Trends in methamphetamine use among people who inject drugs and people who use ecstasy in Darwin, the Northern Territory

Authors: Olivia Price and Amy Peacock
National Drug and Alcohol Research Centre, UNSW, Sydney

Key findings:

- Use of methamphetamine is increasing among two sentinel samples in Darwin, the Northern Territory. This increase is largely driven by an increase in use of crystal methamphetamine or 'ice'.
- Frequency of use has also increased among the group who regularly inject drugs, with half the sample reporting weekly or more frequent use in 2019
- Smoking crystal methamphetamine is the most popular route of administration among the sample who regularly use ecstasy
- There were no statistically significant differences in access to health services between those who use crystal methamphetamine weekly or more frequently and those who use it less than weekly

Introduction

Methamphetamine use is of increasing public health concern in Australia. While methamphetamine use among the general population has decreased since 2001 (1), it is estimated that the number of people who regularly use or are dependent on methamphetamine is increasing (2). Moreover, increased availability of crystal methamphetamine ('ice') has been associated with increased regular use and related harms (3). Crystal methamphetamine is of particular concern due to its higher purity and capacity to be inhaled, which causes immediate drug effect, increasing its accessibility to people who do not inject drugs (4). Despite known effects of methamphetamine use on general and dental health (5, 6), more frequent methamphetamine use is associated with decreased utilisation of ambulatory health services, such as general practitioners and dentists (7). However, it is also associated with increased health emergency department presentations and psychiatric hospital admissions, mostly relating to psychosis (8). As Darwin is considered a regional area in Australia, trends in methamphetamine may not mirror those seen in major capital cities of Australia (9). Here we describe trends in methamphetamine use in Darwin among sentinel samples of people who inject drugs and people who regularly use ecstasy and related drugs. We also compare self-reported physical and mental health status and health service utilisation in those who use methamphetamine frequently and those who use methamphetamine infrequently among these samples.

Funded by the Australian Government Department of Health under the Drug and Alcohol Program

Methods

The Illicit Drug Reporting System (IDRS) and Ecstasy and Related Drug Reporting System (EDRS) are annual cross-sectional surveys of sentinel samples from capital cities in all states and territories of Australia. The IDRS began in 2000, while the EDRS began in 2003. The IDRS recruits people who regularly (at least monthly in the past six months) inject drugs via needle-syringe programs and word-of-mouth, while the EDRS recruits people who regularly use ecstasy or related drugs via word-of-mouth and social media. In both surveys, participants were interviewed for an hour and reimbursed $40 for their time. For more detailed information, see the Background and Methods documents for IDRS and EDRS. In 2019, 99 participants were recruited for the IDRS and 100 participants were recruited for the EDRS from Darwin in the Northern Territory .

