Studying trends in fatal and non-fatal overdose: Findings from Drug Trends 2019

National Drug and Alcohol Research Centre, UNSW, Sydney

Acknowledgements

DRUG TRENDS

Drug Trends

AIM

To establish, maintain, and continuously improve monitoring of trends in illicit drug use, harms, and markets across Australia

DATA SOURCES

National Monitoring: Secondary Data	Jurisdictional Monitoring: Secondary Data	Sentinel Sample Monitoring	Online Monitoring
Mortality Data Drug-induced deaths from registry and coronial data **Hospitalisation Data** Drug-induced hospitalisations **Other Sources** Household survey, treatment data etc	Various sources assessing drug use and harms at the population-level (e.g., emergency department presentations) and subpopulation level (e.g., needle-syringe program visits)	**Illicit Drug Reporting System (IDRS) Ecstasy and Related Drug Reporting System (EDRS)** Annual interviews with people who inject drugs (IDRS) and who use stimulants (EDRS)	**Cryptomarket Data** Scraping listings on darknet drug markets

OUTPUT

Input from researchers, national stakeholders, and jurisdiction stakeholders to inform priority research questions
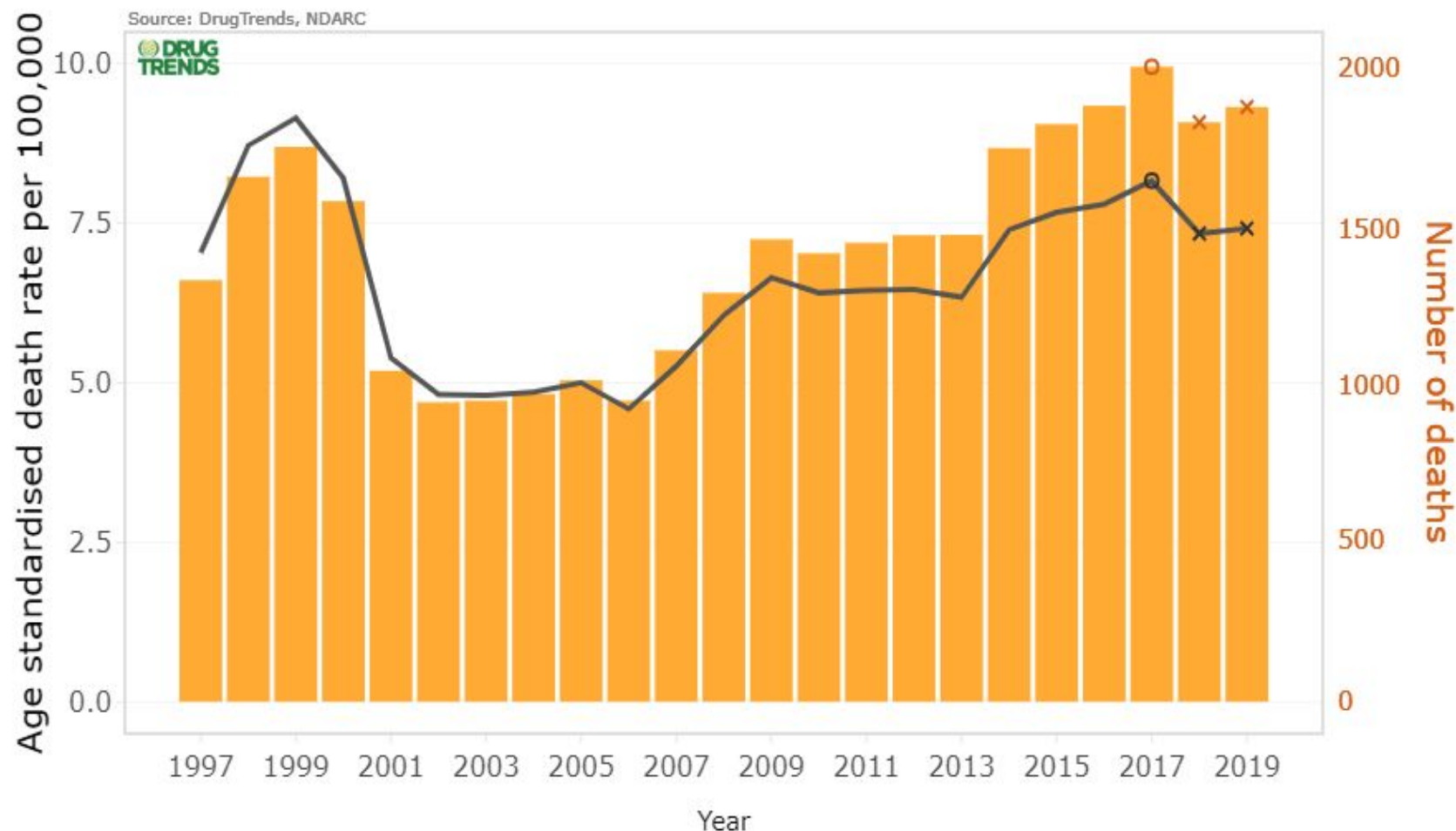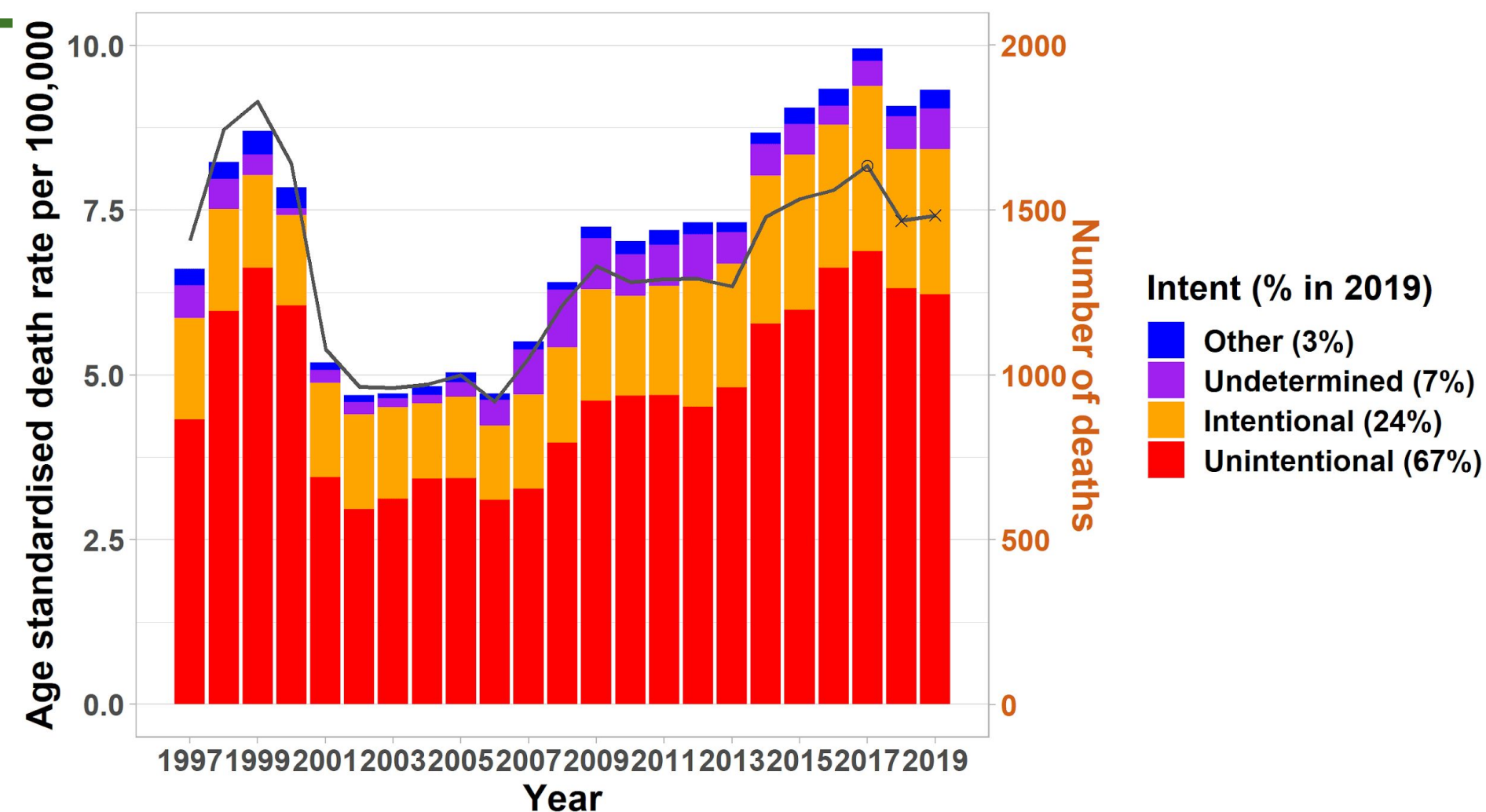
Analytical reports

Drug Trends

Caveats

- ABS undertakes a revision process over a 3-year period; estimates for 2017, 2018, and 2019 are not final

- ICD codes have limited specificity for drugs and numbers may differ between organisations reporting on deaths due to codes used

