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Drug use, morbidity and mortality among prisoners and ex-prisoners in Queensland

Dr Stuart Kinner

Head, Justice Health Research Program

Outline

- The population
- Pilot work
- Injecting drug use in prison
- Nonfatal overdose after release
- Drug-related mortality in ex-prisoners
- Concluding remarks



THE POPULATION

AUSTRALIAN PRISONS



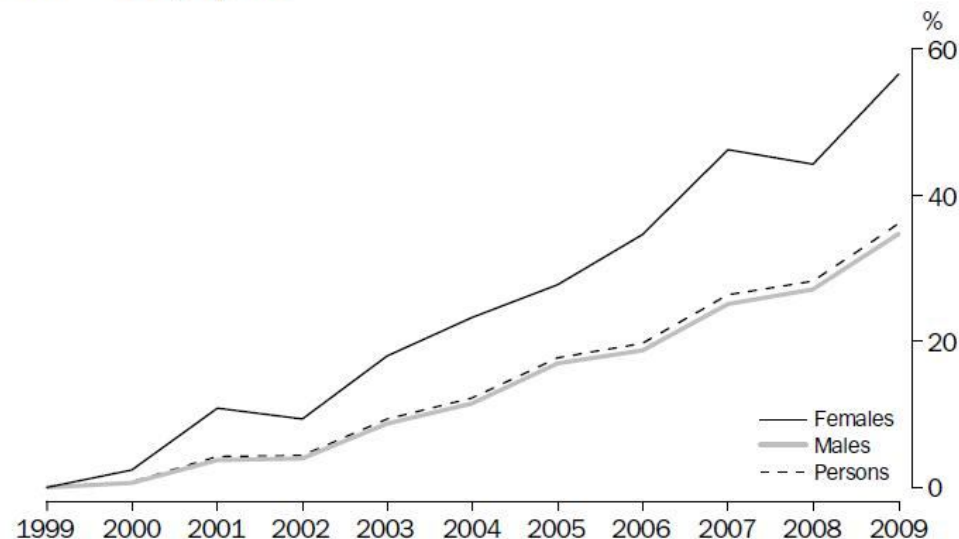
- 93 prisons across 8 jurisdictions
- Mostly public, increasingly private
- Operating at 105% capacity
- Prisoners uniquely excluded from Medicare
- Real recurrent expenditure \$2.9b 2007/08
- Recidivism:
 - 44% return in 2 years (38% to prison)
 - 56% prior imprisonment (77% Indigenous)



AUSTRALIAN PRISONER POPULATION

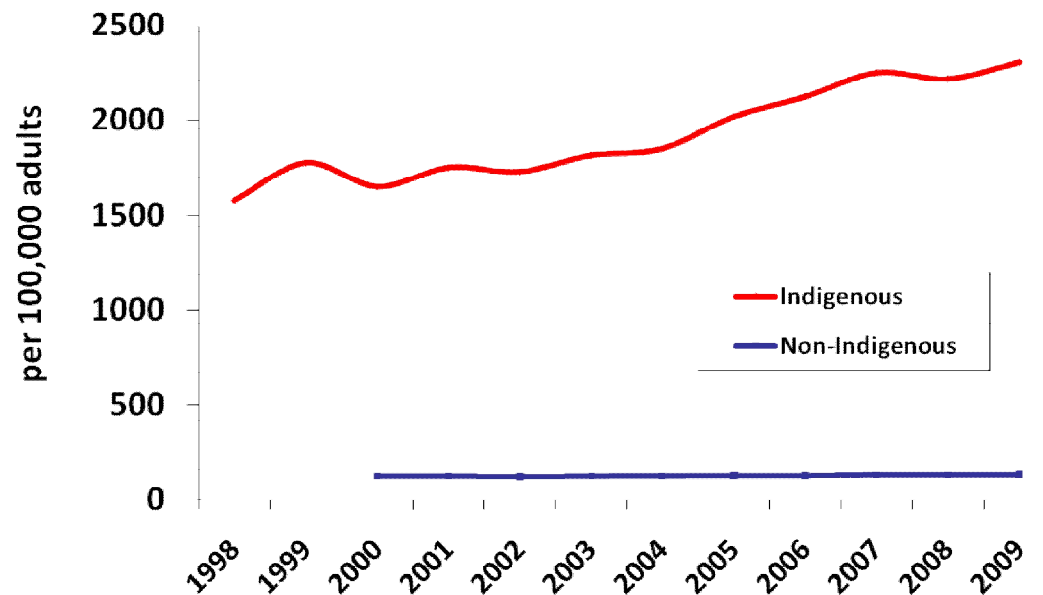
- Australian prison population ~30,000
 - Increased by 39% in last 10 years

CHANGE IN PRISONER NUMBERS, between 30 June 1999 and 30 June 2009, by sex



AUSTRALIAN PRISONER POPULATION

- Australian prison population ~30,000
– Increased by 39% in last 10 years



AUSTRALIAN PRISONER POPULATION

- Australian prison population ~30,000
 - Increased by 39% in last 10 years
 - More than 50,000 releases each year
 - About 385,000 *ex-prisoners* in Australia