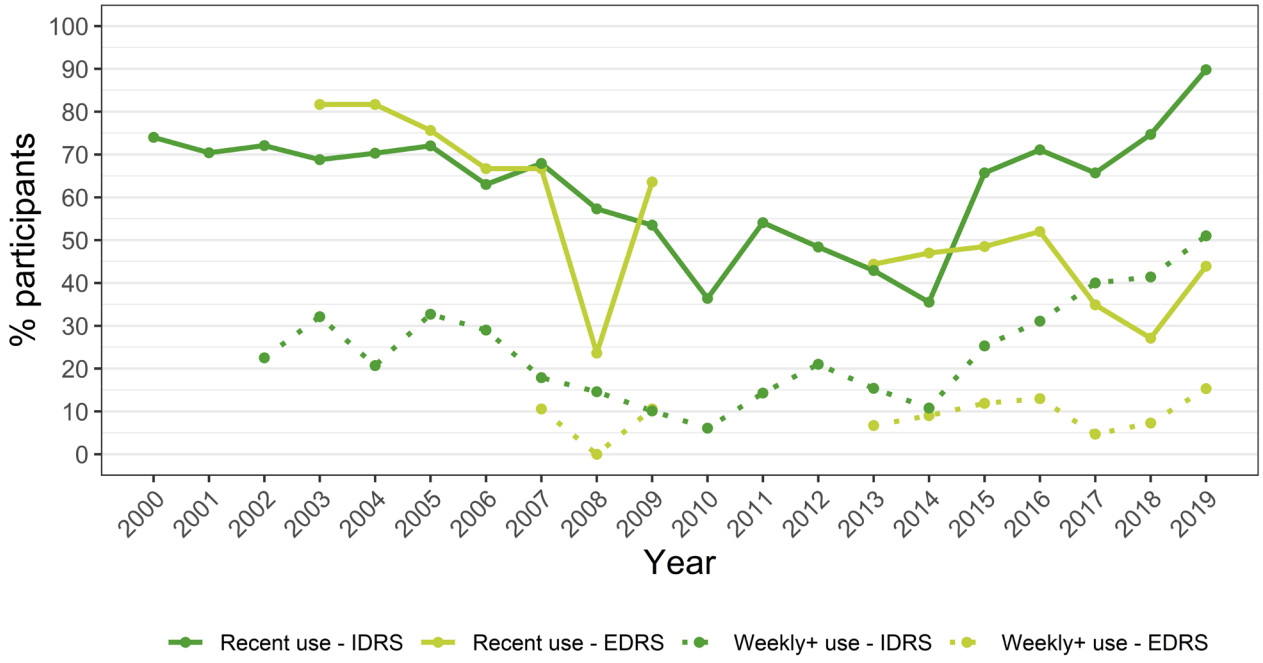
Descriptive analyses were used to summarise trends in recent use, frequency of use and routes of administration for methamphetamine among the samples. Sociodemographic characteristics, health, and service utilisation were compared between those who reported less than weekly use of methamphetamine and those who reported more frequent use. The severity of dependence scale (SDS) was used to assess the severity of participants' dependence on different substances. For amphetamines, a score of ≥ 4 is considered to indicate likely dependence (10). Participants were asked the first question of the Short Form 36 (SF1) to obtain an indication of their overall general health (11). This question has been shown to be associated with health and risk factors (12).

Results

Among the EDRS sample, recent (i.e. past 6 month) use of any methamphetamine has mostly declined since monitoring began in 2003 (Figure 1). However, in 2019 almost half of participants (44%) reported recent use, a significant increase from 2018 (27%, p=0.015). The number of participants who reported using methamphetamine weekly or more frequently remained low (15% in 2019, 7% in 2018; p=0.100).

Among the IDRS sample, recent use of any methamphetamine declined from 2000 until 2014, but has since been increasing (Figure 1). In 2019, 90% of the sample reported recent use of any methamphetamine form (74% in 2018; *p*=0.051). Frequency of use has also increased since 2014. Indeed, in 2019, more than half of the sample (51%) reported weekly or more frequent use of any methamphetamine (41% in 2018; *p*=0.176).

Figure 1. Past six month use and frequency of use of any methamphetamine, NT IDRS and EDRS, 2000-2019



Notes: : Weekly+ use computed of whole sample. Frequency of use for any methamphetamine was asked from 2002 in IDRS and 2007 in EDRS. EDRS data for 2010-2012 have been removed due to small numbers.

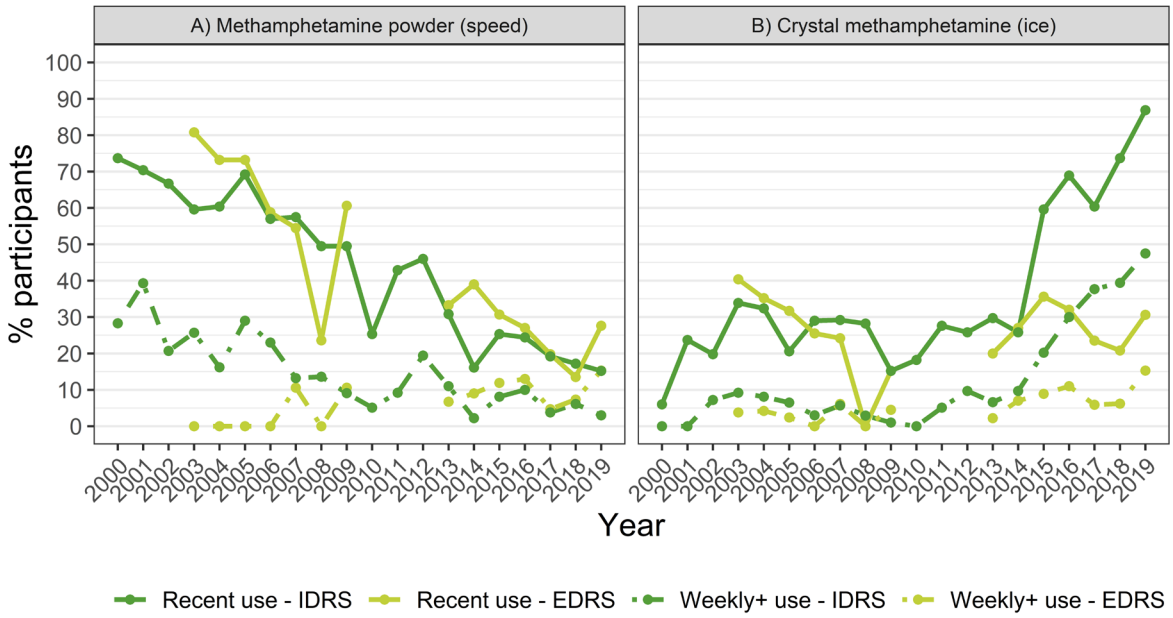
Powder ('speed') versus crystal ('ice') methamphetamine