- Small numbers ≤5 are not shown to protect confidentiality

- Does not include deaths caused by alcohol

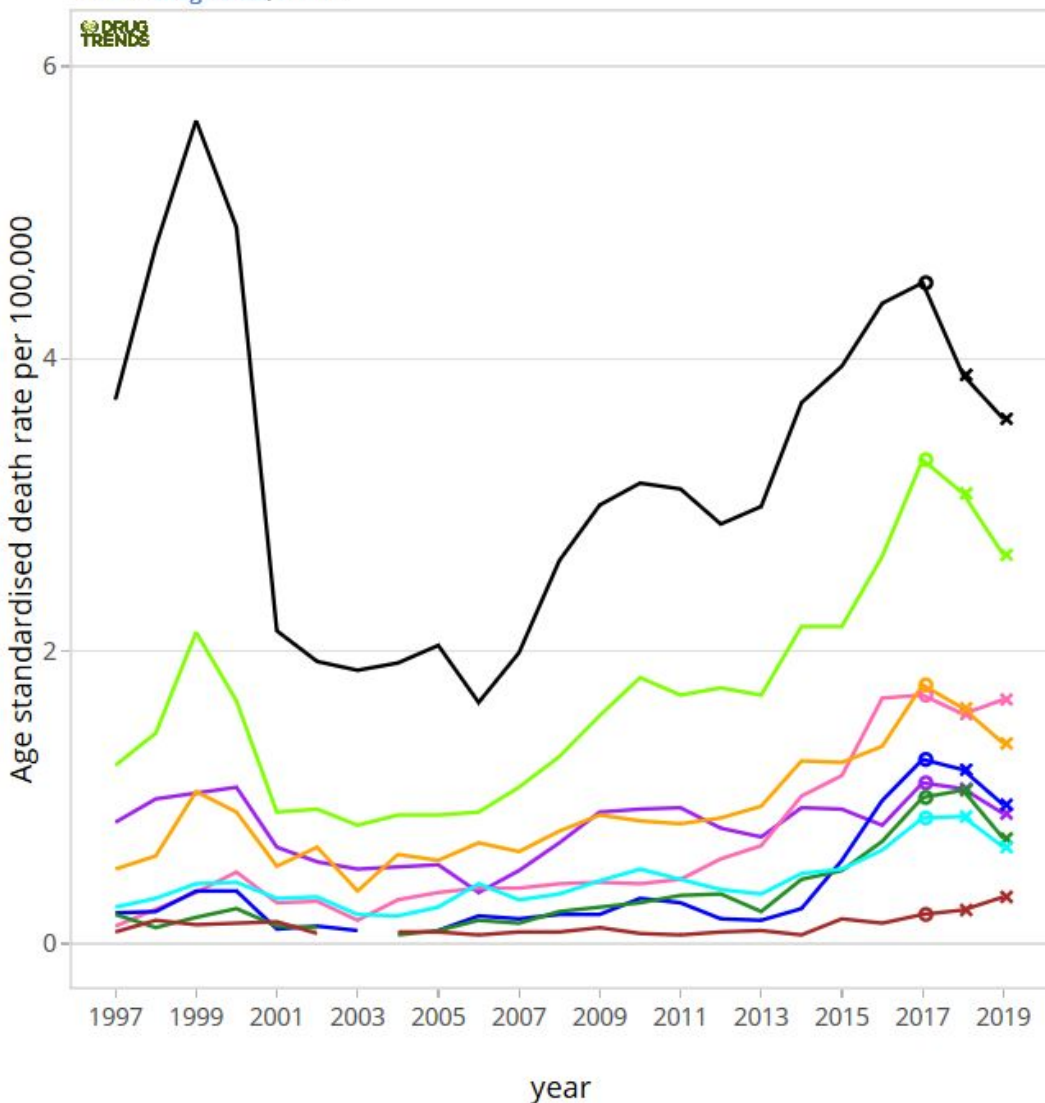# Drug-induced deaths in Australia, all ages, 1997-2019

Source: DrugTrends, NDARC

Causes of death data for 2017, 2018 and 2019 are not final. The symbol 'o' indicates revised estimates and 'x' preliminary estimates

Drug-induced deaths in Australia, all ages, 1997-2019

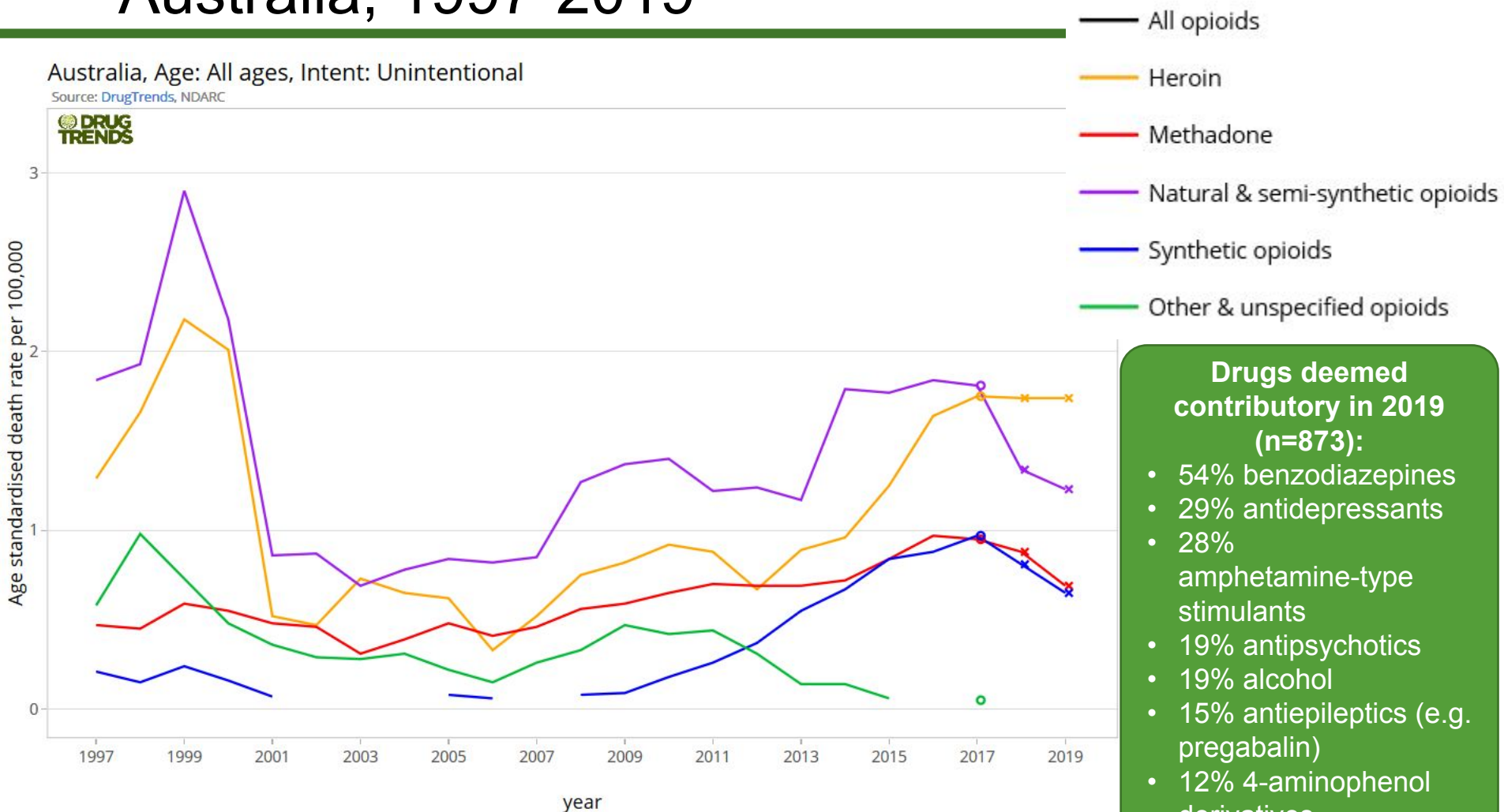# Unintentional drug-induced deaths in Australia, all-ages, 1997-2019

Drugs involved in deaths, 2019	Cases	Per 100,000 people
ALCOHOL	219	0.89
AMPHETAMINES	402	1.67
ANTIDEPRESSANTS	340	1.37
ANTIEPILEPTIC, SEDATIVE-HYPNOTIC & ANTIPARKINSONISM DRUGS	654	2.66
ANTIPSYCHOTICS & NEUROLEPTICS	229	0.95
CANNABINOIDS	173	0.72
COCAINE	77	0.32
NONOPIOID ANALGESICS	166	0.66
OPIOIDS	881	3.59

Unintentional opioid-induced deaths in Australia, 1997-2019

Chrzanowska et al. (2021)

https://ndarc.med.unsw.edu.au/resource-analytics/trends-drug-induced-deaths-australia-1997-2019
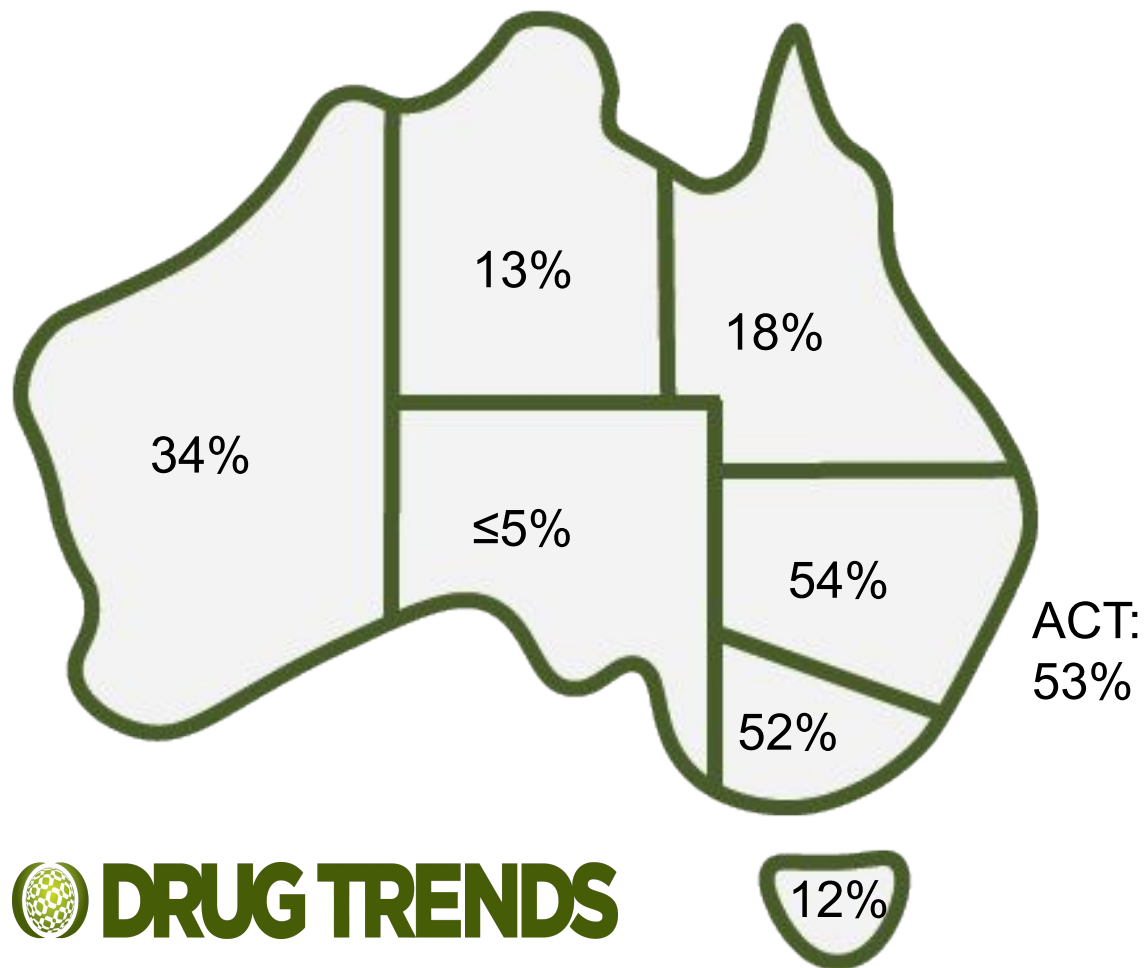
Naloxone knowledge and training in the sample who inject drugs (Illicit Drug Reporting System)

