

A submission to the Parliamentary Joint Committee on Law Enforcement inquiry into crystal methamphetamine

**National Drug Research Institute
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About NDRI

The National Drug Research Institute's (NDRI) mission is to conduct and disseminate high quality research that contributes to the primary prevention of harmful drug use and the reduction of drug-related harm in Australia. Since its inception in 1986, the Institute has grown to employ about 30 research staff, making it one of the largest centres of drug research and public health expertise in Australia. It is a designated World Health Organization (WHO) Collaborating Centre for Alcohol and Drug Abuse.

NDRI's Key Result Areas are to i) conduct research that will contribute to the primary prevention of harmful drug use and the reduction of drug related harm, and ii) contribute to national capacity for research and disseminate research findings to key groups. Researchers have completed about 500 research projects, resulting in a range of positive outcomes for policy, practice and the community. For example, NDRI research has significantly informed and contributed to policy and evidence-based practice such as the National Amphetamine-Type Stimulants (ATS) Strategy, the National Drug Strategy and the National Alcohol Strategy; contributed to Australia's involvement in international strategies, such as WHO Global and Regional Strategy to Reduce Harmful Use of Alcohol; directly contributed to Australian and State government alcohol and illicit drug policy; informed liquor licensing decisions and government debate regarding cannabis policy; significantly contributed to international evidence-based school interventions; influenced NHMRC guidelines to reduce alcohol health risks; and been cited in development of policy documents for Aboriginal Australians. The quantum, quality and impact of NDRI outputs were examined in the Research Quality Framework with the Institute's work described as "*research considered truly internationally competitive and making a major contribution to the advancement of knowledge.*"

Relevant expertise

NDRI has an extensive track record of completing and disseminating research in relation to amphetamine-type stimulants, particularly methamphetamine. A listing of publications NDRI researchers have published on the topic, plus some key projects related to this research area, are available on the NDRI [website](#).

Of note is that NDRI led the development of the [National Amphetamine-Type Stimulant Strategy – 2007-2009](#) to develop a common framework in Australia to enhance responses to ATS use and to coordinate activities to prevent use and respond to harms at national and jurisdictional levels.

Development of the National Strategy, which addresses supply, demand and harm reduction as well as both health and law enforcement issues, included a thorough review of the evidence and broad stakeholder consultation.

Leading Australian researchers recognised in the field of methamphetamine are employed at NDRI, including Professor Steve Allsop, Associate Professor Rebecca McKetin, Professor David Moore and Adjunct Associate Professor Nicole Lee. Professor Allsop and Lee also edited a 2012 book on the subject, [Perspectives on Amphetamine-Type Stimulants](#); and Professor Moore co-authored a book, *Habits: Remaking Addiction*, published in 2014, in which methamphetamine was a major focus.

In 2015-16, NDRI also coordinated a multi-centre project to estimate the social cost of methamphetamine use in Australia (see below). NDRI's expertise and research has also been regularly and extensively quoted in parliamentary inquiries.

In this brief submission, NDRI will focus on the inquiry terms of reference surrounding 'the nature, prevalence and culture of methamphetamine use in Australia, including in indigenous, regional and non-English speaking communities' and 'strategies to reduce the high demand for methamphetamine in Australia.'

The multifaceted contributors to drug use and related problems and responding effectively

Understanding and responding effectively to alcohol and other drug (AOD) use, and the related problems, requires an acknowledgment of the complex issues involved. This means that the issue of causation needs to be considered more carefully than is sometimes the case (Fraser & Moore, 2011). For example, in many policy documents a confusing range of terms are used to describe causation. In different policy texts and often within the same text, methamphetamine is described as ‘related to’, ‘accompanied by’, ‘causing’, ‘associated with’, ‘inducing’, ‘leading to’ or ‘contributing to’ various forms of physical and psychological ‘results’, ‘consequences’ and ‘effects’ (e.g. Australian National Council on Drugs, 2007; Drugs and Crime Prevention Committee, 2004; Victorian Government Department of Human Services, 2007). Yet each of these terms implies a different model of causation. For example, describing methamphetamine as a ‘harmful drug’ defines the drug as harmful per se without consideration of factors such as context or individual risk. This differs from descriptions of ‘methamphetamine-related harm’ which implies a different form of causation – here the precise nature of the link remains relatively open, and a role of other factors in creating this harm is also allowed. Strong causation is also ascribed in comparisons of methamphetamine use with natural disasters such as floods, and the frequent description of methamphetamine use as an ‘epidemic’ (Ayres & Jewkes, 2012). These various notions of causation have important effects – some approaches allow stronger statements about causality to be made than are warranted by the relevant evidence and simplistic policy measures to be advocated, even if they are not warranted by the evidence. Clarity on the causal relationship between methamphetamine consumption and related problems, the role of other factors (e.g. context) and consistent use of accurate terms, is a basic requirement of good policy in this area.

