A Public Health and Legislative Consideration of Methods to Reduce Drug-Related Harm in the Victorian Party Scene:
On-Site Pill Testing, Market Monitoring and Publication of Police Drug Seizure Data

A PILL TOO HARD TO SWALLOW?

This report is not an official report of the Parliament of Victoria. Parliamentary Intern Reports are prepared by political science students as part of the requirements for the Victorian Parliamentary Internship Program. The Program is jointly coordinated by the Department of Parliamentary Services through the Parliamentary Library & Information Service, the Organisation Development unit and participating Victorian universities. The views expressed are those of the author.
# Table of Contents

Acknowledgements ....................................................................................... 3  
Abbreviations ......................................................................................... 4  
Executive Summary: ............................................................................... 5  
Introduction ............................................................................................ 7  

**PART 1 — DRUG USE IN VICTORIA** ......................................................... 9  
1.1 Party Drugs ..................................................................................... 9  
   Ecstasy ............................................................................................ 9  
   GHB ......................................................................................... 11  
1.2 Other Drugs .................................................................................. 12  

**PART 2 — CURRENT POLICY RESPONSE: PAD DOG PROGRAM** ............... 13  
2.1 Program design ............................................................................. 13  
2.2 Efficacy ....................................................................................... 13  
2.3 Deterrent effect .......................................................................... 15  
2.4 Harm ......................................................................................... 15  

**PART 3 — HARM REDUCTION PROPOSALS** ............................................. 17  
3.1 Proposal 1: On-Site Pill Testing ...................................................... 17  
   Reagent-based testing ..................................................................... 18  
   Laboratory-grade testing ............................................................... 20  
Is pill testing effective? ........................................................................ 22  
3.2 Proposal 2: Monitoring .................................................................. 23  
   Methodology ............................................................................... 23  
   Model for Victoria: Dutch Drugs Information and Monitoring System (DIMS)........... 23  
   Harm reduction impacts of drug monitoring .................................. 24  
   Impact of monitoring on the drug market ...................................... 25  
   Utility of drug monitoring for health and law enforcement purposes .......... 26  
   Implementation of drug monitoring in Victoria ................................ 26  
3.3 Proposal 3: Publication of data from police seizures ...................... 27  

**PART 4: IMPLEMENTATION AND EVALUATION** ................................... 28  
Current Policy Context .......................................................................... 28  
4.1 Legislative Issues ......................................................................... 28  
4.2 Practical Issues ............................................................................ 30  
4.3 Moral Issues ............................................................................... 33  

**PART V: RECOMMENDATIONS** ............................................................. 35  
Where to from here? ............................................................................ 37  

**APPENDICES** .................................................................................. 38  

References ............................................................................................. 43
Acknowledgements

I would like to thank Josie Lee for the invaluable support she provided me throughout this project. Her advice, guidance and initiative were integral to my completing my report. I would also like to thank Paul Strangio for being available, at a moment’s notice, to address any and all concerns I had throughout this semester, and I am grateful to him and all the academic staff for the insights and direction they gave me during the program. I am grateful to Colleen Hartland, MLC, for giving me the feeling that I was valued and that my work was appreciated. Finally, I would like to thank my parents, for their constant guidance and support, and for helping me produce this finished product.
Abbreviations

ACTINOS – ACT Investigation of Novel Substances Project
AOSD – Amphetamines and Other Synthetic Drugs
DIMS – Drugs Information and Monitoring System
EDRS – Ecstasy and Related Drugs Reporting System
EMCDDA – European Monitoring Centre for Drugs and Drug Addiction
FSSA – Forensic Science South Australia
GC – Gas Chromatography
GCMS – Gas Chromatography-Mass Spectrometry
GHB – Gamma hydroxybutyrate
HPLC – High Performance Liquid Chromatography
LSD – Lysergic acid diethylamide
MDA – 3, 4-methylenedioxyamphetamine
MDEA – 3,4-methylenedioxyethylamphetamine
MDMA – 3, 4-methylenedioxymethamphetamine, known as ‘ecstasy’
NCETA – National Centre for Education and Training on Addiction
NDARC – National Drug and Alcohol Research Centre
NDHS – National Drug Household Survey
NDS – National Drug Strategy
NSP – Needle and Syringe Program
MSIC – Medically Supervised Injecting Centre
PAD – Passive Alert Detection Dog
PMA – Para-methoxymphetamine
TLC – Thin-layer Chromatography
2C-T – 4-methylthio-2,5-DMPEA
4-MEC – 4-methylethcathinone
**Executive Summary:**

The aim of this report is to assess the effectiveness of drug policies based on the principle of harm reduction, specifically in relation to drugs whose strength or contents are uncertain. The focus is on party drugs, such as MDMA, because of their prevalence and unpredictability. Party drugs claimed 6 lives in 2015, and contributed to an unknown number of overdoses. However, the measures discussed have application for all drugs affected by this problem.

Australian drug policy rests on three pillars: supply reduction, demand reduction and harm reduction. At present, Victorian policy in relation to the party drug scene focuses disproportionately on the second pillar, seeking to reduce demand through deterrence. This is achieved primarily through the sniffer dog program. However, the program has a low success rate for drug detection and an even lower rate of successful prosecution outcomes. It can even be harmful - creating a risk that people may consume all their drugs at once to avoid detection, overdosing as a result.

This report considers three alternative approaches, based instead on the third pillar of harm reduction. These are on-site pill testing, monitoring of the drug market for the purposes of creating an early warning system, and publication of data currently gathered from police party drug seizures.

First, on-site pill testing has been shown to reduce consumption of potentially unsafe drugs. Users overwhelmingly choose not to consume a drug if alerted to risks related to its strength or contents.

Second, early warning schemes have also proved effective, preventing consumption of drugs that have caused deaths in other jurisdictions without similar monitoring schemes. Comprehensive monitoring of the drug market influences the nature of market, as substances that are the subject of public campaigns disappear from the
market within a few years of those campaigns. Demand for a comprehensive monitoring system in Victoria is high, particularly from the health sector, which argues the information gathered would assist with diagnoses and treatment, both in the field and in emergency rooms.

Third, Victoria’s forensic police department compiles the most comprehensive data from police drug seizures in the country, but does not share or publicise that information. Publication of that data would require little additional resources and no legislative change.

The principle of harm reduction mandates that policies be evaluated in terms of their impact on overall drug harm, not in terms of their impact on overall drug use. Therefore, this report recommends that the effectiveness of proposed measures in reducing the harm caused by drugs of unknown purity or toxicity should be the primary concern, even if they do not necessarily contribute to a reduction in drug use.
Introduction

Society has long grappled with whether to regulate or prohibit recreational drugs. Prohibition may sometimes be necessary, but it brings with it an additional aspect of danger. Apart from the harmful effects of the drugs themselves, the unregulated and untested nature of the market means that illicit drugs are prone to adulteration or contamination. Specifically, three risks arise from the illicit production of drugs:¹

1. contamination during production
2. adulteration with cheap, imitation, bulking or cutting agents
3. excessively strong or pure dosages

These problems are especially pronounced in the party scene, which includes settings such as music events, festivals and nightclubs. Party drugs often appear in pill form, making them easy to adulterate and impossible to assess by sight.² Australian ecstasy pills are amongst the most dangerous in the world, as found in a review of nearly 27,000 pills conducted in five countries over 10 years.³ They are highest in ‘unknown’ ingredients, and highest in the toxic and potentially fatal substance, PMA (para-methoxyamphetamine).⁴ From 2000-2004, there were 112 ecstasy-related fatalities,⁵ leading health professionals to identify ecstasy toxicity as

---

⁴ Ibid.
⁵ Department of Health, ‘Drugs: The real facts’, National Drugs Campaign, Commonwealth of Australia, accessed at <http://www.drugs.health.gov.au/internet/drugs/publishing.nsf/content/campaign/$file/bkFact.pdf> on 19 March 2016. Ecstasy was the primary cause of death in 46% of cases, and a secondary contributor in fatalities such as vehicle crashes.
a clinically significant risk. Six Australians died from drugs at music festivals in 2015, with purity or toxicity believed to be important contributing factors.