PILOT WORK

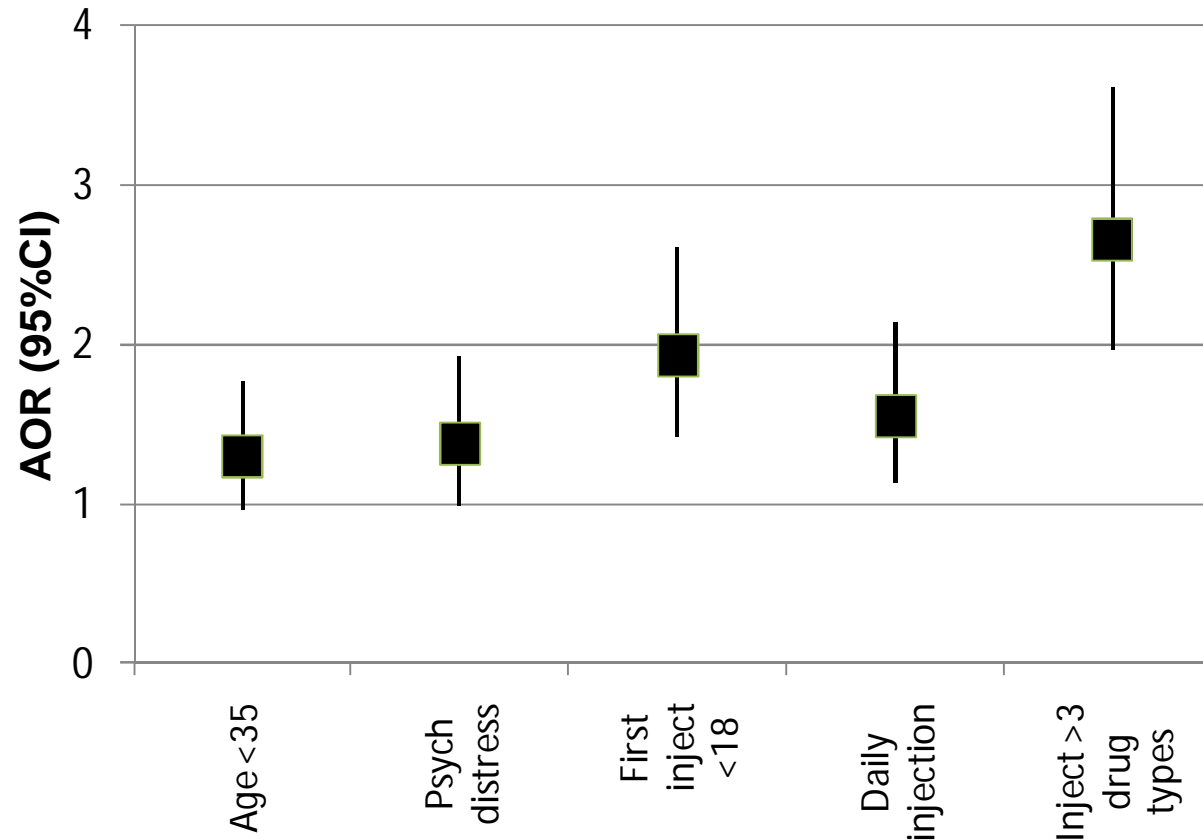


CRIME AS A MARKER FOR RISK

- Cross-sectional study of N=909 regular IDU in Australia (Illicit Drug Reporting System)
- 43% reported last-month crime (OTI)
 - mostly (36%) acquisitive crimes
- Among IDU, who engages in criminal activity?
 - Younger, earlier initiation to IV drug use, daily injection, polydrug injection, spending more on drugs, public injecting, sharing equipment, DUI, injection-related harms (abscess, OD etc.), psychological distress (K10), recent imprisonment...



CRIME AS A MARKER FOR RISK



INJECTING DRUG USE IN PRISON

Background

- A large proportion of prisoners have a history of injecting drug use (IDU) ^{1,2}
- HIV and HCV prevalent among prisoners and driven largely by IDU ^{3,4}
- Despite concerted supply control efforts, IDU occurs in prison ^{5,6}
- In the absence of evidence-based infection control measures (e.g., NSP), IDU in prison is an independent risk factor for BBV transmission ^{7,8}
- After release from custody, infection may be spread through IDU, unsafe sex, unsafe tattooing etc.

1. Int J Prison Health (2009), 5, 59-70.
2. Addict Res Theory (2003), 11, 89-101.
3. Int J Drug Policy (2004), 15, 103-14.
4. Lancet Infect Dis (2007),7, 32-41.

5. Eur J Epidemiol (2010), 25, 143-148.
6. Drug Alcohol Rev (2008),27,693-699.
7. Int J Infect Dis (2008),13,201-208.
8. Epidemiol Infect (2004), 132, 409-415.

Research questions

1. What proportion of prisoners in Queensland have a history of injecting drug use?
2. Among these, what proportion have injected during their current prison sentence?
3. What are the correlates of in-prison drug injection, among those with a history of IDU?



Methods

- Cross-sectional survey of N=1,327 adult prisoners with 4 weeks of release from custody
- Outcome: any IDU during current sentence
- Correlates: demographic, psychosocial, substance use and health risk behaviours; HCV
- Sample: participants with lifetime IDU history (n=712, 54%)
- Analysis: identify independent correlates of drug injection during current prison sentence (n=154, 12%)

Univariate analyses (1)

	No injection (n=558) n (%)	Injection (n=154) n (%)	OR (95%CI)	p value
Mean age in years (range)	31.4 (18.3-55.1)	30.2 (18.5-51.3)	0.98 (0.95-1.00)	0.07
Male	407 (72.9)	142 (92.2)	4.39 (2.37-8.14)	<0.001
Indigenous	141 (25.3)	28 (18.2)	0.66 (0.42-1.03)	0.07
Married/defacto	195 (34.9)	50 (32.5)	0.90 (0.61-1.31)	0.57
< 10 years education	268 (48.0)	94 (61.0)	1.70 (1.18-2.44)	0.004
Prior juvenile prison	186 (33.3)	62 (40.3)	1.34 (0.93-1.94)	0.11
Prior adult prison	459 (82.3)	136 (88.3)	1.63 (0.95-2.79)	0.07
Self harm/suicide ¹	195 (34.9)	42 (27.3)	0.70 (0.47-1.04)	0.07
Diagnosed mental illness ¹	291 (52.2)	81 (52.6)	1.02 (0.71-1.45)	0.92
Unstable accom. ²	96 (17.2)	26 (16.9)	0.98 (0.61-1.57)	0.92
Unemployed ³	321 (57.5)	110 (71.4)	1.85 (1.25-2.72)	0.002

