Welcome to the May issue of CentreLines. In Issuing Forth, Mandy Wilson and Jocelyn Jones, who work in the area of drug use among Indigenous Australians, highlight the increasing number of Aboriginal women being imprisoned each year, and discuss their research into the particular health, treatment and other needs of Aboriginal mothers in prison.

In March this year, the Hon Mark Butler MP, Minister for Mental Health and Ageing, paid visit to NDRI to announce new funding for research into preventative health. Two NDRI research projects received more than $600,000 from a total of $4 million committed by the Federal Government to investigate ways to prevent the harm caused by obesity, tobacco and harmful use of alcohol.

Professor Tanya Chikritzhs received funding for her project investigating the public health impact of liquor outlets in Queensland communities. Professor Steve Allsop received funding towards the project he is leading, in partnership with the University of New South Wales and Turning Point/Monash University, into developing an alcohol reporting system for young Australians, to help inform policy and support initiatives. A report is included in Project Notes.

We hope that you enjoy this issue. For more information about NDRI’s research and other activities, please visit ndri.curtin.edu.au.

Rachael Lobo
Editor
Many readers will be aware of the distressingly high imprisonment rate for Aboriginal and Torres Strait Islander people. Fewer will know that the number of Aboriginal women being imprisoned is increasing – almost 10 percent more imprisoned in 2010 compared to 2009. As Mandy Wilson and Jocelyn Jones indicate in Issuing Forth, this is a three-and-a-half fold increase over the last 21 years. As well as investing in approaches to reverse this unacceptable trend, we also must address the needs of women currently in the prison system – while they are incarcerated, as they return to their homes and communities and, of course, with the families imprisonment takes them from.

Mandy and Jocelyn reasonably argue that Aboriginal women in prison are more disadvantaged than their male counterparts. They are incarcerated in prisons usually designed for men, and offered programs that might not meet their particular needs. It is not for me to repeat the detail of their piece. However, I do wish to affirm the importance of giving voice to the needs of Aboriginal women and their families. This research will help us design more effective services in prison and at pre-release. But it will be of limited impact if we don’t urgently reverse this tragic trend of imprisoning some of the most disadvantaged Australians.

Steve Allsop
Director

The social and cultural resilience and emotional well-being of Aboriginal mothers in prison

Despite comprising only 2.5 percent of the Australian population, Aboriginal and Torres Strait Islander adults are imprisoned 14–19 times more frequently than non-Aboriginal people1. This is one of the highest rates of Aboriginal incarceration among the OECD countries. The number of Aboriginal women being imprisoned has increased each year, with a 9 percent rise between June 2009 and June 2010 alone; this is compared to 3 percent among non-Aboriginal women and 2 percent among Aboriginal men1. In 1991, the Royal Commission into Aboriginal Deaths in Custody recommended that imprisonment of all people be a last resort. However, as highlighted in the Bridges and Barriers report, the number of Aboriginal women in Australian prisons has increased an exponential 343 percent since 19912. This makes Aboriginal and Torres Strait Islander women the fastest growing sub-group among the prisoner population, and this is particularly so in Western Australia (WA) and New South Wales (NSW)3.

The context and consequences of Aboriginal incarceration

In order to understand the over-representation of Aboriginal people in Australian prisons the broader context needs to be taken into account. Despite improvements in some areas, Aboriginal Australians continue to lag behind their non-Aboriginal counterparts on almost every social and economic indicator. Among other things, the list that follows is evidence of disadvantage, including poorer physical and mental health (including higher levels of morbidity and lower levels of social and emotional well-being), lower life expectancies, overcrowded and impoverished living conditions, problematic substance use, and lower levels of employment and education4-5. These factors, along with a history of dispossession, social exclusion and policies supporting the removal of children from their natural family, have all been associated with Aboriginal people’s contact with the criminal justice system6,7.