DRUG TRENDS
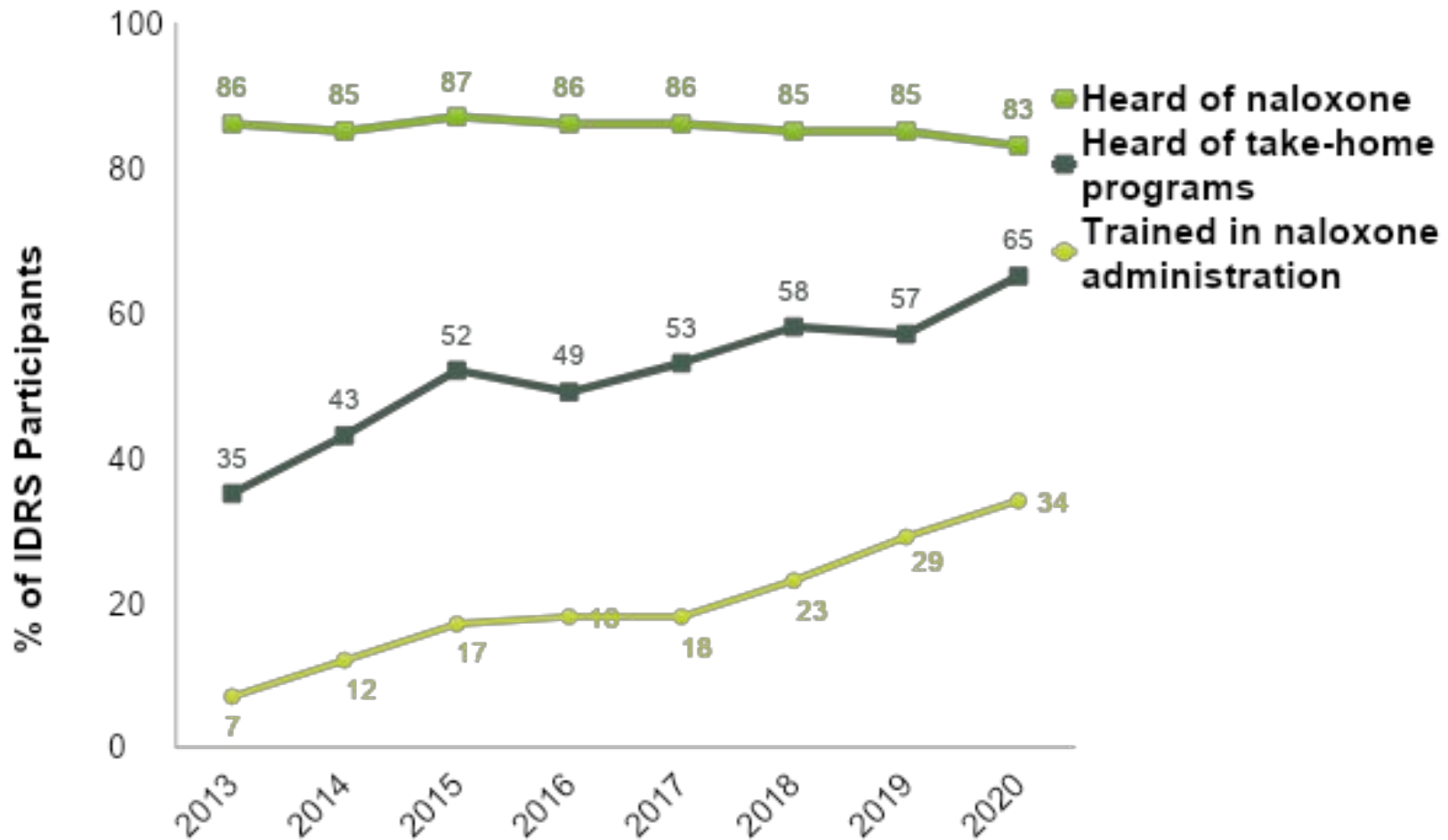
Naloxone knowledge and training in the sample who inject drugs (Illicit Drug Reporting System)

"Have you been trained in naloxone administration?"

13%

18%

34%

≤5%

54%

ACT: 53%

52%

12%

**13%**
reported past 12-month opioid overdose

5%
had been resuscitated by someone who had participated in a take-home naloxone program

DRUG TRENDS

Preventing overdose: food for thought

Non-fatal overdose can lead to significant harms (e.g., brain injury). What are the other effective strategies for preventing <u>any</u> overdose?

- Naloxone

- Opioid agonist treatment (access, coverage, and retention)

- Supervised consumption facilities

- Overdose education (including peer-to-peer)

- Drug checking services (+ information-sharing)

IDRS 2019
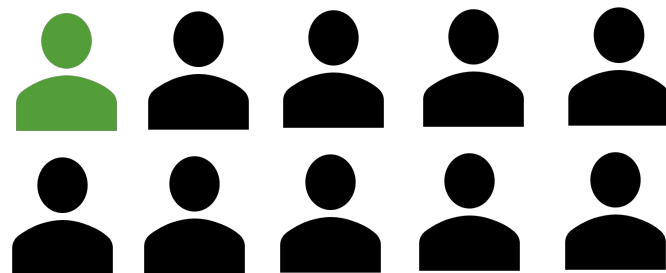
1 in 10 people who inject drugs had ever tested their drugs (11%; 6% in the past year)

71% Personal testing kit last time

Peacock et al. (2019)

🌐 **DRUG TRENDS**

Preventing overdose: food for thought

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- Naloxone

- Opioid agonist treatment (access, coverage, and retention)

- Supervised consumption facilities

- Overdose education (including peer-to-peer)

- Drug checking services (+ information-sharing)

- Wearable overdose detection technology

- Others? And things we know don't work?

Opioid overdose detection using smartphones

Rajalakshmi Nandakumar[1], Shyamnath Gollakota[1]*, Jacob E. Sunshine[2]*

Early detection and rapid intervention can prevent death from opioid overdose. At high doses, opioids (particularly fentanyl) can cause rapid cessation of breathing (apnea), hypoxemic/hypercarbic respiratory failure, and death, the physiologic sequence by which people commonly succumb from unintentional opioid overdose. We present algorithms that run on smartphones and unobtrusively detect opioid overdose events and their precursors. Our proof-of- concept contactless system converts the phone into a short-range active sonar using frequency shifts to identify respiratory depression, apnea, and gross motor movements associated with acute opioid toxicity. We develop algorithms and perform testing in two environments: (i) an approved supervised injection facility (SIF), where people self-inject illicit opioids, and (ii) the operating room (OR), where we simulate rapid, opioid-induced overdose events using routine induction of general anesthesia. In the SIF ($n = 209$), our system identified postinjection, opioid-induced central apnea with 96% sensitivity and 98% specificity and identified respiratory depression with 87% sensitivity and 89% specificity. These two key events commonly precede fatal opioid overdose. In the OR, our algorithm identified 19 of 20 simulated overdose events. Given the reliable reversibility of acute opioid toxicity, smartphone-enabled overdose detection coupled with the ability to alert naloxone-equipped friends and family or emergency medical services (EMS) could hold potential as a low-barrier, harm reduction intervention.

Acceptability of technological solutions for overdose monitoring: Perspectives of people who use drugs

V. W. L. Tsang[a], K. Papamihali, MPH[b], A. Crabtree, MD, PhD[b], and J. A. Buxton, MBBS, MHSc, FRCPC[a,b]

[a]Faculty of Medicine, University of British Columbia, Vancouver, Canada; [b]BC Centre for Disease Control, Vancouver, Canada