The purpose of this report is thus to consider means of addressing the unique risks associated with drug strength and toxicity, while remaining cognizant of the limitations of prohibition or abstention campaigns. Knowing that a large number of Victorians consume drugs and are undeterred by current government policy, this report submits that the potential harm of that consumption can be greatly reduced if users are informed about dangers in the drug market.

---


PART 1 – DRUG USE IN VICTORIA

1.1 Party Drugs

Party drugs are recreational drugs commonly taken in the party scene. The most popular party drugs are MDMA (3, 4-methylenedioxymethamphetamine), GHB (gamma hydroxybutyrate) and speed (amphetamines), but other drugs such as ketamine and LSD (lysergic acid diethylamide) are also popular.8

Ecstasy

Ecstasy is the street term for MDMA.9 However, pills sold as ecstasy often contain other substances, including MDA (3, 4-methylenedioxyamphetamine) or MDEA (3,4-methylenedioxyethylamphetamine), which have similar but not identical effects to MDMA, amphetamines, ketamine or the toxic PMA.10 Ecstasy is an hallucinogenic amphetamine-type substance, meaning that it both affects perception and accelerates activity of the central nervous system.11

Pharmacological effects

The main positive effects sought from ecstasy are feelings of confidence, euphoria and intimacy with others.12 The main immediate negative effects of ecstasy include

---

8 Interview with Nick Wallis, Director of Enpsychedelia Drug Advocacy Group, on 12 May 2016.
anxiety, nausea, decreased urine output, dehydration and hyperthermia.\textsuperscript{13} The drug can also lead to serious adverse events including hypothermia. Imbalances in the body’s salt and water concentrations, which result in consumption of dangerously excessive amounts of water and extreme reactions such as seizures, cerebral haemorrhages or heart problems. Long-term negative effects include weight loss, depression, impaired cognitive function, memory loss, and increased tolerance, leading to the need for higher doses to gain desired effects.\textsuperscript{14, 15} Ecstasy is also extremely dangerous when consumed together with other substances, especially alcohol, or as part of a ‘binge’, as the likelihood of both physical and psychological problems is increased.\textsuperscript{16}

\textit{Epidemiology of ecstasy use in Victoria}

Ecstasy is the second most commonly used drug in Australia.\textsuperscript{17} The 2013 National Drug Household Survey (NDHS) found that 2.1 million Australians aged 14 and up have used ecstasy, which is 10.9\% of that population.\textsuperscript{18} In 2014, the Ecstasy and Related Drugs Reporting System (EDRS) found ecstasy to be the drug of choice for 44\% of participants surveyed, a 26\% rise from 2013.\textsuperscript{19} Polydrug use is also common: 76\% of users consume ecstasy together with other drugs, and 51\% of users take others drugs to ‘come down’ from ecstasy.\textsuperscript{20}

\textsuperscript{13} Australian Drug Foundation.  
\textsuperscript{14} National Centre for Education and Training on Addiction.  
\textsuperscript{15} Roger Nicholas, ‘On-site ecstasy pill-testing – a consideration of the issues from a policing perspective’. Discussion paper prepared for the Commissioners’ Drugs Committee of the Conference of Police Commissioners of Australasia and the South West Pacific Region by the Australasian Centre for Policing Research, 6.  
\textsuperscript{18} NDHS 2013, 59.  
\textsuperscript{20} Ibid.
Limited information about trends in Australian ecstasy is available due to a lack of systematic and comprehensive monitoring. A study conducted by Degenhardt, et al, in 2009 found that a “significant minority” of Victorian ecstasy tablets did not contain any MDMA at all. A study conducted by Project Know in 2014 found that Australian ecstasy pills are highest in ‘unknown’ ingredients, being ingredients that were unable to be identified by users or testers, and highest in PMA, as shown in Figure 1.

Figure 1

Mentions of “PMA” (Dr. Death) in 23,500 Ecstasy Pill Reports, 2006–2014

![Graph showing mentions of PMA (Dr. Death) in 23,500 ecstasy pill reports from 2006 to 2014 across different countries.]

GHB

GHB, also known as ‘fantasy’ and ‘liquid E’, is a drug taken to slow down the activity of the brain and other parts of the central nervous system. It has sedative and, at sufficient doses, anaesthetic properties, and is taken for its euphoric and sedative effects. It commonly comes in colourless and odourless liquid form, however manufacturers can change its colour by adding food dye.

---

22 Project Know, see above n 3.
Dangers of GHB

The most dangerous aspect of GHB is that it has a non-linear dose response. This means a small increase in amount can dramatically increase effect. There is also a very small difference between an amount that will produce the desired effect and an amount that results in overdose.\textsuperscript{24} Combining GHB with other drugs such as alcohol, benzodiazepines or opiates potentiates the effects further and increases risk of overdose.\textsuperscript{25} GHB often contains extremely strong dosages or involves a toxic mixture with sodium hydroxide. Further, because it is colourless and odourless, it is often used in drink spiking, earning it the reputation as the ‘date rape’ drug.\textsuperscript{26}

1.2 Other Drugs

Other party drugs include speed, taken for stimulant effects, ketamine, taken to induce a trance-like state, and LSD, taken for its hallucinogenic effects. Whilst all are dangerous in their own right, they too can be harmful for qualitative or quantitative reasons in the same way as ecstasy.\textsuperscript{27} Problems with strength and toxicity are not limited to party drugs; ‘street’ drugs such as heroin and ice (methamphetamines) have similar risks.\textsuperscript{28} The methods of determining purity and content can be used for any and all drugs, however this report focuses on party drugs.