The characteristics of female Aboriginal prisoners

Data have shown that a large percentage of Aboriginal women entering prison in Australia come from disadvantaged backgrounds and enter prison with high health and other needs6. They are likely to be under-educated, unemployed or employed in low paying jobs, experiencing mental health and substance use issues, and to have experienced abuse as children and as adults8,9. A recent review of the literature by Bartels highlights that many of these women serve shorter sentences than non-Aboriginal women and are imprisoned for relatively minor offences, particularly public order offences9. However, as noted in other sources10,11, Aboriginal female prisoners are also more likely to be both the victims and perpetrators of violent offences than non-Aboriginal female prisoners. Additionally, a higher proportion of Aboriginal women tend to be on remand rather than sentenced10. Prisoners remanded to custody experience immediate stresses associated with, for example, accessing bail, retaining or securing accommodation and issues related to parenting10 and are particularly vulnerable to self-harm and suicide in prison11,12. The rate of major mental disorders in prison is significant. The Western Australian Inspectorates Office reported in March 2011 that 59 percent of female prisoners (25 percent of the prison population) in Bandyup (WA’s maximum security female prison) were identified as suffering from a mental disorder, out of which 35 (59 percent) were Aboriginal13. Research also shows that Aboriginal women being released from prison are at the highest risk of social exclusion, homelessness, domestic violence, victimisation and re-incarceration13,14.

Aboriginal mothers in prison

Our knowledge of Aboriginal women as mothers in Australian prisons is limited14. Historically, Aboriginal women have been, and continue to be, the main carers in their extended families and it is estimated that around 80 percent of Aboriginal women in Australian prisons are mothers15,16. This means the rising rate of incarceration among Aboriginal women not only impacts on their own health and well-being, but has

1. For the rest of the document, when we speak of Aboriginal people, we include those who identify as Aboriginal, Torres Strait Islander, and Aboriginal and Torres Strait Islander.
2. In WA Aboriginal women make up approximately 60 percent of the female prisoner population.

Mandy Wilson
Jocelyn Jones

Issuing Forth

Steve Allsop
Director

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widespread impacts on their families and communities. In NSW it was shown that 20 percent of Aboriginal and Torres Strait Islander children had experienced the loss of a parent to incarceration; these children are at risk of developing mental and health problems in the future, and of becoming involved in the juvenile justice system themselves. In WA, the vast expanse of the state and the physical locations of its six prisons that house women means that, as well as the practical challenges of managing mothering and care-giving roles from inside prison, Aboriginal women who are imprisoned for more serious crimes are likely to be incarcerated far from their country and away from family.

Programs for Aboriginal women in prison

Given that most prisoners in Australian prisons are males, the majority of prisons are purpose-built to hold male prisoners and are organised around their custodial requirements. With some exceptions, needs specific to female prisoners are often met through adaptations to existing male frameworks and programs. International and Australian research has demonstrated that ‘as compared with males, female offenders under supervision seem to have a higher prevalence of needs in the personal and emotional area, in marital and family relations, and in academic and vocational skills’. Despite this, a low priority is placed on gender-specific rehabilitation services for women that address physical and sexual abuse, psychological wellbeing, children and families.

Aboriginal female prisoners are even further disadvantaged in their access to appropriate rehabilitative programs ‘because their needs are considered as being met either through services designed for Indigenous men, or non-culturally specific services designed for women’. Additionally, it has been noted that Aboriginal women, for a variety of reasons, may choose not to access services post-release and while a number of prisons (including in WA) allow for children to reside full-time with a mother or offer other mother and children programs and alternative care arrangements, these programs are often poorly utilised by Aboriginal mothers.

Current research

Researchers from the ‘Substance use among Indigenous Australians’ team at NDRI, in collaboration with a multidisciplinary team from the University of NSW, are currently involved in a four-year, NHMRC-funded project focusing on the social and emotional well-being and cultural resilience of Aboriginal mothers in prison. The project emerged from a previous study called ‘Mothers and Gestation in Custody: Investigating the impact of incarceration whilst pregnant (MAGIC)’. MAGIC explored the pregnancy and birth outcomes of women in prison in NSW. An advisory group on Aboriginal and Torres Strait Islander women in prison was formed over the course of the research. Members of this group were unanimous in the view that the consequences of imprisonment for Aboriginal women, children and communities as a whole are unique to Aboriginal peoples. The distinctive historical and political issues which have led to the gross over-representation of Aboriginal peoples in Australia’s prisons were highlighted. They also emphasised that Aboriginal women in prison have the right to health services that meet their specific cultural values and expectations, and provide equal quality and outcomes.

Our project, which is led by a team of Aboriginal and non-Aboriginal investigators, aims to better understand the health, treatment and other needs of Aboriginal mothers in prison in NSW and WA. The research will focus on Aboriginal mothers’ social and emotional well-being; experiences of mothering from prison; access to, and appropriateness of, healthcare services and programs provided in the prisons; and needs on transition from prison into the community. In WA, all prisons that house women will be study sites including the two metropolitan women’s prisons, Bandyup and Boronia Pre-release Centre for Women, and the regional prisons located in the Eastern Goldfields, Greenough, the West Kimberley, Roebourne and Broome. The intention is to interview up to 90 women across the state.

