR = 0.15; 95% CI = 0.04–0.53). There was no group difference in mortality risk after the first month. The OST exposed group was more likely to enter drug misuse treatment in the first month post-release (odds ratio 2.47, 95% CI = 2.31–2.65). The OST mortality protective effect on ACM and DRP mortality risk was not attenuated by demographic, overdose risk factors, prison transfer or community treatment (fully adjusted HR = 0.25; 95% CI = 0.09–0.64 and HR = 0.15; 95% CI = 0.04–0.52, respectively). **Conclusions** In an English national study, prison-based opioid substitution therapy was associated with a 75% reduction in all-cause mortality and an 85% reduction in fatal drug-related poisoning in the first month after release.

Keywords All-cause mortality, drug-related poisoning mortality, heroin, opioid-use disorder, opioid substitution treatment, prison.

Correspondence to: John Marsden, Addictions Department, Box 48, Institute of Psychiatry, Psychology and Neuroscience, King's College London, DeCrespigny Park, Denmark Hill, London SE5 8AF, UK. E-mail: john.marsden@kcl.ac.uk

Submitted 24 November 2016; initial review completed 11 January 2017; final version accepted 1 February 2017

INTRODUCTION

Non-medical opioid use contributes significantly to the global burden of disease [1]. Illicit heroin is associated with a high risk of death (particularly among people who inject drugs [2]), and this increases with age and in men [3]. The leading cause of death in this population is accidental drug poisoning (overdose) associated with acute respiratory

Addiction, 2017; 11: 1408-1418

Acknowledgements

Study funded (educational grant) to King's College London from English Dept of Health & Social Care

Co-authors:

Garry Stillwell
Hayley Jones
Alisha Cooper
Brian Eastwood
Michael Farrell
Tim Lowden
Nino Maddelena
Chris Metcalfe
Jenny Shaw
Matthew Hickman

Context, design and aims

- Opioid Substitution Treatment expanded through 2010 as Prison Integrated Drug Treatment System (IDTS).
- English national prospective observational cohort study of prison-based OST exposure.
- Population was adult prisoners (≥18 years)with a diagnosis of OUD recorded on an electronic database at the prison.
- Prisoners who had their last dose on the morning of release (>20 mg methadone or >2 mg buprenorphine) were classified as OST exposed.

- **Does prison-based OST reduce post-release mortality?**
- **What is the likelihood of admission to community treatment?**
- **Is any protective effect confounded by covariates?**

Prisons, participants & analysis

- 39 prisons (accounting for 95% of OST provision)
- Adult prisoners with OUD (recruited 9/2010 to 8/2013
- At release: OST exposed (8645) and unexposed (6496)
- Unadjusted and adjusted Cox regression models (covariates: sex, age, overdose risk factors, prison transfer or community treatment did not alter the findings)

Findings

- During the first 4 weeks after release there were 24 ACM deaths (6 in the OST exposed group and 18 in the OST unexposed group).
- Mortality rate 0.93 per 100 person-years (py) versus 3.67 per 100 py; hazard ratio (HR) = 0.25; 95% confidence interval (CI) = 0.10–0.64].
- There were 18 DRP deaths (OST exposed mortality rate 0.47 per 100 py versus 3.06 per 100 py in the unexposed group (HR = 0.15; 95% CI = 0.04–0.53).
- OST group more likely to enter treatment in the first month post-release (OR = 2.47,95% CI = 2.31–2.65).
- No exposure difference in mortality after first month.

Impact

"The Integrated Drug Treatment System evaluation demonstrates the protective impact of opioid substitution therapy in preventing drug related deaths post release.

We will use this data and learning to identify and disseminate good practice to contribute to improved outcomes in relation to prison-based drug treatment and the prevention of drug related deaths."

Page 32

1https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/628148/Drug_strategy_2017.PDF

Policy and practice implications

- Unequivocal support for OST at release and throughcare to community treatment services.
- Supply of naloxone to prisoners at release for acute administration in the community. Now implemented in English prisons.
- For those with OUD who are abstinent opportunity to use the long-acting opioid antagonist, naltrexone.
- 150mg of oral naltrexone blocks the effects of opioids for approximately 36 hours.