In both samples, recent use of methamphetamine powder ('speed') has generally decreased over the monitoring period, while recent use of crystal methamphetamine ('ice') has increased (Figure 2).

In 2019, almost one-third of the EDRS sample (30%) reported recent use of crystal methamphetamine, with half of those participants (50%) reporting weekly or more frequent use (15% of the entire sample). Despite a general decrease in powder use, EDRS participants reporting recent use increased to 28% in 2019 compared to 14% in 2018 (p=0.016), although the number reporting weekly or more frequent use remained low (n≤5).

Almost nine in ten IDRS participants reported recent use of crystal methamphetamine in 2019. More than half those participants (55%, 48% of the whole sample) reported weekly or more frequent use of crystal methamphetamine. Recent use of powder methamphetamine continued the downward trend, with 15% of the sample reporting recent use and very few participants (n≤5) reporting weekly or more frequent use.

Figure 2. Past six month use and frequency of use of A) crystal methamphetamine and B) methamphetamine powder among the NT IDRS and EDRS samples, 2000-2019



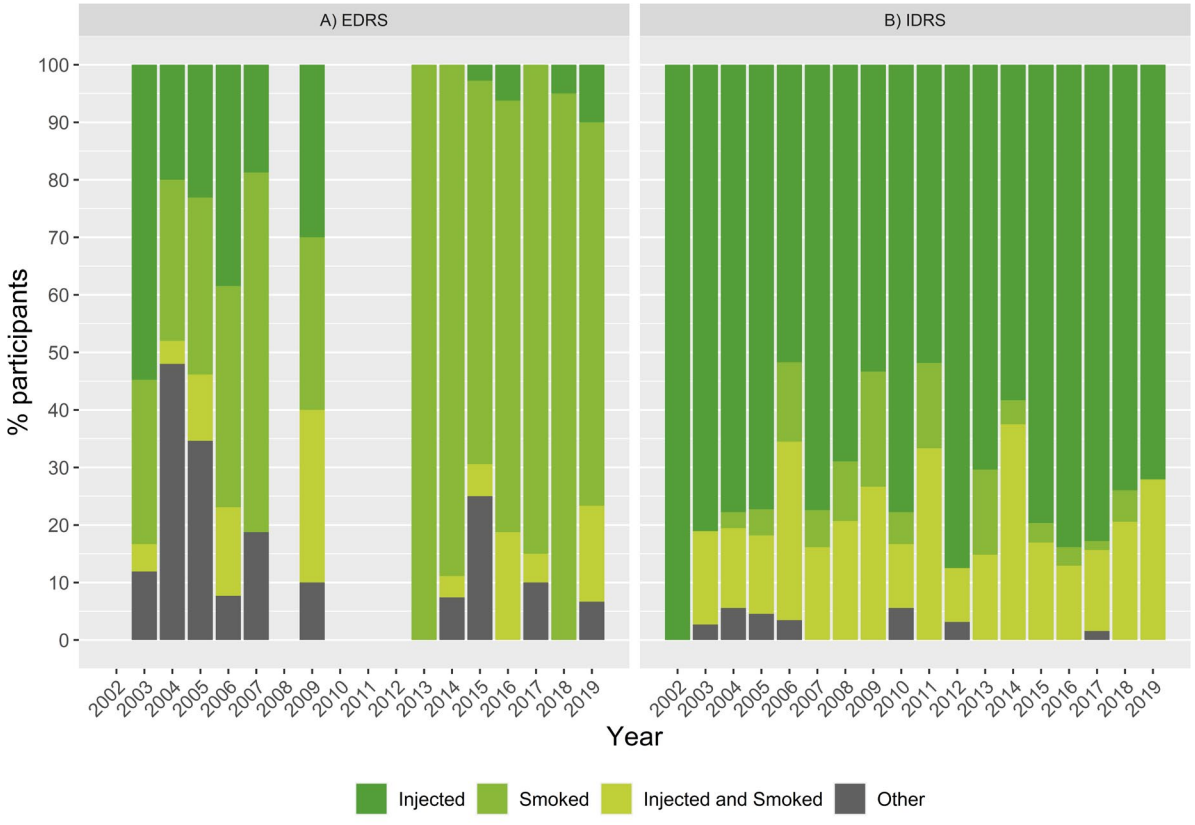
Notes: Computed of entire sample. Data from 2010-2012 for the EDRS are removed due to small numbers recruited.