¹ ever; ² month before prison; ³ six months before prison

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Univariate analyses (2)

	No injection (n=558) n (%)	Injection (n=154) n (%)	OR (95%CI)	p value
History of overdose ¹	178 (31.9)	74 (48.1)	1.98 (1.37-2.84)	<0.001
Shared needle/syringe ¹	234 (41.9)	137 (89.0)	11.16 (6.56-18.98)	<0.001
Unprotected sex casual partner ³	200 (35.8)	92 (59.7)	2.66 (1.84-3.83)	<0.001
Used ≥3 illicit drugs ⁴	95 (17.0)	68 (44.2)	3.85 (2.62-5.68)	<0.001
Psychological distress (K10)	144 (25.8)	44 (28.6)	1.15 (0.77-1.71)	0.49
High social support (ESSI)	290 (52.0)	70 (45.5)	0.77 (0.54-1.10)	0.15
Psychiatric medications	194 (34.8)	49 (31.8)	0.88 (0.60-1.28)	0.49
Current OST	26 (4.7)	3 (1.9)	0.41 (0.12-1.36)	0.14
Tattoo (current sentence)	31 (5.6)	43 (27.9)	6.59 (3.97-10.91)	<0.001
Tobacco smoker	499 (89.4)	141 (91.6)	1.29 (0.68-2.40)	0.44
HCV exposed	249 (44.6)	119 (77.3)	4.22 (2.79-3.67)	<0.001

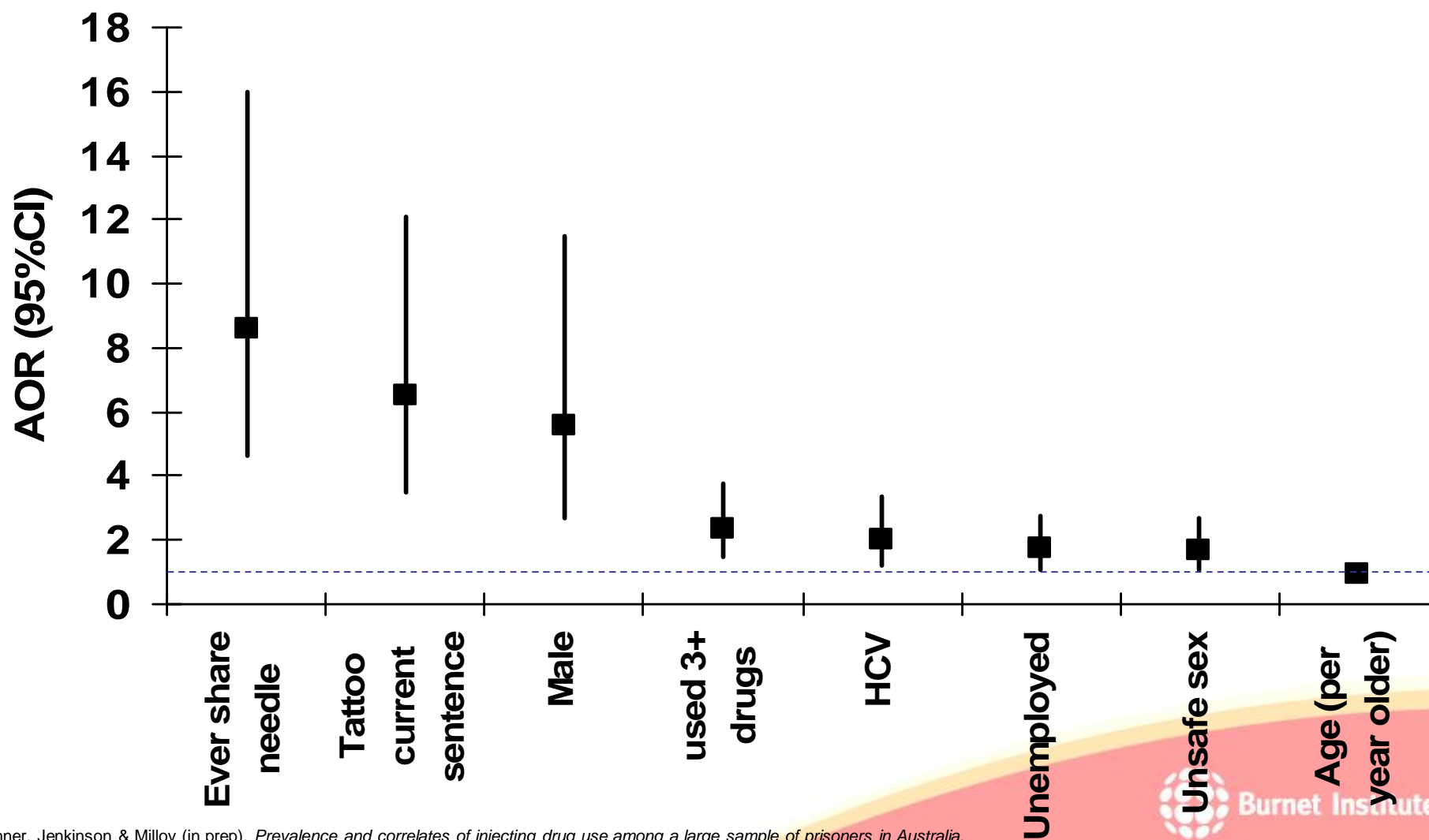
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Independent correlates of in-prison IDU



Independent correlates of in-prison IDU

	AOR	95%CI
Ever shared needle	8.62	4.64-15.99
Tattoo current sentence	6.49	3.48-12.11
Male	5.55	2.68-11.48
Used ≥ 3 drugs before prison	2.38	1.49-3.79
HCV exposed	2.00	1.19-3.36
Unemployed before prison	1.72	1.08-2.75
Unsafe sex before prison	1.71	1.10-2.67
Age (per year older)	0.96	0.93-0.99

