



Background

- Overdose is a significant risk for those who are opioid dependent
 - People with opioid dependence are also at increased risk of coming into contact with the criminal justice system and going to prison
- High risk of death following release from prison
 - Compared to the general population, 3+ times greater for men, 7+ times greater for women
- Large proportion of deaths in the 2 weeks after release are drug-induced
 - Meta-analysis: 76% of deaths in the first 2 weeks were drug-related (Merrall et al. 2010)

Collaborators and funding sources

- **NDARC collaborators:** Natasa Gisev, Marian Shanahan, Louisa Degenhardt, Sarah Larney, Richard Mattick, Michael Farrell, Briony Larance, Timothy Dobbins, Lucy Burns, Jo Kimber
- **External collaborators:** Don Weatherburn, Amy Gibson, Deborah Randall, Tony Butler
- **Funding sources:**
 - **National Health and Medical Research Council (NHMRC) fellowships:** Louisa Degenhardt, Sarah Larney, Natasa Gisev
 - **Project grants:** NHMRC and the Australian Institute of Criminology (AIC) through the Criminology Research Grants Program

Background

- Many people with opioid dependence have contact with opioid substitution therapy (OST)
 - OST reduces mortality risk
 - OST reduces risk of death among opioid dependent persons when they are released from prison
- Is OST post release from prison cost-effective?

Economic assessments of prison and post-prison OST (Australia)

- Assessment of supply, demand and harm reduction strategies in prisons
 - Black et al. (2004) found that strategies were poorly documented and costs were largely unknown;
 - Rodas et al. (2011) in an update did not examine the costs; several jurisdictions did not provide widely available OST in prison
- Cost effectiveness of prison methadone (Warren et al. 2006)
 - compared provision of methadone in prison to no methadone in prison in achieving heroin free days.
 - costs of providing methadone were similar to methadone provided out-of-prison

Aim

To assess the cost-effectiveness of opioid substitution treatment (OST) in preventing mortality post-release from prison

- Outcome – mortality
- Timeframe – 6 months post-release from prison
- Perspective – treatment provider and criminal justice system

Cost effectiveness analysis

- Economic method to assess additional cost (cost savings) required (gained) to achieve a given outcome
- Compare costs and outcomes between 2 alternatives
- Incremental cost effectiveness ratio (ICER)
 - $ICER = [Cost_A - Cost_B] / [Outcome_A - Outcome_B]$

Methods and Data

- NSW Administrative linked data
 - Reoffending Database (1993 – 2012)
 - Incarceration (2000 to 2012)
 - Pharmaceutical Drugs of Addiction System (1985 to 2010)
 - National Death Index
- Resources and costs included (2012 AUD)
 - All OST treatment,
 - Social costs of crime
 - Police and Court costs
 - Prison costs

Methods

Selection criteria

- Had entered OST at least once between 1985 and 2010 (proxy for dependence)
- First release from prison following their first OST entry

Comparator groups

1. Those who received OST within the first week of release from prison (N = 7892)
2. Those who did not receive OST within the first week of release from prison (N = 8181)

Gisev, Shanahan, Weatherburn, Mattick, Lamey, Burns, Degenhardt (2015) Addiction (Online, Sept)

Methods

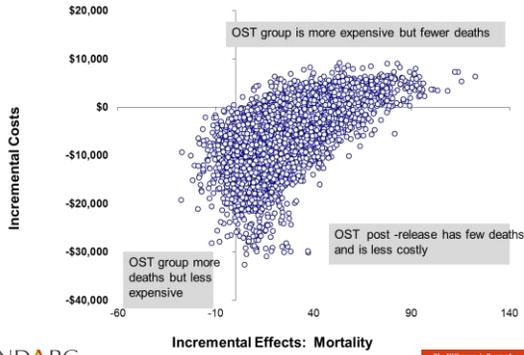
- Observational data (potential biases)
 - propensity score matching (PSM): matched on age, sex, Indigenous identity, juvenile offending history, number of recorded offences prior to entering prison, number of prior OST episodes, duration of index prison episode
 - n= 6734 in each group
- Multivariate and logistic regression analysis to account for differential factors not accounted for in PSM
- Bootstrapping to estimate ICER, confidence intervals, cost-effectiveness acceptability curves, and net monetary benefit

Crude costs (before PSM and regression analysis)

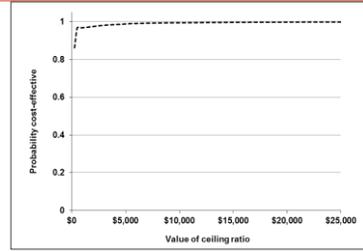
	Released onto OST	Not released onto OST	Difference
Treatment	\$2,297	\$270	\$2,026
Criminal justice system (CJS)			
<i>Police</i>	\$3,105	\$2,880	\$225
<i>Court</i>	\$1,575	\$1,554	\$21
<i>Penalties</i>	\$52	\$63	-\$11
<i>Prison</i>	\$4,808	\$4,217	\$591
Total CJS	\$9,539	\$8,714	\$825
Social costs of crime	\$3,126	\$2,893	\$232
Total	\$14,962	\$11,878	\$3,085

Mean costs and deaths after PSM and regression analyses

	Released onto OST	Not released onto OST	Difference	95% CI
Mean costs	\$7,206	14,356	-\$6353	-\$7,568, -5,139
Deaths	20	46	26 lives saved	22.62, 29.38
ICER	-\$1401	OST post release is dominant; it is both less expensive and saves more lives, but there is a distribution		



Cost effectiveness acceptability curve



Limitations

- Observational data but large sample and use of statistical methods to manage potential biases
- Limited covariates
- Other health care and treatment data not available
- Unable to split out buprenorphine and methadone
- Short follow-up period but appropriate for the question

Bottom line

- If you use opioids and are being released from prison – “OST could help save your life” (Recovery Research Institute, BGH & Harvard Medical School)
- “For policy makers - consider funding to help prisoners access OST during their sentence and or upon their release” (Recovery Research Institute, BGH & Harvard Medical School)
- Study provides more evidence for OST programs to be in prisons and co-ordination of post release programs in all jurisdictions
- **Next steps** – examining effects of treatment and retention in treatment at reducing crime and the impact on costs

Thank- you

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Literature review: economic assessments of prison and post-prison OST

- Review of the literature on OST in prisons, Stöver and Michels (2010)**
- Warren et al (2006)
 - Canadian Correctional Services reported those who were engaged in OST treatment in prison required lower institutional resources

- Cost of buprenorphine in prison, Magura et al. (2009)**
- Randomly assigned heroin dependent men to either methadone or buprenorphine
 - Those allocated to bup were more likely to continue treatment post-release; at 3 months there were no differences in re-arrests
 - More resources required to administer buprenorphine compared to methadone