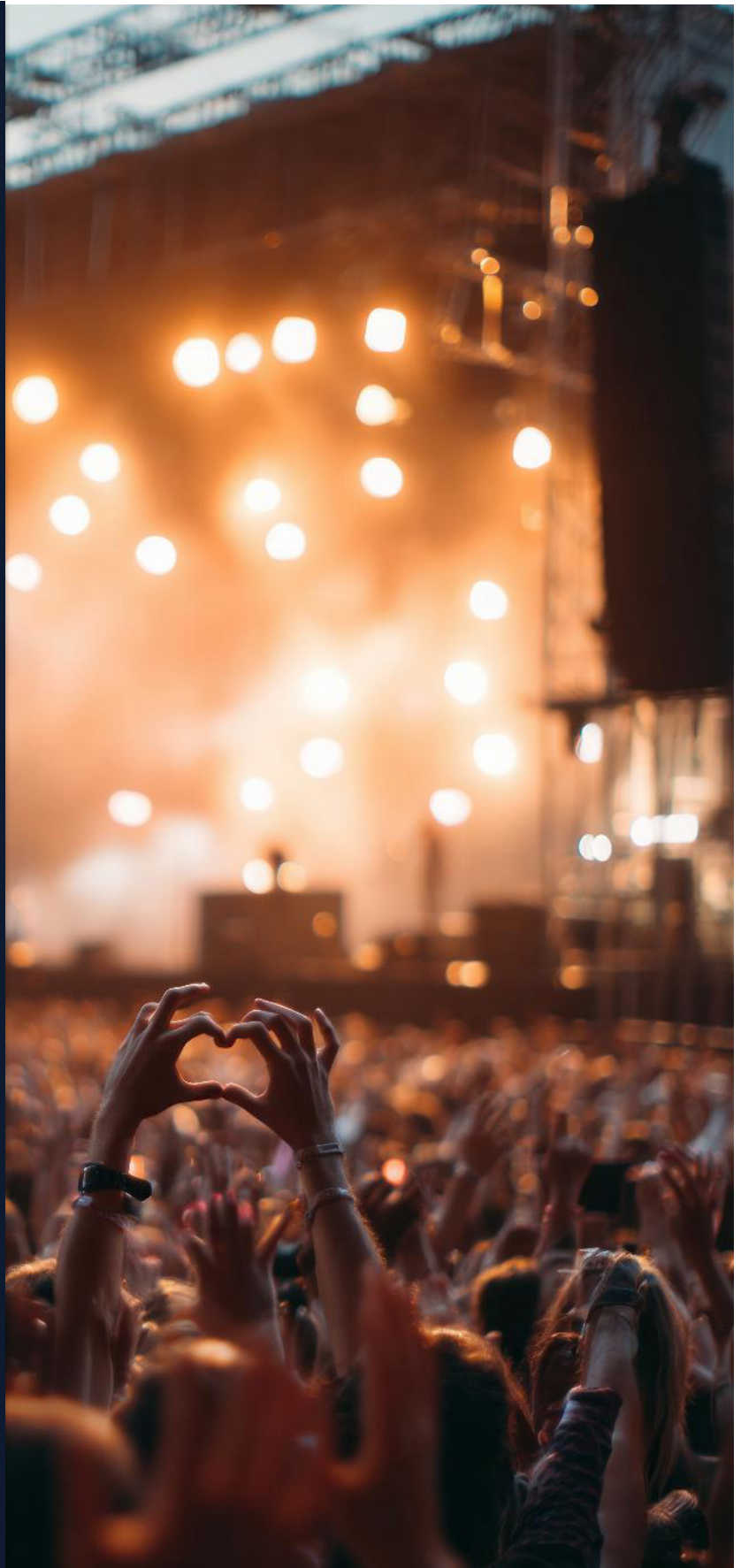




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Evaluation of the New South Wales Music Festival Drug Checking Trial: Final Report



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SYDNEY

Rose Cairns, Jacques Raubenheimer, Steph Kershaw, Rakhee Raghunandan,
Jack Wilson, Emily Stockings, Carolyn Day, Martin Howell & Nick Buckley.
Report prepared for the NSW Ministry of Health by
The University of Sydney, 18 March 2026

We acknowledge and celebrate the Traditional Owners on whose lands The University of Sydney and the NSW Drug Checking Trial operates. We recognise and pay respect to the Elders and communities, past, present, and emerging.

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Authors have no conflicts of interest to declare.

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Abbreviations

ACT	Australian Capital Territory
ATS	Australasian Triage Scale
BOM	Australian Bureau of Meteorology
CanTEST	CanTEST Health & Drug Checking Service
CoSMoSS	Combined Surveillance and Monitoring of Seized Samples program
ECC	Event Control Centre
EDM	Electronic Dance Music
FASS	NSW Health Pathology, Forensic & Analytical Science Service
FTIR	Fourier Transform Infrared Spectroscopy
HMP	Health and Medical Plan (previously known as Safety Management Plan)
ICU	Intensive Care Unit
IQR	Interquartile Range
KPE	Key Peer Educators
LSD	Lysergic Acid Diethylamide
MDA	3,4-Methylenedioxyamphetamine
MDMA	3,4-Methylenedioxymethamphetamine
MSIC	Medically Supervised Injecting Centre
NIR	Near-Infrared Spectroscopy
NSW	New South Wales
NUAA	Now known as NUAA, formerly, the NSW Users and AIDS Association
PRISE	Prescription, Recreational and Illicit Substance Evaluation

Terminology

Detected drug(s): Drug identified by analysts through NIR, FTIR, colour tests and/or test strips.

Discard/ed: Drugs that are discarded in the amnesty bins within the service after the sample was tested.

Drug checking: also known as ‘pill testing’, it is a process where drugs are chemically analysed to identify their content/s. It can help identify unusually strong or contaminated drugs.

Early warning systems: Coordinated activities of stakeholders who attempt to identify, prepare for, and mitigate, rapidly emerging drug-related harms¹.

Harm reduction: Refers to public health measures designed to reduce the negative or adverse effects associated with drug use².

Health and Medical Plan: A mandatory document prepared by music festival organisers that details onsite medical services and harm reduction measures in line with the NSW Guidelines for Music Festival Event Organisers. The HMP details processes for mitigating drug and alcohol related risks to patron safety. Some music festivals are required to have the contents of their HMP agreed upon by NSW Health. This document has been previously known as the Safety Management Plan.

High dose MDMA: Any unit dose (e.g., tablet, capsule) of MDMA containing more than 150 mg of MDMA as free base.

MDMA free base: MDMA dose ranges are defined using the “free-base” amount because this reflects the actual MDMA molecule. The form people usually take (the hydrochloride salt) is heavier due to the attached salt, so using the free-base amount provides a standard way to describe doses regardless of the form.

Naloxone: Medication which can be used to reverse or reduce the effects of opioids (e.g., fentanyl). Provided to patrons as a free nasal spray at NSW music festivals by harm reduction organisations and medical providers. Also accessible via other sources including community pharmacies, needle and syringe programs, and from NUAA via postal supply.

Overdose: When a person’s body is unable to handle the amount of drug or combination of drugs taken and experiences negative effects, also referred to as ‘toxicity’.

Peer worker: a person with lived or living experience of using drugs who utilises their personal experience to provide authentic non-judgmental support, education, and/or harm reduction to their peers.

Sample: A small amount of the drug provided by the service user to be tested by analysts.

Service user: Anyone who visits the service, solely or in a group, for drug checking.

Executive summary

The New South Wales (NSW) Government-led Drug Checking Trial took place over a 12-month period, March 2025 to February 2026 in partnership with NUAA. The event-based drug-checking service provided free, confidential drug checking with peer-led harm reduction advice at 12 festivals with a combined attendance of 311,769 patrons.

The trial aimed to reduce the risk of drug-related harms at music festivals. Service users were able to have small samples of their drugs tested via technology operated by qualified staff from NSW Health Pathology Forensic & Analytical Science Service (FASS). Trained NUAA peer workers guided festival patrons through the service, and provided information and harm reduction advice. Clinicians were available for on-site health advice. The trial operated alongside existing harm reduction and medical services at festivals.

The University of Sydney was commissioned by NSW Health to conduct an independent evaluation of the trial to answer four key evaluation questions.

Did the drug checking service add unique value, when compared to other harm reduction activities already at music festivals?

The drug checking service added unique value to NSW music festival harm reduction activities providing individualised, guided harm reduction advice not available through existing services. Service users demonstrated they valued the service by strong uptake: Over the 12 festivals, 1,846 service users accessed the service, across 1,010 service visits and a total of 1,475 samples brought forward by patrons were analysed. An additional five samples were submitted via the on-site medical centre staff, which informed ongoing management and risk assessment of patients. The majority of service users identified as male and 85.5% were aged under 30 years, a demographic known to be at risk of drug-related harm.

Feedback on sample composition was provided to service users in real time allowing informed decision making. Samples contained an unexpected substance (alone or in combination with the expected substance) in 8.1% of cases. For those whose sample contained an unexpected substance only, 30.0% said they would discard the sample, 37.5% said they would use less, and 7.5% said they would not use the substance. Overall, 4.1% of samples were discarded in on-site amnesty bins. The most commonly detected drugs were MDMA (64.3% of samples), ketamine (19.9%) and cocaine (8.1%). MDMA tablets/capsules were found to be high-dose in 4.4% of cases (>150 mg free base).

Drug checking is more than an analytical process. Trained peer workers guided service users through the process, providing tailored harm reduction and health information (described below). **Service users surveyed at the time of the visit were very satisfied** with the quality of chemical/substance and health information provided. Over 99% rated the overall service as good or very good.

High levels of satisfaction were also seen in the results of an anonymous online questionnaire, where 243 of 333 (73.0%) people reported that they would use the service if it was made available to them in the future, 325 (97.6%) would encourage others to use the service, and 281 (84.4%) believe it to be beneficial.

Stakeholder interviews identified that drug checking allowed people a safe space to talk openly about their drug usage with peers, which is a rare opportunity. These consultations largely occurred *prior* to drug use or pre-consumption, allowing for considered, proactive decision making. This was seen to further enhance the unique benefit above existing harm reduction services, which are largely reactive. Healthcare workers also identified that **drug checking provides an important harm reduction opportunity for people who do not access drug and alcohol services, especially people who use drugs occasionally.**

The existing (status-quo) harm reduction activities include various activities under the *Music Festivals Act*, including pre-assessment, the requirement of a Health and Medical Plan for certain festivals with higher-risk characteristics, presence of on-site peer-led harm reduction services, on-site medical services, and harm reduction messaging (signage, social media, etc). The interviews highlighted that stakeholders see drug checking as a very necessary part of harm reduction and recognise that it is a gap in the harm reduction framework that existed before the trial. However, visibility of the service was discussed across stakeholder groups, with some expressing the need for greater visibility and communication about the service, while others expressed concerns about making it too visible.

Did the drug checking service integrate with and enhance the existing music festival harm reduction activities, and drug surveillance and early warning system?

The drug checking service provided new opportunities for peer-led harm reduction.

Before using the service, 68.5% of service users had never discussed drug use with a health or harm reduction professional. After the service, 96.6% of service users felt confident or very confident in their capacity to reduce the harms associated with using drugs. Most service users indicated harm reduction intentions, primarily spacing out doses (64.0%), drinking more water (59.7%), keeping cool (55.3%), and seeking help if unwell (54.9%). In addition to the intended harm reduction behaviours described above, 21.6% of service users were provided with free take home naloxone.

Analysis from the stakeholder interviews found that peer workers find supporting consumers through the drug checking service rewarding and noted that they believed service users were returning to use the service again at different festivals. It was highlighted that drug checking represented a unique opportunity for peer workers to have candid conversations supported by the objective information from the chemical testing and helped them to speak openly in an informed way. Healthcare workers/providers highlighted the importance of drug warnings and how drug checking has the potential to allow real-time public health alerts to festival patrons reducing drug-related harm, including hospital transports. It also improved on-site care of patients and the allocation of resources.

Respondents of the online questionnaire had a total of 265 of their samples tested by a drug checking service. Respondents reported that drug checking led to a change in their drug use on 195 occasions (73.6%), and further harm-reduction behaviours (e.g., did not use alone, accessed naloxone) following the analysis of 249 (94.0%) samples.

The drug checking service enhanced existing drug surveillance and early warning.