It is now well established in the extensive international and Australian research that a multifactorial model of drug effects and related problems is the most accurate and effective. In one key model, often termed the ‘drug, set and setting’ approach, all three areas and the relationships among them, are treated as indispensable in shaping AOD use and related problems. The pharmacological properties of drugs; the individual characteristics and vulnerabilities, and the sociodemographic and perspectives of those who consume them; and the historical, social, legal, economic and cultural contexts shaping use and the context of that use, must all be taken into account in understanding and responding to AOD use and related problems. For example, complex issues of social and economic exclusion, poverty, marginalisation, racism and stigmatisation are key contributors to drug use and the experience of related problems. Good policy and effective responses would take this into account. Recognition of this complexity has given rise to a range of policy frameworks including, but not limited to, ‘risk’ and ‘enabling’ environments (Rhodes, 2001; Moore & Dietze, 2005) and the ‘health impact pyramid’ (Babor et al., 2010). Methamphetamine use and related problems are no different in that they should also be understood as shaped by a diverse range of pharmacological, individual and contextual factors (e.g., Armstrong, 2007; Boyd & Carter, 2010; Brown, 2010; Clatts, Welle & Goldsamt, 2001; Duff, 2005; Halkitis, Fischgrund & Parsons, 2005; Joe, 1996; Lende, Leonard, Sterk & Elifson, 2007; Slavin, 2004; Zule, 1999), and these contextual factors need to be taken into account if effective policy responses are to be developed and implemented. This overarching research and policy framework underpins and informs the material set out below.

Methamphetamine consumption trends

Consumption data and research evidence indicate that there are changes in methamphetamine use and harms in Australia. While overall methamphetamine prevalence remains stable, there seems to be more frequent use within populations that already use drugs and a rapid shift within drug-using

populations towards use of methamphetamine in crystal form, with a consequential increase in harms. While this latter aspect is important, caution should be exercised in attributing methamphetamine-related problems solely to changes in drug type and purity. Such an analysis takes for granted that the pharmacology of the drug has effects on its own, tending to neglect individual and group characteristics and the wider contexts of use (Fraser, Moore & Keane, 2014; Moore & Fraser, 2015). For example, although methamphetamine use among gay men may contribute to ‘risky’ sexual behaviour, there is little evidence of the increases in violence or other public order problems commonly attributed to methamphetamine among gay communities. It is also important to note that different patterns of use can contribute to different levels of risk (e.g. Dwyer et al., 2012; Green & Moore, 2009, 2013; Pennay & Moore, 2010; Siokou & Moore, 2008; Siokou, Moore & Lee, 2010). Changes in access to the drug, for example in remote communities, can also have relevance for changes in risk. Recalling the research and policy framework set out earlier, these findings underline the importance of contexts in shaping patterns of use and related problems.

The latest National Drug Strategy Household Survey (NDSHS) showed no change in recent or lifetime population use rates in ‘meth/amphetamine’ since 2010. Rates of use by people aged 14 years or older in the past 12 months was stable at 2.1 per cent – the equal lowest figure recorded since the 1993 survey. However, while overall use remained stable, there have been statistically significant changes in the type and frequency of methamphetamine use. Recent use of powder decreased from 50.6 per cent in the 2010 survey to 28.5 per cent in the 2013 survey, and recent use of base dropped to 7.6 per cent from 11.8 per cent. Previous 12-month use of ice more than doubled however from 21.7 per cent to 50.4 per cent.