Research methods and process

This study utilises a mixed methods approach and will include: a health survey of the medical records of Aboriginal women in prison in WA; an examination of policy and procedural documents; implementation of an existing, validated tool to measure social and emotional well-being (SEWB) among incarcerated Aboriginal mothers; in-depth narrative interviews with Aboriginal mothers (on remand and sentenced) and Corrections staff; and a series of focus groups with key stakeholders in the community.

Important progress on the project to date has been the completion of a lengthy consultation process whereby the researchers engaged extensively with key stakeholders in the community including representatives from Aboriginal community-controlled organisations, government and non-government agencies. The consultation process, while garnering local support for the project, provided a picture of the concerns the community have in relation to Aboriginal mothers in prison in WA. Broadly, themes arising from consultation included the urgent need for prison programs and services that meet the specific cultural, spiritual and health needs of this population. Concern was also expressed about the babies and children who reside with their mothers in prison, in particular around issues to do with the child’s limited access to healthcare in prison and the adequacy of mother and baby facilities. In addition, stakeholders agreed that, to address the high recidivism rate among Aboriginal women, we need to know more about these women’s health and other needs for successful transition from prison into the community.

The researchers have also been advised on research process by members of two on-going reference groups. The first group is comprised of community and consumer representatives, and the second draws on the experience of university and medical professionals. Members of these groups have been actively involved in identifying key issues facing Aboriginal mothers in prison and the community, pinpointing gaps in service provision for these women (both in prison and on release), and most recently, contributing to the development of the qualitative interview schedule which will be piloted next month with Aboriginal mothers in Boronia Pre-release Centre for Women.

The next few months promise to be an extremely busy time for the WA researchers who will be travelling the state conducting interviews. In keeping with the capacity building component of the project, researchers will work in collaboration with the local Aboriginal Community Controlled Health Organisations at each site. Our plan is to employ local Aboriginal staff to help conduct the interviews in the prisons, and to enlist translation and support services where appropriate.

Conclusion

Incarcerated Aboriginal women have been identified as a vulnerable population, entering prison with high physical, mental health and other needs. Yet they are least likely to have access to programs and services that are designed to specifically respond to their needs, both in prison and on release. In an era which is witnessing devastating rates of incarceration among Aboriginal women, this is particularly concerning. The majority of these women in prison are mothers and often significant carers of others in their extended family networks; their incarceration has far-reaching consequences for their children, families and communities. However, our knowledge of the needs and experiences...
of these women is extremely limited. Addressing this gap has the potential to improve the rehabilitative outcomes for Aboriginal mothers moving through the prison system and in turn create positive change in their families and communities.

Mandy Wilson, Research Fellow and Jocelyn Jones, Adjunct Research Fellow

References

Beyond internet as tool: A mixed-methods study of online drug discussion

Monica Barratt (PhD scholar), Simon Lenton and Matthew Allen (PhD supervisors)

Internet technologies have changed the context within which illicit drug use occurs. Scholars have demonstrated how the internet and digital technologies can be used to better respond to drug problems and how people who use drugs utilise the internet to access drug information and to purchase drugs (mainly so-called legal highs). The limitations of this body of work are that it generally conceptualises the internet only as a tool, and the potential for internet use resulting in positive outcomes for drug users is only discussed in relation to formal online interventions and treatments.

Barratt, under the supervision of Lenton and Allen, has submitted her thesis which aims to address these limitations by framing the internet as (i) a tool (enabling people to consume and produce information), (ii) a place (online sites within which discourses and meanings are reproduced, reappropriated and negotiated), and (iii) a way of being (online sites that are incorporated into everyday/offline life and practices). The thesis focuses upon the lives of people who engage in the recreational use of psychostimulants and hallucinogens (‘party drugs’) and their use of public internet forums where drugs are discussed through the exchange of asynchronous text-based messages (‘internet forums’). It asks: How has internet use shaped drug practices among an Australian sample of people who use party drugs and participate in public internet forums? The project comprises: observations of, and engagement with, 40 internet forums where party drugs were discussed over an 18-month fieldwork period (2006–2008); an online survey of 837 party drug users who participated in online drug discussion; and 27 synchronous online interviews with a subset of the survey sample.