The NSW drug surveillance and early warning system has multiple inputs. Under the status quo, the main surveillance systems that provide rapid analytical information on circulating substances are PRISE (Prescription, Recreational and Illicit Substance Evaluation) and

CoSMoSS (Combined Surveillance and Monitoring of Seized Samples). PRISE receives referrals from treating clinicians where patients show severe, unusual, cluster-based or high-risk toxicities following suspected drug use. This includes any ICU admission or death following attendance at a music festival. CoSMoSS relies on analysis of samples seized by NSW Police under their routine operations.

The patterns of substances detected by the drug checking service, PRISE and CoSMoSS were similar, with MDMA predominating. However, drug checking analysed far more samples (n=1,475) than PRISE (n=16) and CoSMoSS (n=194) for the same festivals during the trial period. The larger sample size increases NSW Health's understanding of circulating drugs in the community and increases the likelihood of detection of rare but dangerous substances. Results are available in under one hour, and can inform drug taking behaviours of the individual who submitted the sample, as well as the broader community. In comparison, PRISE detections rely on someone becoming unwell, and both PRISE and CoSMoSS take at least one day to return results (usually longer).

As evidence of the drug checking service's integration with the existing early warning system, eight of ten public drug warnings released by NSW Health during the trial period were informed by drug checking data. These warnings were issued by NSW Health and amplified by circulation through other organisations and channels, **demonstrating broader system-level impact and contribution to early warning and drug surveillance.**

Was the drug checking service associated with reduced rates of drug-related harms at participating music festivals?

When compared to historical controls (previous editions of the same festival in the preceding two years) there were: **reduced drug-related hospital presentations, and reduced proportion of presentations with a triage category of 1 or 2** (immediate and urgent treatment needed, respectively), and **reduced ICU admissions resulting from festivals where the drug checking service was operating**. Several festivals (Hyperdome, Yours and Owls, Laneway and Mighty Hoopla) were not associated with any drug-related hospital presentations during the drug-checking year. Analysis from the stakeholder interviews identified that there were fewer adverse events and fewer hospital transports observed compared to the same festivals in previous years. There were two confirmed drug-related deaths in 2023, but these cannot be compared to one death in 2024 and one in the trial period as the causes of death are still under investigation by the coroner.

What are the characteristics of music festivals that would most benefit from drug checking?

The following festival characteristics were **identified as most likely to benefit from drug checking**:

- Festivals with electronic dance music (as compared to other styles e.g., pop)
- Large multi-day festivals in regional areas
- Festivals attended by people likely to be drug naïve, particularly young males
- Events held in hot environmental conditions

Similarly, stakeholder interviewers also identified hot environmental conditions, drug naïve/young people, hardstyle/EDM as the characteristics of music festivals that would

benefit most from drug checking. However, the interviews found that both multi-day and single-day festivals were important sites for drug checking and the trial findings may be biased towards multi-day festivals as people have more time to engage with the service. Stakeholders also emphasised the importance of considering and tailoring to the needs of different demographic groups, as well as considering the broader community.

How much did the service cost NSW Health?

To date, the NSW Drug Checking Trial has cost an estimated total of \$786,340 in its establishment year (excluding evaluation costs and incomplete festival-specific costs for the final five festivals). Across the 12 music festivals in the evaluation, a base case cost for the full set up and delivery of the drug checking service (including all one-off capital costs), averaged \$65,529 per festival equating to \$52,423 per festival day. An ongoing-service scenario (excluding capital equipment costs and assuming 50% confirmatory testing rate) provide an indication of likely ongoing operating costs. The average cost per festival under this ongoing scenario is \$46,685 equating to \$37,348 per festival day. **Costs of the drug checking service (festival-specific and total cost per festival) show a downward trend with time across the trial festivals**, reflecting a *'learning period'* with efficiencies gained in logistical and procurement processes, and as service processes stabilised.

Estimated costs per service visit, per sample tested, and per person who attended the service were calculated and included all cost inputs (i.e., not limited to just analytical costs). **The per sample tested cost was \$534 for the base case (set up and operate the service) and reduced to \$380 for the ongoing drug checking service scenario.** The cost per service visit was \$779 (base case) and \$555 (ongoing service), respectively. The cost per person who attended the service was \$426 in the base case and \$304 in the ongoing service scenario.

The above costs from the NSW Drug Checking Trial **compare favourably to similar trials in Queensland and the ACT.** The NSW Drug Checking Trial was an event-based, government-funded service delivered directly by the NSW Government with peer support provided by NUAA. The Queensland and 2018 ACT trials differed in terms of the type of services provided and what was included in the cost estimates. Both the Queensland and 2018 ACT trials were delivered by non-government organisations, and the Queensland trial was a mix of fixed and mobile services. The estimates for the NSW Drug Checking Trial captured all inputs to running the trial, some of which (e.g., cost of spectrometers for event-based services) have not been included in the estimates for the Queensland and 2018 ACT trials.

The cost of existing harm-reduction activities was estimated at an average of \$44,001 per festival during the Drug Checking Trial period. The drug checking service provides additional harm-reduction activities, technical and surveillance capabilities not provided by the existing harm-reduction services. Therefore, it would operate alongside—rather than replace—current harm reduction activities and the cost for the drug checking service (\$46,685 per festival under the ongoing service scenario) would be additional. An economic evaluation that includes short- and long-term outcomes (benefits and harms) to NSW Health and festival patrons, would be required to determine the cost-effectiveness and societal benefit of the additional costs of an ongoing drug checking service.

NSW Drug Checking Trial at a glance

Service summary



92
Service
hours



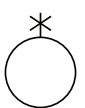
19 minutes
median visit



62.1%
male



33.1%
female



4.8%
non-binary,
other term,
unspecified

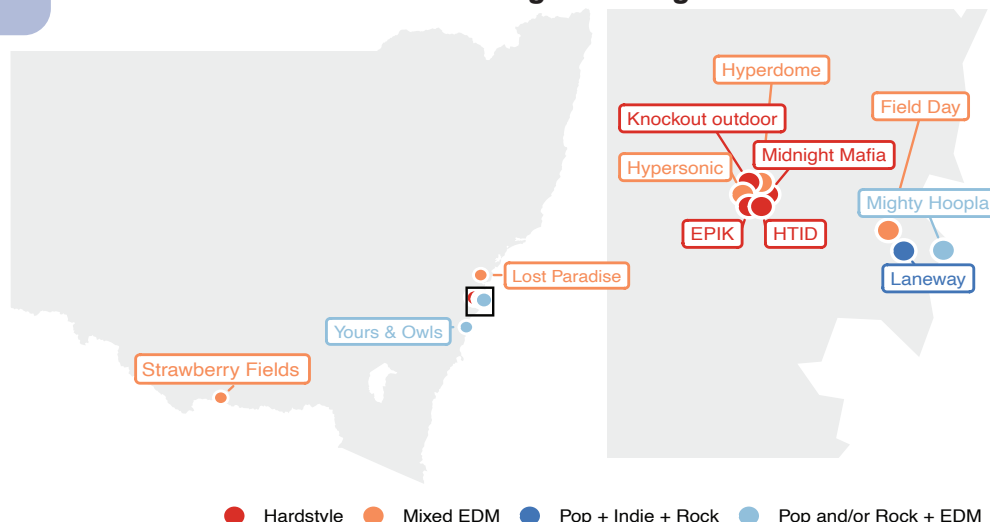
85.5%
aged under 30 yrs

1010 visits

1846 people

84 groups per festival (average)

Mobile drug checking at 12 music festivals



69% had
never discussed drug use
with a health or harm
reduction professional

Drug checking results



1475 samples checked

Drugs most commonly expected:



68%
MDMA



19%
Ketamine



8%
Cocaine

Expectations vs results:



89%
Only the
expected
substance



8%
Unexpected
substance



3%
inconclusive

*In addition to knowing which drug was present,
dose/purity was estimated*

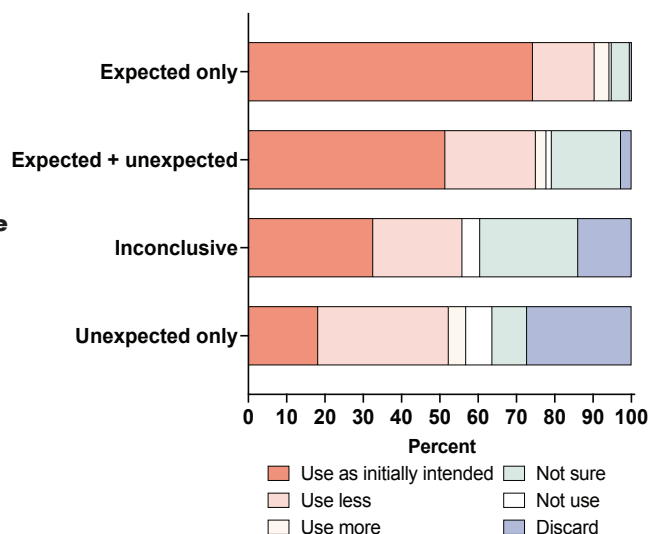


4% of MDMA units
were **high dose**

*Drug checking **changed intended behaviours**, particularly when results were unexpected*



4% of samples
were discarded



NSW Drug Checking Trial at a glance

Harm reduction

Intended harm reduction behaviours



22%
given free
take-home
naloxone

Drug-related health events in trial festivals compared to historical controls, where available

Events per festival day



Hospital presentations **3.6 per day** *vs.* **2.3 per day**



Ambulance transfers **2.7 per day** *vs.* **2.0 per day**



“Immediate” or “Urgent” presentations **1.2 per day** *vs.* **0.7 per day**

ICU admissions **0.9 per day** *vs.* **0.6 per day**

“It has made our events safer... our hospitalisation rate has gone down dramatically”
Festival promoter/organiser

“Let’s get everyone out safe at the end of the festival and home... it’s part of the solution”
Healthcare worker

One third of trial festivals were not associated with any drug-related hospital presentations

Comparing deaths during the trial and control period was not possible due to outstanding coronial investigations

How much did the service cost to run?

\$786,340

total cost of the trial



Cost per sample

\$534 (set up & operate)

vs.

\$380 (ongoing cost)

Cost per festival

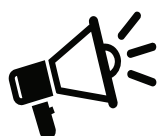
\$65,529 (set up & operate)

vs.

\$46,685 (ongoing cost)



Integration with early warning systems



8 of 10 NSW Health public drug warnings during the trial period were informed by data from drug checking



Warnings about: high dose MDMA, ketamine analogues, synthetic cathinones

Festival-specific costs within the trial decreased with time

Background

Drug use in Australia, with a focus on music festivals

Illicit drug use is increasing in Australia, particularly among young people³. People who attend music festivals tend to have higher rates of drug use when compared to the general population⁴. Drugs most reported to be used at music festivals include 3,4-methylenedioxymethamphetamine (MDMA), cocaine, ketamine, and lysergic acid diethylamide (LSD)⁵. While most drug use at music festivals occurs with minimal consequences, drug-related harms can occur, including death⁶. Drug-related harms are multi-factorial, influenced by a range of factors including drug/s consumed and dose, ambient temperature, help-seeking behaviours, and the availability of peer-based harm reduction and medical services^{5,7-9}.

The illicit drug market is constantly shifting, with the recent emergence of highly potent synthetic opioids (such as nitazenes, fentanyl analogues, orphines)^{10,11}, and novel psychoactive substances¹². Synthetic opioids have been found in substances expected to be stimulants, which are often consumed by people with no opioid tolerance, posing a significant risk of overdose and death¹³⁻¹⁵. In addition, there have been many recent detections of high potency/high dose MDMA circulating in Australia^{16,17}, which increases the risk of overdose, particularly if the person using it is unaware of its potency.

Drug checking

Drug checking services (also known as pill testing services) allow people who use drugs to submit a sample for chemical analysis. The services provide information about the contents of the sample, including chemicals present and their concentration. This is a harm reduction strategy that has been used in at least 26 countries, dating back to the 1990s¹⁸.

Drug checking services operate with various models, including fixed-site, mobile, and postal drug checking services. Fixed-site (permanent location) services have regular operating hours and provide year-round access in accessible locations. Mobile (pop-up) drug checking services set up temporarily at festivals or other events, geared towards immediate risk reduction at an event where people are using drugs. Typically, fixed site and mobile drug checking services also provide harm reduction advice and contribute to early warning systems to monitor illicit drug trends. Postal services allow samples to be submitted by post¹⁸.

Drug checking: the Australian context

Availability of drug checking services in Australia differs by jurisdiction and has changed over time. Mobile drug checking was trialled in the ACT at Groovin' the Moo festivals in 2018 and 2019. CanTEST was Australia's first fixed-site drug checking service, launched in the ACT in July 2022. Queensland's drug checking services operated from selected festivals and two fixed sites from 2024¹⁹ but were closed in April 2025 after government funding was discontinued. A privately funded drug checking service was planned in Queensland but government legislation in September 2025 prevented its opening²⁰. Victoria's first drug checking service started in December 2024 at key festivals, with an additional fixed-site service which opened in 2025.

