Trends in methamphetamine-related harms in Australia

UNSW SYDNEY

NDARC National Drug & Alcohol Research Centre

Man, N.[1], Chrzanowska, A.[1], McKetin, R.[1], Price, O.[1], Gibbs, D., Bruno, R.[2], Sisson, S.A.[3], Dietze, P.[4], Salom, C.[5], Degenhardt, L.[1] & Peacock, A.[1]

[1]National Drug and Alcohol Research Centre, University of New South Wales, Sydney, Australia [2]School of Psychology, University of Tasmania, Hobart, Australia [3]UNSW Data Science Hub, University of New South Wales, Sydney, Australia [4]Behaviours and Health Risks, Burnet Institute, Melbourne, Australia [5]Institute for Social Science Research, University of Queensland, Brisbane, Australia

The Difference is Research

Introduction

Globally, there has been considerable expansion of the amphetamine-type stimulant (ATS) market, driven predominantly by methamphetamine (1). The shift to the high purity crystalline form and its association with greater harms also raised concerns (2). Regular methamphetamine use is associated with increased mortality, a range of health conditions (e.g. stroke, myocardial infarction, depression and psychosis) and increased violence (3). In the past two decades, two major waves of public concern on methamphetamine use in Australia occurred around 2006-2008 and then from 2013 onwards. This study explores the trend in methamphetamine-related harms, including data from more recent years (i.e., up until 2018).

Aim

To estimate and describe trends over time in methamphetamine-related harms in Australia

Table: Indicator definition

Indicator	Data source and coding of indicator*
Closed treatment episodes with ATS identified by the client as their own drug of concern (i.e. principal or other drug of concern)	Alcohol and Other Drug Treatment Services National Minimum Data Set (**AODTS-NMDS**) with Australian Standard Classification of Drugs of Concern (4) classification: **3100** - Amphetamines **3101** - Amphetamine **3102** - Dexamphetamine **3103** - Methamphetamine **3104** - Amphetamine analogues **3199** - Amphetamines, nec.
Hospital separations with ATS identified in principal or any diagnosis field(s)	National Hospital Morbidity Database (**NHMD**) with ICD-10-AM classification: **F15.0–F15.9** - Mental and behavioural disorders due to use of other stimulants, including caffeine **T43.6** - Psychostimulants with potential for use disorder T43.60 - unspecified stimulants T43.61 - methylamphetamine T43.62 - MDMA T43.69 - other specified stimulants
ATS-induced deaths where ATS were identified as the underlying cause of death & **drug-induced deaths involving ATS**.	Australian Bureau of Statistics Cause of Death Data Collection (**ABS-COD**) with ICD-10-CM classification: **F15.0–F15.9** & **T43.6** – Detailed definition similar to ICD-10-AM for hospital separations

* Method of data collection did not allow for reliable identification of methamphetamine within the bigger class of ATS.

Methods

Annual Data: National-level administrative data collections on hospital separations, closed treatment episodes and deaths (**Table**).

Bayesian Analysis:

• Autoregressive time series analysis with a lag of 1 year to estimate trends
• Changepoint models to detect up to 3 time points at which there is a change in trend
• Median and 95% credible intervals (95%CrI) for estimated trend and change in rate per 100,000 persons per year are presented from the chosen changepoint model.
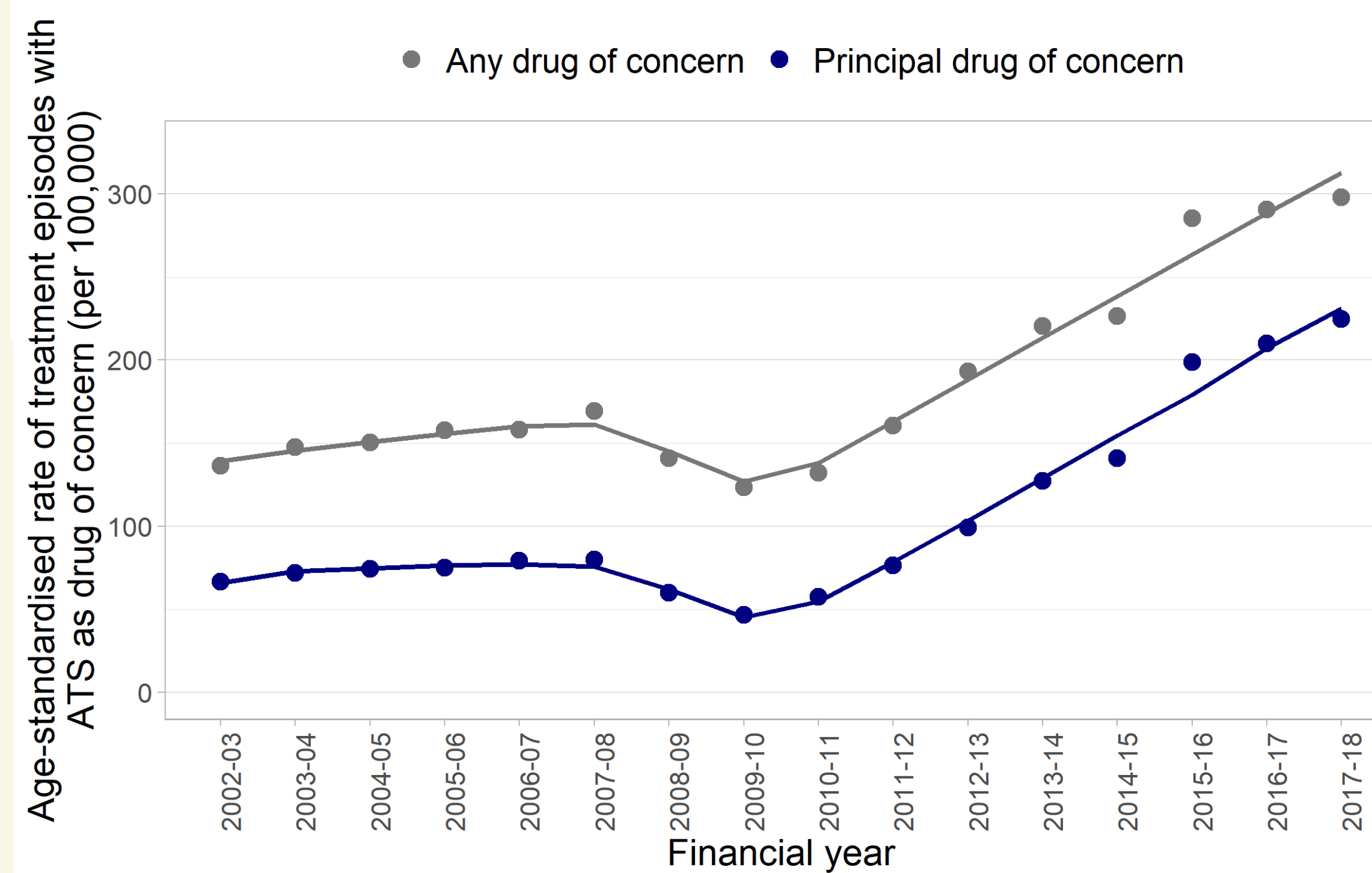
Figure A. Treatment episodes