Routes of administration for crystal methamphetamine

Since 2013, the majority of EDRS participants who recently used crystal methamphetamine reported smoking the form (83% in 2019). Indeed, of the small numbers who reported recently injecting crystal, most also reported smoking it in the past six months (Figure 3).

The majority of the IDRS sample reported injecting crystal methamphetamine in 2019, a trend that has been consistent since monitoring began and that is reflective of the eligibility criteria for the study. The number of participants who reported recently smoking has fluctuated over time; in the last five years, one-fifth to one-quarter of those who reported recently using crystal methamphetamine reported smoking. In 2019, all participants who recently consumed crystal methamphetamine reported injecting it. One-quarter (28%) also reported smoking crystal.

Figure 3. Routes of administration among those who had recently used crystal methamphetamine for A) EDRS and B) IDRS, 2002-2019.



Notes: EDRS recruitment began in 2003. Data from 2008 and 2010-2012 for the EDRS are removed due to small numbers recruited.

Severity of methamphetamine dependence

In both samples, among participants who had recently consumed methamphetamine, the median SDS score has consistently been lower than that considered to indicate likely dependence (≥ 4, Table 1). In 2019, of those who had recently consumed methamphetamine, just over one-quarter (28%, n=22) in the IDRS sample screened as likely dependent. One-quarter of these participants (27%, n=6) reported being currently in drug treatment. For EDRS, two-fifths (40 %) screened as likely dependent, of which a small number were currently in drug treatment (n≤5).

Table 1. Severity of Dependence Scale (SDS) among those who had recently used methamphetamine, NT IDRS and EDRS, 2015-2019

	IDRS					EDRS				
	2015	**2016**	**2017**	**2018**	**2019**	**2015**	**2016**	**2017**	**2018**	**2019**
n	50	63	56	74	78	44	43	26	23	42
Median score	2.0	1.0	2.0	2.0	1.0	1.0	1.0	0	1.0	1.5
% dependent	28	27	34	38	28	25	35	27	17	40

Notes: A score of 4 or greater is considered to indicate dependence on amphetamines. Note in IDRS, from 2015-2017 the SDS questions were asked regarding use of stimulants, while in 2018-2019 the questions were asked regarding use of methamphetamine specifically; use of other stimulants is consistently low among the IDRS sample.

Sociodemographic, health, and service utilisation profile of those who use methamphetamine weekly or more versus less than weekly

Differences between IDRS participants who use methamphetamine infrequently (i.e. less than weekly in the past six months) and those who use methamphetamine frequently (i.e. weekly or more) were examined (Table 2). Both groups were of similar age and gender composition. Those who used methamphetamine frequently were more likely to smoke crystal methamphetamine (OR=5.60 [95% CI: 1.77-17.51]) and also had better self-reported general health (OR=2.72 [95% CI: 1.12-6.58]).The groups also had similar percentage self-reporting any mental health problems in the last six months, but the 'less than weekly' use group were more likely to have recently attended a health professional for a mental health problem. Approximately one-fifth of each group were currently in drug treatment. Of those who were not, almost four-fifths of both groups stated that they had felt they needed treatment for substance use in the last six months. The less frequent use group were more likely to access both ambulatory and emergency health services (for any reason), although the differences were not statistically significant.