Conclusions and Recommendations

- Despite intensive supply control efforts, **those at greatest risk** of spreading BBVs injected in prison
- Association between in-prison injection, risky sex and unsafe tattooing provides **vectors for transmission** beyond IDU population, both in custody and post-release
- OST probably protective but **not routinely available** in QLD
- Prison NSP effective and no serious adverse consequences, but **not available** anywhere in Australia
- Need for evidence-based interventions to reduce BBV and STI risk behaviour **post-release**



NONFATAL OVERDOSE IN EX-PRISONERS

Background

- Elevated risk of fatal OD in ex-prisoners ^{1,2}
- Poor understanding of risk factors – record linkage studies limited to routinely collected data ³
- Reduced tolerance assumed to be a key factor ^{4,5}
- NFOD 20-30 times more common and associated with substantial morbidity ^{6,7}
- Neither incidence nor risk factors for NFOD in ex-prisoners well understood
- *AIMS*: identify incidence and risk factors for NFOD among recently incarcerated drug users

¹ Kariminia et al (2007). IJE 36,310-8.

⁵ Strang et al (2003). BMJ 326,959-61.

² Binswanger et al (2007). NEJM 356,157-65.

⁶ Darke et al (2003). Addiction 98,1169-71.

³ Kinner (2010). Addiction 105,1555-6.

⁷ Warner-Smith et al (2002). Addiction 97,963-7.

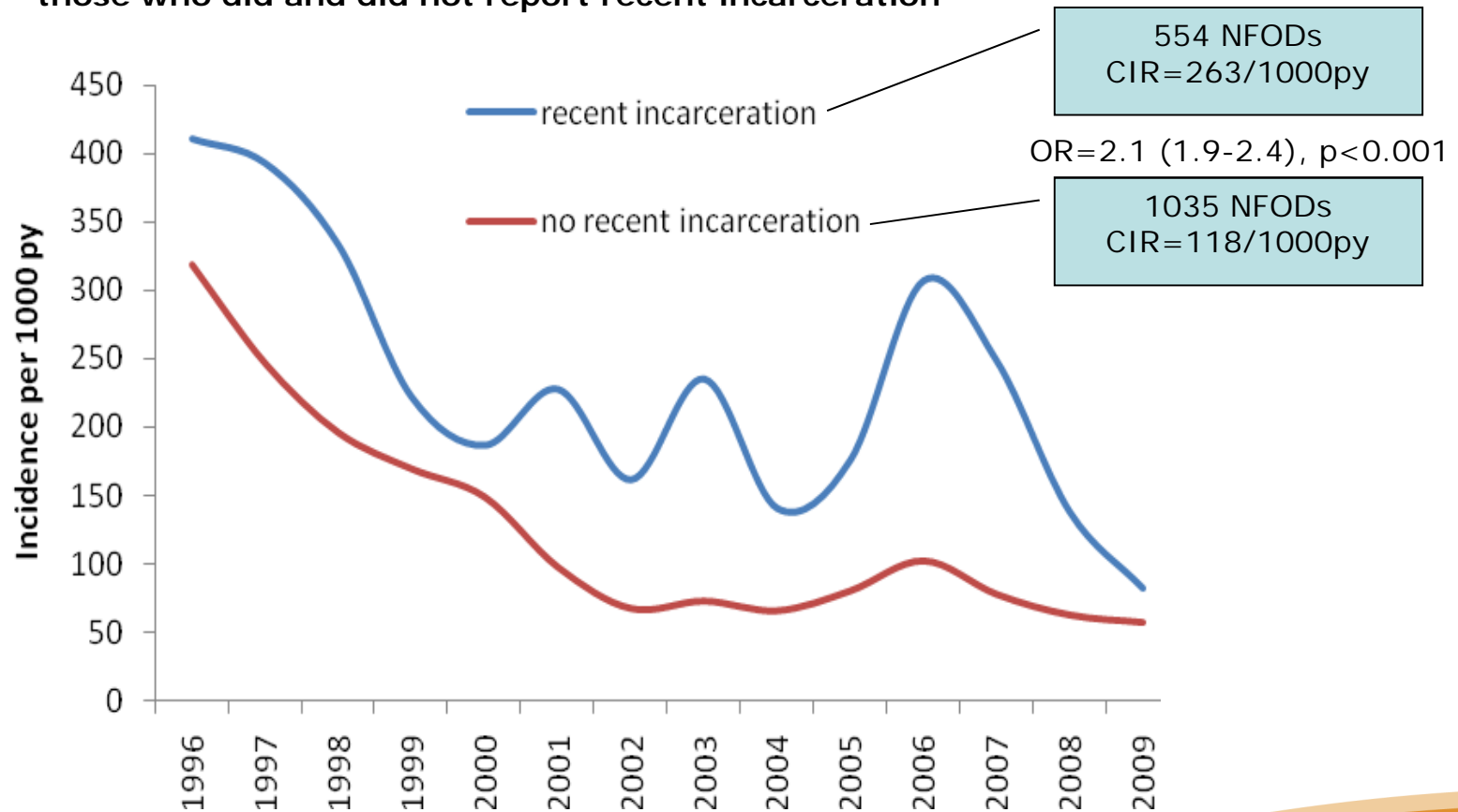
⁴ Merrall et al (2010). Addiction 105,1545-54.