\textsuperscript{24} Ibid.
\textsuperscript{25} Ibid.
\textsuperscript{26} Ibid.
\textsuperscript{27} Interview with Nick Wallis.
PART 2 – CURRENT POLICY RESPONSE: PAD DOG PROGRAM

2.1 Program design

Current policy in relation to party drugs prioritises deterrence, primarily through the use of sniffer dogs, or Passive Alert Detection (PAD) dogs. The dog squad aims to reduce drug use at music events by identifying patrons in possession of drugs and by acting as a visible deterrent presence.29

Police have power under legislation to search people for illicit drugs if they have reasonable grounds for suspecting possession.30 This includes strip searches. Identification by a PAD dog is considered reasonable grounds.31 PAD dogs and their trainers are assessed twice a year, and dogs that fail the assessment, either by failed or false identification, are dismissed from the squad. According to the 2008 Victoria Police Community Information Bulletin on PAD Dogs, no dogs had yet been dismissed.32

The estimated operating budget for the squad was $339,000 for 2014-15, and remains the same for 2015-16. Public events, such as music festivals, account for less than 6% of the squad’s yearly commitments.33

2.2 Efficacy

Victoria Police does not collect or publish the number of PAD dog searches that indicate a positive result, the number of positive results that lead to drugs being found, the number of positive results that lead to arrests, or the number of positive

30 Drugs Poisons And Controlled Substances Act (Vic) 1981 s 82.
32 Victoria Police, Community Information Bulletin.
33 Legislative Council of Victoria, Parliamentary Question No. 4671: Question on Notice from Ms Colleen Hartland MLC to the Honourable Minister for Police, 9 February 2016.
results that lead to strip searches. However, a number of studies have raised concerns about the program’s efficacy.

First, the dogs have a low success rate for detecting drugs. The NSW Ombudsman in 2006 found that dog identifications were successful 26% of the time. A study by the Ecstasy and related-Drugs Reporting System (EDRS) from 2008-10 found that, of those surveyed who admitted to possessing drugs when they were searched by the dogs, 7% were identified.

Second, the program has a low rate of successful prosecution outcomes. The NSW Ombudsman found that successful prosecutions were only achieved in 19 of 10,211 searches conducted in 2006. In 2013, 17,800 people were searched as a result of PAD dogs, with 2.44% of searches leading to successful prosecutions. Figure 2 shows the ratio of successful and unsuccessful searches in NSW from 2007-13.

Figure 2

Source: Dr Will Tregoning, David Shoebridge MP

---

34 Ibid.
35 NSW Ombudsman, ii.
As a result of its findings, the NSW Ombudsman expressed “misgivings” about whether PAD dogs “will ever equip police with a fair, efficacious and cost-effective law enforcement tool”, and recommended that “the starting point” when considering its report is whether the PAD dog program, in its present or suggested amended form, “should be retained at all”.

Former Victoria Police officer Greg Denham suggests PAD dogs are ineffective in settings such as music festivals, because of their high false positive rates. That is, they often detect the scent of drugs on those who consumed hours or even days earlier, or on those who were in contact with others consuming drugs.

2.3 Deterrent effect

It is suggested that statistics alone are not necessarily a true measure of the program’s success, because other benefits, such as the deterrent effect of highly visible police patrols, are not quantifiable. However, it is not clear that PAD dogs do have a deterrent effect. In 2006, the EDRS assessed the effect of drug detection dogs on NSW ecstasy users. Half attempted to conceal their drugs (51%); 19% consumed their drugs before coming to the festival and 12% avoided the dogs. Only 4% of users reported disposing of their drugs.

2.4 Harm

Separate to the question of its effectiveness, the PAD dog program can also be harmful. Panic upon seeing the dogs can often lead people to consume all their

38 NSW Ombudsman, viii.
39 Interview with Greg Denham, Executive Officer for the Yarra Drug and Health Forum and member of Harm Reduction Australia, on 27 April 2016.
40 NSW Ombudsman, 47.
42 Ibid.
drugs at once, putting them at risk of overdose. In 2013, 23-year-old James Munro died for exactly this reason at Sydney’s Defqon.1 festival. Further risks arise when people try to conceal their drugs from the dogs in body cavities: this can cause bowel obstruction, gastrointestinal perforation, or accidental absorption leading to overdose.

---

43 Interview with Greg Denham.
PART 3 – HARM REDUCTION PROPOSALS

In essence, ‘harm reduction’ covers any measure that simply decreases the negative consequences of drug use. The significance of the principle as it is applied to drug policy is that it involves the conceptual separation of harm reduction and use reduction, so that policies can still be adopted even if they don’t contribute to a reduction in overall use.

3.1 Proposal 1: On-Site Pill Testing

‘Pill testing’ is a term used to describe the qualitative and quantitative analysis of any illicit substance. The term used in Europe is ‘drug checking’, however because of that term’s association with drug screening in professional sport, ‘pill testing’ is often used in the Australian context. The terms are used interchangeably in this report.

On-site pill testing allows for specific information about given drugs to be given to individual users. However, it also has many other benefits, such compilation of data for public health or law enforcement purposes. It provides an opportunity to reach a population of users that would otherwise be unlikely to engage support services.

There are two levels of on-site pill testing: reagent-based testing, which has fewer operational requirements but is more limited in the analyses it can perform, and

---

49 Interview with Dr Alex Wodak, Director of the Drug and Alcohol Service at St Vincent’s Hospital, Sydney, on 28 April 2016.
50 Schroer, 636.
laboratory-grade testing, which has higher operational requirements, but can perform comprehensive analyses.\(^{52}\)

**Reagent-based testing**

A reagent, also known as a reactant, is a test substance that is added to a compound to bring about a chemical reaction.\(^{53}\) To conduct the test, a small quantity of powder is scraped off a pill, and a drop of the liquid reagent is applied to the sample.\(^{54}\) A chemical reaction then occurs between the reagent and some of the more common ingredients in ecstasy pills, which causes the reagent to change colour.\(^{55}\) The colour change is then compared with a chart, to determine what substances are likely to be present (or absent) in the pill.\(^{56}\) Reagent kits are available online, and are sometimes sold or distributed at events or festivals.\(^{57}\)

There are a number of different reagents used for pill testing. The differences between them lie in which substances they can most commonly identify. Reagent kits thus often include multiple reagents, to increase the scope of the test.\(^{58}\) For a description of the different reagents and their various applications, see Appendix 1.

**Accessibility and cost**

Reagent kits are available online, and are sometimes sold or distributed at events or festivals.\(^{59}\) Australian retailers include reagentkit.biz (formerly ecstasypilltest.com)

---

\(^{52}\) Nicholas, see above n 15.


\(^{55}\) Ibid.

\(^{56}\) Nicholas.

\(^{57}\) Interview with Stephanie Tzanetis, DanceWize Coordinator, on 23 May 2016.

\(^{58}\) Telephone conversation with Dr Will Tregoning, Executive Director of Harm Reduction Advocacy Group, Unharm, on 11 May 2016.

\(^{59}\) Interview with Stephanie Tzanetis.
and ez-test.com.au. The ‘Complete Reagent Kit’ sold by reagentkit.biz includes six different reagents and costs $79.95.60

Problems

Reagent-based testing is limited in the number of potential substances it can conclusively identify, and cannot test for purity.61 Further limitations include:62

- It can give misleading results when there are drug mixtures
- It provides no information about the non-drug components of a sample
- It can be subjective and prone to misinterpretation

Some reagents themselves can also be harmful, because they are potentially carcinogenic or highly corrosive, and thus dangerous if they come into contact with the skin or are consumed.63

Evaluation

The imprecision, ambiguity, limitations and potential harms of reagent-based testing have led many to call for it to be excluded from any prospective pill-testing regime.64 Dr Caldicott, who was involved in the only pill-testing pilot conducted in Australia in 2004, argues now that reagent-based is not fit for purpose, because it cannot keep up with the number of novel illicit substances entering the market each year.65 Others see utility in using reagent-based testing for triage purposes, to help determine which pills need further testing.66 However, all testing, reagent-based or

---

61 Camilleri and Caldicott, see above n 10.
62 Nicholas, see above n 15.
64 Nicholas.
65 Telephone conversation with Dr David Caldicott, Emergency Consultant at the Emergency Department of Calvary Hospital, Canberra, on 5 May 2016.
66 Interview with Dr Monica Barratt, Research Fellow at the National Drug and Alcohol Research Centre (NDARC), UNSW Faculty of Medicine, on 12 May 2016.
otherwise, must be performed by chemically-trained experts.\textsuperscript{67} For a description of the operation of the pilot, see Appendix 2.