ABSTRACT
Introduction: Rising overdose deaths are a devastating problem across the United States and Canada. Despite the availability of observed consumption sites in British Columbia (BC), data suggest people who use drugs (PWUD) alone in private residences are most at risk of overdose death. These individuals may not use consumption sites due to fear of stigmatization, lack of privacy, or personal preference. It is this population that would benefit from overdose monitoring alternatives. Methods: This 2018 study employed two sources of data. (1) A provincial harm reduction distribution site client survey administered at 27 sites across BC asked about cell phone possession and functionality. (2) Structured interviews with PWUD in Vancouver gathered perspectives regarding monitoring devices and alerting systems. Results: The client survey was administered to 486 individuals. Among 443 respondents, 48% ($n = 212$) owned a cellphone and 68% ($n = 115$) of individuals with a cellphone with access to internet ($n = 168$) would use an application to mitigate opioid-related overdose deaths. Thirty qualitative interviews were performed; thematic analysis of the responses identified three major themes – safety, public versus private drug use, and technological monitoring and function. The relevance of technological devices was affected by the inconsistent availability of cellphones, concerns about anonymity, as well as personal comfort while using drugs. Conclusions: Technological applications may not be suitable for clients with transient life-
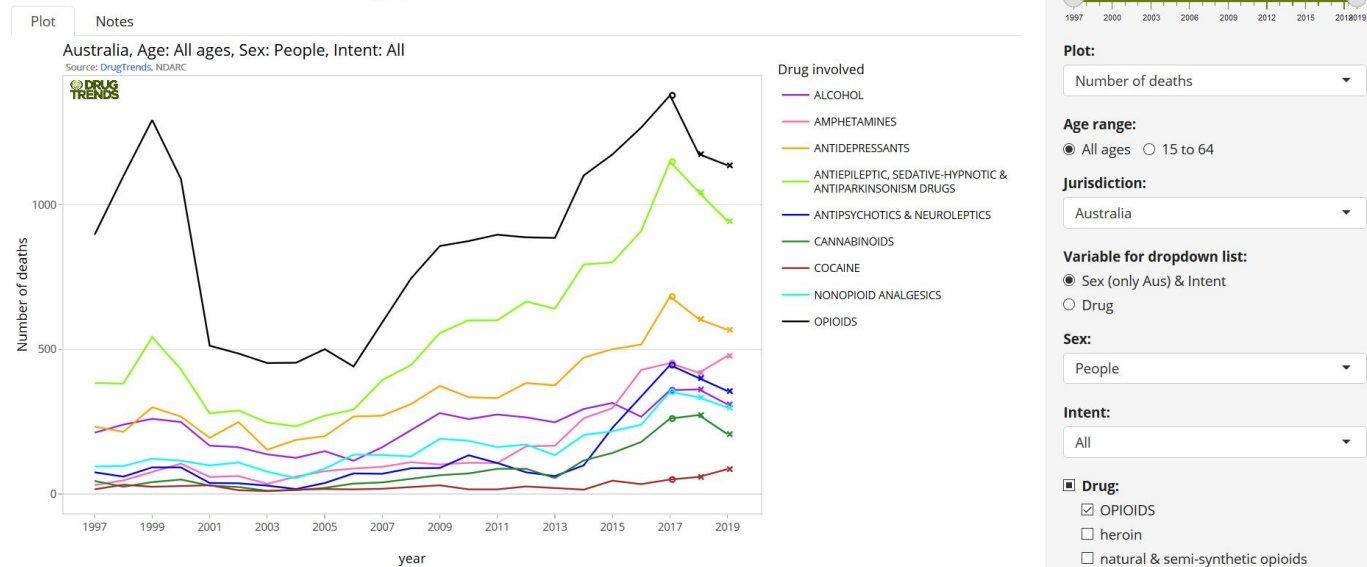
KEYWORDS
Overdose crisis; opioids; people who use drugs; technology; fentanyl

DRUG TRENDS

For further information: visualisation

Disaggregate by:

- Drug
- Intent
- Age
- Sex
- Jurisdiction
- Remoteness

For more visualisations, go to:
https://ndarc.med.unsw.edu.au/drug-trends-visualisations

For further information

Contact us
drugtrends@unsw.edu.au

Website
https://ndarc.med.unsw.edu.au/program/drug-trends

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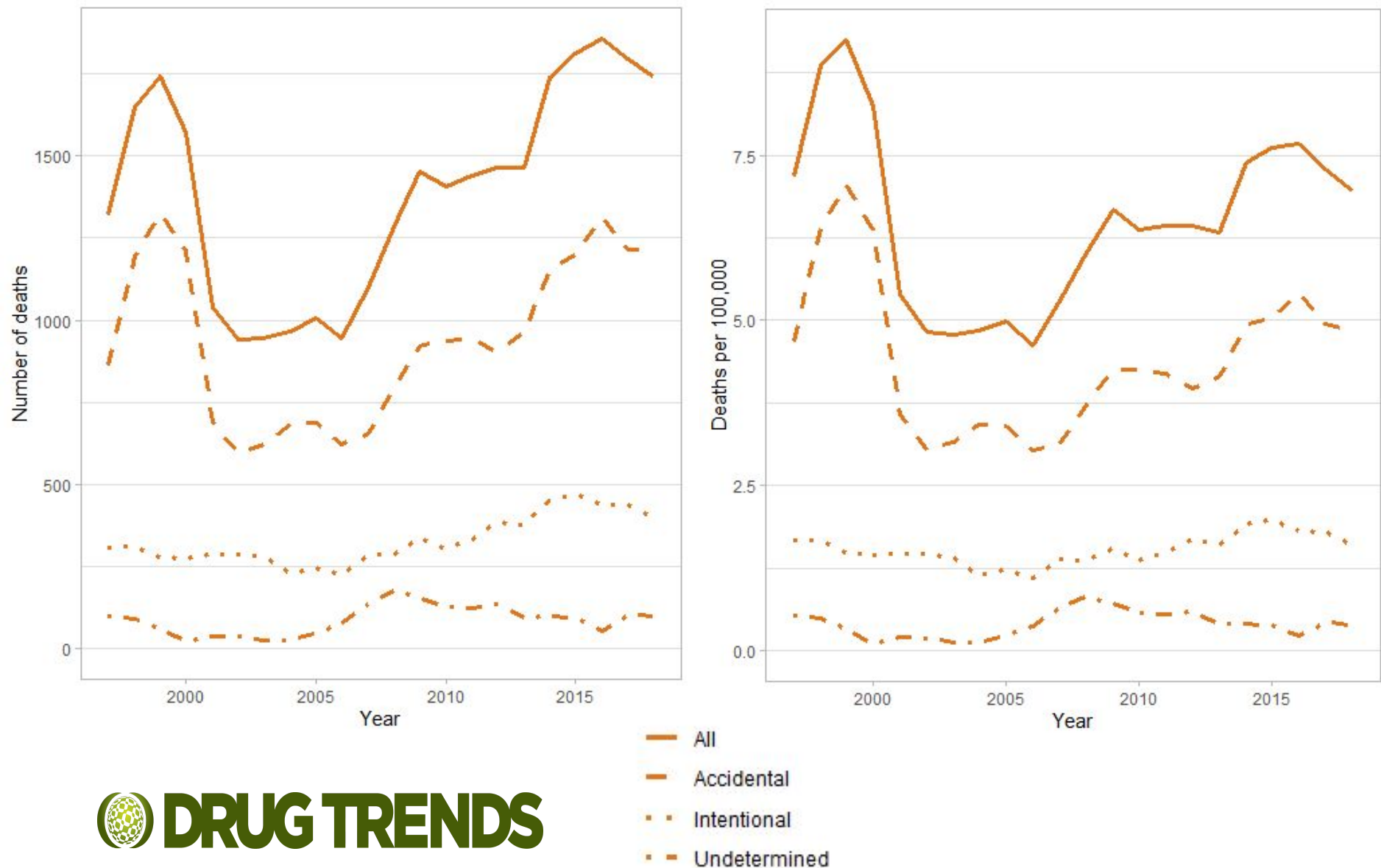https://ndarc.med.unsw.edu.au/program/drug-trends
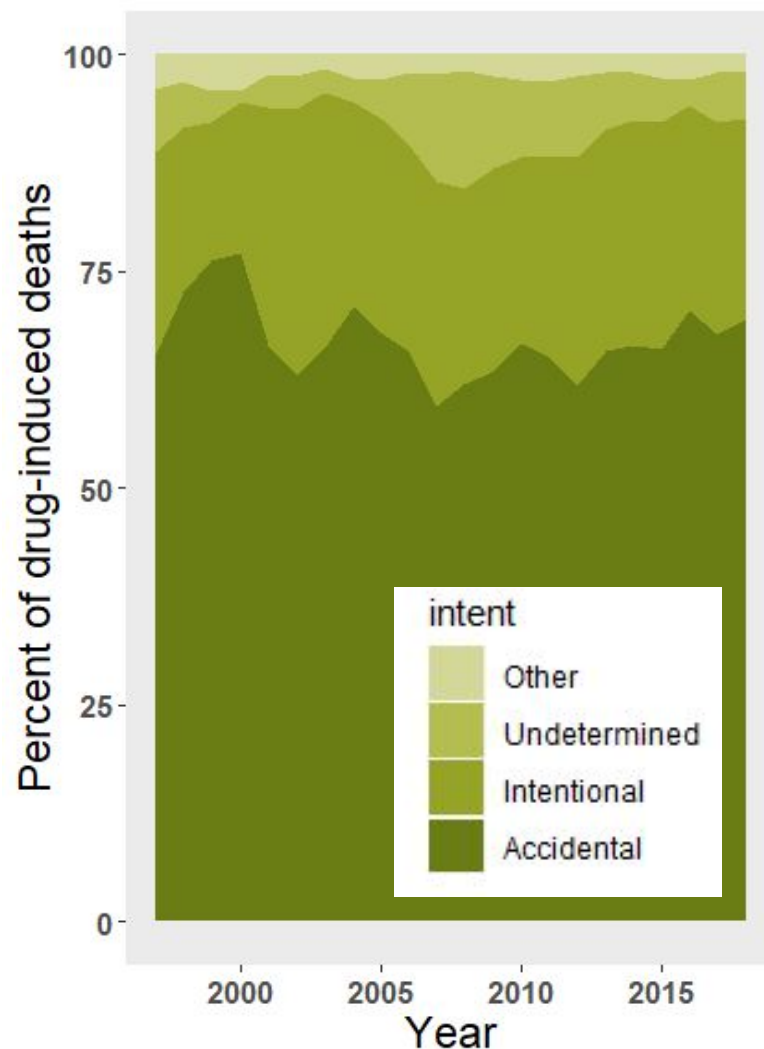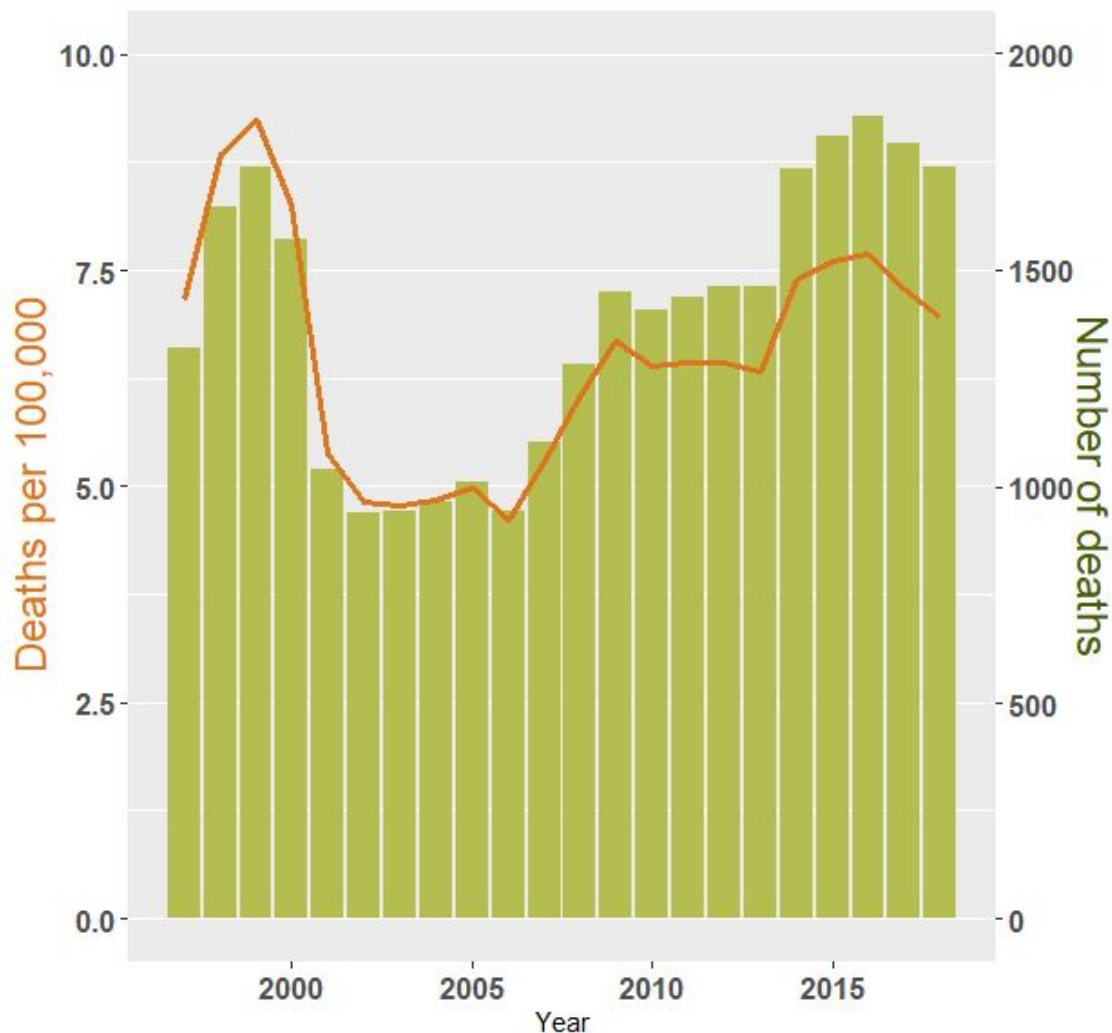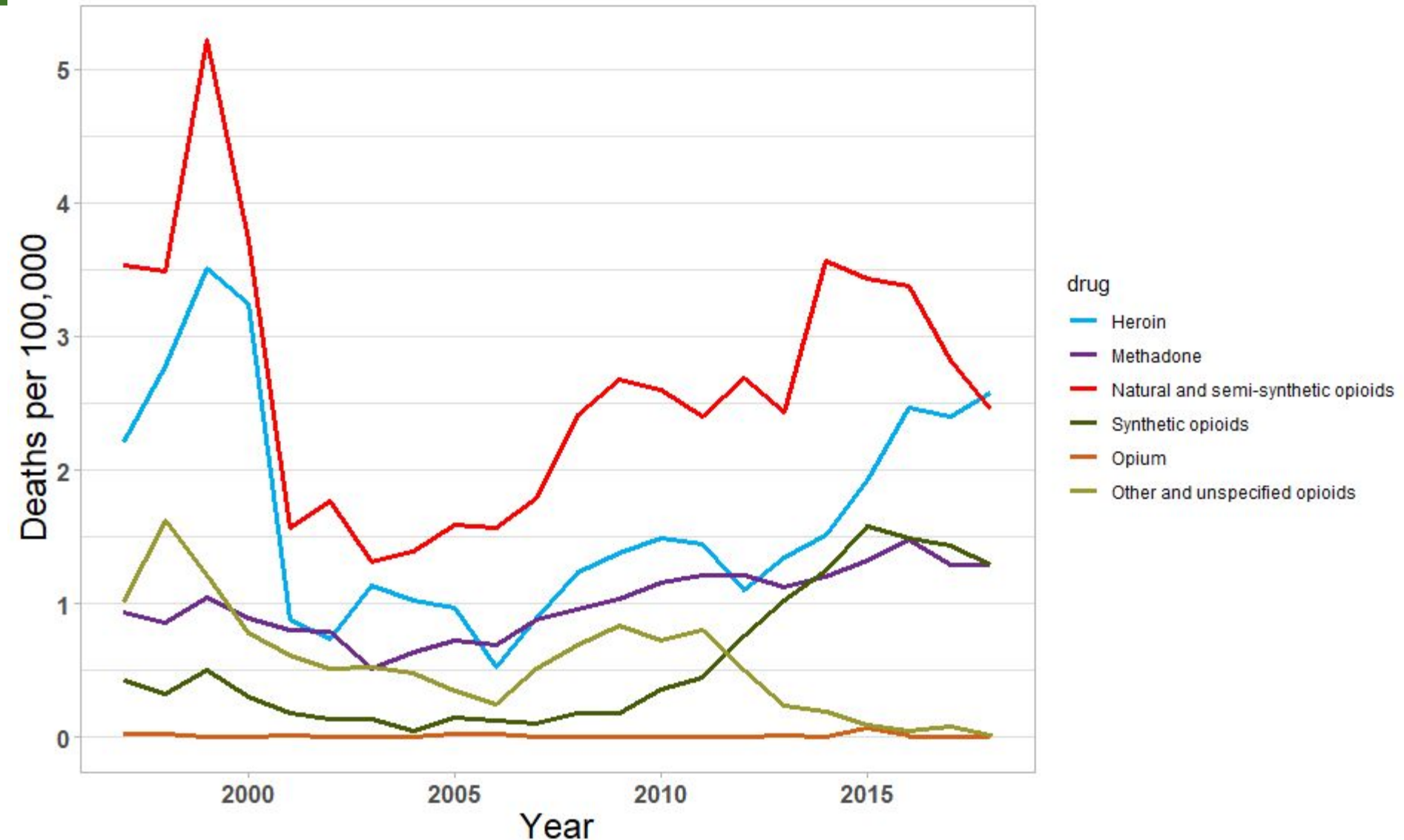
@NDARCNEWS #DrugTrends