Methods

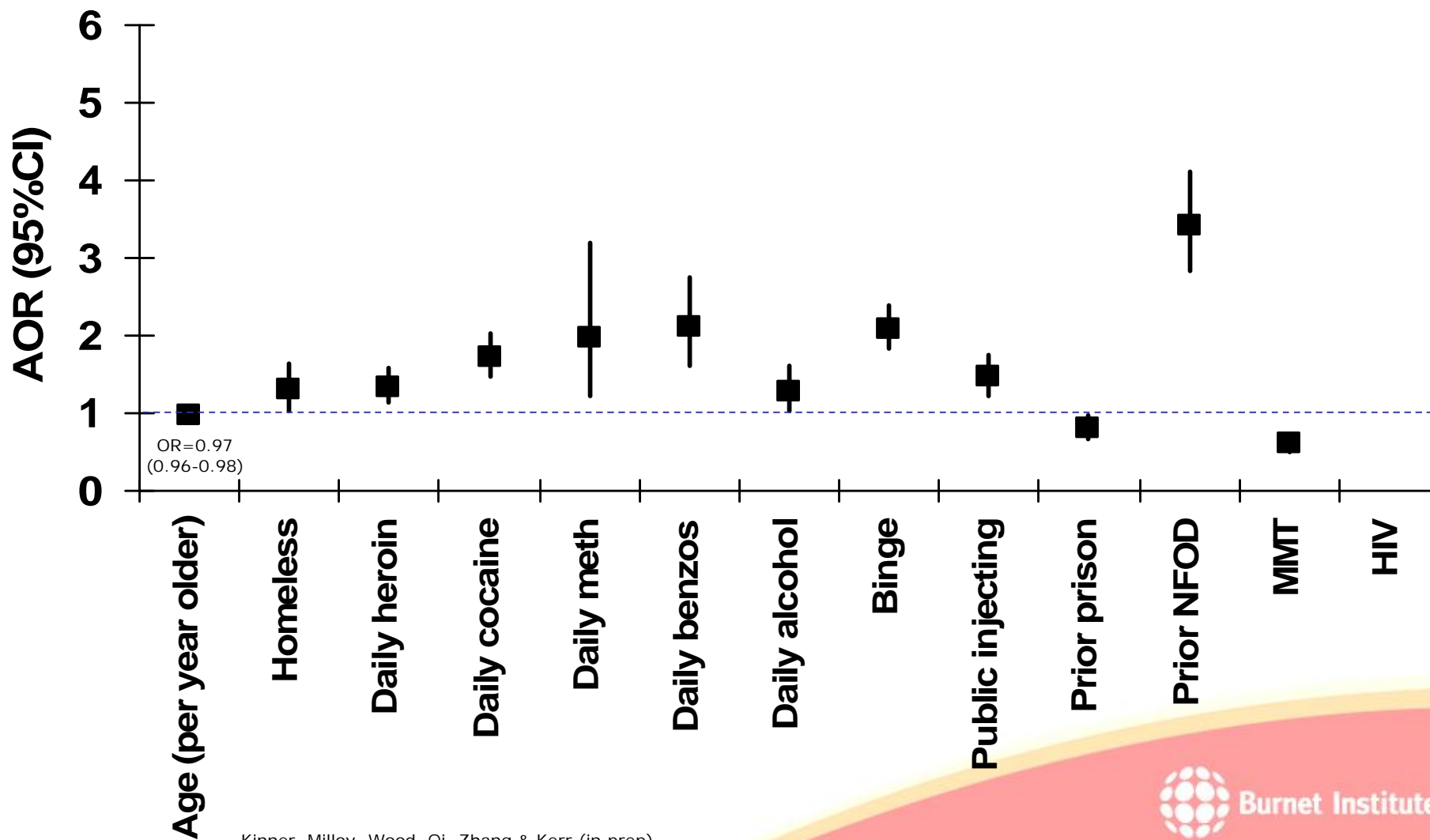
- VIDUS and ACCESS cohorts (N=2,515)
 - regular illicit drug users in Vancouver, Canada
 - 21,798 eligible observations 1996-2010
- Calculate crude incidence rate of NFOD per 1000 person years, according to recent incarceration
- GEE to identify independent risk factors for NFOD, according to recent (last 6 months) incarceration