History of drug checking in New South Wales

Magistrate Harriet Grahame, NSW Deputy State Coroner recommended the implementation of drug checking following a 2019 inquest into the deaths of six young people who had taken drugs at music festivals⁶. In 2020, the NSW Special Commission of Inquiry into the Drug 'Ice' recommended that the NSW Government establish a clinically-supervised fixed-site drug checking service, and trial on-site drug checking at a music festival²¹. On 19th December 2024, the NSW Government announced a 12-month trial of a music festival-based mobile Drug Checking Trial, following recommendations from the NSW Drug Summit Co-Chairs²². The Drug Summit Report recommended that the pilot include: a health and peer workforce, provision of harm-reduction advice, an exclusion zone, and integration with current drug surveillance and early warning²². The service commenced in March 2025 and operated at 12 festivals (Figure 1, map).

Note: in NSW, a four-month fixed-site drug checking trial was conducted in Sydney's Medically Supervised Injecting Centre (MSIC) in April 2024, as part of a research project. A second collaborative trial at MSIC, led by the University of Technology Sydney, launched in October 2025. Both MSIC trials are independent of the government and are out of scope of this evaluation.

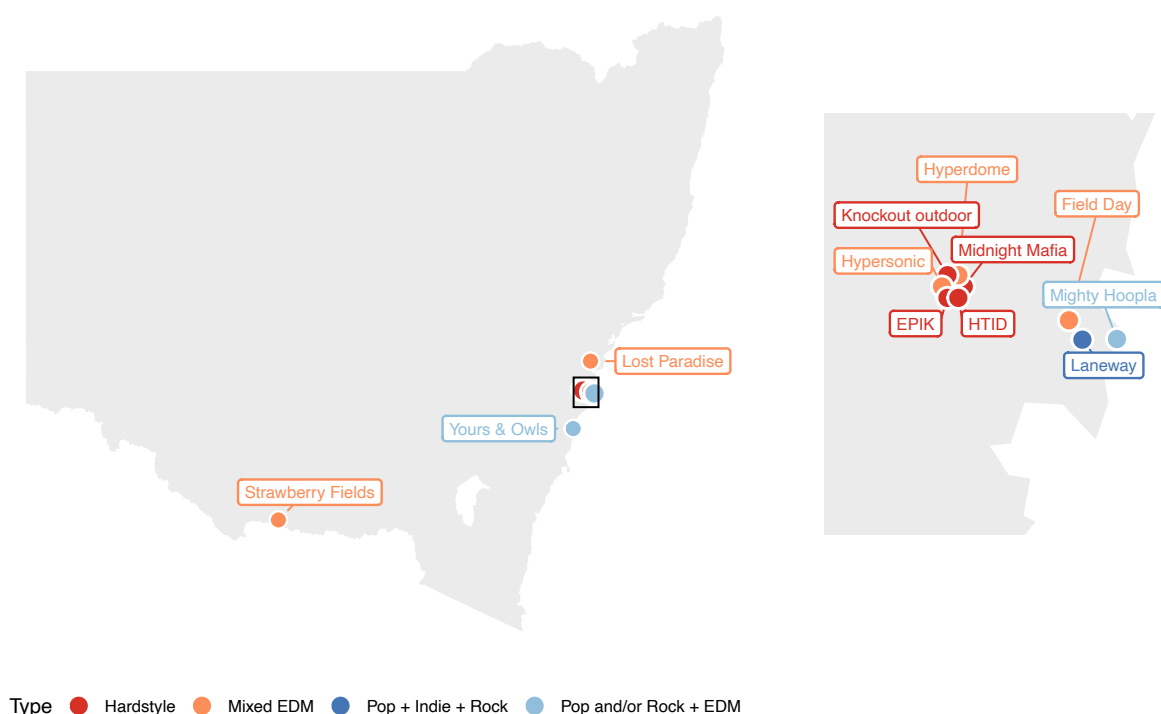


Figure 1 Map of festivals included in the NSW Drug Checking Trial, coloured by music style

The NSW Drug Checking Trial

The NSW Drug Checking Trial aimed to reduce the risk of drug-related harms for festival patrons. This was facilitated by providing accessible information and drug analysis, and harm reduction services. The service was free of charge, funded by NSW Health, and allowed service users to have small samples of their drugs tested, using a mix of technology operated by NSW Health.

Qualified staff from NSW Health Pathology Forensic & Analytical Science Service (FASS) operated the testing technology to provide evaluation of components of the sample and potency when possible. The technology used included a combination of:

- Fourier Transform Infrared Spectroscopy (FTIR)
- Near-Infrared (NIR) spectroscopy
- Test strips (for detection of nitazenes, fentanyl)
- Reagent/colour spot tests (presumptive tests that change colour when added to a certain chemical family)
- Portable handheld Raman spectroscopy (e.g., TruNarc®)

This combination can identify a wide range of drugs and contaminants that are expected in a festival setting. If the main components could not be identified with the on-site equipment, confirmatory testing was conducted at the FASS laboratory after the event. FASS also conducted confirmatory testing for quality assurance and equipment validation purposes. In the first three festivals, almost all samples underwent confirmatory testing, and FASS reported a high level of agreement between on-site testing and confirmatory analyses. For later festivals, confirmatory testing was performed when on-site technology did not provide a comprehensive result, or the sample was escalated for public health assessment. Confirmatory testing was typically conducted using the sample already taken, or if an additional sample was needed, this was done with the service user's permission. Confirmatory testing did not require surrender of the entire substance. Due to the anonymous nature of the service, results of any confirmatory testing were not able to be provided to the user. Concordance of confirmatory testing with on-site results is outside the scope of this evaluation.

Regardless of the result, service users' drugs were not confiscated or destroyed. Amnesty bins were provided for safe disposal if the service user decided to discard the drugs.

In addition to the analysts conducting the testing, the service was staffed by trained peer workers from NUAA who guided festival patrons through the service and provided information and harm reduction advice (Figure 2). Clinicians were also available for on-site health advice. Regardless of the drug checking results, people were provided with harm reduction advice. Additional harm reduction resources were also available (e.g., take-home naloxone), and referrals could be made to on-site or off-site harm reduction and health services (Box).

Information:

- General drug education
- Harm reduction education
- Overdose prevention

Resources:

- Take-home naloxone
- Substance pamphlet
- User's news
- PeerLine card

Referrals:

- Drug checking service medical team
- Peer based harm reduction services (e.g., DanceWize)
- On-site medical centre

Drug Checking Service User Journey

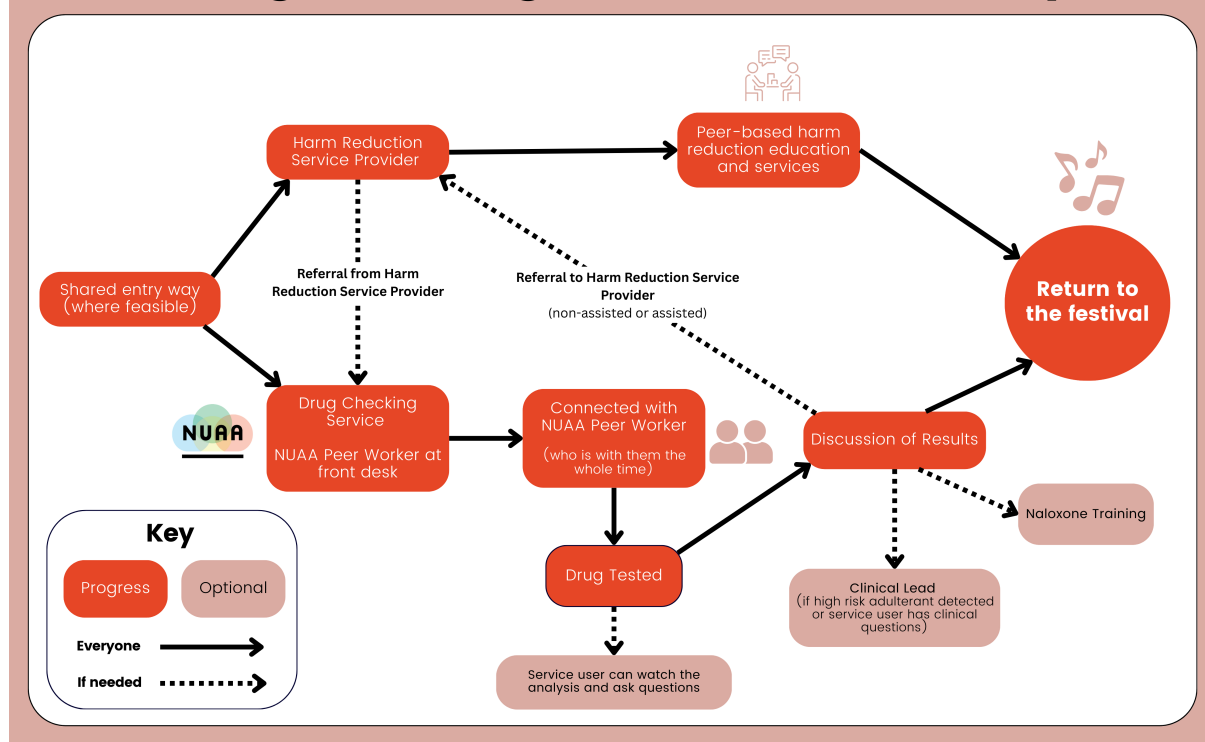


Figure 2 Service user journey for the NSW Drug Checking Trial

The service operated alongside other harm reduction and medical services at festivals. This included the broader NSW Music Festival harm reduction activities²³ which operated under the *Music Festivals Act, 2019*²⁴. An in-depth description of these other activities is outside the scope of this evaluation. In brief, the NSW music festivals response is a multi-agency collaboration, including NSW Health, NUAA, NSW Ambulance, NSW Police Force, NSW Department of Creative Industries, Tourism, Hospitality and Sport, the Cabinet Office, private medical providers, festival organisers and the Australian Festival Association. Music festivals are assessed during the planning stage, and organisers of events where risk factors for drug-related harm are more prevalent are required to submit a Health and Medical Plan. This includes provisions for crowd control, on-site medical services, and peer-based harm reduction services.

The drug checking service also fed into the NSW early warning and drug surveillance systems, which are described in detail elsewhere.²⁵

The University of Sydney was commissioned by NSW Health to undertake an independent evaluation of the NSW Drug Checking Trial, which is presented in this report.

Objectives of the evaluation

The aim of this evaluation is to provide the NSW Government with independent advice on the impacts and value of the drug checking service. This evaluation explores key evaluation questions developed by NSW Health.

Key evaluation questions

1. Did the drug checking service add unique value, when compared to other harm reduction activities already at music festivals?
2. Did the drug checking service integrate with and enhance the existing music festival harm reduction activities, and drug surveillance and early warning system?
3. Was the drug checking service associated with reduced rates of drug-related harms at participating music festivals?
4. What are the characteristics of music festivals that would most benefit from drug checking?

Evaluation Scope

The evaluation took a pragmatic and rapid mixed-methods approach to understanding the system level impacts of the Drug Checking Trial. The evaluation includes an assessment of costs of delivering the service relative to existing NSW music festival harm reduction activities.

The evaluation scope (as confirmed by NSW Health) included the following:

- All music festivals at which the drug checking service operated
- Implementation of the service and integration with existing NSW Health activities
- Early impacts on health and harms for service users and festival patrons
- The impact on harm reduction in NSW
- The cost to NSW Health
- Coordination with NSW Police operations

The following areas were considered out-of-scope for the evaluation:

- Long-term health outcomes
- Market factors or a full economic evaluation
- Linked data analysis.

Methods

Summary of the evaluation approach

This was a mixed methods evaluation of the NSW Drug Checking Trial. The evaluation methodology was developed in consultation with NSW Health and NUA. The evaluation was conducted between August 2025 and March 2026. Full details of the methodology were outlined in the Evaluation Plan.

Data sources

Service and drug checking data

Person level data: service user questionnaire

Non-identifiable information on basic service user demographics, expected contents of drug samples, harm reduction knowledge, provision of harm reduction resources (e.g., take-home naloxone), behavioural intentions and service user experiences of the service were collected at the drug checking service. This includes information entered by peer workers (trained in effective and safe data collection) and service users. Data were entered into a secure, web-based database, REDCap (Research Electronic Data Capture) at the time of service use.