Meth/amphetamine are also being used more often. The NDSHS reported a significant increase in the proportion of at least weekly use and a slight increase in monthly use. For respondents where ice was the main form of methamphetamine used, those who used at least once a week doubled to 25.3 per cent and monthly use increased to 20.2 per cent from 17.5 per cent.

Treatment and law enforcement data

Information from the Illicit Drug Reporting System shows that in 2011-12 the number of national amphetamine-related inpatient hospital admissions was 250 admissions per million persons, the highest number ever recorded. Ambulance call-outs and treatment presentations data are also increasing. In Victoria, for example, there was an 88 per cent increase (Lloyd 2013) in ice-related call-outs in metropolitan Melbourne in 2012-13 (1112 call-outs compared to 592 in 2011-12) and a 198 per cent increase in regional Victoria (231 compared to 77).

Australian drug treatment episode figures show that amphetamine was the third most common principal drug of concern nationally in 2012-13, accounting for 1 in 7 (14 per cent) of treatment episodes, increasing from 7 per cent in 2009-10 (AIHW 2014). The proportion of episodes with meth/amphetamine as the principal drug was higher than the national average in South Australia and Western Australia.

Methamphetamine seizures, both domestically and internationally, have reached record levels. Global ATS seizures reached an all-time high in 2012, up 15 per cent from 2011 (United Nations 2014). The number and weight of ATS (excluding MDMA) detections at the Australian border in 2014-15 were the highest on record, with the number of national ATS seizures increasing 22.2 per cent, to 32,768 in 2014-15. The weight of ATS seized nationally increased by 209 per cent, to 12,631kg in 2014-15 (Australian Criminal Intelligence Commission). The number of national ATS seizures in crystalline form has increased 1,066 per cent over the past decade, with the weight of ATS seized nationally in crystalline form increasing 5,398 per cent over the same period.

Aboriginal West Australians and methamphetamine use

There is a paucity of data on the use of amphetamine type stimulants (ATS) among Aboriginal and Torres Strait Islander people. The 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) reported that a little over 10 per cent reported ever using ATS and five per cent that they had done so in the previous 12 months (Australian Bureau of Statistics 2010; Australian Institute of Health & Welfare 2011). However, for methodological reasons, this is likely to have been an underestimate. A qualitative research project conducted for the Australian Government Department of Health (AGDH) at about same time as the 2008 NATSISS found that:

While the research is unclear with regards to the prevalence of methamphetamine use in Indigenous communities, especially remote and regional communities, it is clear that it is an issue of increasing significance (Blue Moon Research & Planning 2008).

The report of a review of the Aboriginal and Torres Strait Islander alcohol, tobacco and other drugs (ATOD) treatment sector conducted by NDRI (which remains unreleased by the Department of the Prime Minister and Cabinet) found that after alcohol and cannabis, methamphetamine use was of particular concern. Representatives from Aboriginal community-controlled organisations reported increasing use and injecting of methamphetamine and harms arising from this, particularly in urban areas but also in rural and remote towns (Gray *et al.* 2014).

Concern about observed increases in methamphetamine use prompted the National Aboriginal Community Controlled Health Organisation and the (now scrapped) National Indigenous Drug and Alcohol Committee to conduct a survey on ATS issues among workers in the ATOD field (NIDAC 2014). The report cautioned that it was not a representative sample survey, but 88 per cent of respondents reported observing a recent increase in ATS use among their clients. A key issue for many Aboriginal and Torres Strait Islander service providers is that while ATOD service providers are skilled in treating alcohol related problems, fewer have the skills to address the issues arising from illicit drug use (Gray *et al.* 2014).

Prevention and harm reduction

The increase in harms from crystal methamphetamine use means harm reduction measures in known cohorts are very important. While there is limited specific evidence that can guide effective prevention and public health responses to amphetamine use and harm, there is evidence that peer interventions have some credibility and impact with drug users (Allsop 2012).

This is particularly important as attracting methamphetamine users to and retaining them in treatment is a significant challenge.