Results

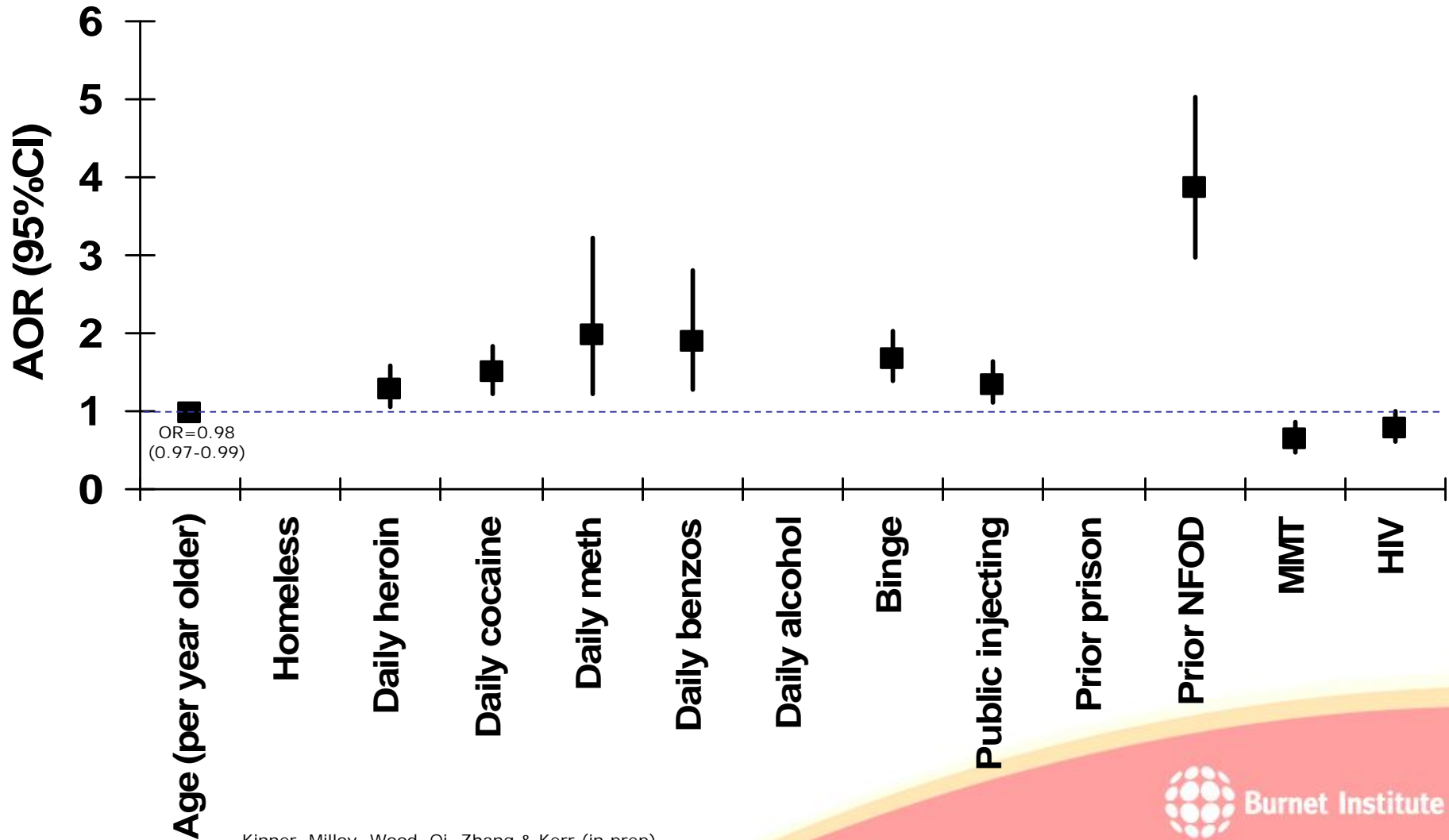
Incidence rate of NFOD per 1000 person years, 1996-2009, among those who did and did not report recent incarceration



Results: those NOT recently incarcerated



Results: those recently incarcerated



Conclusions and Implications

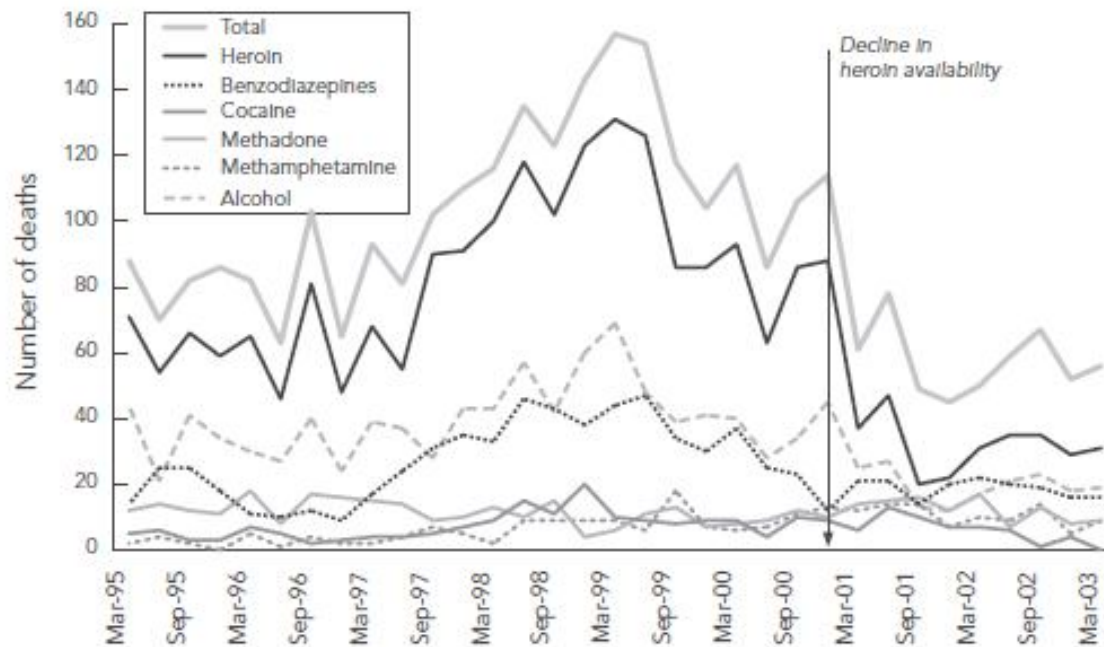
- Release from prison associated with **increased risk** of nonfatal overdose, but **risk factors similar** to those for community-based drug users
- Not all ex-prisoners are at equal risk of NFOD
- Urgent need for evidence-based preventive interventions **targeting modifiable risk factors**, both in prison and **in the community**, post-release