@ndarcunsw

Drug-induced deaths in Australia, all ages, 1997-2018

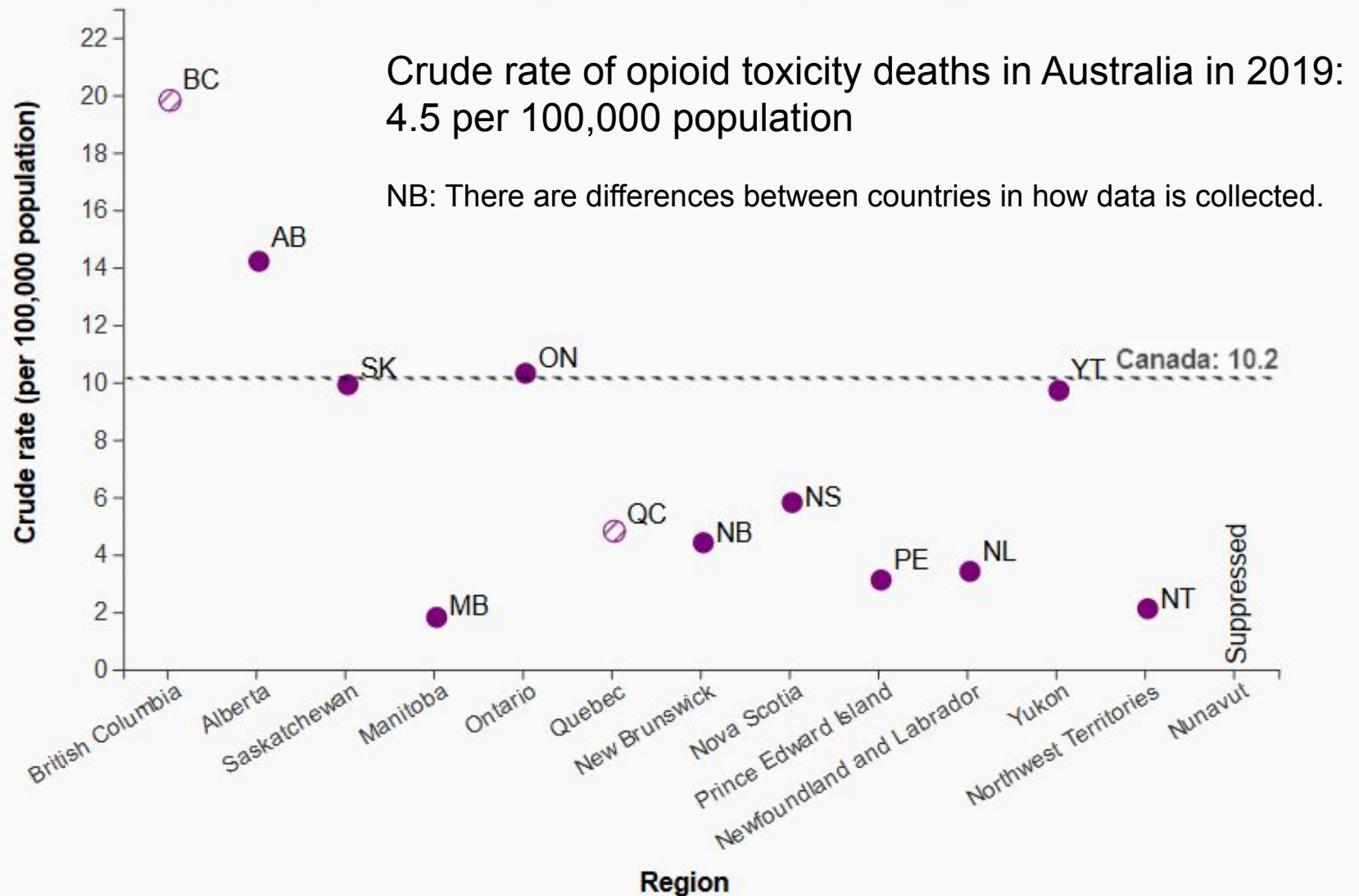# Drug-induced deaths in Australia, all ages, 1997-2018

Accidental opioid-induced deaths in Australia by opioid type, 15-64 age group, 1997-2018

Total apparent opioid toxicity deaths in Canada

Crude rate (per 100,000 population) of total apparent opioid toxicity deaths by province or territory in 2019

Crude rate of opioid toxicity deaths in Australia in 2019: 4.5 per 100,000 population

NB: There are differences between countries in how data is collected.