Table 2: Comparison of sociodemographic, health, and service utilisation among those who use crystal methamphetamine less than weekly and those who use weekly or more frequently, NT IDRS, 2019

	Infrequent crystal methamphetamine use (n=37)	Frequent crystal methamphetamine use (n=47)	Odds ratio (95% confidence interval)
Age <40 years	26 (70%)	32 (68%)	1.11 (0.44-2.78)
Male	27 (73%)	30 (64%)	0.65 (0.26-1.65)
Smoked crystal methamphetamine	-	19 (40%)	**5.60 (1.77-17.51)**
Self-reported general health^	13 (35%)	28 (60%)	**2.72 (1.12-6.58)**
Self-reported mental health problems in the last 6 months	11 (33%)	14 (30%)	0.88 (0.34-2.25)
Drug-induced psychosis	0	0	N/A
Health professional attendance for a mental health problem in the last 6 months	9 (27%)	9 (20%)	0.65 (0.23-1.82)
Admitted to a hospital or a psychiatric unit for methamphetamine use in the last 6 months	-	-	N/A
Currently in drug treatment	8 (22%)	8 (17%)	0.74 (0.26-2.15)
If not currently in treatment, believed they needed treatment for substance use in the last six months	23 (79%)	30 (79%)	0.98 (0.31-3.11)
Received treatment for methamphetamine use from a drug treatment centre in the past year	-	-	N/A
Access to health services in the last six months (for any reason)	29 (78%)	30 (64%)	0.49 (0.19-1.28)
GP	23 (70%)	23 (55%)	0.52 (0.21-1.29)
Dentist	9 (24%)	6 (13%)	0.46 (0.15-1.38)
Emergency department	-	-	0.44 (0.11-1.79)
Hospital inpatient	6 (16%)	-	0.62 (0.18-2.09)

Notes: significant associations are bolded. There are discrepancies in percentages calculated as the denominator for some questions is lower than the overall group size. ^self-reported general health dichotomised into excellent/very good/good and fair/poor (referent category). – value suppressed due to small numbers reporting (i.e. n≤5, though not 0). N/A statistical testing not computed due to small sample size.

Discussion

In both samples, recent methamphetamine use and frequency of use increased in the 2019 EDRS and IDRS NT samples relative to the 2018 samples. These trends have been driven by increase in use of crystal methamphetamine, while use of methamphetamine powder has mostly decreased.

Our observations are mostly reflected in Northern Territory indicator data. Methamphetamine was the most commonly injected drug among Needle Syringe Programme (NSP) attendees in the Northern Territory (40%) in 2018 (13) and wastewater analyses suggest that methamphetamine consumption in the Northern Territory increased by almost one third (29.5%) from 2018 to 2020 (14). However, the National Drug Strategy Household Survey (NDSHS) reported a significant decrease in methamphetamine use among the general population in the Northern Territory from 2010 (2.1%) to 2016 (1.4%) (1). These contrasting trends may suggest that, while fewer people are using methamphetamine in the Northern Territory, those who are using methamphetamine are using more or doing so more frequently. These findings also may be a reflection of the time of data sampling: the most recent NDSHS data was collected in 2016, while NSP and wastewater data are more recent. Furthermore, these different methods for data collection on illicit drug use all have potential shortcomings which should be considered when making inferences (15, 16).

While smoking crystal methamphetamine may be considered safer than injecting, it is important to note that smoking still has associated harms (4). The EDRS sample, who are generally younger with higher levels of education and lower levels of incarceration compared to the IDRS sample, were more likely to report smoking crystal methamphetamine, while the IDRS sample were more likely to report injecting. This is consistent with previous observations (4), and with the study eligibility criteria. EDRS participants who reported recent use of methamphetamine were more likely to screen as likely dependent on methamphetamine than IDRS participants despite being less likely to report weekly or more frequent use. In the IDRS, smoking crystal methamphetamine was significantly associated with more frequent use. These observations suggest the need for targeted harm reduction messaging for those who smoke crystal methamphetamine.