**Laboratory-grade testing**

The alternative to reagent-based testing is on-site laboratory-grade testing, through the use of chromatography and mass spectrometry. These are the methods used by law enforcement forensic labs, and produce far more accurate and comprehensive results.\textsuperscript{68}

**Methodology**

Laboratory-grade testing involves the use of chromatography, either by itself in or in combination with mass spectrometry. Chromatography is the separation of a mixture of compounds into its constituent separate components, and mass spectrometry allows for additional analysis of the mass or charge of those components.\textsuperscript{69}

The four main types of laboratory-grade testing of drugs are Gas Chromatography (GC), Gas Chromatography-Mass Spectrometry (GCMS), High Performance Liquid Chromatography (HPLC) and Thin-layer Chromatography (TLC).\textsuperscript{70} For a description of the chemical procedures involved in each method, see Appendix 3. GC, GCMS and HPLC are all highly reliable. GCMS is considered the ‘gold standard’ in laboratory-grade testing and can identify any substance in a compound, although when used on-site, it can be limited in its ability to determine purity.\textsuperscript{71} As such, HPLC is also used on-site, because it is very effective at determining purity.\textsuperscript{72} TLC is quicker and cheaper, but its results are less comprehensive. It is more useful in gathering

\textsuperscript{67} Camilleri and Caldicott, see above n 10.
\textsuperscript{68} Interview with Greg Denham.
\textsuperscript{69} Compendium, 887, see above n 53.
\textsuperscript{70} European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), see above n 54.
\textsuperscript{71} Ibid.
\textsuperscript{72} Telephone conversation with Dr David Caldicott.
quantitative data for the purpose of broad drug monitoring than in providing specific information about individual pills to users.\textsuperscript{73}

*Is laboratory-grade testing practical to operate on-site?*

While chromatography and mass spectrometry are usually conducted in a laboratory, they can be conducted on-site as well. Several European jurisdictions have been conducting on-site laboratory-grade testing for some time. The Swiss model, implemented by state-run organisation Contact Bern, involves a van fitted with one HPLC unit.\textsuperscript{74} The mobile laboratory can be driven to raves and festivals, and can handle five to six samples an hour.\textsuperscript{75} The Austrian model, implemented by University of Vienna-run organisation Checkit! equips on-site booths with two HPLC units, with similar testing capacity to the Swiss model.\textsuperscript{76} Theoretically, the equipment could fit into a suitcase, as shown in Figure 3.

*Operational requirements*

GC, GMCS and HPLC require high technical qualification. TLC requires some training, but advanced chemical expertise is not needed.\textsuperscript{77} Dr David Caldicott, Emergency Consultant at the Emergency Department of Calvary Hospital, Canberra, has been in

\textsuperscript{73} EMCDDA.


\textsuperscript{75} Ibid.


\textsuperscript{77} European Monitoring Centre for Drugs and Drug Addiction.
discussion with a number of toxicologists willing to administer the tests, some of whom on a voluntary basis.\textsuperscript{78}

\textit{Costs}

The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) reported the cost of a GC unit as EU10,000-30,000; GCMS as EU30,000-120,000; HPLC as EU20,000-40,000 and TLC as EU1,000-5,000.\textsuperscript{79} Contact Bern had an annual budget of EU71,000, and was funded by the Social and Health Department of the Canton of Bern.\textsuperscript{80} Checkit! had an annual budget ranging from EU100,000-500,000, depending on the number of sites serviced. Funding was provided by the Austrian Ministry of Health, and included two full-time and two part-time salaries.\textsuperscript{81} Annual budgets for 8 European pill testing programs are shown in Figure 4.

\textbf{Figure 4}

\begin{table}[h]
\centering
\begin{tabular}{|l|c|}
\hline
Project & Annual budget (EURO) \\
\hline
EnergyControl Barcelona & 50,000 \\
Contact Bern & 71,000 \\
DIMS Utrecht (stationary) & 507,000 \\
Mission XBT Paris & 380,000 \\
Eve & Rave Berlin & 15,000 \\
Eve & Rave Switzerland & 25,000 \\
Techno Plus Paris & 400,000 \\
Check it! Vienna & 145,000 \\
\hline
\end{tabular}
\caption{Annual budgets for 8 European pill testing programs.}
\end{table}

Source: EMCDDA

\textbf{Is pill testing effective?}

There are positive indications that pill testing minimises risky consumption.\textsuperscript{82} Two thirds of users who were informed by Checkit! chose not to consume their drugs, and told their friends not to either.\textsuperscript{83} In Australia, 76\% of participants in a

\textsuperscript{78} Telephone conversation with Dr David Caldicott.
\textsuperscript{79} Ibid.
\textsuperscript{80} Allemann.
\textsuperscript{81} Bohannon.
\textsuperscript{82} Tregoning, 12, see above n 60.
\textsuperscript{83} Ibid; cf Harald Kriener and Ralf Schmid, ‘Check Your Pills. Check Your Life. Check It! High quality on-site testing of illicit substances: Information, counseling and safer use measures at raves in Austria’,
hypothetical study reported they would not take a pill with ‘unknown’ substances in it. A considerable majority expressed interest in pill testing becoming more widely available (63%). In relation to GHB in particular, onsite testing has further application, as it can detect whether GHB is present in a sample of alcohol, protecting against ‘spiking’ and ‘date rape’.

3.2 Proposal 2: Monitoring

Methodology

An alternative harm reduction approach is the establishment of an early warning system through regular monitoring of the drug market. Purity, adulteration and novel illicit substances would be tracked, so that relevant warnings as to current trends could be relayed to the public. Monitoring is effective because when dangerous substances are made the subject of public warnings and campaigns, they are often eventually eliminated from the market.

Model for Victoria: Dutch Drugs Information and Monitoring System (DIMS)

The Dutch Government established DIMS in 1992. It is the only scheme to date that regularly and systematically collects information about the drug market over an extended period of time. It operates under the auspices of the Minister of Health, Welfare and Sports. Testing facilities are located nationwide at drug treatment and

quoted in Alison Ritter and Jacqui Cameron, 2005, Monography No. 6: A systematic review of harm reduction, Turning Point Alcohol and Drug Centre.


Ibid.


Ibid, 8.

Presentation entitled ‘DIMS and the practice of the Early Warning System in the Netherlands’, delivered by Raymond J.M. Niesink, Head Toxicologist for DIMS and Dutch contact EWS, at
support centres. Pills presented at these offices are taken to laboratories for analysis, and then results are disseminated to the public via the Trimbos Institute and DIMS website, as indicated in Figure 5.