Drug checking data

Results of sample testing were recorded by on-site staff, including which testing technology was used, and results. These data were linked to the person-level data, allowing comparison of drug checking results on the basis of certain demographic characteristics of the service users submitting the samples. Information on whether the sample was observed to be discarded was obtained where known. The number of samples discarded in the amnesty box was provided separately (unlinked to person- or sample-level data).

Note: there were some minor modifications to the service and drug checking data collection instruments over time, these are noted in the report where relevant.

Medical data

To measure the association of the drug checking service with medical outcomes, we compared data from festivals where drug checking operated, to historical data from the same festivals from the previous two years, where available.

Festival medical incident data

The primary analysis of health outcomes used festival medical incident records provided by NSW Health. These data were collected for all NSW Health medical events confirmed to be festival-related, and incorporate ambulance data, emergency department presentations, hospital presentations, Intensive Care Unit (ICU) admissions, and deaths.

Festival level data

Festival characteristics data

Data available included festival location, duration, remoteness, attendance numbers, regulatory status under the Act²⁴, music style, promoter, organiser and patron demographic profile. Data from trial festivals and historical data for the same festivals in 2023–24 (where

applicable) was requested from NSW Health. Data on temperature and humidity on festival days was sourced from the Australian Bureau of Meteorology (BOM).

Peer-based harm reduction service reports

Festival medical incident data was supplemented with data from peer-based harm reduction service provider (e.g., DanceWize NSW) reports. These reports were provided to NSW Health about incidents and care, curated for each festival. The reports were used to obtain additional information related to each festival, including details of care infrastructure, observations of service users, and peer-led harm reduction activities.

Implementation data

Implementation data were used for the economic analysis. Costs associated with the Drug Checking Trial and existing harm reduction activities were evaluated.

Implementation data used in the costing included:

- Standard operating procedures
- Service delivery records
- Financial data on existing harm reduction activities
- Detailed cost components of the Drug Checking Trial

NSW Health provided festival-level service activity data and financial records. These were used to capture the full scope of service delivery for the economic analysis, including:

- Staffing (roles, levels, and numbers)
- Time inputs
- Fixed and variable operational costs for drug testing (e.g., equipment, consumables, courier services)
- Additional costs for regional festivals (e.g., staff accommodation and transport)

Early warning system data

The NSW Health drug surveillance and early warning system detects signals with data from several sources, conducts risk assessments and stakeholder consultations, and where appropriate makes clinical and public health responses. This is typically in the form of alerts (public health warnings and clinical alerts). To assess the Drug Checking Trial's integration with the early warning system, we examined alerts during the trial period. This was supplemented with data from the Combined Surveillance and Monitoring of Seized Samples (CoSMoSS) program, which tracks composition of seized drug samples with a focus on music festivals, and the Prescription, Recreational and Illicit Substance Evaluation (PRISE) program. CoSMoSS and PRISE data were provided for the trial festivals and the preceding two years of the same festivals, where available.

Stakeholder interviews

In-depth 60-minute semi-structured interviews (n=45, 42.2% female, 4.4% non-binary) with key NSW stakeholders, based on their role and involvement with the drug checking service were conducted by trained interviewers. Relevant stakeholders were identified in collaboration with NSW Health, NUAA and other key organisations to ensure a range of perspectives were captured. Participants were then recruited via the Matilda Centre, stakeholder connections (e.g., NUAA), and external networks using active snowballing techniques. Additionally, purposive sampling techniques were used through the online survey

(below) to identify young people to contact for interviews. Stakeholders were purposively recruited including

1. Healthcare workers e.g., on-site private medical providers (n=6)
2. Drug analysts and NSW Health staff involved in drug surveillance at festivals (e.g., FASS, toxicologists, public health advisors/communicators; n=7)
3. Festival organisers and promoters (n=5)
4. Festival peer support workers including NUAA peer workers in the Drug Checking Trial (n=8) and general harm reduction volunteers/workers (n=6)
5. NSW Police and NSW Ambulance personnel with experience at festivals (n=7)
6. Festival patrons with experience accessing the NSW Drug Checking Service or who would benefit from the service (n=5)

A systematic approach, using virtual semi-structured interviews was utilised, where a clear plan of generating new insights was established *a priori*. Guiding questions were developed in collaboration with NUAA and NSW Health for each stakeholder group, but interviews were semi-structured to allow a flow of conversation. All stakeholders were asked about their demographics and role, their experiences and perspectives with drug checking at NSW music festivals; their views and perceptions of drug checking including barriers and facilitators to implementing or accessing the service. Average interview length was 48 ($\pm$ 15.4) minutes. Interviews were audio-recorded via Microsoft Teams or Zoom depending on participants preference, and transcripts generated using virtual meeting software. All transcripts were manually reviewed for accuracy and edited against audio recordings. Participants were offered reimbursement for their time with a voucher valued at \$50.00 except for stakeholders employed in public service roles as they have workplace policies which prohibit public service employees from receiving gifts or reimbursements due to conflicts of interest.

Anonymous online questionnaire

In addition to the interviews, we recruited a larger sample of NSW festival patrons (n=333; aged 18+years) via dissemination of cards at drug checking sites, social media, Matilda Centre networks (e.g., Matilda Centre Youth Engagement Network) and other consumer networks (e.g., DanceWize, festival organisers). This involved completing a 15-minute anonymous online Qualtrics survey addressing their awareness of the festival drug checking service, acceptability and experience of the festival drug checking service, and perceived barriers and facilitators to service access. We performed targeted sampling through consumer networks to recruit people using the drug checking service. These data complement the qualitative information collected as part of the stakeholder interviews and allowed people to provide anonymous information that they may not have felt able to express in interviews. Participants were reimbursed for their time with a voucher valued at \$20.00.

Social media data

Social media were used to supplement the service user questionnaire, stakeholder interviews and online survey. We used the Meta Content Library—with access approved by the Inter-university Consortium for Political and Social Research (ICPSR)—to access

Facebook and Instagram posts mentioning drug checking at music festivals, filtered to NSW content. Relevant posts and comments were also extracted from the social media site Reddit using their open access web API.

Analysis

We used a convergent mixed methods approach whereby quantitative and qualitative information was used together to answer the evaluation questions.

Quantitative analysis was mostly descriptive, presented as percentage and number for categorical data, and mean/median with standard deviation/interquartile range where appropriate, for normally distributed or skewed data, respectively. Missing data were not imputed, denominators of each are made clear throughout to account for missing data.

Our quantitative analysis of drug checking and medical events used deidentified data; it is very likely that some individuals are recorded in the datasets more than once.

Most data cleaning was undertaken by NSW Health before providing the data. In some minor instances, further anomalies in the data were discussed with NSW Health when discovered and resolved. For example, three service user groups with implausible size were replaced with 1 as the logical minimum of number of people in the group after checking with NSW Health and confirming with the service staff on duty at the time.

Quantitative data were analysed using SAS/STAT version 15.1 of the SAS system for Windows, version 9.4., RStudio (version 2025.9.2.418) and visualisations were prepared with GraphPad Prism 10.

Where relevant, we used data from festivals in the two years leading up to the trial, as historical controls. We used total number of festival days as a denominator, to account for variability in festival length and the missing historical control data in some cases, as described in Table 1.

Table 1 Summary of festivals in the Drug Checking Trial, the number of festival days, and availability of historical control data

Festival	Two years prior		One year prior		Drug checking trial	
	Date	Days [†]	Date	Days [†]	Date	Days [†]
Yours & Owls	14 Oct 2023	2	No festival		01 Mar 2025	2
Midnight Mafia	06 May 2023	1	04 May 2024	1	03 May 2025	1
Hyperdome	No festival		20 Apr 2024	1	07 Jun 2025	1
Knockout Outdoor	30 Sep 2023	1	05 Oct 2024	1	04 Oct 2025	1
Strawberry Fields [‡]	17 Nov 2023	5	14 Nov 2024	5	21 Nov 2025	5
Hypersonic	No festival		No festival		29 Nov 2025	1
EPIK	09 Dec 2023	1	14 Dec 2024	1	13 Dec 2025	1
Lost Paradise [‡]	28 Dec 2023	5	28 Dec 2024	5	28 Dec 2025	5
Field Day	01 Jan 2024	1	01 Jan 2025	1	01 Jan 2026	1
HTID	27 Jan 2024	1	25 Jan 2025	1	24 Jan 2026	1
Laneway	04 Feb 2024	1	09 Feb 2025	1	08 Feb 2026	1
Mighty Hoopla	No festival		No festival		21 Feb 2026	1
Total number of festival days		18		17		21

[‡] Festival dates are provided in this table, noting that Lost Paradise and Strawberry Fields both had drug checking available on days 2 and 3 of the multi-day festival.

[†] No of days listed are for the dates covered by the festival Health & Medical Plan/Safety Management Plan which include two additional days of camping ingress & egress for Strawberry Fields.

Qualitative data from the stakeholder interview transcripts were analysed using deductive (by stakeholder group) and reflexive thematic approaches to identify main themes and sub-themes from the data. Interview transcripts were analysed in NVivo by two independent

coders, who then met with the wider research team to discuss preliminary findings, data interpretation and resolve discrepancies. Due to the time constraints of the project, an in-depth analysis was not possible. As such only main themes are provided in this report with supporting quotes. Additionally, due to the small sample size within each stakeholder group, extra care was taken to ensure anonymity of participants.

Quantitative data from the online questionnaire were analysed using RStudio. Firstly, ineligible/invalid responses were identified, excluding responses that failed bot detection strategies, duplicate IP addresses, those that completed <80% of the questionnaire, and anyone living outside of NSW. Most of the analysis was descriptive, with categorical variables presented as counts and percentages, while numerical data are presented as means/medians with standard deviations/interquartile range where appropriate. To investigate significant differences between groups, Pearson's chi-square test was used for categorical variables and independent samples t-test for continuous variables. Statistical significance was determined at $p\text{-value} < 0.05$.

The economic component for the evaluation of the 12-month Drug Checking Trial at NSW music festivals comprised of a costing analysis. The analysis estimated the cost to NSW Health of establishing and operating the NSW Drug Checking Trial at the 12 participating music festivals over a 12-month period (1 March 2025 to 28 February 2026).

The costing adopted an NSW Health funder perspective and included only those components wholly or partly funded by NSW Health. Costs borne by festival organisers, the Commonwealth Government, or other agencies are excluded unless otherwise stated.

The analysis examined costs to NSW Health for the following two harm reduction strategies:

- Delivery of the NSW Drug Checking Trial, and
- Existing harm reduction activities provided by NSW Health at the same festivals.

The costing analysis drew on a range of implementation and service evaluation data including:

- Standard operating procedures
- Service delivery records
- Financial data on existing harm reduction activities
- Detailed cost components of the Drug Checking Trial for delivery of the trial as a whole and for individual festivals

NSW Health provided multiple data sources, including festival-level service activity data, financial records, and service funding agreements. These informed the scope and resource requirements of drug checking service delivery. These data were used to quantify:

- Staffing (roles, levels, and numbers)
- Time inputs
- Fixed and variable operational costs for drug testing (e.g., equipment, consumables, courier services)
- Additional costs for regional festivals (e.g., staff accommodation and transport).

Service data were collected from the drug checking service operating across 12 festivals. Five samples were excluded prior to the costing analysis. Their removal was not expected to materially influence the cost estimates. These samples were submitted by on-site medical staff rather than by music festival attendees intending to use the substances, which lies

outside the intended user group and scope of the NSW drug checking service. Accordingly, these samples were excluded from the costing analysis. Analyses were conducted using Excel and RStudio (version 2025.9.1.401) and visualisations were prepared with RStudio (version 2025.9.1.401).

The economic component of the evaluation was restricted to a costing analysis and descriptive statistics. As long-term outcomes, market factors, full economic evaluation methods, and linked data analyses were outside the scope of this evaluation, outcome valuation was also excluded.

Table 2 (p. 18) plots the data sources discussed above to each Evaluation Question.

Ethics approval

The University of Sydney's Human Research Ethics Committee approved the stakeholder interviews, online questionnaire and social media analysis (HREC reference 2025/HE001156). Informed consent was provided by all interviewed and surveyed participants. Datasets provided by NSW Health were provided for quality improvement purposes and thus institutional ethical approval was not needed.