Canada: 10.2

Opioid toxicity deaths, 2019

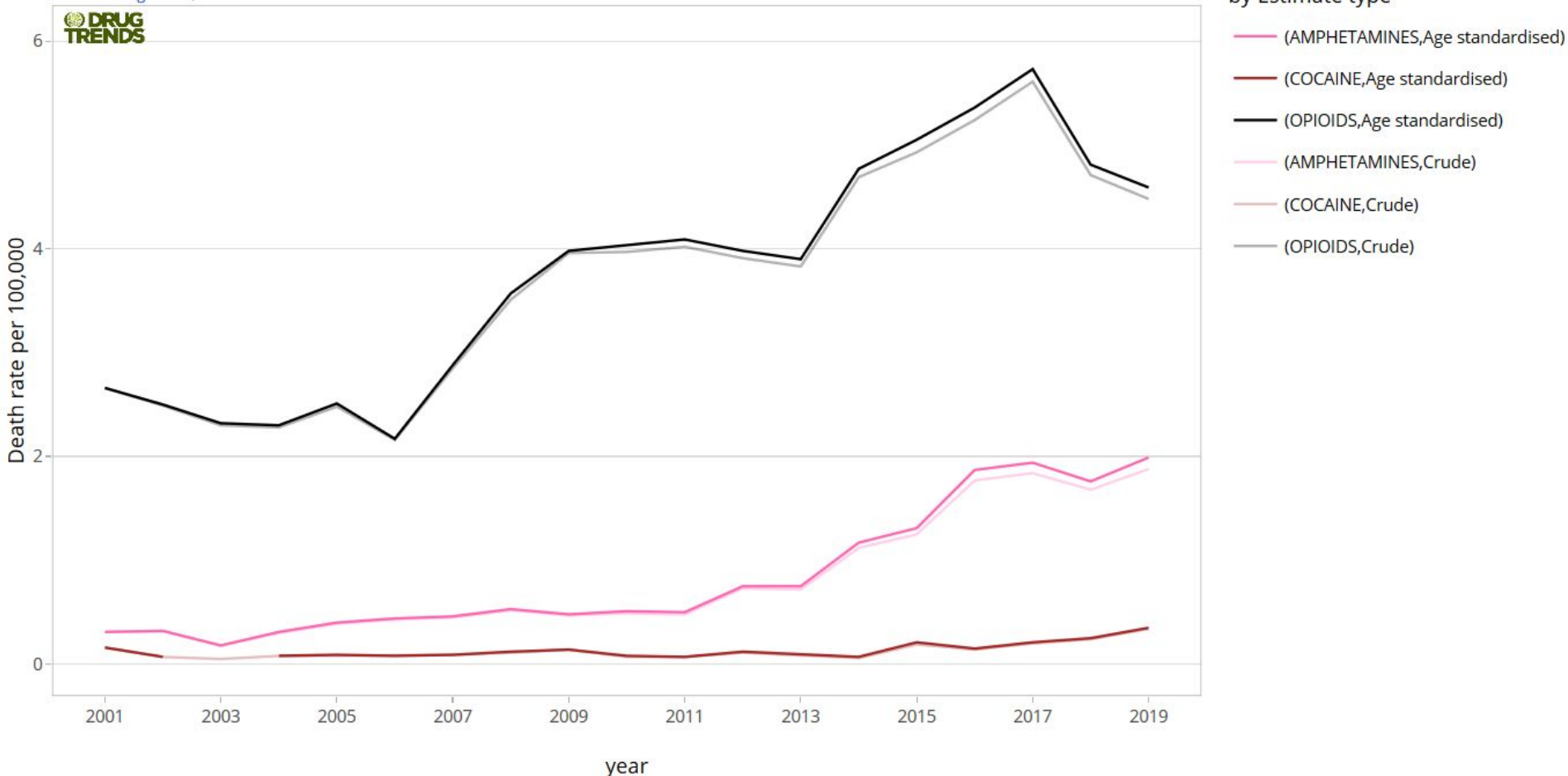|	Crude rate per 100,000	
	Canada	Australia
2019	10.2	4.5
2018	11.8	4.7
2017	10.7	5.6
2016	7.8	5.2

NB: There are differences in between countries in how data is collected.

DRUG TRENDS

Opioid and stimulant toxicity deaths, 2019

Australia, Age: All ages, Sex: People, Intent: All
Source: DrugTrends, NDARC

Drug involved by Estimate type
- (AMPHETAMINES, Age standardised)
- (COCAINE, Age standardised)
- (OPIOIDS, Age standardised)
- (AMPHETAMINES, Crude)
- (COCAINE, Crude)
- (OPIOIDS, Crude)

https://health-infobase.canada.ca/substance-related-harms/opioids-stimulants/graphs?index=422
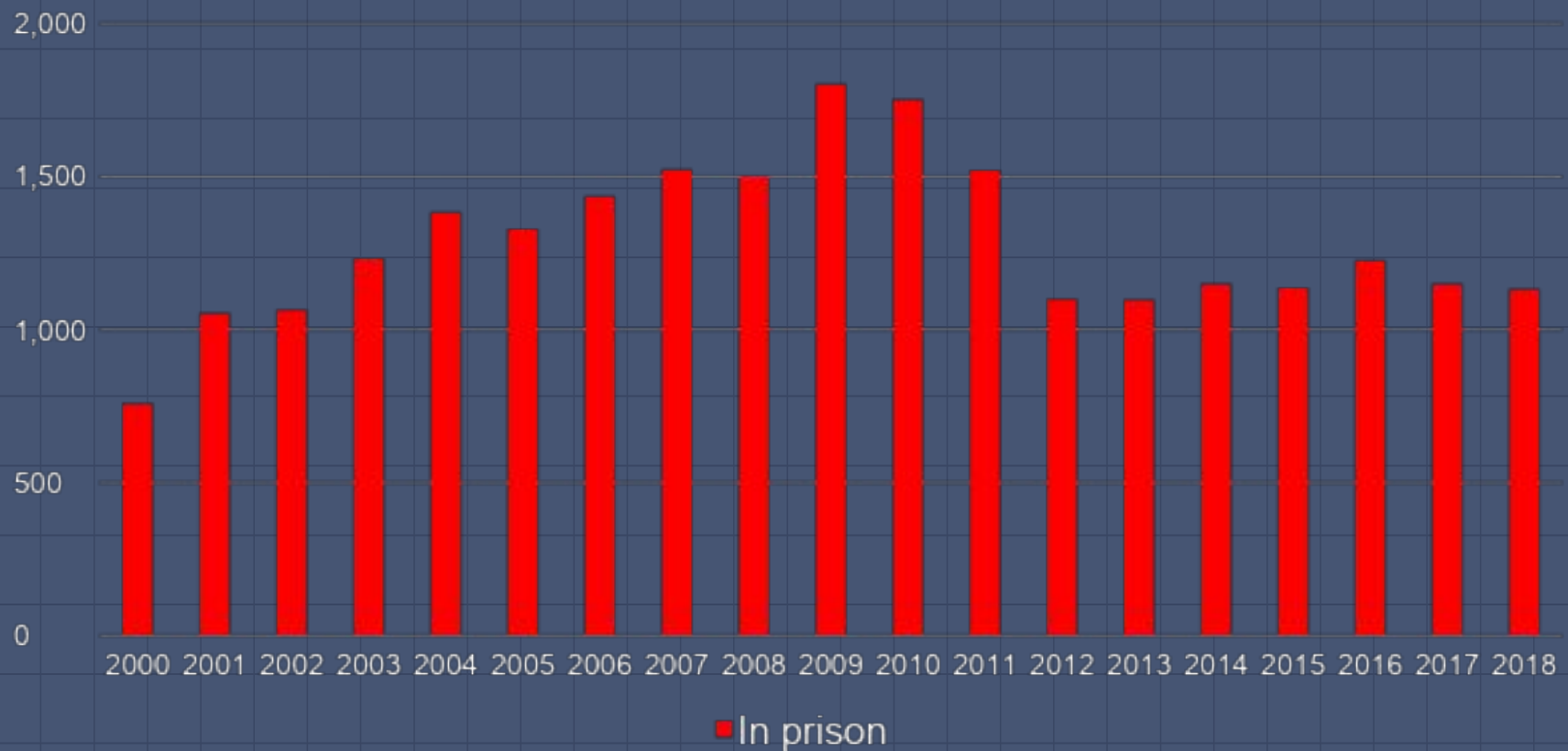
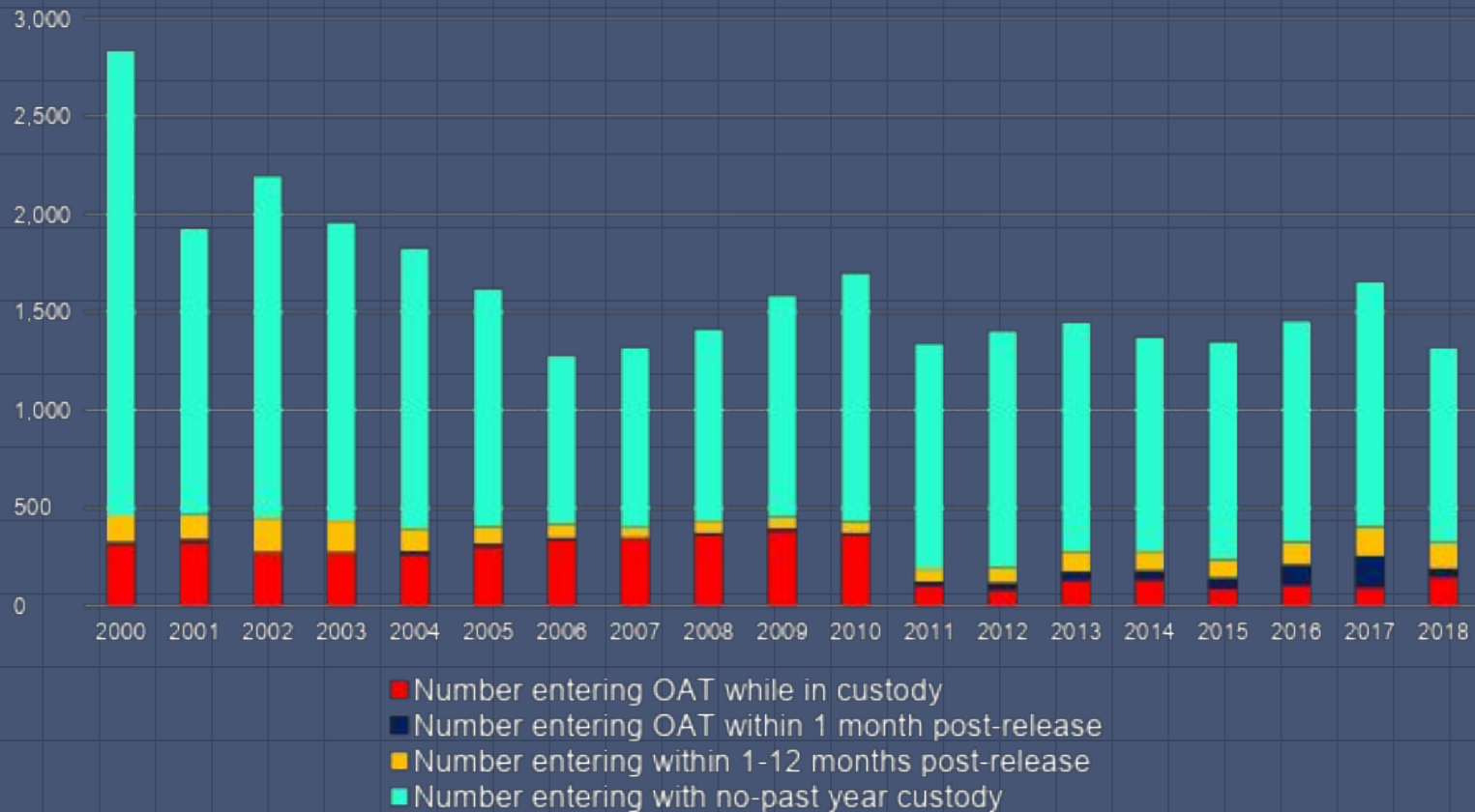# Number of people on OAT on Jan 1st of each year