Figure 5: Flow diagram of the Drug Information Monitoring System (DIMS)

Harm reduction impacts of drug monitoring

Lessons from the case of Stefan Woodward
On 5 December 2015, Stefan Woodward died after taking ecstasy at the Stereosonic Music Festival. He had taken ‘pink dollar sign’ pills, which were subsequently reported to have contained PMA. On 16 August 2015, pillreports.com, a website on which users post information about pills they have taken or tested with reagent kits, warned that the ‘pink dollar sign’ pills contained PMA. This case demonstrates the need for a public early warning system, so that information such as this, which may have only been known by those familiar with the website, can reach as many people as possible.
Lessons from the case of the ‘Superman’ pills

On 19 December 2014, DIMS issued a nationwide televised alert warning people that a batch of pills with Superman logos contained PMA. Nobody in the Netherlands was harmed, but four people in Britain died from those pills that season. Public Health England knew of the Dutch warning, but did not publicise it, prompting calls for the establishment of an official early warning system in the UK.  

Impact of monitoring on the drug market

Illicit drug monitoring has the capacity to affect the nature of the market. Compared with the rest of the world, Dutch pills result in consistently fewer warnings, and the Dutch market contains more MDMA-only pills than any other country. Vogels et al conducted a study in 2009 on the impact DIMS had on the prevalence of dangerous substances in the Dutch ecstasy market. Thirty cases of PMA were identified in 2001, and 8 in 2002, and then from 2003 until the conclusion of the study in 2009, there were no reports of PMA. Similarly, the number of tablets containing amphetamines from 2000-08 was considerably lower than in the period before 2000. This can be explained partly by availability and supply of ingredients: 1997 and 2009 saw shortages of MD-type substances, and as a result pills contained many other psychoactive substances. However, whilst PMA was prevalent during the first shortage in 1997, it was absent during the second in 2009. The ‘bad publicity’ pill manufacturers receive when their drugs are found to be contaminated influences them to stop using those ingredients.

96 Project Know, see above n 3.
97 Vogels, 5.
98 Ibid.
99 Ibid, 8.
101 Alison Ritter, ‘Six reasons why Australia should pilot ‘pill testing’ party drugs’, National Drugs and Alcohol Research Centre (NDARC), UNSW Faculty of Medicine, NSW, accessed at <https://ndarc.med.unsw.edu.au/blog/six-reasons-australia-should-pilot-‘pill-testing’-party-drugs> on 30 March 2016.
Utility of drug monitoring for health and law enforcement purposes

Dr George Braitberg, Director of Emergency Medicine and Professor of Toxicology at Royal Melbourne Hospital, describes the need for ‘toxico-surveillance’, which allows for the health sector to both prepare for the season ahead by knowing what substances it will likely encounter, as well as assist with diagnosis and treatment of users presenting at first aid tents or emergency rooms. Additionally, doctors can also contribute to data collection as well, because of their access to pills for testing. In the ACT, Dr Caldicott established the ACT Investigation of Novel Substances Project (ACTINOS), which allows doctors to send drugs presented to them by people admitted to hospital for laboratory testing. Monitoring also supplements information gathered by police drug seizures. For example, no substances have yet been found by Dutch police not already known by DIMS.

Implementation of drug monitoring in Victoria

DIMS utilises a network of publicly accessible testing offices. Drug treatment and support centres are good places to establish these offices because users already trust those facilities. However, there are major legislative hurdles to overcome in order for this to be adopted. At present, no drug support services are permitted to have drugs on-site, and no support workers are permitted to be present when a person is using drugs. Further, some workers at these facilities question whether users of drugs of addiction such as heroin or ice would be willing to drop off their drugs for monitoring purposes, and whether they would be prepared to wait for the results.

102 Telephone conversation with Dr George Braitberg, Director of Emergency Medicine and Professor of Toxicology at Royal Melbourne Hospital, on 26 May 2016.
103 Tregoning, submission to NSW Department of Premier and Cabinet, 16, see above n 60.
104 Brunt, see above n 100.
105 Interview with cohealth Community Health Services staff: Sally Mitchell, Executive Director, Community Mental Health, AOD and Homelessness; Moses Abbatangelo, Senior Manager AOD Response; and Danny Jeffercote, Program Manager, AOD Response West, on 26 May 2016.
106 Ibid.
3.3 Proposal 3: Publication of data from police seizures

Victoria Police conducts some of the most extensive forensic and toxicological analyses of the drug market in Australia. Originally, the information was intended for dissemination to users and the public, however that does not happen today. According to Greg Denham, that may be due to the perception that dissemination of such information might be seen as condoning, promoting or facilitating drug use. However, he argues that publication of police data does not raise the same moral issues as pill testing: compilation of the data does not involve the commission of an offence, and the information could be put to better use if disseminated to a broad range of stakeholders rather than simply kept for police intelligence alone.

Dr Monica Barratt, Research Fellow at the National Drug and Alcohol Research Centre (NDARC), notes that data gathered by Victoria Police would not be as comprehensive as DIMS, because it only relates to a fraction of the market, namely seized pills. Nevertheless, she argues publication would still be beneficial, as it would equip health professionals with more information, and it could still see some specific warnings issued if a batch of seized pills was found to contain PMA, for instance.

This would be in keeping with the National Drug Strategy (NDS), which recognises the need for “longstanding partnerships between the health and law enforcement sectors... all levels and parts of government, the non-government sector and the community”.

Publication of police data in relation to seized drugs represents a simple and practical solution that does not necessitate any changes in current policy or legislation, and does not raise the same ethical or legal issues as pill testing or monitoring.

---

107 Interview with Greg Denham.
108 Ibid.
109 Interview with Dr Monica Barratt.
PART 4: IMPLEMENTATION AND EVALUATION

Current Policy Context

Australian drug policy rests on three pillars: supply reduction, demand reduction and harm reduction. The National Drug Strategy (NDS) attributes equal importance to all pillars. At present, law enforcement receives the most resources. In 2010, law enforcement constituted 66% of overall federal drug expenditure, followed by 21% for treatment, 9% for prevention and 2% for harm reduction. In 2013, law enforcement spending was at 64%, treatment was at 22%, prevention was at 9.6%, and harm reduction was at 2.2%.

4.1 Legislative Issues

In Victoria, it is an offence to possess drugs of dependence. There are two ways in which those issues can be addressed.

Option 1: Police tolerance

Australian law enforcement will support proven harm reduction measures. Police do not arrest people outside NSPs or addiction clinics because they understand the need for these services. They also frequently exercise discretion, such as choosing

---

115 Drugs Poisons and Controlled Substances Act 1981 (Vic) s 73. For a list of drugs of dependence, see Schedules 9 and 11.
116 Nicholas, see above n 15.
117 Interview with cohealth staff.
to caution rather than charge people apprehended with small amounts of cannabis.\textsuperscript{118} Many stakeholders believe that police may be similarly supportive of pill-testing measures, if convinced of their effectiveness.\textsuperscript{119} Similar to NSPs, DanceWize, a harm reduction organisation that provides on-site support to festivalgoers, reports that police choose not search people in and around its booths at music festivals, so as not to interfere with its services, and believes police might theoretically exercise similar discretion in relation to pill-testing booths.\textsuperscript{120}

Victoria Police’s official position on pill testing is that it supports the three pillars of supply, demand and harm reduction, but feels there is limited information available in Australia on the effectiveness of pill testing:

> Whilst testing may be able to indicate the possible existence of a drug, it may be unable to provide a clear identification of a particular drug, or information on drug purity, toxicity or other components present in the sample.\textsuperscript{121}

For the full statement, see Appendix 4.