Considering internet forums as information tools, this thesis shows that some internet forums enable the consumption, production and dissemination of folk pharmacologies or ‘underground’ drug knowledges. These knowledges can be understood as forms of resistance against the dominant pathology model of illicit drug use. Considering internet forums as places, this thesis shows how most online forum users engaged in discursive strategies in order to present themselves as informed and responsible drug-using subjects, thereby rejecting the portrayal of drugs users as irrational, irresponsible and ignorant as inscribed by the pathology discourse. Considering the internet as a ‘way of being’ and internet forums as part of everyday life, this thesis questions the oft-stated claim that the internet facilitates anonymity and is therefore attractive to people who use drugs. While anonymity was certainly understood as a general benefit of internet use, online anonymity was juxtaposed with the increasing convergence of online and offline social worlds.

The findings of this thesis are relevant to drug policy and practice, including the facilitation of online peer-driven drug-user action, the use of online pill report databases, the regulation of internet content, and online drug trend monitoring. The project also developed new online methodologies including qualitative online interviewing and use of the internet to conduct participatory research with people who use drugs.

Patron offending and intoxication in night-time entertainment districts (POINTED)

Tanya Chikritzhs, William Gilmore and Tina Lam

Alcohol-related problems are a major cause of social disorder and illness in Australia. In particular, problems associated with the night-time economies of urban and regional centres cause substantial community concern and constitute a substantial drain on police, community and health resources.

Background: POINTED is a national study that is investigating some of the factors and correlates associated with alcohol-related violence in licensed venues across five Australian cities (Sydney, Melbourne, Perth, Geelong and Wollongong). The project is being led by Deakin University and involves collaboration with five other institutions including NDRI, Turning Point Alcohol and Drug Centre, the Burnet Institute, the University of Wollongong and the University of Western Sydney.

Aims: The primary aim of the project is to measure levels of pre-drinking, drinking in venues, intoxication, illicit drug use and harmful drinking practices (such as mixing alcohol with energy drinks) of patrons in entertainment areas, and relating this to offending, risky behaviour and harms experienced. The project will also investigate the effects of license type, trading hours, duration of drinking episodes and geographical location on intoxication, offending, violence and experience of harm.

Method/current status: The fieldwork for POINTED was completed from late 2011 to May 2012, between the hours of 9pm and 6am (differing by region). Data were collected using patron interviews and intensive venue observations. In Western Australia, data collection centred upon the regions of Northbridge and Perth City.

Patrons of licensed venues were anonymously interviewed around venues. They were asked a series of questions addressing issues such as: their use of drugs (including alcohol, illicit drugs and energy drinks), intentions for the rest of the night regarding alcohol, illicit drug and energy drink consumption, perceived intoxication, experience of aggression/violence, experience of sexual harassment/assault, rating of ability to drive home, and intended movements over the rest of the night. Patrons were selected randomly when entering and leaving venues. Every patron interviewed was breathalysed to obtain an objective measure of their intoxication. Some sites (but not Perth) also used drug swabs on every fifth interviewee to detect illicit drug use.

In addition to the patron interviews, venues were discreetly observed by researchers. Information such as entry practices, density and demographic of patrons, patron and staff behaviour related to the use of alcohol and other drugs, were noted.

Significance: The information gathered through this project will inform prevention and enforcement approaches of both police and venue staff.

Young Australians alcohol reporting system

Steve Allsop, Tanya Chikritzhs and William Gilmore

The Australian National Preventive Health Agency has recently funded NDRI, in partnership with the National Drug and Alcohol Research Centre and Turning Point Alcohol and Drug Centre, to develop and trial a young Australians alcohol reporting system in Western Australia, Victoria and New South Wales.

Thirty percent of young Australians aged 16 and 17 are drinking at levels considered to be putting them at risk of injury at least once a month. This rises to 58 percent among 18 and 19 year olds. At present, we have only limited insight into patterns of use and factors that influence use and related harm, little information to facilitate effective interventions with young people who engage in risky drinking, and limited capacity to measure policy and intervention impact on young people.

The purpose of the reporting system is to create an annual assessment of contexts of alcohol use, patterns of consumption, and related problems among key groups of young Australians. The outcome will be an ‘early warning system’ of current risks and changes in use and related problems to inform prevention and other interventions targeting young at-risk drinkers. The system will also contribute to evaluation of the impact of prevention and other interventions to reduce risky drinking among young people.