Table 2 Data sources used for the evaluation of the NSW Drug Checking trial, by evaluation question

Evaluation question	Data source							
	Medical data	Service user and drug checking data	Festival level data	Implementation data	Stakeholder interviews	Online questionnaire	Social media data	Early warning system data
Evaluation question 1: Did the drug checking service add unique value, when compared to other harm reduction activities already at music festivals?	✓	✓	✓	✓	✓	✓	✓	
Evaluation question 2: Did the drug checking service integrate with and enhance the existing music festival harm reduction activities, and drug surveillance and early warning system?			✓		✓	✓	✓	✓
Evaluation question 3: Was the drug checking service associated with reduced rates of drug-related harms at participating music festivals?	✓	✓						
Evaluation question 4: What are the characteristics of music festivals that would most benefit from drug checking?	✓	✓	✓	✓	✓	✓		✓

Evaluation findings

1 Did the drug checking service add unique value, when compared to other harm reduction activities already at music festivals?

Key observations:

- The drug checking service added unique value to music festival harm reduction in NSW across multiple dimensions.
- The service provided individualised, guided harm reduction advice that was not available through existing services. Service users were provided with tailored harm reduction advice based on the substance(s) in their possession. This allowed users to make informed decisions about their drug use before the drugs were taken.
- High utilisation indicated strong demand, relevance and acceptability and that the service was valued by festival patrons. Across the 12 festivals, 1,010 groups (totalling 1,846 people) submitted 1,475 samples for checking.
- Unexpected substances were found in 8% of samples, while high-dose MDMA was found in 4% of MDMA samples where dose could be calculated. These results were provided to the service user in real time, alongside tailored harm reduction and health advice. This is only possible with drug checking.
- For people whose sample contained an unexpected substance only, they were more likely to report intending to use less (38%), discard the sample (30%) or otherwise not use the drug (8%), than those whose sample results were expected or inconclusive.
- Samples were discarded in on-site amnesty bins in 4% of cases overall.
- Very high satisfaction indicated perceived value among service users: over 99% of service users rating the overall service as “good” or “very good”
- The service provided a unique opportunity for drug education and first-time engagement. The service created a safe, non-judgemental environment for drug education, and for 69% of participants it was their first time speaking to a healthcare or peer worker about harm reduction.
- Health workers reported that the service strengthened on-site care, collaboration between services, and increased preparedness of on-site medical staff as they were aware of drugs circulating at the festival. Health workers also valued the ability to submit samples from unwell patrons to guide treatment and risk assessment.

The unique value of the drug checking service was assessed by determining whether the program contributed information, outcomes, and service user experiences that were not previously available and would not have occurred in its absence. Unique value was assessed through examination of the service uptake, analytical results, harm reduction behavioural intentions of service users, and service satisfaction feedback, and stakeholder interviews.

The trial aimed to reduce risks associated with illicit drug use at music festivals, by providing free drug checking paired with peer-worker advice. This supports informed decision making and offers a safe space for interaction and engagement with further support or services.

The Drug Checking Trial operated in conjunction with the substantial harm-reduction activities already in place at NSW music festivals. Existing activities included those outlined in the NSW Health Guidelines for Music Festival Event Organisers²³, including presence of

peer workers, on-site messaging, on-site medical centres, health and medical plans, and public health messaging in the media (including social media).

Service visits

The NSW Drug Checking trial was rolled out at 12 festivals, from March 2025 to February 2026. Service data was available for all 12 festivals.

There were 1,010 service visits at NSW Drug Checking sites for the 12 festivals. Most service visits involved groups (61.1%, n=617), and the median group size was 2 (interquartile range (IQR), 1–2). The largest group size was 10. A total of 1,846 individuals visited the service and 1,475 samples were tested. The median number of samples submitted per patron was 1 (IQR, 1–2), the maximum number of samples submitted was 4. The number of service visits per festival varied, with a median of 58 visits per festival (IQR, 46–122, range 22–196). The highest number of visits was for the Lost Paradise festival, however when this was adjusted for drug checking service day (to account for multi-day festivals), the busiest festival was Knockout Outdoor (Figure 3). The median visits per drug checking service day was 58 (IQR, 37–89). The median number of samples tested per festival day was 87 (IQR, 49–143).

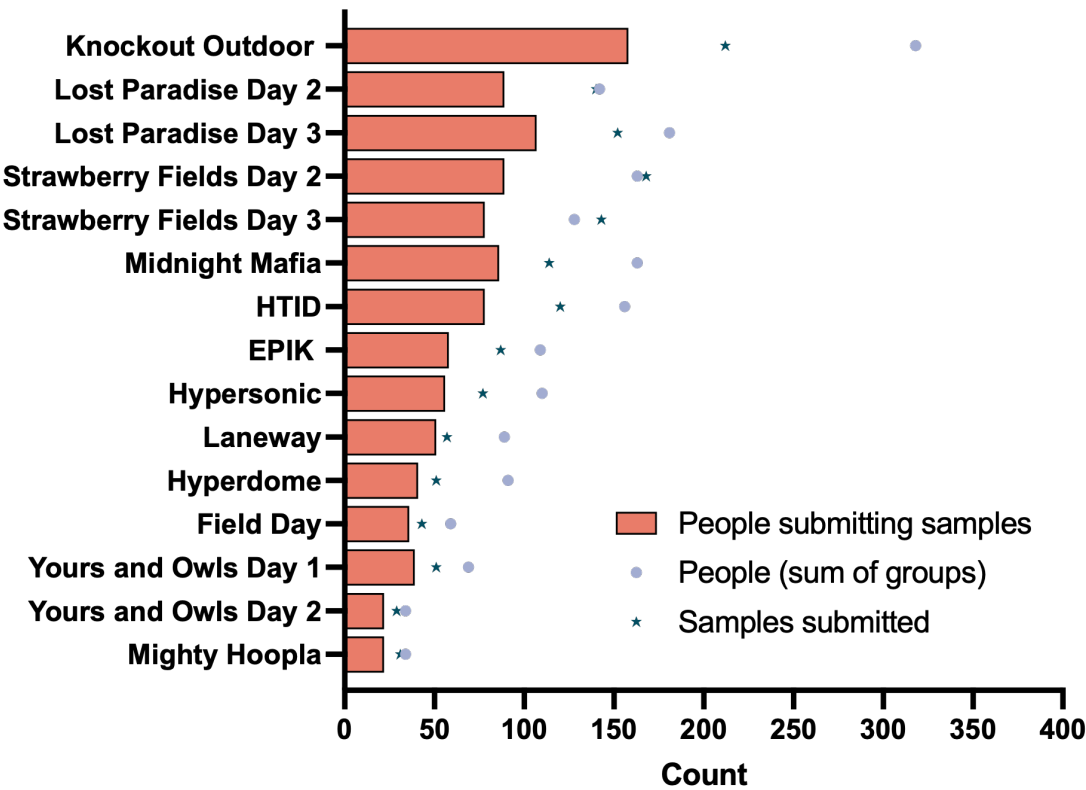


Figure 3 Drug checking trial summary by number of visits, service users and samples per drug checking service day

Ordered by number of visits (people submitting samples) at the festival, with days shown separately for multi-day services. Lost Paradise and Strawberry Fields both had drug checking available on days 2 and 3 of the multi-day festival.

We adjusted for service operating hours per festival, to measure visits per hour and samples submitted per hour. Across all 12 festivals, the service received an average of 11.2 visits per hour and an average of 16.4 samples per service hour. The number of services per hour varied by festival (Figure 4, see also Figure 25, p. 60), ranging from an average of 3.5

visits/hour (5 samples/hour) at Mighty Hoopla, to an average of 22.6 visits/hour (30.3 samples/hr) at Knockout Outdoor (Figure 4). Where relevant, festivals are ordered by visits per hour throughout the remainder of this report.

The median duration in the service ranged from 15½ minutes for Yours & Owls to 27 minutes for Strawberry Fields with 9 festivals showing a median time between 17 and 20 minutes.

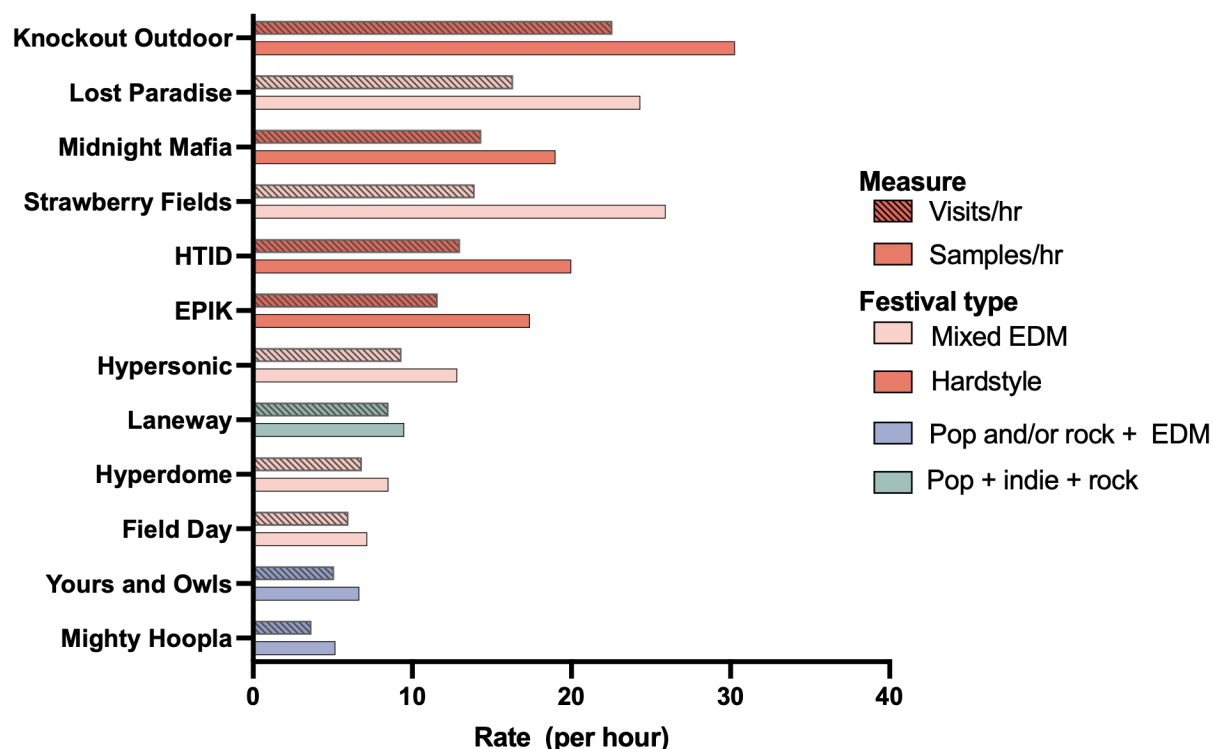


Figure 4 Drug checking service utilisation by festival type
Expressed as visits per hour (patterned bars), and samples per hour (solid bars)

Service user demographics and characteristics

The 20–24 years age bracket most used the service (Figure 5), 50.2% (n= 507). Those aged 18–29 years made up 85.5% of service users (n=864). Age distribution varied by festival, with Laneway, Field Day, Hypersonic and Mighty Hoopla trending older.

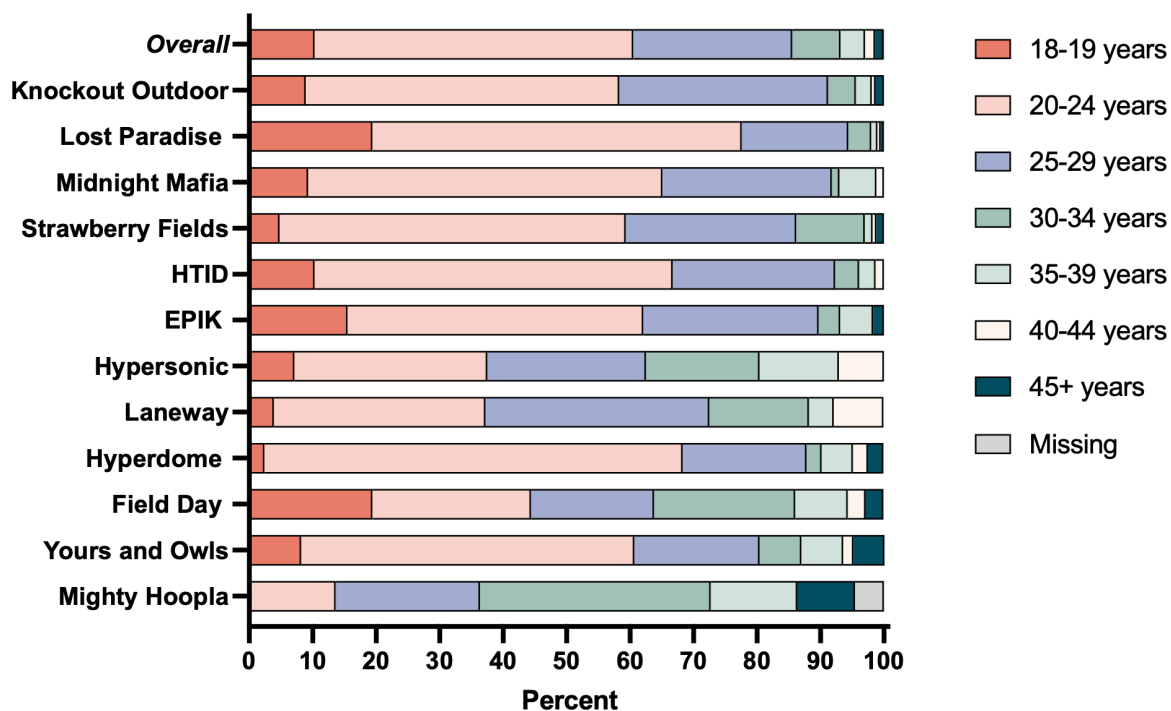


Figure 5 Age distribution of service users, by festival

The majority of service users identified as man or male (60.9%, n=615), with 349 women or females, and 46 (4.6%) indicating 'non-binary', 'other term' or declining to answer. Gender distribution is stratified by festival in Figure 6. Laneway was the only festival with more female than male service users.