Mass media campaigns in isolation are not generally recommended for issues that affect a relatively small proportion of the population as research suggests that there is a risk it may increase interest and uptake. There is also a body of evidence about how mass media campaigns can be made effective and any approach should adhere to this evidence base. Any mass media campaign should be part of a broader strategy such as highlighting how and where to access treatment rather than the dangers of methamphetamine. Information campaigns should be targeted to at risk users or current users at locations they frequent.

Consistent with previous strategies (Australian Government Department of Health and Ageing, 2008), mass media campaigns are most likely to have impact if complemented by: (i) other evidence based strategies that prevent drug problems emerging and developing; (ii) targeted strategies that aim to reach sub-populations most at risk, particularly early in the development of problems to encourage them to seek treatment; and, (iii) a range of appropriate treatment options from brief and early intervention, to upskilling community-based services (such as GPs, community clinical psychologists)

to respond, as well as enhancement and development of specialist AOD services and mental health services for those experiencing more severe problems. Targeted interventions are important because there are diverse needs among: those who don't use; those who use occasionally; those with severe problems; families; those who use in connection with their employment; those who use in the context of sexual risk taking; those in Aboriginal and Torres Strait Islander communities, etc.

For example, in relation to targeted responses, in the early 1990s, the Australian national amphetamine campaign funded under the National Campaign Against Drug Abuse (see Burrows, et al., 1993) utilised a 'tribes campaign' that recognised there were particular distinct cultural sub-groups with their own identity and social features who were at high risk of amphetamine use and problems. At the time, these groups included: people in the rave scene; people in the trucking industry; injecting drug users; and working-class 'bogans'. Each of these groups was targeted in a postcard campaign and other specific interventions. While the strategies and target groups are likely to be different in the present situation, and with advances provided by new communication media, this may be an approach worth considering along with the mass media and other strategies.

There is also an indication that it may be useful to develop media guidelines that educate and inform discussions of methamphetamine and other drug issues in the public sphere, e.g. for journalists, politicians, policy makers and practitioners. There is a risk that some media coverage of methamphetamine use, and the reactive assessments of the complex issues involved, can contribute to unnecessary fear and inflate the scale of the 'problem', and contribute to a perception that simple single strategies will be effective, or a sense of despair about the potential for effective responses. It may contribute to a reluctance to seek help and a low sense of competence, or willingness to intervene among clinicians. This can place governments and responders in an unenviable position. If consumers of methamphetamine are routinely depicted as irrational, violent and psychotic, this may contribute to stigmatisation and marginalisation, greater fear and anxiety (Dwyer & Moore, 2013) and they may be more reluctant to seek or receive effective help.

Caution should be exercised in relation to methamphetamine-specific school drug education for similar reasons. Methamphetamine use in school aged children is very small until later teenage years, with older young people more at risk (20-29 year olds). Any steps in this direction should be carefully evaluated to ensure they do not inadvertently contribute to increased risk.

Strategies to reduce harm might include strategies aiming at providing advice and assistance to other people affected by meth/amphetamine use such as parents, children and treatment providers directly affected by consumption and addressing specific harms associated with use such as mental health, sleep and nutritional disorders and any associated risk of violence.

Treatment

There are as yet no broadly accepted pharmacological interventions available to treat amphetamine dependence or withdrawal, leaving an important gap in evidence-based treatment options (Lee & Rawson 2008, ANCD 2014). This means psychological interventions remain the mainstay of treatment for methamphetamine use – as well as underlying mental health problems – with treatment predominantly provided through community-based drug treatment services.

Withdrawal, where levels of dependence require it, is commonly followed by such psychological counselling as narrative therapy, motivational interviewing and cognitive behavioural therapy.