Number of people in the OAT cohort (with at least one OAT episode since 2001)
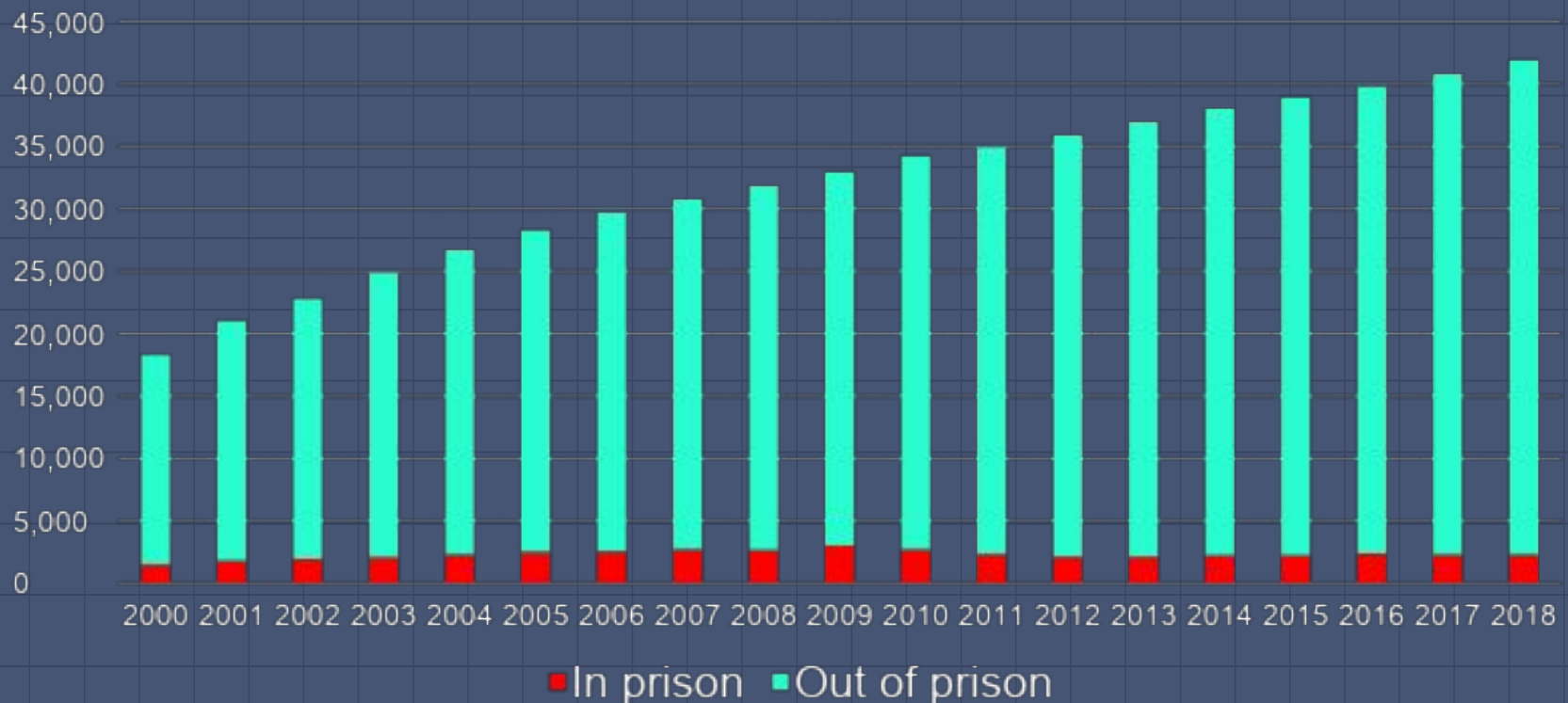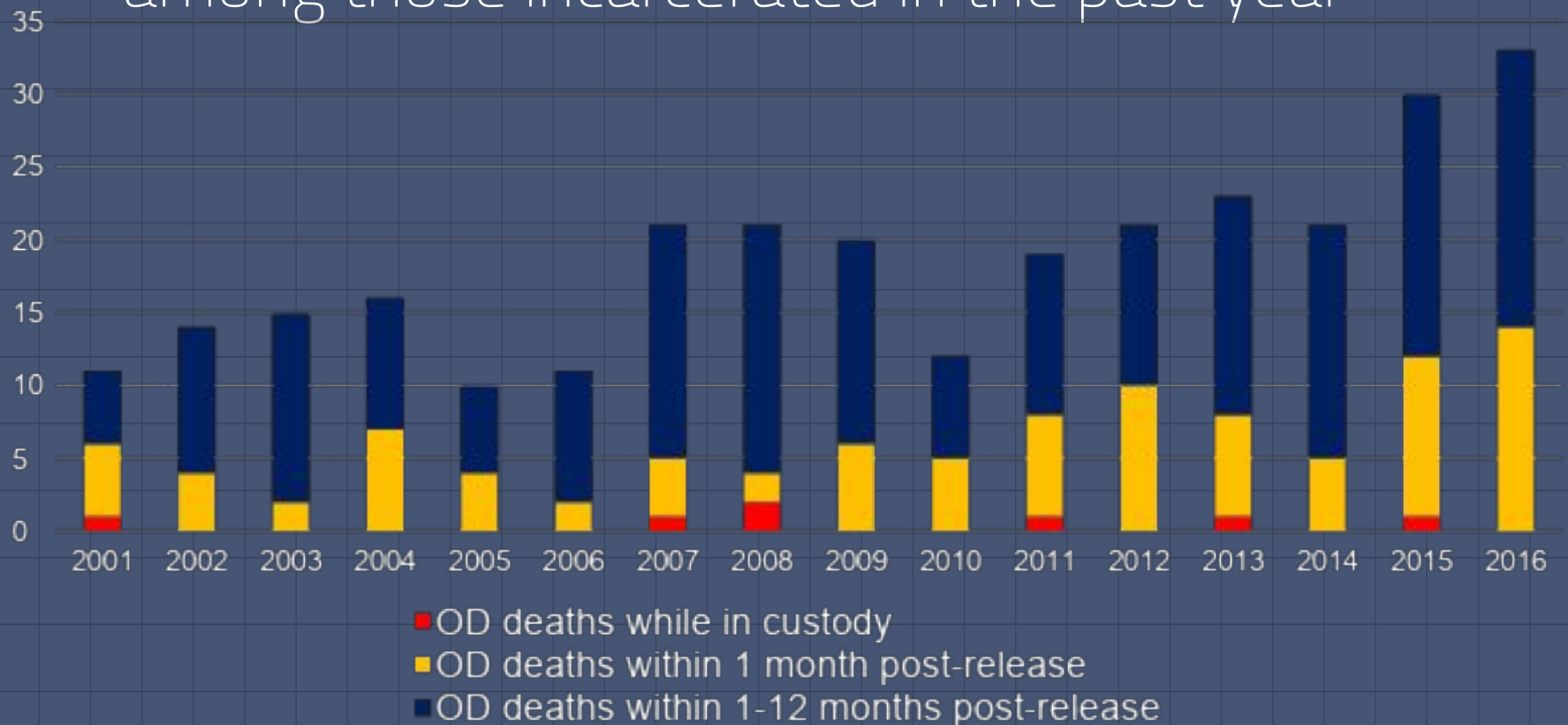
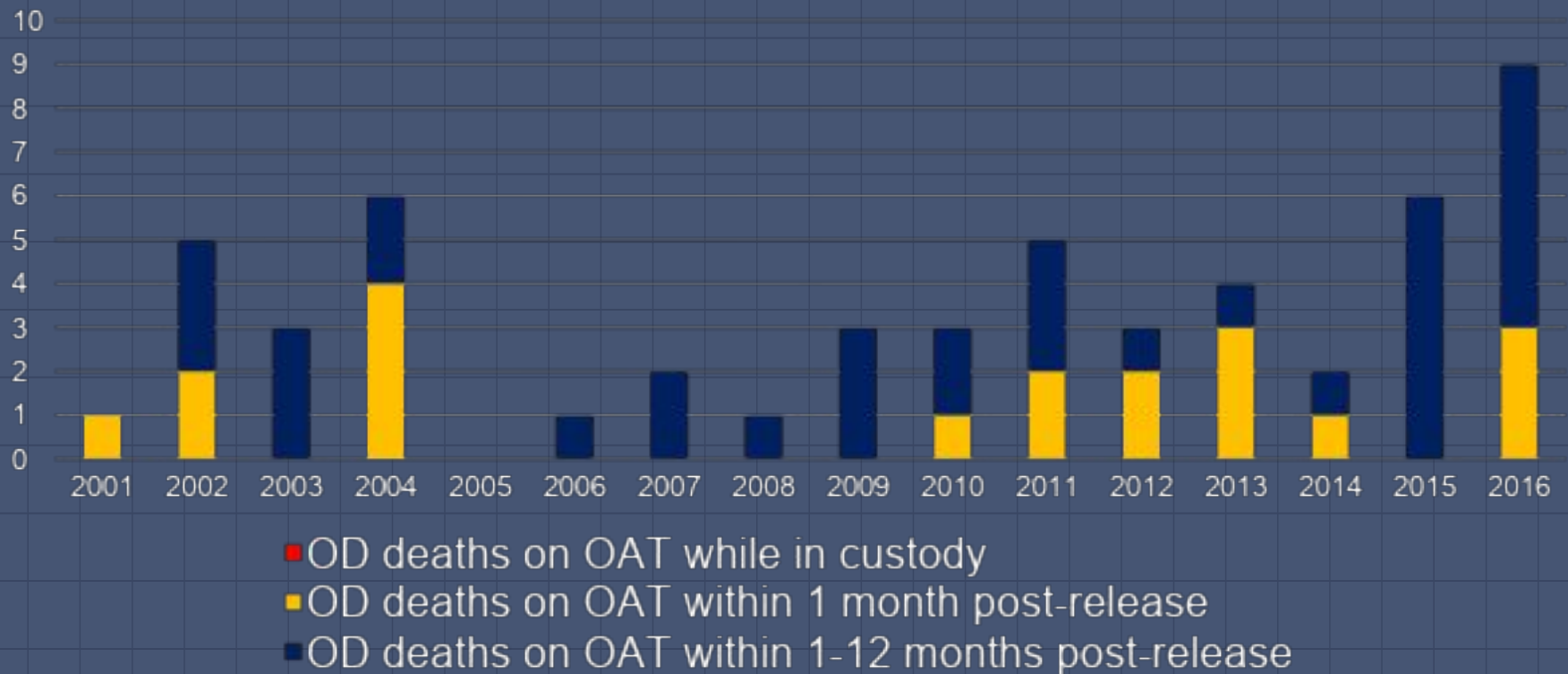# Number of people on OAT in prison on Jan 1st of each year