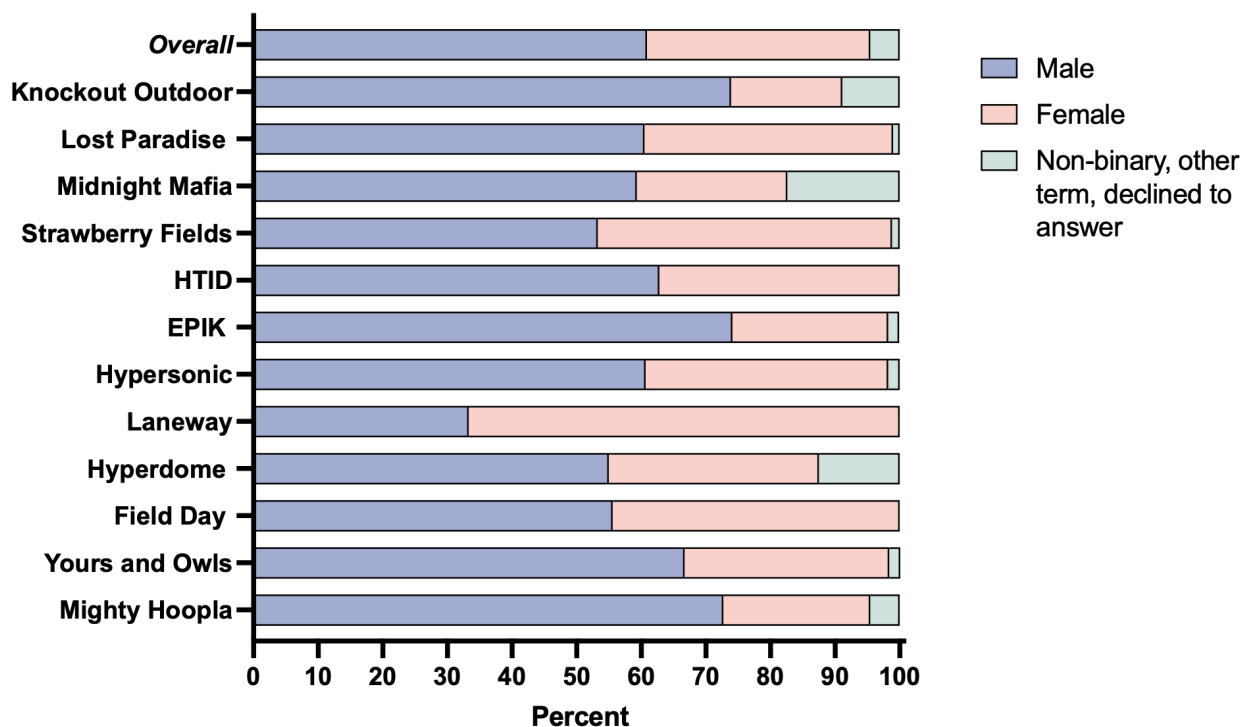


Figure 6 Gender distribution of service users, by festival

The majority (68.9%) of service users had not used illicit drugs so far on the day of the service use (n=677 of 983 responses). However, the number that had used varied considerably by festival, from 14.9% (HTID) to 48.7% (Hyperdome, Figure 7).

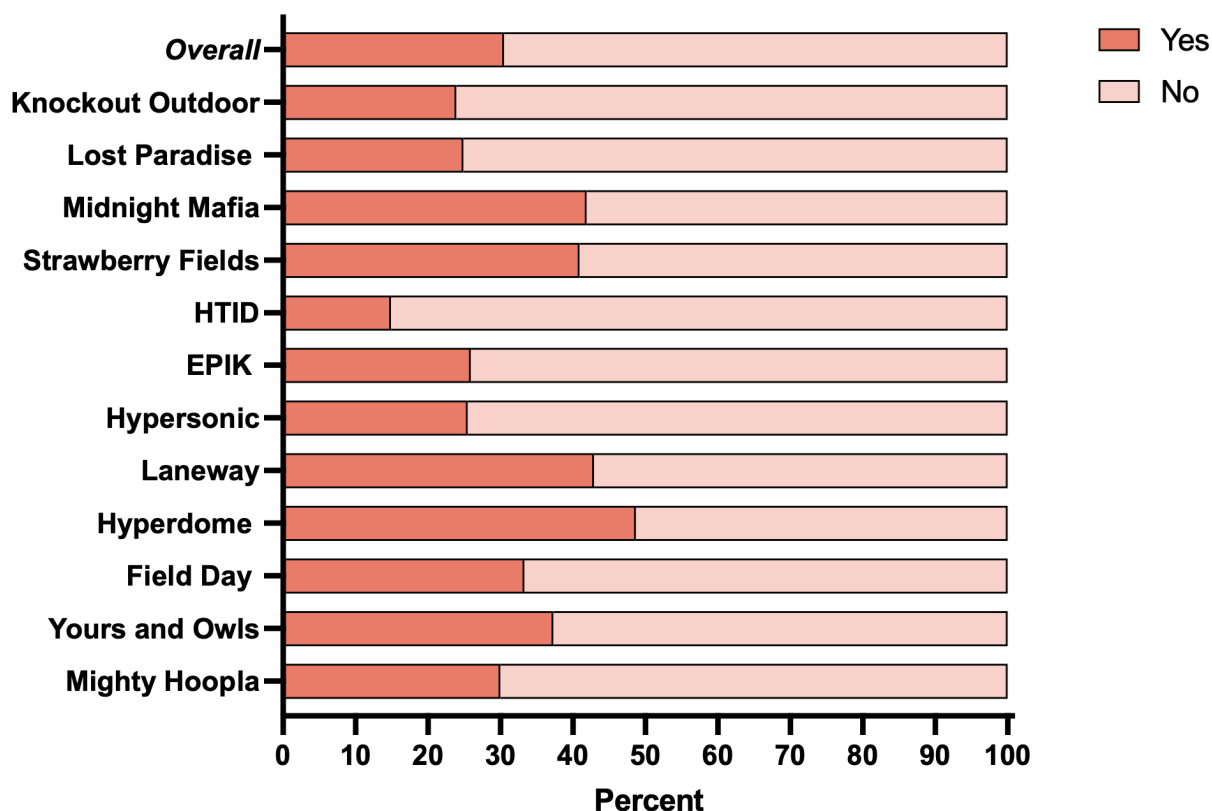


Figure 7 Percent of drug checking service users who had used illicit drugs before entering the service

(*n* missing = 27, 2.7%)

Service users most commonly heard about the service through social media (74.4%, with festival organiser's social media reaching 43.0%, NSW Health social media reaching 8.3%, DanceWize/NUAA social media reaching 11.2%, and other social media reaching 11.8%). Other significant avenues of awareness of drug checking were signage at festivals (29.4% of respondents) and direct communication from the festival (14.6% of respondents) [note that respondents are double counted where they selected multiple items].

Drug checking

The majority of service users had a single sample checked (Median: 1, IQR: 1–2). The 1,010 users submitted 1,475 samples. Capsules (45.9%, *n*=677) were the most common sample submitted, followed by crystal (23.2%, *n*=343), powders (15.1%, *n*=223) and tablets (13.4%, *n*=198), Figure 8. The vast majority of samples (96.3%, *n*=1,421) were examined with NIR spectroscopy, and 45.2% were examined with FTIR (*n*=667).

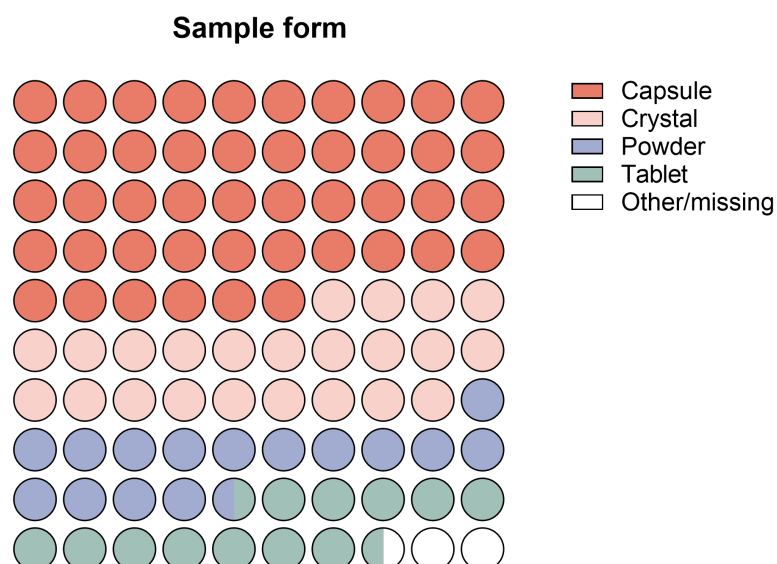


Figure 8 Sample form of the 1,387 samples submitted to the drug checking services, visualised as the proportion of total samples submitted

Substances expected

MDMA was the most common expected drug (68.3%, 937/1,371 where suspected drug was stated), followed by ketamine (19.5%, n=267) and cocaine (8.1%, n=111, Table 3).

Table 3 Substances most frequently expected

Substance expected	Count	%	Result summary
MDMA	978	68.3	
Ketamine	274	19.1	
Cocaine	119	8.3	
2C-B	16	1.1	
LSD	14	<1	
Amphetamine	9	<1	
Methylamphetamine	7	<1	
Psilocybin	7	<1	
Benzodiazepine	3	<1	
Dexamphetamine	2	<1	
Heroin	1	<1	
Other opioid	1	<1	

Legend for Result summary:

- Expected drug only
- Expected drug plus unexpected drug
- Unexpected drug only
- Inconclusive results

Note: one sample could have more than one drug expected. Service user selected "not sure" for 36 samples. Further detail on results from MDMA, ketamine and cocaine are shown in Figure 9 n=1,431 where stated. Results summary bars only include samples where expectation match was recorded.

Substances detected

Of the 1,475 samples submitted, 1,444 had at least one substance detected (the remainder were: inconclusive, n=29 or missing/not analysed, n=2). There were a total of 1,483 substances detected with conclusive results (combining primary and secondary detections, where reported). MDMA was the most commonly detected substance (66.1%, n=954/1,444), followed by ketamine (20.4%, n=295) and cocaine (8.3%, n=120). A range of unexpected psychoactive substances were detected, including ketamine analogues (e.g., 2-fluoro-2-oxo PCE), synthetic cathinones, heroin, and 1,4-butanediol. Non-psychoactive substances were also detected in a small number of cases (e.g., sugar, creatine, paracetamol, Table 4).

Table 4 Substances most frequently detected

Substance detected	Count	% of detections (n=1,483)	% of samples with conclusive result (n=1,444)
MDMA	954	64.3	66.1
Ketamine	295	19.9	20.4
Cocaine	120	8.1	8.3
MDA	24	1.6	1.7
2C-B	15	1.0	1.0
Dimethyl sulfone	14	<1	1
Methylamphetamine	10	<1	<1
LSD	10	<1	<1
Creatine	6	<1	<1
1,4-butanediol	5	<1	<1
Sugar/sucrose/lactose	3	<1	<1
Paracetamol	3	<1	<1
2-fluoro-2-oxo PCE	3	<1	<1
Caffeine	3	<1	<1
Psilocin/Psilocybin	3	<1	<1
Amphetamine	3	<1	<1
Heroin	2	<1	<1
Synthetic cathinone	2	<1	<1
GBL	1	<1	<1
Sorbitol	1	<1	<1
Lidocaine	1	<1	<1
MDP2P ethyl glycidate	1	<1	<1
Magnesium sulfate	1	<1	<1
Ketamine analogue	1	<1	<1
Ibuprofen	1	<1	<1
MSG	1	<1	<1

Includes primary and secondary detections, psychoactive and non-psychoactive substances.