With regards to methamphetamine treatment, it is important to recognise and consider:

- The long withdrawal and recovery period, and the high relapse rate, for methamphetamine users, especially ice, which means it is crucial to ensure services are funded to reflect 14 day withdrawal, longer term treatment (12-18 months) and especially assertive follow-up/aftercare.
- The larger number of users by far are not dependent (only a small percentage use weekly or daily which might suggest dependence), but are at high risk of harms from regular but not frequent use. They aren't appropriate for tertiary services, which are geared toward complex presentations, but there are no services for them. Either tertiary services need to be funded to provide low intensity services or we need to place more emphasis on developing online interventions.
- There is a need for funding and evaluating innovative programs like step-up/step-down withdrawal models (e.g. combinations of non-residential and residential withdrawal) and additional psychological intervention trials.
- Ensuring practitioners and frontline workers, including police and ambulance workers, understand how methamphetamine works in the brain and body and therefore why we see the types of behaviours we do and how to respond to them. It is worth considering extending such efforts to the families of users too.

It is worthwhile considering some context to the debate about treatment. Existing methamphetamine policy texts often refer to 'gaps in the evidence base'. It is worth keeping in mind that this phrase could be taken to portray existing research knowledge as consensual and cumulative rather than sometimes contested, operating within a range of different paradigms, and influenced by factors such as the politics of funding and public opinion. It also implies that much is already known about methamphetamine and with further research the remaining discrete gaps can simply be filled. These texts often simultaneously acknowledge the thinness of the research, making clear that the areas about which little or nothing is known are instead significant, and often crucial to the recommendations being made. This problem is especially evident in some of the treatment options sometimes presented for methamphetamine. Repeated calls are made to increase treatment coverage (e.g. Australian National Council on Drugs, 2007; Department of Health and Ageing, 2007) but the (relatively small number of) evaluations conducted to date are, at best, inconclusive. Some researchers note that some of the treatments for other drugs, with many years of research and evaluation behind them, offer only moderate success rates (Ritter & Lintzeris, 2004). It is also important to ensure the development of a considered and comprehensive approach as opposed to focussing on a single current 'favourite', to the exclusion of others. One illustration is the heavy investment in neuroscience, in some countries, that has, so far, delivered little in the way of treatment options (Hall, Carter & Forlini, 2014). For example, the notion of drug use and dependence as a 'brain disease' has gained much momentum in some countries, becoming prominent in research, while investment in the role of broader socio-cultural factors has diminished. Australia needs to avoid such a narrow focus in its response.

Social costs of methamphetamine use in Australia

In 2015-16, NDRI coordinated a multi-centre project to estimate the social cost of methamphetamine use in Australia. The Australian Government Department of Health commissioned the research in response to the 'National Ice Taskforce'. The findings of that study are presently embargoed but we have received permission to include a summary here to the current inquiry. In Appendix A, we report the relative costs across eight different cost domains, rather than the actual values that are contained in the full report.

Addressing stigma

A key issue not yet receiving attention is the terms in which public debate about methamphetamine is being conducted. Because of heightened public concern, great care needs to be taken when discussing methamphetamine use and its impact on the community (Moore & Fraser, 2015), which varies according to the very diverse patterns and contexts of its use and related problems. Recalling our earlier comments, there is therefore an indication of the need to develop media guidelines that educate and inform discussions of methamphetamine and other drug issues in the public sphere, e.g. for journalists, policy makers and practitioners. This is important because, notwithstanding the human rights issues, stigma and marginalisation can contribute to a low perception of risk (“I’m not like that”), reduced likelihood of treatment seeking and disinclination to offer support by clinicians. Accepted standards of reporting, such as those in place in Australia for reporting suicide or depression, could be developed to reduce the risk that media commentary and indeed prevention strategies unintentionally contribute to stigma and discrimination that result in poorer public health outcomes.

The importance of context on use and related problems

Recalling this submission’s introductory comments, methamphetamine use and related harms arise from a range of factors. In addition to considering the impact of methamphetamine use on the community, effective policy needs also to attend to the community structures – such as educational engagement, community engagement, labour market/access to employment and welfare structures – that can influence marginalisation, and increased risk, of specific groups of people (e.g. Aboriginal and Torres Strait Islander people, homeless people, etc.) who may be more likely to use methamphetamine and more likely to have more severe adverse events. This suggests that tackling issues of social and economic exclusion, gender, poverty, marginalisation and racism, all key contributors to AOD use and related problems, should be included in any policy response (e.g. Boeri, 2013; Brown, 2010; Hart, 2013; Pine, 2010).