\textit{Option 2: Legislative accommodation}

Some argue pill testing should be supported legislatively, to ensure its continuity and to prevent liability or ethical issues arising from advice given.\textsuperscript{122} This would also help protect sworn officers from being placed in difficult positions due to a lack of adequate guidelines.\textsuperscript{123}

The \textit{Drugs Poisons and Controlled Substances Act 1981 (Vic)} (‘The Act’) already authorises certain individuals and testing facilities to handle drugs of dependence.

\textsuperscript{118} Telephone conversation with members of harm reduction advocacy body on 28 April 2016 (names of participants and organisation withheld).

\textsuperscript{119} Interviews and telephone conversations with Greg Denham, Dr David Caldicott and Dr Will Tregoning.

\textsuperscript{120} Interview with Stephanie Tzanetis.

\textsuperscript{121} Email correspondence with Victoria Police Drug and Alcohol Strategy Unit, on 26 April 2016 and 5 May 2016.

\textsuperscript{122} Interview with Dr Monica Barratt.

\textsuperscript{123} Interview with Stephanie Tzanetis.
Section 13(1) lists a number of these individuals, such as medical professionals or law enforcement officers, and subsection (baa) authorises “any person employed or engaged by a declared testing facility” to possess a drug of dependence “to the extent that the possession is required for the purpose for which the drug of dependence .... has been supplied to the facility”. Authority to nominate approved testing facilities is given to the Chief Commissioner of Police under s 97. Section 98 lists the reasons for authorisation of a testing facility as ‘substance profiling’, ‘analytical testing’ and ‘research’. Section 98(4) also requires that the person in charge of the facility “must arrange for the thing to be returned to, or collected by, the Victoria Police as soon as practicable after the purpose for which it was supplied has been carried out”.

Thus, the legislation seemingly provides for the authorisation of pill-testing facilities, whether for the purposes of on-site testing or market monitoring. Further study may be required to determine whether testing facilities would be able to receive samples from unauthorised persons, and if not, then other options, such as a ministerial directive providing such authority to testing facilities may need to be explored.

Another option is to exempt facilities from possession laws specifically for harm reduction purposes. The Drug Summit Legislative Response Act 1999 (NSW) provided such an exemption for the King’s Cross Medically Supervised Injecting Centre (MSIC) in s 36N. It has since been repealed, but serves as precedent nonetheless. However, this exemption would require the drafting of new legislation in Victoria.

### 4.2 Practical Issues

**Reagent-based testing**

The limitations of reagent-based testing have been discussed in detail above. Its main utility is in identifying whether a substance does indeed contain MDMA, and thus is geared more towards ensuring consumer satisfaction than consumer safety.
As a harm reduction measure, it is extremely limited in the number of substances it can identify, and by the fact that it cannot provide information as to purity.

**On-site laboratory-grade testing**
Achieving the ‘gold standard’ of substance identification is time consuming. Furthermore, identification of novel illicit substances requires an extensive database with which to cross-reference results. Therefore, it is imperative that tests be administered by people with the necessary expertise. Furthermore, it is difficult to predict what effect illicit substances will have on particular individuals, given the uncontrolled, unregulated and untested nature of the market. Thus, whilst laboratory-grade testing can provide information about the drug itself, that information must still be conveyed in an appropriate way.

On-site laboratory-grade tests can sometimes be time consuming, and users must be aware that results are not instant. However, the experience of workers at DanceWize suggests that this will not deter people from using the service, and further, the wait-time presents a good opportunity to offer counseling or advice services. DanceWize already offer these services, and have the trust of the festivalgoer community.\(^{124}\) The prevalence of polydrug use in the party scene, as well as the dissonance between users’ and governments’ perception of the harms caused by party drugs,\(^{125}\) highlight the utility of advice or counseling services for party drug users.

Individual chromatography and mass-spectrometry units are costly, and this cost is compounded by the need for highly technically qualified operators. That cost should be compared with the cost of the alternative measure currently in place, namely the sniffer dog program. However, special chromatography or mass-spectrometry units are not required for pill testing, and thus the cost of the instruments could be avoided if equipment was sourced or borrowed from institutions such as

---

\(^{124}\) Interview with Stephanie Tzanetis.

universities, as is the practice in Vienna. Further consultation with universities or scientific institutions is needed to determine whether this is feasible.

**Drug-monitoring network**
International experience has shown that drug-monitoring offices are most appealing to users if they are not connected with law enforcement. Drug support or outreach centres seem an appropriate place at which users can deposit pills for testing. However, workers in this sector have raised numerous concerns. Principally, they are concerned about the legal hurdles, as at present they are not authorised to come into contact with illicit substances. Thus, either provision must be made for the protection of these workers from prosecution, or an independent body of authorised persons for the purposes of the Act be established, to receive deposited substances and deliver them to a central laboratory.

**Other practical considerations**
Notifications, alerts and advice should never attest to the safety of a particular drug or brand of drugs; they should only warn of known or suspected dangers. Caution must be had to ensure that no user is ever given the impression that drug use is ‘safe’. Further, public campaigns must make clear that absence of a warning does not attest to the safety of any particular drug.

Some festival organisers are concerned about the effect pill testing might have on the image of their events. ¹²⁶ Tim Harvey, director of the Rainbow Serpent music festival, supports pill testing but understands these concerns. He supports pill testing because of expert views of those such as Dr Caldicott that it is an effective harm reduction measure. He claims many organisers share this view, but are uncomfortable saying so publicly. If pill testing was to receive public support, Harvey argues these concerns will subside. Some organisers may not wish to be amongst the

¹²⁶ Interview with Stephanie Tzanetis.
first to adopt pill testing, but Harvey believes that they will embrace the measure as cultural attitudes towards it shift over time.¹²⁷

4.3 Moral Issues

Does pill testing support an illegal activity?

Studies have shown the effect of pill testing and monitoring schemes on overall drug use to be neutral - that is, overall use neither increases nor decreases.¹²⁸ In the Netherlands, for example, use has remained stagnant since the establishment of DIMS.¹²⁹ Some claim this research can be misleading – those who test their pills are inherently cautious, and may thus have chosen not to consume anyway.¹³⁰, ¹³¹ However, the upshot is that pill testing and monitoring do not promote or increase drug use,¹³² and the principle of harm reduction thus mandates that use reduction should not be the overriding consideration.

There is still a conceptual element to the argument, that it is inappropriate to officially accept or legitimise drug use in any way. However, Professor Alison Ritter distinguishes between morality and legality, and argues that laws in liberal democracies exist to protect people from harm, not to legislate on matters of personal moral virtue.¹³³

¹²⁷ Telephone conversation with Tim Harvey, Director of Rainbow Serpent Music Festival, on 6 June 2016.
¹³⁰ Nicholas, see above n 15.
¹³¹ Email communication with Dr Nigel Beck.
¹³² Michael J Brennan and John Davidson, Inquiry into Amphetamines and Other Synthetic Drugs (AOSD), submission to Parliamentary Joint Committee on the Australian Crime Commission, Parliament House: Canberra, 22 February 2006, 10.
Are consumer rights legitimate in an illicit market?
Another argument is that pill testing can also serve as a form of quality assurance for consumers in an illicit market. This argument is most pronounced regarding reagent-testing, as reagent-testing is most useful for determining whether MDMA is present, but is ineffective in identifying content or purity, the factors that lead to harm. However, laboratory-grade testing is effective in determining those factors. Therefore, whilst official support for reagent-based testing might not be acceptable, laboratory-grade testing arguably is.