Synthetic cathinones detected included N-cyclohexyl methylone and N-ethylpentylone.

Note: results presented here are based on on-site detection results provided by analysts to service users, not confirmatory testing; n=39 samples had two substances detected.

Results compared to expectations

At the time of the drug checking service, the service user/peer worker indicated whether the results were expected (“match expectations”), categorised as: expected drug only, expected drug plus unexpected drug, unexpected drug only, and inconclusive results.^a For the three top drugs suspected (MDMA, ketamine and cocaine), and overall, match expectations were stratified by festival (Figure 9).

^a Service users/peer workers could also respond that they didn’t know what the substance was. For the purpose of Figure 9, Figure 11, Figure 12, Figure 14, these were excluded from the analysis.

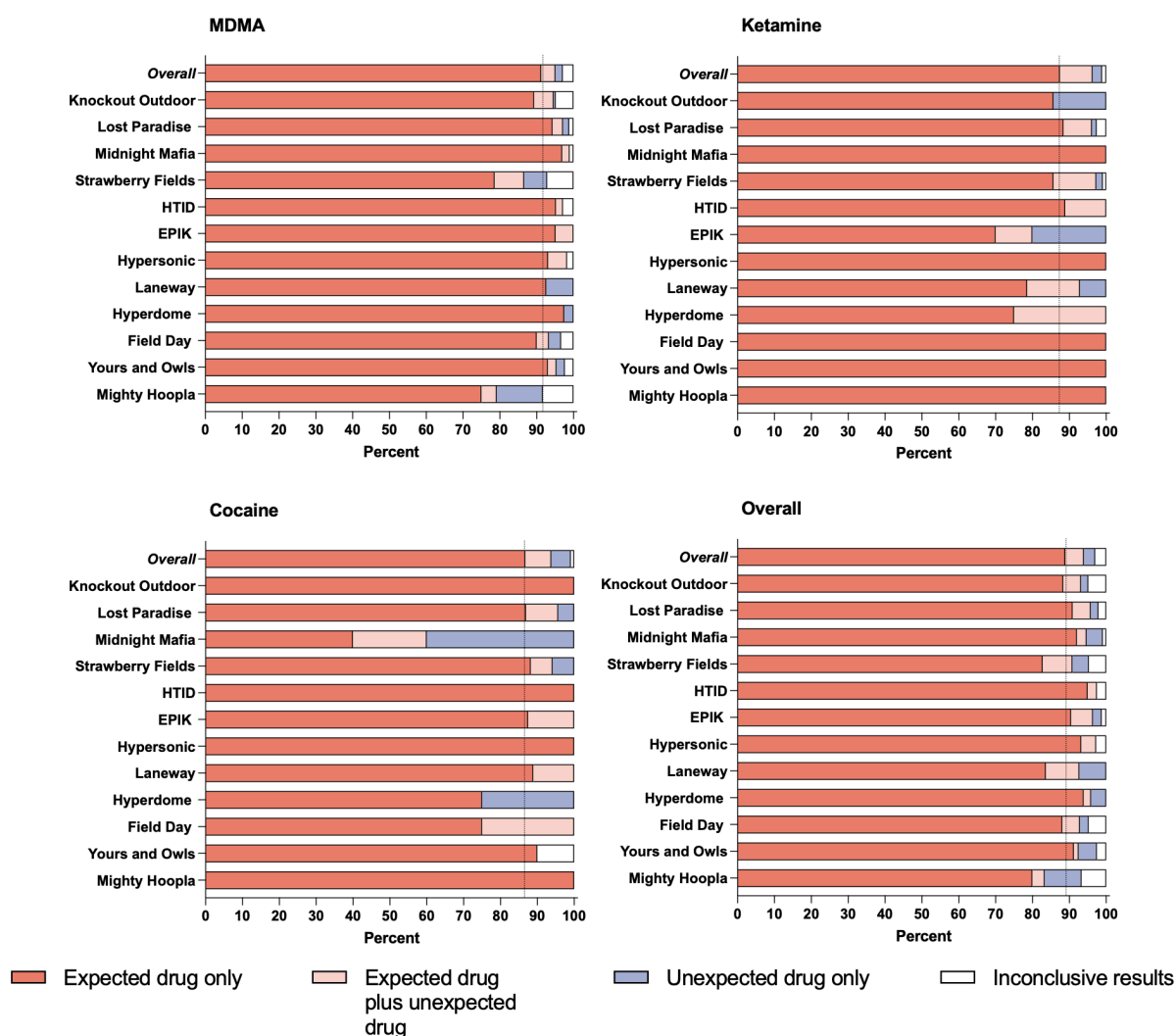


Figure 9 Results of drug checking by expected drug, and overall

Only the three most common expected drugs are shown individually. Results provided here are the on-site drug checking results provided to the service user, rather than that of confirmatory testing. Dashed line on each figure indicates overall values for “expected drug only”. Excludes missing values, 2.6%, n=39 samples.

Results when MDMA was expected

Of the three most commonly expected drugs, samples submitted as MDMA were most likely to contain the expected drug *only* (91.3%, n=877/961 where expectation match was recorded). A further 3.9% (n=37) contained MDMA in addition to an unexpected substance, while 2.0% (n=19) of MDMA samples contained an unexpected substance only (the remainder were inconclusive results). Whether samples matched expectations differed between festivals (Figure 9), with Strawberry Fields, Knockout Outdoor, Field Day and Mighty Hoopla having the highest proportion of unexpected and inconclusive results. The most common unexpected psychoactive substances detected in MDMA samples were MDA (n=7), ketamine (n=5), and cocaine (n=3).

Results when ketamine was expected

Samples submitted as ketamine (n=271 expectation match was recorded) contained ketamine *only* in 87.5% of cases (n=237). Detection of the expected drug in addition to an unexpected substance occurred in 8.9% (n=24), while 2.6% (n=7) contained an unexpected substance only (the remainder were inconclusive results). The most common unexpected drugs in samples submitted as ketamine were 2-fluoro-2-oxo PCE (n=2) and MDMA (n=2).

Whether expectations were matched varied with festival (Figure 9), with EPIK having the highest proportion of unexpected substance in ketamine, however this should be interpreted with caution, as only 10 samples were submitted as ketamine at that festival. Lost Paradise (n=78 ketamine samples) and Strawberry Fields (n=112 ketamine samples) had unexpected/inconclusive results in 11.5% (n=9) and 14.3% (n=16) of cases, respectively.

Results when cocaine was expected

Substances submitted as cocaine (n=113 where expectation match was recorded) were found to contain cocaine *only* in 86.7% (n=98) of cases. Cocaine in combination with unexpected substances was found in 7.1% (n=8), and unexpected substances only in 5.3% (n=6). Unexpected substances reported included ketamine (n=11) and heroin (n=1, a significant finding, as heroin use in an opioid naïve individual may result in life threatening toxicity). Results differed by festival (Figure 9), but should be interpreted with caution in festivals with low numbers of cocaine samples submitted, including Midnight Mafia (n=5), and Hyperdome (n=4).

Overall results compared to expectations

Overall (all samples, inclusive of those outside the top 3 most common drugs), samples contained *only* the expected drug in 88.9% (n=1,276 of 1,435 cases where expectation match was recorded). Unexpected substances in addition to the expected drug were found in 5.0% (n=72) of cases. Unexpected substances (only) were found in 3.0% (n=44), while 3.0% (n=43) of samples yielded inconclusive results (Figure 9). The festivals where the highest proportion of results were unexpected and/or inconclusive were Mighty Hoopla (20.0%, n=6/30), Strawberry Fields (17.2%, n=51/296), Field Day (11.9%, n=5/42), and Knockout Outdoor (11.7%, n=24/206), (Figure 9).

When service users were “not sure” what the drug contained (n=34), the results were split between cocaine (n=12), ketamine (n=9), and MDMA (n=8). Figure 10 summarises proportions of drugs expected versus drugs detected, as a proportion of each suspected drug. Note: this figure shows primary detections only, based on the analyst’s findings (i.e., excluding secondary detections where multiple drugs were detected in a sample).

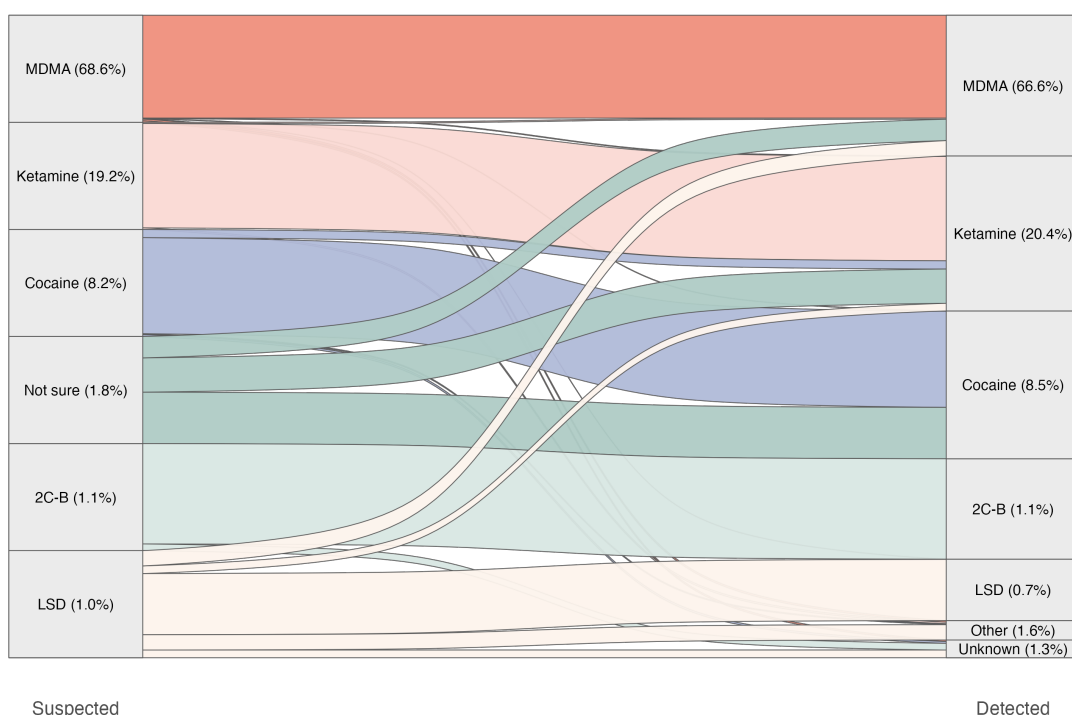


Figure 10 Sankey diagram showing expected (left hand side) versus detected drugs (by primary detection only, right hand side), as proportions of each suspected drug

Note: based on on-site test results, rather than confirmatory testing

Service users were asked what they intended to do, following the drug checking service and harm reduction discussion. Where recorded, 68.6 said they would use the substance as initially intended, 17.2% said they would use less, 3.9% said they would use more, 2.1% said they would discard the substance, while 0.7% said they would use other substances instead and 0.4% said they would not be using any illicit drugs (Figure 11). Note: additional intended harm reduction behaviours were surveyed separately and are presented in the response to Evaluation Question 2.