Among the IDRS sample, we found that using methamphetamine more frequently was associated with better self-reported general health but was not associated with self-report of mental health problems. However, those who used methamphetamine more frequently access health services less frequently, both related to drug use and for general health matters (although these differences were not statistically significant).

Conclusion

Our observations support other evidence that crystal methamphetamine use may be increasing in the Northern Territory, noting that our data are derived from residents of Darwin who identify as regularly using drugs specifically. They also suggest the need for developing tailored interventions to reduce harm in those who smoke crystal methamphetamine and to improve access to health services among those who use crystal methamphetamine more frequently.

Acknowledgements

In 2019, the IDRS and EDRS, falling within the Drug Trends program of work, were supported by funding from the Australian Government under the Drug and Alcohol Program.

The following researchers contributed to the Northern Territory EDRS and IDRS in 2019:

- Georgia Kelly, Chris Moon, Antonia Karlsson, Julia Uporova

Suggested citation

Price, O. & Peacock, A. (2020). Trends in methamphetamine use among people who inject drugs and people who use ecstasy in Darwin, the Northern Territory. Drug Trends Bulletin Series. Sydney: National Drug and Alcohol Research Centre, UNSW, Sydney.

References

1. Australian Institute of Health and Welfare. National Drug Strategy Household Survey 2016: detailed findings, Canberra: AIHW; 2017.
2. McKetin R., Degenhardt L., Hall W. D. Estimating the number of regular and dependent methamphetamine users in Australia, 2002-2014, Med J Aust 2016: 205: 426.
3. Degenhardt L., Sara G., McKetin R., Roxburgh A., Dobbins T., Farrell M. et al. Crystalline methamphetamine use and methamphetamine-related harms in Australia, Drug Alcohol Rev 2017: 36: 160-170.
4. McKetin R., Ross J., Kelly E., Baker A., Lee N., Lubman D. I. et al. Characteristics and harms associated with injecting versus smoking methamphetamine among methamphetamine treatment entrants, Drug Alcohol Rev 2008: 27: 277-285.
5. Darke S., Kaye S., McKetin R., Duflou J. Major physical and psychological harms of methamphetamine use, Drug Alcohol Rev 2008: 27: 253-262.
6. McKetin R., Kelly E., McLaren J., Proudfoot H. Impaired physical health among methamphetamine users in comparison with the general population: the role of methamphetamine dependence and opioid use, Drug Alcohol Rev 2008: 27: 482-489.
7. McKetin R., Degenhardt L., Shanahan M., Baker A. L., Lee N. K., Lubman D. I. Health service utilisation attributable to methamphetamine use in Australia: Patterns, predictors and national impact, Drug Alcohol Rev 2018: 37: 196-204.
8. Bunting P.J., Fulde G. W., Forster S.L. Comparison of crystalline methamphetamine ("ice") users and other patients with toxicology-related problems presenting to a hospital emergency department, Med J Aust 2007: 187: 564-566.
9. Australian Institute of Health and Welfare. Alcohol and other drug use in regional and remote Australia: consumption, harms and access to treatment 2016–17, Canberra: AIHW; 2019.
10. Topp L., Mattick R. P. Choosing a cut-off on the Severity of Dependence Scale (SDS) for amphetamine users, Addiction 1997: 92: 839-845.
11. Ware J. E., Jr., Sherbourne C. D. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection, Med Care 1992: 30: 473-483.
12. Gill T. K., Broderick D., Avery J. C., Dal Grande E., Taylor A. W. J. A. M. J. Self reported overall health status: Implications for intervention strategies, 2009: 44.
13. Heard S, Iversen J, Geddes L, L M. Australian NSP Survey National Data Report 2014 - 2018: Prevalence of HIV, HCV and injecting and sexual behaviour among NSP attendees, 2019.
14. Australian Criminal Intelligence Commission. National Wastewater Drug Monitoring Program—Report 9, 2020, 2020.
15. Hickman M., Taylor C., Chatterjee A., Degenhardt L., Frischer M., Hay G. et al. Estimating the prevalence of problematic drug use: a review of methods and their application, 2002: 54: 15-32.
16. Jones H. E., Goulding N., Hickman M., Addiction C. o. L. J. Potential and limitations of wastewater-based epidemiology in monitoring substance use, 2018: 113: 1137-1138.