Is the cost justified?
In 2002, the Commonwealth Department of Health and Ageing predicted the return on investment for NSPs to “exceed manyfold the original investment”. This correlated with the finding that $122 million spent on NSPs between 1988 and 2000, which prevented an estimated 29,500 HIV- and AIDS-related deaths, amounted to an estimated saving of $2.4 billion. Similar findings have been made in Canada: it was estimated that CAD$1 spent on treatment would achieve the reduction of flow of cocaine as CAD$7.3 spent on enforcement and CAD$10.8 spent on border control. However, drug advocates stress that the overriding concern is whether lives are saved, and economic data alone should not drive drug policy.

137 Telephone conversation with members of harm reduction advocacy body, see above n 118.
PART V: RECOMMENDATIONS

Recommendation 1:
The PAD Dog Program be discontinued at music and party events and festivals.

Recommendation 2:
On-site laboratory-grade pill testing be made available at sites where widespread drug use is known to occur, specifically music events and festivals.

Recommendation 3:
On-site laboratory-grade testing be conducted using chromatography and mass-spectrometry, as advised by experts.

Recommendation 4:
On-site laboratory-grade testing be administered by properly-trained experts.

Recommendation 5:
Sale or supply of reagent-based testing kits be officially discouraged, and any use of reagents in on-site testing be by properly-trained experts.

Recommendation 6:
Universities be consulted about availability of laboratory-grade testing for on-site use, as well as possibilities for further collaboration.

Recommendation 7:
Users of on-site testing facilities be made to answer a questionnaire or participate in an interview, as deemed fit by a trained drug support worker.

Recommendation 8:
An early warning system be established with data collected from on-site testing, systematic monitoring and police seizures.
**Recommendation 9:**
A comprehensive drug-monitoring network be established based on the Dutch model, where the public has an opportunity to present drugs for testing at various locations, which will send the deposits to a central laboratory for analysis.

**Recommendation 10:**
Further study be conducted into the legality of doctors receiving drugs from patients presenting at hospitals, to be then sent to a central laboratory for analysis.

**Recommendation 11:**
The data collected by Victoria Police from seized pills be made available to the health sector and other relevant support services.

**Recommendation 12:**
The data collected by Victoria Police from seized pills be used to issue public warnings about dangerous substances or trends in the drug market.
Where to from here?

Further research is needed to assess costs of the proposals in an Australian context, as well as methods of implementation. It may be appropriate to establish a sub-committee to investigate the efficacy of the measured proposed by this report, including expert advice in the area of law and public health, as well set guidelines for effective evaluation of the proposals’ performance. A pilot program may be necessary to establish practical requirements of implementation.
APPENDICES

Appendix 1: Reagents
Source: tripproject.ca

The three most common types of reagents are the Marquis reagent, the Mandelin reagent and the Mecke reagent. In all three reagents, a substance is mixed with concentrated sulfuric acid. In the Marquis reagent, it is mixed with formaldehyde; in the Mandelin reagent it is mixed with ammonium metavanadate; and in the Mecke reagent it is mixed with selenous acid.

Each reagent is able to identify only certain substances, and the difference between them lies in which substances they can identify. All three tests are able to identify MDMA, MDEA and MDA, from which they turn dark purple. The Mecke reagent does not react with methamphetamines, but does detect the psychedelic substance 2C-T (4-methythio-2,5-DMPEA) and amphetamine-type substance 4-MEC (4-methylethcathinone), which the other reagents do not. The Mandelin reagent is the only reagent that can identify ketamine and the toxic substance PMA, but cannot identify DXM or opiates, which the other two reagents can.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Mandelin</th>
<th>Marquis</th>
<th>Mecke</th>
<th>Simon's</th>
<th>Robadope's</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDMA</td>
<td>dark purple</td>
<td>dark purple</td>
<td>dark purple</td>
<td>blue</td>
<td>no reaction</td>
</tr>
<tr>
<td>MDEA</td>
<td>dark purple</td>
<td>dark purple</td>
<td>dark purple</td>
<td>blue</td>
<td>no reaction</td>
</tr>
<tr>
<td>MDA</td>
<td>dark purple</td>
<td>dark purple</td>
<td>dark purple</td>
<td>no reaction</td>
<td>red</td>
</tr>
<tr>
<td>Methylene[2]</td>
<td>yellow</td>
<td>brown</td>
<td>orange/brown</td>
<td>blue</td>
<td>no reaction</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>dark green</td>
<td>orange/brown</td>
<td>no reaction</td>
<td>blue</td>
<td>no reaction</td>
</tr>
<tr>
<td>Amphetamine</td>
<td>dark green</td>
<td>orange/brown</td>
<td>no reaction</td>
<td>red</td>
<td>red</td>
</tr>
<tr>
<td>PMA</td>
<td>green to brown</td>
<td>no reaction</td>
<td>no reaction</td>
<td>no reaction</td>
<td>red</td>
</tr>
<tr>
<td>Ketamine</td>
<td>orange/brown</td>
<td>no reaction</td>
<td>no reaction</td>
<td>no reaction</td>
<td>red</td>
</tr>
<tr>
<td>2C-B[2]</td>
<td>no reaction</td>
<td>green</td>
<td>yellow/brown</td>
<td>no reaction</td>
<td>red</td>
</tr>
<tr>
<td>2C-I[2]</td>
<td>no reaction</td>
<td>yellow to brown</td>
<td>no reaction</td>
<td>no reaction</td>
<td>red</td>
</tr>
<tr>
<td>DXM</td>
<td>no reaction</td>
<td>grey with smoke</td>
<td>yellow</td>
<td>no reaction</td>
<td>no reaction</td>
</tr>
<tr>
<td>Opiates</td>
<td>no reaction</td>
<td>grey with smoke</td>
<td>yellow</td>
<td>no reaction</td>
<td>no reaction</td>
</tr>
<tr>
<td>2C-T-xx</td>
<td>no reaction</td>
<td>no reaction</td>
<td>yellow to purple</td>
<td>no reaction</td>
<td>no reaction</td>
</tr>
<tr>
<td>4-MEC</td>
<td>unknown</td>
<td>no reaction</td>
<td>light green</td>
<td>unknown</td>
<td>unknown</td>
</tr>
</tbody>
</table>

Source: tripproject.ca
Appendix 2: Australian Pill Testing Pilot
Source: Andrew M. Camilerri and David Caldicott

In 2004, the harm reduction advocacy group, Enlighten, was able to perform pill testing at a South Australian rave, using reagent-based testing, with the understanding of local authorities. The project had a dual focus: to assess the effectiveness of onsite testing, and provide an insight into the South Australian drug market. The tests were conducted with the Marquis and Mandelin reagents, and the results were later compared with a laboratory-grade analysis conducted by Forensic Science South Australia (FSSA) of a scraping from the same pills. The trends observed in the tested pills were also compared with trends observed through police pill seizures.