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APPENDIX A

Social Costs of Methamphetamine Use in Australia (2013/14)

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In response to the ‘National Ice Taskforce’¹ the Australian Government Department of Health commissioned an analysis of the social cost of methamphetamine use in Australia. The full report is currently embargoed but we have received permission to submit a summary of the findings to the current Inquiry into Crystal Methamphetamine (ice). In this summary we report the relative costs across eight different cost domains. Details of the actual values are contained in the full report.

Australia has one of the highest documented rates of methamphetamine use in the world, with about 2.1% of the population aged 14 years and over reporting they have used methamphetamine in the past year. Recent changes in the purity and form of methamphetamine and an apparent increase in both the number of regular and dependent users of methamphetamine since 2009-10² have resulted in the potential for a significant rise in the harms associated with the consumption of methamphetamine. This has resulted in considerable public and government concern, and media interest. While harms may occur with any use of methamphetamine, those who are dependent drug users are likely to be disproportionately impacted by harms and thus there may be more costs arising from their methamphetamine consumption³. The diverse range of associated harms and costs impact not only on the person consuming methamphetamine but also on their families and the wider society. Recent estimates suggest there are 160,000 dependent methamphetamine users in Australia, up from approximately 72,000 dependent users in 2009-2010². There are also estimated to be 240,995 Australians who used methamphetamine occasionally in the last year⁴.

Given the potential severity of consequences associated with the use of methamphetamine it was considered important to gauge the cost impost incurred by individuals and the society overall. The objective of the Social Cost of Methamphetamine study was to estimate the cost of methamphetamine use to Australia for a specific year (2013/14) rather than estimate future costs arising. This was, in part due to limitations in the available data, but also due to considerable uncertainty of the future predictive impact of current methamphetamine use. Thus, other than years of life lost due to premature mortality, the cost estimates do not include future costs for treating chronic health conditions or lower levels of productivity over the lifespan. Eight key cost domains were identified (see Table 1). Each one is summarised in the text below.

Table 1: Summary of the distribution of methamphetamine attributable costs (2013/14)

Domain	Percentage
1. Prevention, harm reduction & treatment for methamphetamine	2.2
2. Health care (e.g. hospitals, GPs ambulance)	4.0
3. Premature mortality	15.6
4. Crime (includes policing, courts, prisons & victims of crime)	64.6
5. Child maltreatment & protection	5.2
6. Clandestine laboratories & production	0.2
7. Road crash costs	2.5
8. Workplace accidents & productivity	5.7
Total	100

1) The report identified a range of prevention, supply reduction, harm reduction and treatment initiatives targeting the use of methamphetamine. In 2013/14 school based programs were the

major prevention approach, with no substantial general population programs being identified in that year. Supply reduction programs were evident at the local level, through jurisdiction level policing or initiatives such as ProjectStop, which aimed to limit access to precursor chemicals through the purchase of some over-the-counter medicines. Nationally, there were initiatives to regulate the commercial supply of chemicals and products that could be used to manufacture methamphetamine in clandestine laboratories. (The policing and border control aspect of supply reduction was included in the crime domain). The major harm reduction initiatives were existing programs that aim to reduce harms from injecting drug use (e.g. needle and syringe programs) that also involved some users of methamphetamine who inject. However, treatment programs, such as withdrawal management, counselling services and residential rehabilitation, were the largest cost items in this area (see Table 1).