The system will combine information from existing data sources with annual data collection, targeting young people between 16 and 19 years old who are engaged in risky drinking. The latter will be defined in terms of the contexts of use, experience of harm and in terms of amounts consumed. An annual sample of 400 young people (100 from each of the three jurisdictions and an additional 100 from a rural location in the south west of Western Australia) will be recruited to provide both quantitative and qualitative information.

It is important to note that the new data collected from these young people will complement, not duplicate, other data collections which are infrequent, use large representative samples of young people, but which are likely to underestimate risky drinkers and provide little contextual information about drinking (eg the Australian School Survey on Alcohol and Drugs; and the National Drug Strategy Household Survey). The new data will be combined with data from these large scale representative population surveys, and other key reports, to provide the first annual key comprehensive report on young people’s drinking and associated harms.

Update on the brief tobacco intervention training program

Steve Allsop, Richard Midford, Owen Carter and Clare Stevens

The Smoke Free WA Health System Policy was implemented from 1 January 2008, banning smoking on all Department of Health premises and grounds throughout Western Australia (WA). The policy applies to all staff, patients, visitors, contractors and other persons who enter Department of Health owned or leased buildings, grounds or vehicles for any purpose whatsoever.

The Brief Tobacco Intervention Training Program was developed by the National Drug Research Institute, with funding from the WA Department of Health, to assist WA health service staff respond to patients who smoke.

The training comprises an online self-directed learning package, set out in four modules, which has been designed to:

• assist staff to understand the Smoke Free WA Health System Policy
• enhance the capacity of staff to assist patients to comply with the policy by preventing and managing nicotine withdrawal symptoms
• enable staff to offer brief interventions to help patients consider quitting smoking.

The training has now attracted over 1300 participants who have completed the four on-line modules. Whilst the program was developed specifically for WA health service staff, it is now attracting interest from across Australia and internationally, with doctors, nurses, pharmacists and others from Africa, Asia, Europe and North America also successfully completing the program.

The Brief Tobacco Intervention Training Program is online at: http://ndri.curtin.edu.au/btip/
Reducing the harm from adolescent alcohol consumption: Results from an adapted version of SHAHRP in Northern Ireland.

Michael McKay, Nyanda McBride, Harry Sumnall and Jon Cole


Background: The study aimed to trial an adapted version of the School Health and Alcohol Harm Reduction Project (SHAHRP) in Northern Ireland. The intervention aims to enhance alcohol-related knowledge, create more healthy alcohol-related attitudes and reduce alcohol-related harms in 14 to 16-year-olds.

Method: A non-randomised control longitudinal design with intervention and control groups assessed students at baseline and 12, 24 and 32 months after baseline. Students were from post-primary schools (high schools) in the Eastern Health Board Area in Northern Ireland; 2349 participants were recruited at baseline (mean age 13.84) with an attrition rate of 12.8% at 32-month follow-up. The intervention was an adapted, culturally competent version of SHAHRP, a curriculum program delivered in two consecutive academic years, with an explicit harm reduction goal. Knowledge, attitudes, alcohol consumption, context of use, harm associated with own alcohol use and the alcohol use of other people were assessed at all time points.

Results: There were significant intervention effects on all measures (intervention vs. controls) with differential effects observed for teacher-delivered and outside facilitator-delivered SHAHRP.

Conclusion: The study provides evidence of the cultural applicability of a harm reduction intervention (SHAHRP) for risky drinking in adolescents in a UK context.

The association between age at first use of alcohol and alcohol consumption levels among adult general drinking population

Wenbin Liang and Tanya Chikritzhs


Aim: The goal of the study was to investigate the association between age at first alcohol use and current levels of alcohol consumption among the adult Australian general drinking population.

Subject and methods: A retrospective cohort study was performed using self-report data collected by the 2004 and 2007 Australian National Drug Strategy Household surveys. Participants were selected using a multi-stage, stratified-area, random sample design. Male and female participants aged 20–49 years at the time of the survey, who were current drinkers and consumed their first full serve of alcohol before the age of 25 years, were included in this study. Poisson regression models (with robust estimations of variance) were used to explore associations between age when a full serve of alcohol was first consumed and relative likelihood of consuming alcohol above low risk levels at the time of survey, while adjusting for a number of potential confounders.

Results: Younger age at first use of alcohol was associated with increased likelihood of consuming alcohol at levels associated with increased risk of long- and short-term harms in adulthood, even among a subsample of participants with good mental health status as measured by the Kessler Psychological Distress Scale.