Any drug of concern • Principal drug of concern

Figure B. Hospitalisations

Any diagnosis • Principal diagnosis

Figure C. Deaths

ATS-induced • ATS involved
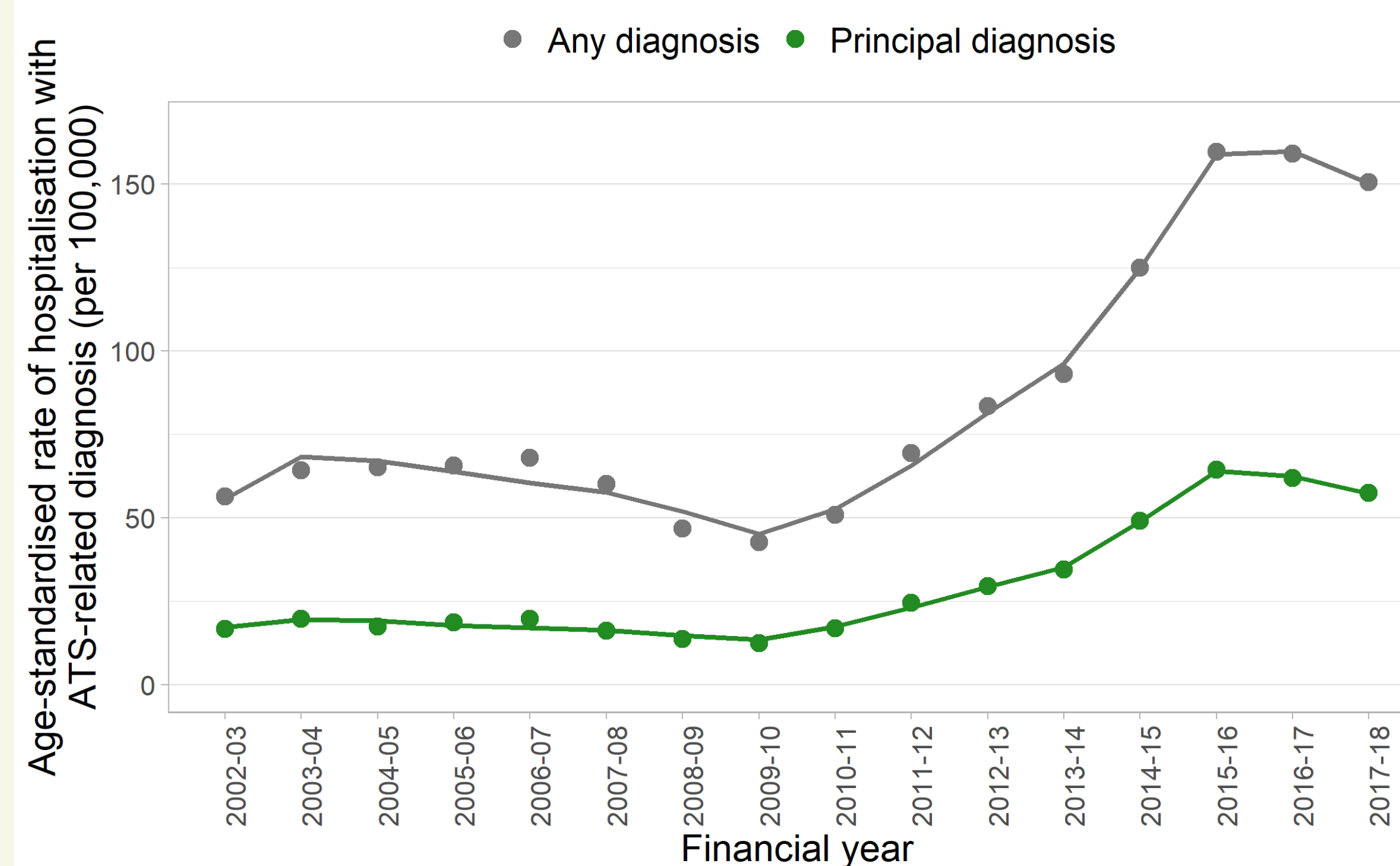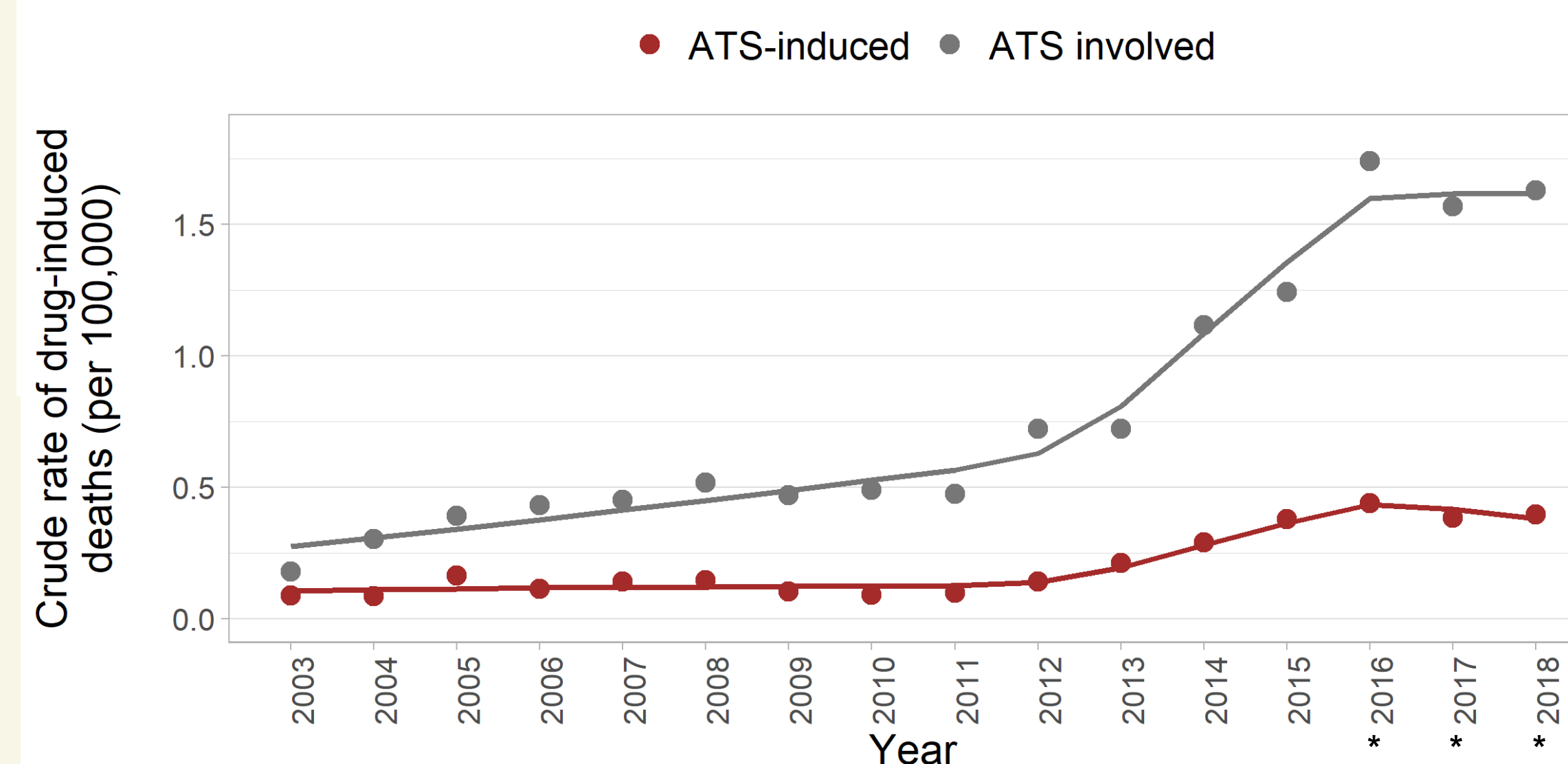
* The ABS undertake a revision process for coroner-certified deaths over a 3-year period; accordingly, data for 2016, 2017 and 2018 are not final. Causes of death data for 2017 and 2018 are preliminary and subject to two further revisions; data for 2016 are revised and subject to another revision. The numbers may increase with further revisions.