- 2) The largest cost area identified within healthcare was inpatient hospitalisations followed by treatment for blood borne viruses. In common with other areas of the report, identifying hospital costs associated with methamphetamine use is problematic. First, diagnostic codes identify *stimulant* use (in Australia this is predominantly methamphetamine) and second, there is a dearth of research on the contribution of methamphetamine to heart disease, strokes, and a range of mental health illnesses. It is therefore likely that the estimate of hospital and other general treatment costs misses many cases involving methamphetamine.
- 3) In addition to morbidity, we identified deaths in 2013/14 that were partly or wholly due to methamphetamine use. These cases were identified via the National Coronial Information System (NCIS). Forensic pathologists identified 116 cases where methamphetamine was a direct cause (e.g. drug toxicity) and a further 175 where it was a substance producing injury (e.g. multiple drug toxicity), where we allocated a fraction to the total cases. This gave a total of 170.2 deaths. However, it should be noted that not all cases in the NCIS for 2013/14 had been finalised, including cases still before the courts, which means that homicides are likely to be under-represented. We also note that the number of deaths attributed to suicide (n=55.75) was markedly lower than would be expected based on the attributable fraction method (n=114.7) for suicide deaths in this population ⁵. Premature deaths related to methamphetamine use accounted for 15.6% of total costs.
- 4) The costs relating to crime which include the costs to the criminal justice system (police, justice, imprisonment) and the costs to victims of crime was the single largest contributor of costs in the study, comprising about 65% of total costs. Policing accounted for 26.1% of these costs. Again there were multiple challenges in estimating policing costs. There are no direct estimates of the actual costs of policing associated with drug-related crime and as such the cost of police work attributed to methamphetamine had to be indirectly estimated from data from the Drug Use Monitoring in Australia (DUMA) project. The DUMA surveys of police detainees are widely used ⁶ and formed the basis of our allocation of the fraction of each category of offence attributable to methamphetamine. Across all offences methamphetamine was identified as the causal factor in 18.0% of offender's most serious offence. As with the police costs, there are no summary court costs for relevant cases, so these were also approximated using the DUMA data, with cases weighted by the average length of trials in each offence category. Further costs from public prosecution and legal aid services relating to the judicial arena were estimated: court costs equated to 5.3% of the costs in this domain. Notable omissions from our estimate were costs

relating to juvenile offenders, where data are too sparse to allow estimation, and Federal Police/Border Protection Services, where overall budgets were available but there was no reliable method for allocating a proportion to methamphetamine-related activity.

The costs of correctional services were estimated from Australian Bureau of Statistics reports on the number of prisoners ⁷ combined with the cost of prisons, ⁸ giving an average cost of \$106,601 per prisoner. There were further costs accrued through community corrections ⁹ and lost productivity of those imprisoned. Some small-scale, offsetting savings in terms of reduced government payments were identified. Overall, for the approximate 6,000 methamphetamine attributable prisoners, we estimated that costs related to imprisonment accounted for 29.9% of the total costs of methamphetamine related crime. Further, the costs to victims of personal or household crime attributable to methamphetamine use accounted for 38.7% of the crime costs.

- 5) Data from the United States that considered lifetime costs related to methamphetamine rather than those for a single year, identified child endangerment as one of the most critical impacts of methamphetamine use, with only premature deaths/intangible cost of dependence and judicial costs exceeding this issue ¹⁰. However, in constructing the Australian estimate of the impact of methamphetamine use on children, we only had access to small, and thus potentially idiosyncratic samples, on the impact on children. Nevertheless, we estimated that nationally, 6.5% (n=2657) of substantiated child protection cases arise from methamphetamine use, which accounted for 5.2% of the total methamphetamine related costs in 2013/14. There were further costs arising from Child Death Review proceedings. This is an area that would clearly benefit from collaboration between researchers and government agencies in providing greater clarity on the harms to children from substance use by family members.
- 6) We did not identify any child protection cases arising from exposure to clandestine methamphetamine laboratories, although this has been flagged as a particularly high-risk setting for young children ¹¹. However, information on clandestine laboratories, rather than child protection data, suggests that about 426 children would have been present in the laboratories detected in 2013/14. No costs could be attributed to these cases. In addition to the hazards to children, manufacturers ("cooks"), family members, neighbours, bystanders and emergency services are at risk of exposure to toxic chemicals and other harms, such as explosions and hazardous waste. Clandestine laboratories accounted for 0.2% of costs.
- 7) In addition to health costs and premature mortality, those who use methamphetamine are more likely to be involved in other accidents such as road crashes. Extrapolating from the 1.86% of crash deaths in the NCIS attributed to methamphetamine, this figure was applied to data on compensation payments, hospital separations and property damage from road accidents to arrive at a figure of 2.5% of costs.
- 8) Accidents, injuries and poor health due to the use of methamphetamine impact on work productivity. National datasets on workplace compensation and injuries were used to generate estimates on more severe injuries – those resulting in absence from work. Based on an odds ratio of 3.4 for occupational injury following drug use ¹² and Australian workplace drug testing information, from 374,500 injuries, about 3% of costs arose from methamphetamine use. However, nearly 70% of this is in lost wages and not included in our total cost. Those who use illicit drugs are also likely to have more days absent from work. Compared to those who do not

use illicit drugs, methamphetamine use is associated with an excess of nearly 1 million days of absenteeism. Overall, workplace accidents and productivity costs represented 5.7% of the total.