The pill testing booths were staffed by volunteers from Ravesafe, a South Australian organisation respected by festivalgoers for the support it provides people suffering bad experiences from drugs. Individuals were asked if they would like to participate in the study, which would involve small samples of their pills being subjected to two separate onsite tests, and a further laboratory test at a later time. The pill was then handed to a member of Enlighten, who recorded its shape, colour and ‘logo’. Three separate scrapings were taken from the pill, and then the pill was returned to the user. One scraping was used for a Marquis reagent test, one for a Mandelin reagent test, and one was sent to FSSA for laboratory analysis.

For the onsite testing, the scrapings were placed onto a clean white tile, and subjected to 1-2 drops of either the Marquis or Mandelin reagent. The colour was recorded, interpreted and its implications explained to the user. Every user was told that testing did not mean pills could be deemed safe, and that the tests were limited by the fact that they could not indicate strength or purity. The Enlighten volunteers then discussed with the users the impact the test had on them.
Appendix 3: Chromatography and mass-spectrometry

Gas Chromatography
Sources: EMCDDA, Compendium of Chemical Terminology

In gas chromatography, the test sample is injected into a compartment filled with an inert gas, such as helium or nitrogen. An inert gas is a stable gas that won’t react to the test sample. Upon injection, the sample is vapourised into its constituent gaseous components, and those particles are then carried by the inert gas as it passes through a long, coiled tube known as the separation column. The column is lined with liquid, so that the speed with which the sample particles travel through the column will be determined by their degree of interaction with liquid. Thus, small particles that interact less with liquid than with gas will pass through the middle of the column at a much greater speed than larger particles, or particles that interact more with liquid and therefore travel along the sides of the column. When each particle reaches the end of the column, it passes through a detector system, and a ‘peak’ is recorded by the chromatogram and displayed on the outside of the chromatograph machine. The peaks identify each component of the sample drug, as well as the speed or intensity with which those components passed through the chromatograph.

Gas chromatography-mass spectrometry
Sources: EMCDDA, Compendium of Chemical Terminology

Mass spectrometry identifies chemical substances by sorting them according to their mass-to-charge ratios. That is, particles are electrically charged so that they can be affected by magnetic fields, and are then deflected by the magnetic field as they pass through the chromatographic column. The lighter the particles, the more they will be deflected, in the way a ping pong ball would be deflected further by a gust of wind than would a cannonball. The combination of GC with MS allows for a greater number of the sample particles’ characteristics to be analysed, and is thus considered to be the ‘gold standard’ for pill testing.

This is a diagram of the GCMS procedure:

![Diagram of GCMS procedure](source: lookfordiagnosis.com)
This is a diagram of the peaks as they are recorded on the chromatogram:

![Diagram of peaks on chromatogram](source: blogs.acdlabs.com)

**High performance liquid chromatography**

Source: EMCDDA

HPLC, unlike GCMS, is able to easily test for thermolabile substances onsite. Thermolabile substances, or substances that cannot be evaporated, must first undergo a chemical reaction known as derivatisation, which must be performed in a laboratory because of its complexity and the time needed for completion. As a result, pill-testing regimes often incorporate HPLC as well, which is able to test thermolabile substances. HPLC operates on the same principle as GC, but uses liquid to carry the test particles through the column rather than gas.

**Thin-layer chromatography**

Source: EMCDDA

For TLC, the sample is placed on a glass or plastic plate coated with a thin layer of finely ground absorbent, such as a gel. The components of the sample will separate based on their differing degrees of interaction with the thin layer of absorbent. The sample is placed on one end of the plate, and then a solvent rises up the plate by capillary action, similar to the way liquid travels up a straw. When the solvent evaporates, the locations of the separated components are identified by application of a reagent, which forms different colours. The process is quicker than GC, GCMS or HPLC, but provides only coarse identification in comparison with those methods.
Appendix 4: Victoria Police Statement on Pill Testing
Source: Email correspondence with Victoria Police Drug and Alcohol Strategy Unit

Victoria Police supports the national framework in respect to tackling illicit drugs; being harm minimisation, prevention and supply reduction.

Victoria Police encourages event organisers to consider a range of actions that promote a safe environment where the potential for illicit drug use is high.

There is currently limited data on the effectiveness of pill testing in Australia. Whilst testing may be able to indicate the possible presence of a class of drug, it may be unable to provide clear identification of a particular drug, or information on drug purity, toxicity, or other components present in the sample.

Drug testing raises a number of legal and health issues that require consideration as the supply of illicit substances remains illegal and the consumption of these substances is potentially harmful.
References

Legislation

*Drugs Poisons And Controlled Substances Act* (Vic) 1981 s 82.

*Drug Summit Legislative Response Act* 1999 (NSW)

Government Publications


Legislative Council of Victoria, Parliamentary Question No. 4671: Question on Notice from Ms Colleen Hartland MLC to the Honourable Minister for Police, 9 February 2016.


Books

Interviews

Email correspondence with Victoria Police Drug and Alcohol Strategy Unit, on 26 April 2016 and 5 May 2016.

Interview with Greg Denham, Executive Officer for the Yarra Drug and Health Forum and member of Harm Reduction Australia, on 27 April 2016.

Interview with Dr Alex Wodak, Director of the Drug and Alcohol Service at St Vincent’s Hospital, Sydney, on 28 April 2016.

Telephone interview with members of harm reduction advocacy body on 28 April 2016 (names of participants and organisation withheld).

Interview with Dr David Caldicott, Emergency Consultant at the Emergency Department of Calvary Hospital, Canberra, on 5 May 2016.

Interview with Will Tregoning, Executive Director of Harm Reduction Advocacy Group, Unharm, on 11 May 2016.

Interview with Dr Monica Barratt, Research Fellow at the National Drug and Alcohol Research Centre (NDARC), UNSW Faculty of Medicine, on 12 May 2016.

Interview with Nick Wallis, Director of Enpsychedelia Drug Advocacy Group, on 12 May 2016.

Interview with Stephanie Tzanetis, DanceWize Coordinator, on 23 May 2016.

Telephone conversation with Dr George Braitberg, Director of Emergency Medicine and Professor of Toxicology at Royal Melbourne Hospital, on 26 May 2016.

Interview with cohealth Community Health Services staff: Sally Mitchell, Executive Director, Community Mental Health, AOD and Homelessness; Moses Abbatangelo, Senior Manager AOD Response; and Danny Jeffcote, Program Manager, AOD Response West, on 26 May 2016.

Telephone conversation with Tim Harvey, Director of Rainbow Serpent Music Festival, on 6 June 2016.

Academic Research


**Reports and Submissions**


**Other Publications**


**Newspaper Articles**


**Websites**


Alison Ritter, ‘Six reasons why Australia should pilot ‘pill testing’ party drugs’, National Drugs and Alcohol Research Centre (NDARC), UNSW Faculty of Medicine, NSW, accessed at <https://ndarc.med.unsw.edu.au/blog/six-reasons-australia-should-pilot-‘pill-testing’-party-drugs> on 30 March 2016.