DRUG-RELATED MORTALITY IN EX-PRISONERS

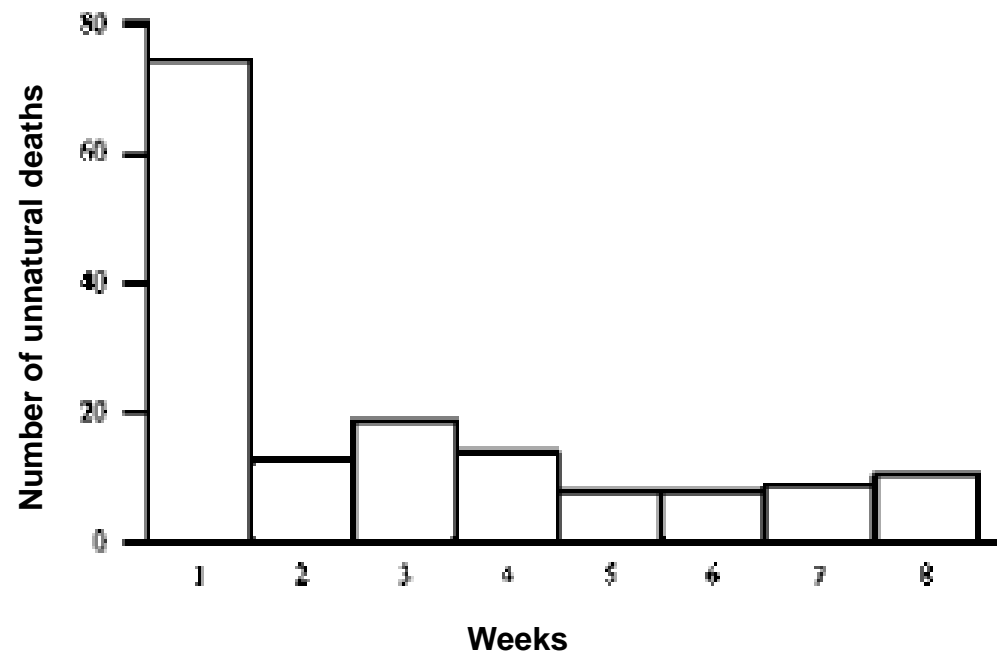
Background

- In 2001 heroin supply decreased in Queensland, New South Wales, Victoria and South Australia
- Incidence of fatal drug overdose in the community fell dramatically



Background

- Prisoners are at increased risk of death post-release, particularly in the first few weeks, and often due to drug-related causes



Background and Aims

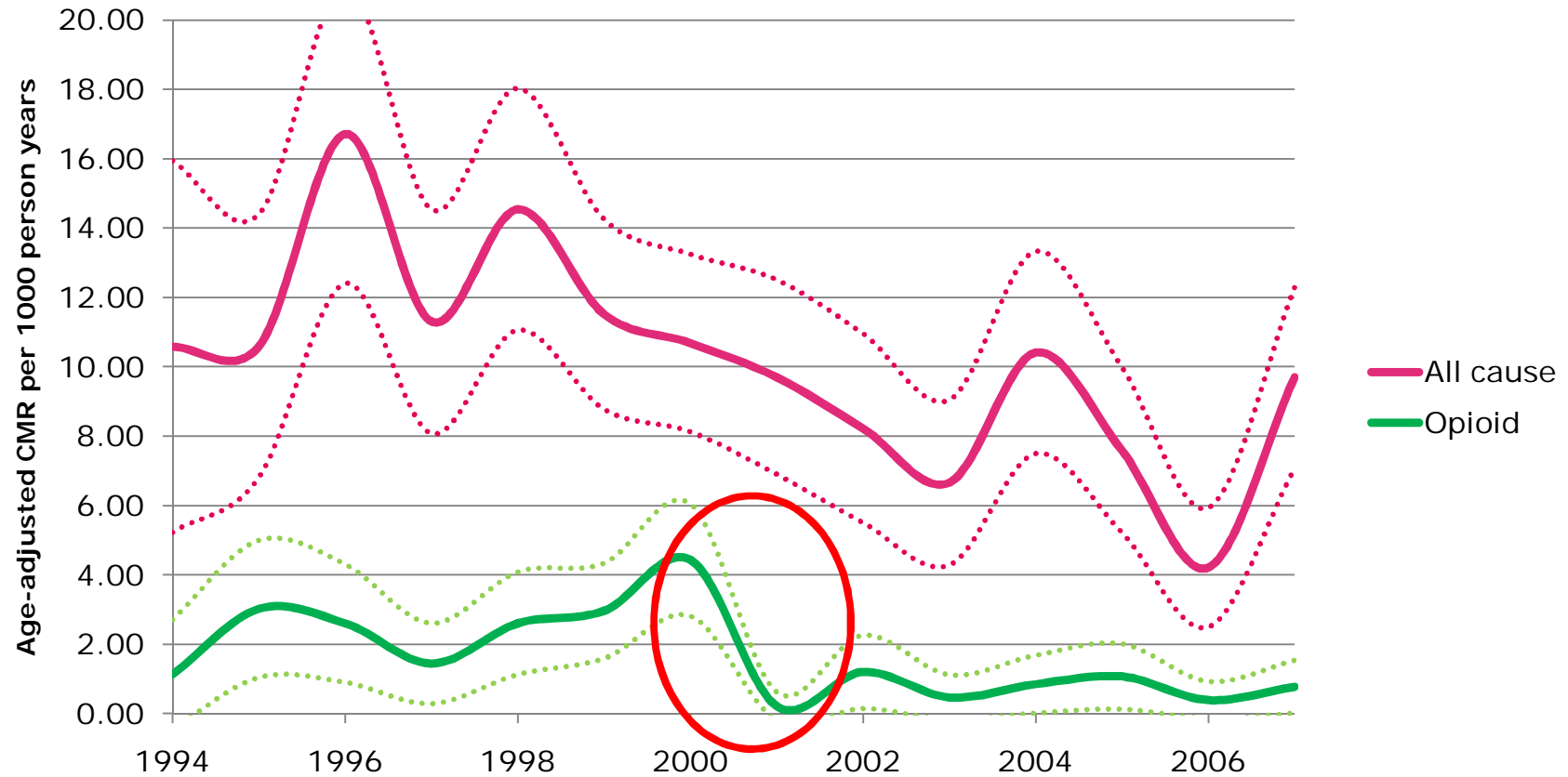
- Prisoners are at increased risk of death post-release, particularly in the first few weeks, and often due to drug-related causes
- Systematic review found that drug-related causes accounted for **76%** of deaths within 2 weeks post-release¹
- No Australian studies have examined the impact of the heroin shortage on mortality in ex-prisoners
- AIMS
 - Estimate all-cause and cause-specific age-adjusted mortality rates among ex-prisoners in Queensland, from 1994-2007
 - Investigate whether all-cause and/or cause-specific mortality rates among ex-prisoners declined following the heroin shortage in 2001