Before commencing this analysis, we were aware of some of the unique costs that those living in regional, rural and remote areas of Australia encounter in addressing the harms of methamphetamine use. While some national data (e.g. NCIS) are relatively free of geographical biases, virtually all other data will be less comprehensive or subject to greater margins of error in regional and rural communities. Addressing this limitation was beyond the remit of this project. However, some qualitative work was undertaken in two sites to draw attention to the unique challenges of those outside metropolitan settings, although there was no attempt to quantify findings. Recent data show that there was a substantial increase in methamphetamine use in rural communities between 2007 and 2015 ¹³.

Additional Harms: A Tentative Assessment

There is increasing interest in the harms incurred by people exposed to substance use by others, in particular alcohol ¹⁴. However, this field is very much at a formative stage in relation to illicit drug use. Therefore, we acknowledge the speculative and exploratory nature of this aspect of the analysis. We focused only on potential harms to resident partners and children of dependent methamphetamine users and drew on data from the NDSHS and our estimate of 160,000 people dependent on methamphetamine to obtain a range of between 15,000-45,700 partners and between 30,100-120,900 resident children. By comparison, more than 1.3 million family members and 142,582 children are substantially impacted by another person's alcohol use ¹⁴. Extrapolating from research on persons with alcohol dependence ^{15, 16}, the estimated harms incurred by partners and children were respectively assigned one third and one half of the harms that a dependent user incurs. As such this represents an important area for further investigation.

Limitations

In considering these estimates there are a range of limitations that should be taken into account. Among illicit drug users, poly-drug use is the norm, which means that even with the most conscientious efforts to estimate costs for methamphetamine alone, this will inevitably include a proportion of costs that are related to the consumption of other drugs (including tobacco and alcohol). We drew our evidence from both research and administrative datasets ranging from national populations through to limited samples. Each dataset has caveats to its use and the validity of assumptions made about the specific data can be questioned. Thus, it is more appropriate to examine the findings and interrogate their robustness individually rather than as an overall total. In all areas of the analysis we encountered difficulties with limited or non-specific data; in some instances we were simply not able to assign a quantum to methamphetamine, even though it was obvious that there were some relevant costs. This aspect of the study alone highlights the need for better cost estimate data.

Methodology & Assumptions

We adopted a prevalence approach: that is, we included both new and existing cases in the target year. In compiling the costs, the study used a diverse range of national, state and research datasets that were primarily administrative in nature. Each of these required different methods to attribute costs to methamphetamine use. For example, the approach used to calculating inpatient hospital costs was different to that used in estimating police costs. The factor which has the largest impact on our estimate was in attributing a value to a life or impairment. This is most evident in the costs of premature mortality, but also includes other areas such as harms to the victims of crime. In this summary we report our 'best' estimate but acknowledge that for some areas, the range of values is wide.

Recommendations

It is clear the costs related to methamphetamine use are significant, and it presents policy makers, law enforcement, health care providers and emergency services providers with considerable challenges. However, it is also apparent that several questions remain unanswered. Additional primary research, and substantial improvements to data collection and its availability, are required before a more comprehensive answer can be provided on the true social impact of methamphetamine, or indeed other drugs. Key areas where more knowledge is necessary include: the short and long term health and social impacts on children living with those using / manufacturing methamphetamine, the resource implications for Border Protection Force, actual policing resources expended on prevention, detection and other responses to methamphetamine, the impact and costs related to health conditions caused / attributable to methamphetamine and detailed information on the environmental impact of clandestine laboratories. Finally, the dearth of reliable data on the situation in rural and remote areas requires urgent attention.

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