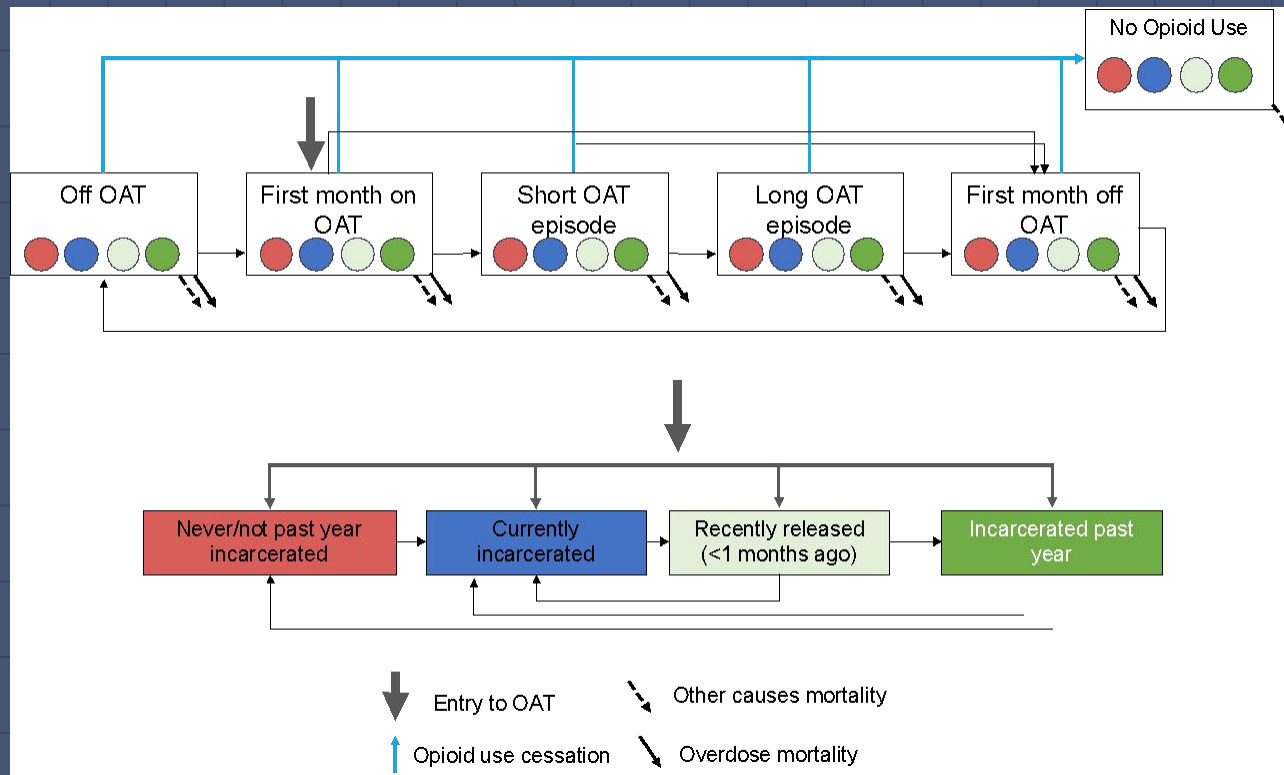# New (first time) entries into the OAT program by incarceration status

Opioid overdose death by incarceration status
–among those incarcerated in the past year–

Overdose deaths on OAT by incarceration status –among those incarcerated in the past year–

- OD deaths on OAT while in custody
- OD deaths on OAT within 1 month post-release
- OD deaths on OAT within 1-12 months post-release

Mathematical model to estimate impact of OAT program in NSW

Proportion of deaths averted through OAT program from 2001–2010
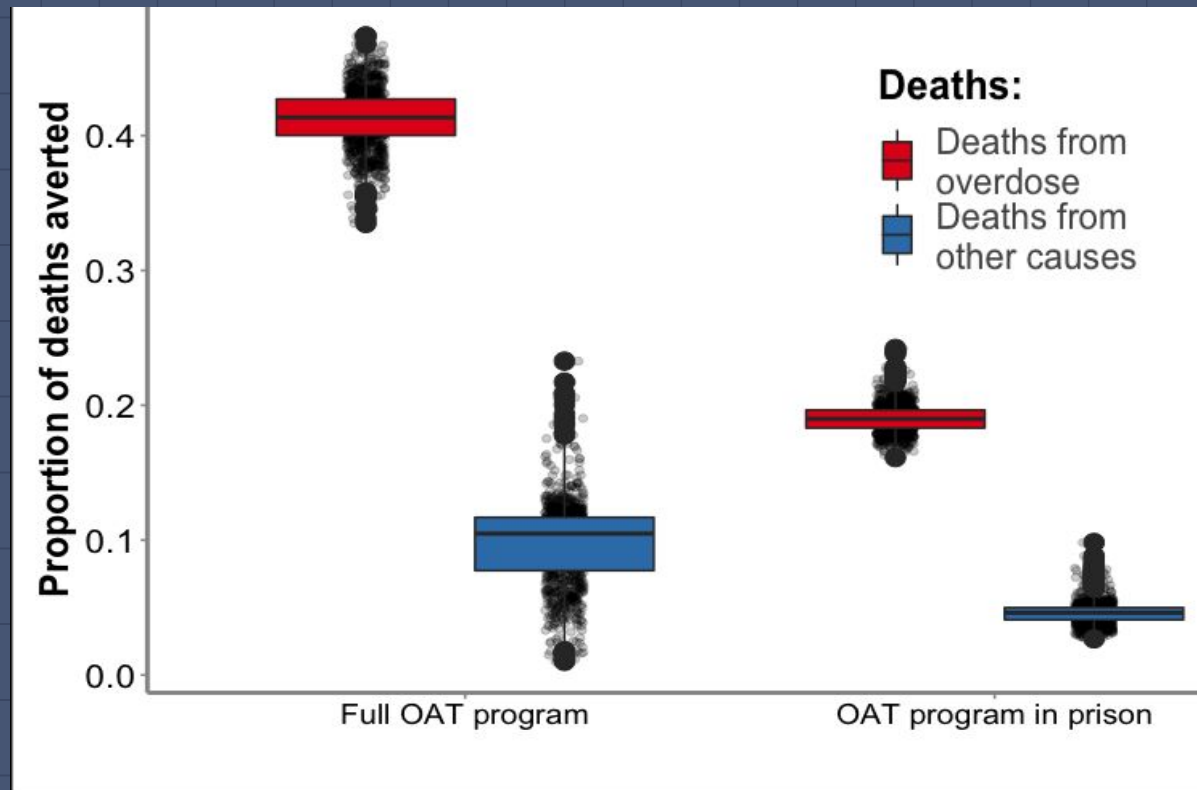
Number of deaths averted through the OAT program between 2001–2010

	Overdose deaths Mean [95% I]	Change in overdose deaths vs. baseline Mean [95% I]	Deaths from other causes Mean [95% I]	Change in other cause deaths vs. baseline Mean [95% I]	Total Deaths Mean [95% I]	Change in total deaths vs. baseline Mean [95% I]
Baseline	723 [540-895]	-	1541 [1156-1873]	-	2264 [1692-2755]	-
No Opiate Agonist Therapy	1233 [900-1552]	510 [352-680]	1711 [1257-2133]	170 [121-222]	2944 [2166-3636]	680 [430-916]
No prison OAT program	893 [664-1112]	170 [38-300]	1616 [1198-1974]	75 [44-115]	2508 [1871-3057]	245 [173-324]