Methods

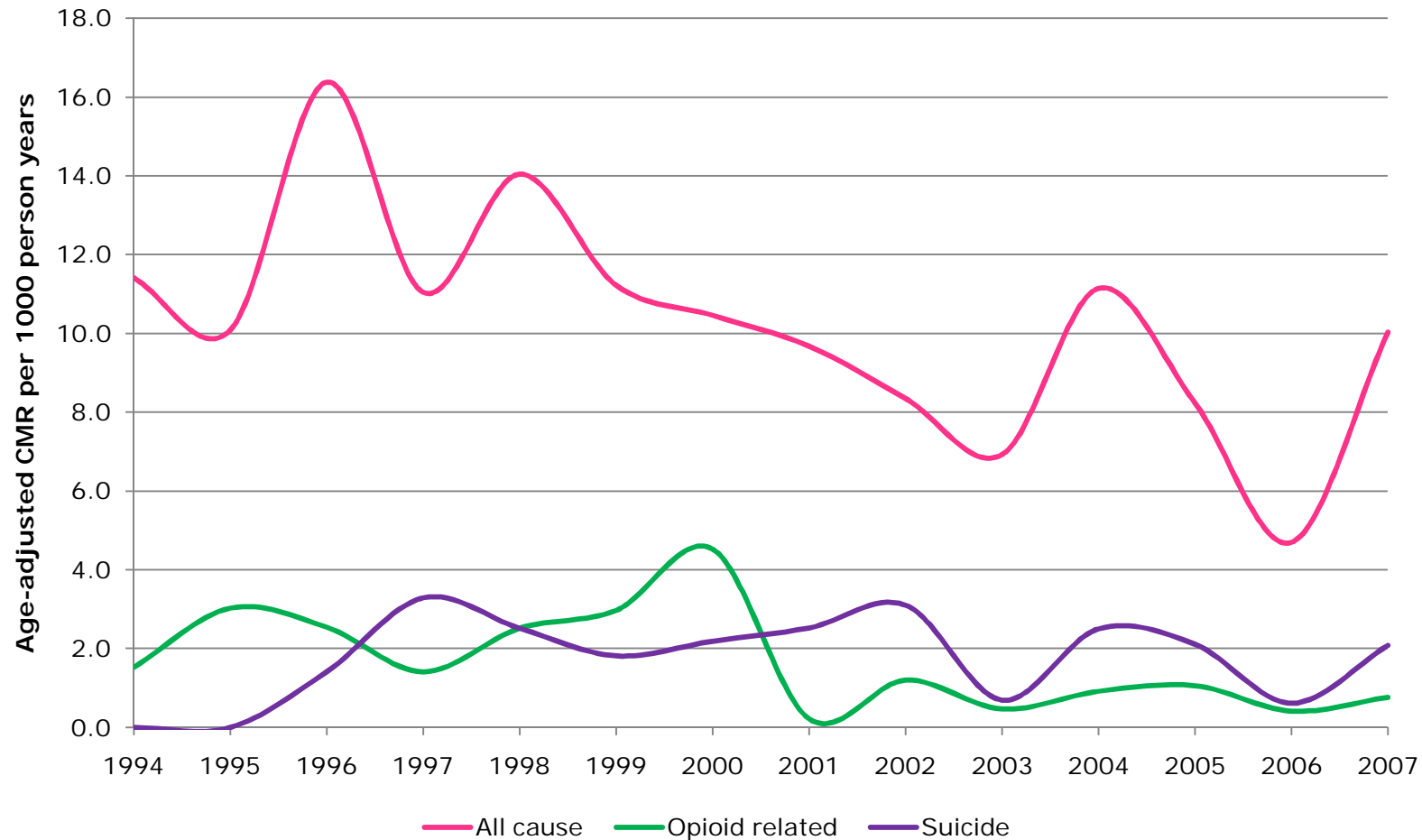
- Probabilistic linkage of Queensland correctional records with the National Death Index (NDI)
- Underlying and contributing cause of death coded using ICD-9/ICD-10 codes
- All-cause and cause-specific crude mortality rates (CMRs) using all person time in the community from **ANY** release in the study period until 1 year after release/death/re-incarceration/end follow-up
- Comparison of CMRs between Time 1 (1994-2000) and Time 2 (2001-2007)



Mortality in the year after release, by cause



Mortality in the year after release, by cause



Conclusions

- Significant reduction in overall mortality among ex-prisoners in QLD after 2001, partly due to a **sharp decline in opioid-related deaths**
 - Incidence and causes of mortality among ex-prisoners are **not consistent** over time
 - Need for **on-going monitoring** of mortality among ex-prisoners, preferably through routine record linkage
- Decline in all-cause CMR not entirely accounted for by reduction in drug-related deaths
 - What **other factors** are driving the reduction in all-cause mortality?
- Many deaths in ex-prisoners were not drug-related, indicating need to **broaden focus** and consider ways to prevent other key causes of death (e.g., suicide)



CONCLUDING REMARKS

Concluding Remarks

- Criminal activity is a marker for health need and risk
 - Beyond “criminocentrism”
- Injecting occurs in prison, harm reduction absent
 - ? National Corrections Drug Strategy 2006-2009 ?
- Prisons an opportunity for screening and initiating care
 - Missed opportunities?
 - “Prisoner health is public health”
- Prisoner health is not a constant (or an oxymoron)
 - Need for routine surveillance both in custody and post-release
 - Further research a prerequisite for responsive, evidence-based policy and practice



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- **PhD students:** Kate van Dooren, Simon Forsyth, Rebecca Winter
- **Investigators:** Stuart Kinner, Rosa Alati, Fran Boyle, Konrad Jamrozik, Nick Lennox, Coralie Ober, Alun Richards, Gail Williams