Figure D. Summary

Change in rate per 100,000 per year*
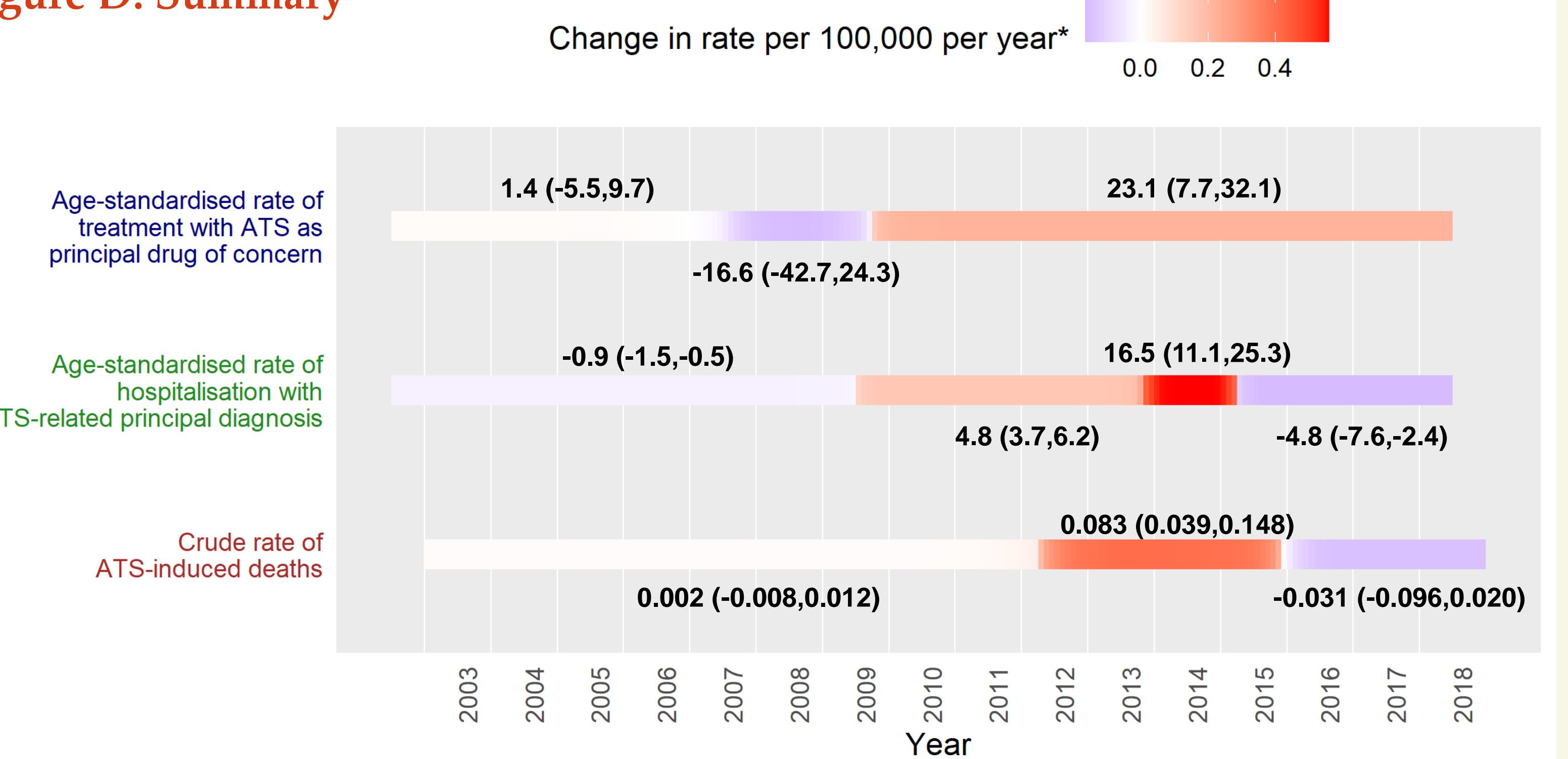
* **Median** (and 95% credible intervals) for change in rate is shown in the Figure. Change in rate on the **heatmap scale** is expressed as a proportion of the mean of the observed rates for each indicator over the time series. For example, the median of the estimated change in rate of treatment from around 2010 onwards was 23.1 per 100,000 per year and the mean of the observed rate from 2002-03 to 2017-18 was 105.5 per 100,000. The corresponding value on the heatmap scale for that interval is (23.1/105.5)=0.16.

Results

Treatment for ATS as principal drug of concern: Relatively stable until around 2007-08 then a short period of decrease before an increase of 23.1 per 100,000 persons per year (i.e. year-on-year) from around 2009-10 onwards (**Figures A and D**).

Hospitalisation with ATS-related principal diagnosis: Relatively stable or slight decrease until around 2009-10 (95%CrI: 2009-10 to 2010-11) when rates increased then a period of more rapid increase before plateauing from around 2015 onwards (**Figures B and D**). The rates increased from 12.5 per 100,000 in 2009-10 to 64 per 100,000 persons in 2015-16.

ATS-induced deaths: Rates have been relatively low at 0.14 per 100,000 in 2012 from which it increased to 1.74 per 100,000 persons in 2016 (**Figures C and D**). While rates appeared to have plateaued, death records in 2016, 2017 and 2018 are subject to further revisions.

Implications

Increases in rate of ATS-related treatment, hospitalisation and deaths occurred from around 2010-2012 onwards in Australia. While it might have stabilized in the more recent years, the trends from various data sources (e.g. prevalence surveys, market availability and price) need to be continually monitored and triangulated. There is also a need for harm reduction:

• By improving access to treatment for methamphetamine; and
• With more research into effective treatment for methamphetamine dependence (3).

References

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Contact: Nicola Man | ✉ n.man@unsw.edu.au |
✉ drugtrends@unsw.edu.au | ☎ +61 (2) 9385 0333

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