Conclusion: Younger age at first use of alcohol was associated with increased likelihood of high level alcohol use in adulthood. Effective strategies to delay onset of alcohol use are needed in order to reduce the future prevalence of high risk drinking adults.

SimAmph: An agent-based simulation model for exploring the use of psychostimulants and related harm among young Australians

Pascal Perez, Anne Dray, David Moore, Paul Dietze, Gabriele Bammer, Rebecca Jenkinson, Christine Siokou, Rachael Green, Susan Hudson and Lisa Maher


Agent-based simulation models can be used to explore the impact of policy and practice on drug use and related consequences. In the previous paper, we described SimAmph, an agent-based simulation model for exploring the use of psychostimulants and related harm among young Australians. In this paper, we use this model to simulate the impact of two policy scenarios on engagement in drug use and on experience of drug-related harm: (i) the use of passive-alert detection (PAD) dogs by police at public venues and (ii) the use of SimAmph, an agent-based simulation model for exploring how individual perceptions, peer influences and subcultural settings shape the use of psychostimulants and related harm among young Australians. SimAmph’s integrated approach goes some way towards overcoming the compartmentalisation that characterises existing data, and its structure, parameters and values can be modified as new data and understandings emerge. We present the conceptual architecture underpinning SimAmph, the assumptions we made in building it, the outcomes of sensitivity analysis of key model parameters and the results obtained when we modelled a baseline scenario. Its core behavioural algorithm is able to produce social patterns of partying and recreational drug use that approximate those found in an Australian national population survey. SimAmph therefore provides a robust tool for integrating diverse data and exploring drug policy scenarios. We also discuss the limitations involved in running closed-system simulations and how the model could be refined to include the social, as well as the health, consequences of drug use. In the companion paper, we use the model outlined here to explore the possible consequences of two policy scenarios.

Are drug detection dogs and mass-media campaigns likely to be effective policy responses to psychostimulant use and related harm? Results from an agent-based simulation model

Anne Dray, Pascal Perez, David Moore, Paul Dietze, Gabriele Bammer, Rebecca Jenkinson, Christine Siokou, Rachael Green, Susan Hudson and Lisa Maher


Agent-based simulation models can be used to explore the impact of policy and practice on drug use and related consequences. In the previous paper, we described SimAmph, an agent-based simulation model for exploring the use of psychostimulants and related harm among young Australians. In this paper, we use this model to simulate the impact of two policy scenarios on engagement in drug use and on experience of drug-related harm: (i) the use of passive-alert detection (PAD) dogs by police at public venues and (ii) the use of SimAmph, an agent-based simulation model for exploring how individual perceptions, peer influences and subcultural settings shape the use of psychostimulants and related harm among young Australians. SimAmph’s integrated approach goes some way towards overcoming the compartmentalisation that characterises existing data, and its structure, parameters and values can be modified as new data and understandings emerge. We present the conceptual architecture underpinning SimAmph, the assumptions we made in building it, the outcomes of sensitivity analysis of key model parameters and the results obtained when we modelled a baseline scenario. Its core behavioural algorithm is able to produce social patterns of partying and recreational drug use that approximate those found in an Australian national population survey. SimAmph therefore provides a robust tool for integrating diverse data and exploring drug policy scenarios. We also discuss the limitations involved in running closed-system simulations and how the model could be refined to include the social, as well as the health, consequences of drug use. In the companion paper, we use the model outlined here to explore the possible consequences of two policy scenarios.
(ii) the introduction of a mass-media drug prevention campaign. The findings of the first simulation suggest that only very high rates of detection by PAD dogs reduce the intensity of drug use, and that this decrease is driven mainly by a four-fold increase in negative health consequences as detection rates rise. In the second simulation, our modelling showed that the mass-media prevention campaign had little effect on the behaviour and experience of heavier drug users. However, it led to reductions in the prevalence of health-related conditions among moderate drug users and prevented them from becoming heavier users. Agent-based modelling has great potential as a tool for exploring the reciprocal relationships between environments and individuals, and for highlighting how intended changes in one domain of a system may produce unintended consequences in other domains. The exploration of these linkages is important in an environment as complex as the drug policy and intervention arena. cl

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National Drug Research Institute
Curtin University
GPO Box U1987 Perth WA 6845
ndri.curtin.edu.au

National Drug & Alcohol Research Centre
University of New South Wales
Sydney NSW 2052
ndarc.med.unsw.edu.au