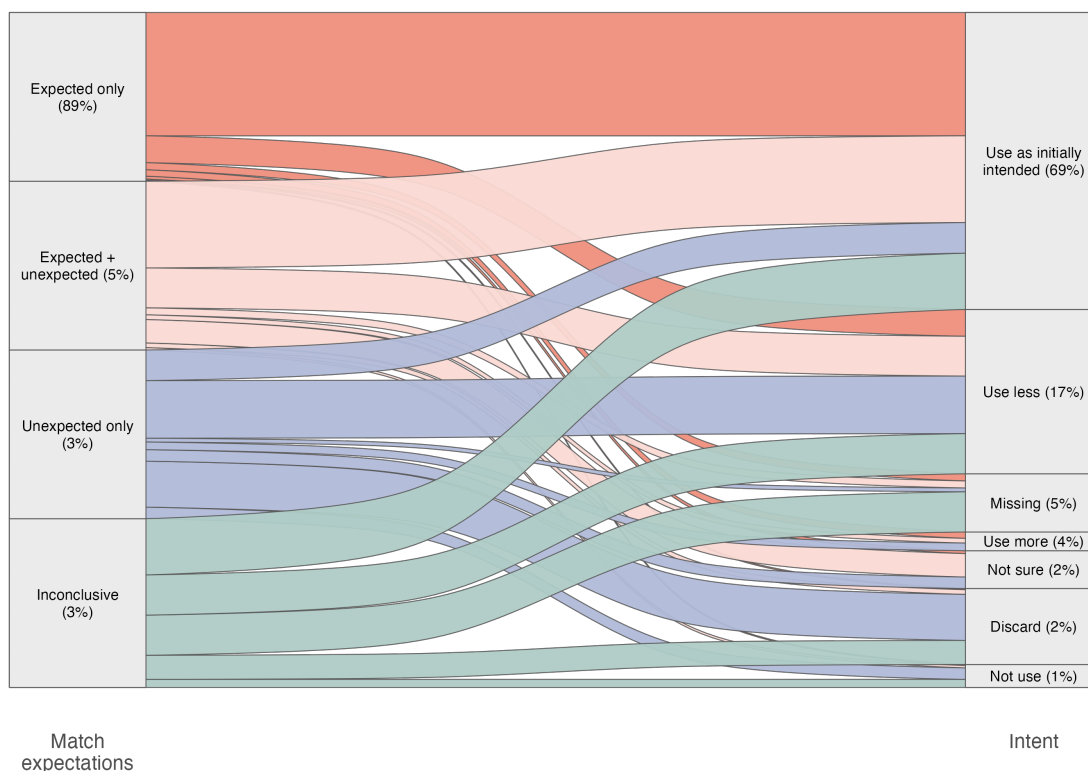


Figure 11 Sankey diagram showing “match expectations” (left hand side) versus intended behaviours (right hand side)

Note: “not use” includes clients who said they would not use any illicit drugs, and those who said they would not use the sample. Number discarded is an underestimate as it relates to questionnaire data only, the actual percentage of samples discarded in amnesty bins was 4.1%.

Intended drug use behaviours following the service, by expectation

When results matched expectations

Intended drug use behaviours were asked of the service user after results were provided. Of the 1,370 samples tested where both expectations and intent were known, service users were more likely to indicate they would *use the substance as initially intended* when it contained the expected drug only (76.7%, n=947/1,236). However, 16.7% of those who received an expected result (n=206/1,218) said they would *use less*, and a small proportion said they would *not use/use other substances instead* (n=11) and/or *discard* the substance (n=7), Figure 11.

Unexpected or inconclusive results

When results were unexpected or inconclusive, *using less*, *not using*, and intent to *discard* the substance were much more common. When the result was unexpected substance only, 30.0% (n=12/40) said they would *discard* the sample, 37.5% said they would *use less* (n=15), and 7.5% said they would *not use* the drug (n=3). For inconclusive results, 18.8% (n=6/32) said they would discard the substance, and 31.3% said they would use less (n=10). *Using less* and *not using* were highest amongst service users given an “unexpected substance only” result (Figure 12).

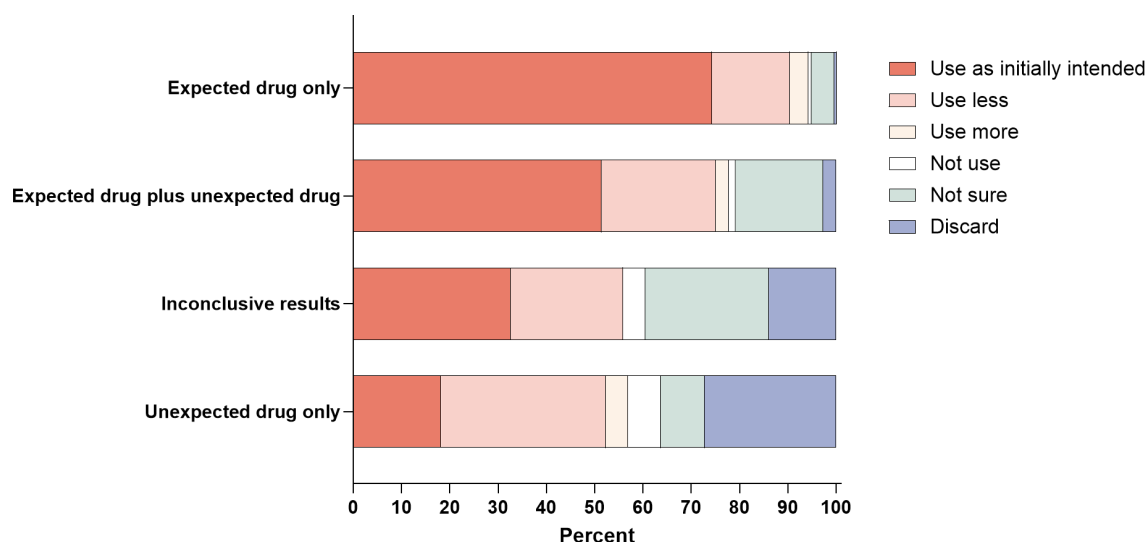


Figure 12 Intended drug use behaviour, based on sample results compared to prior expectations

Note: "not sure" also contains "missing" and "prefer not to answer" responses.

MDMA dose

There were 688 samples where MDMA was the primary drug detected and a dose was estimated (per unit when samples were presented in capsule or tablet form), in milligrams of MDMA free base, by NIR. The median (interquartile range, IQR) dose overall was 87.7 mg (IQR 70.3 to 107.1 mg). Those who said they would use less or discard the sample had samples containing a higher dose of MDMA, on average (Figure 13): use less 108.3 (IQR 88.1 to 127.8 mg); discard 92.6 (IQR 81.0 to 104.5 mg); compared to use as intended 84.3 (IQR 68.5 to 99.3 mg). A small number of people said they would use more, and they tended to have samples containing a lower dose of MDMA (78.4, IQR 59.0 to 96 mg).

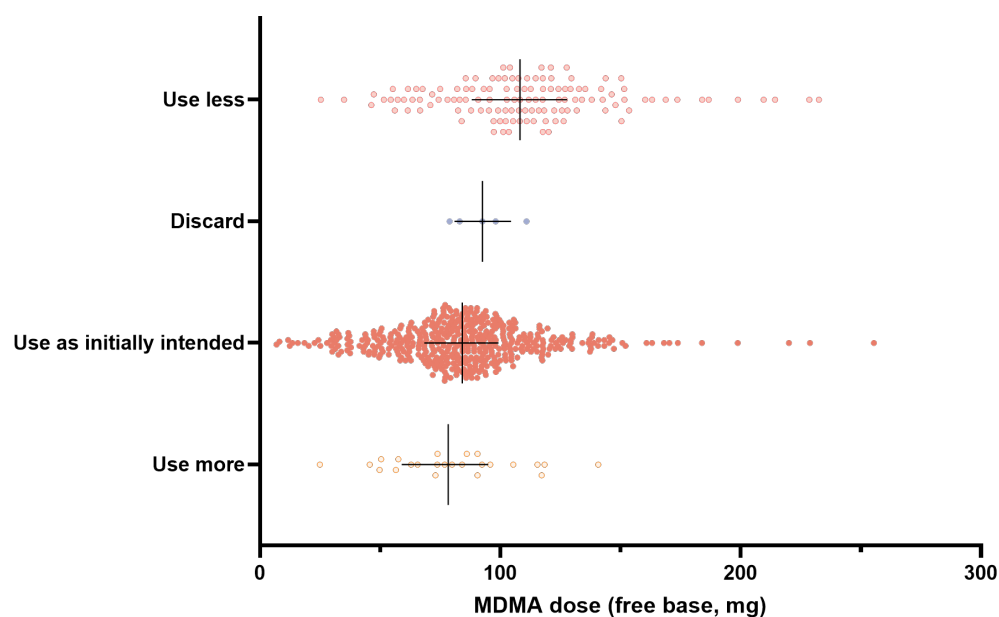


Figure 13 MDMA dose estimated by NIR, by drug use intentions

Individual values shown (points), with median (vertical line) and interquartile range (bars). Not shown: dose results where people indicated they would not use (n=1), missing/not sure/no answer (n=39).

There were 30 MDMA samples considered high dose (>150 mg MDMA free base), mostly at Strawberry Fields (n=8), Lost Paradise (n=6), and Midnight Mafia (n=4). The majority (60.0%, n=18) of these service users said they would use less of the drug.

Samples discarded

Discarding of samples was captured in three ways in the service data: as an intended behaviour, described above; or if the sample was observed to be discarded by (i) the FASS analyst, or (ii) the peer worker^b. Agreement was not 100% across all measures, however there were 63 samples (4.2%) where discarding the drug was recorded as either observed or intended by at least one of the three sources. This aligns well with the count of samples discarded in the on-site amnesty bin: 61 (4.1%, noting that these samples cannot always be linked back to the person or sample level data).

Source of samples

Where answered (for n=1,404 samples), the most common source (35.2%, n=494) was a known dealer. This was followed by friends (30.0% n=421), unknown dealers (20.3%, n=285), and acquaintances (5.3%, n=74). There were 59 'floor finds' (4.2%).

There were 1,370 samples for which an answer was provided for both sample source and whether the results matched expectations (Figure 14). As a proportion of all samples, those obtained from known dealers seemed less likely to produce unexpected results, while samples from unknown dealers and acquaintances more frequently yielded unexpected or inconclusive results. Less common sources (e.g., social media, dark web) showed mixed results and should be interpreted with caution given small numbers (Figure 14).

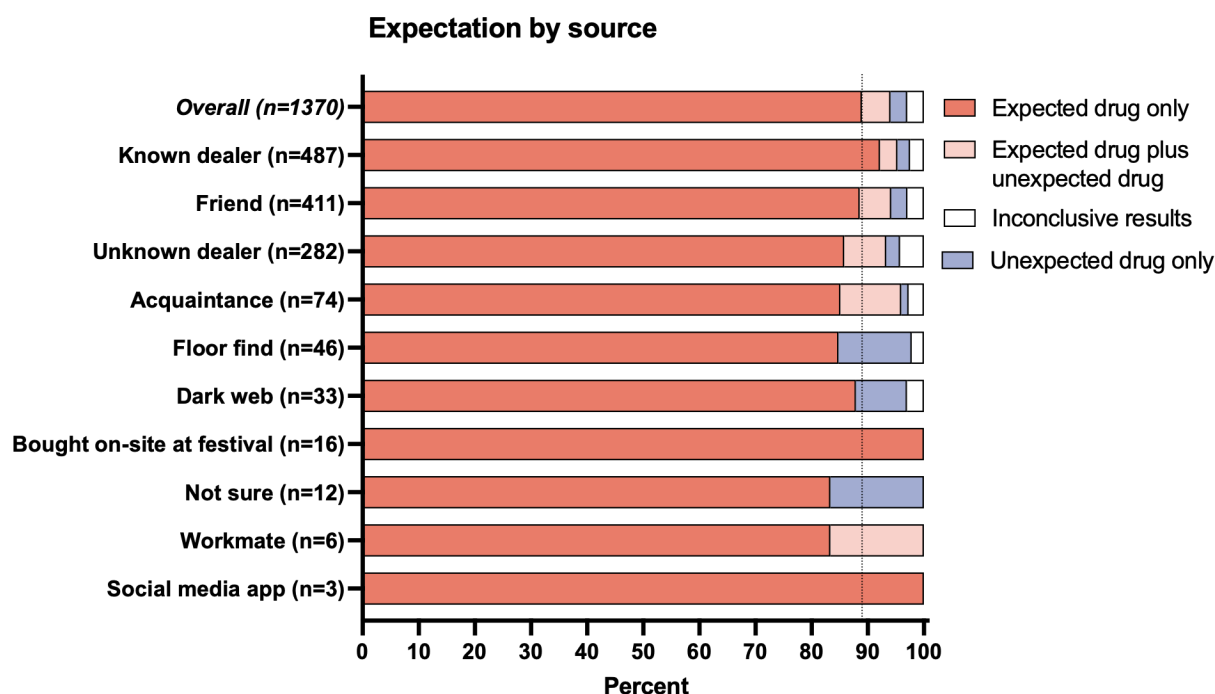


Figure 14 Drug checking results by expectation match and source reported by the service user
 Not shown, missing data for source, n=71, missing match expectation, n=34. Only one source could be listed per sample. Dashed line at 89.3% allows comparison with the overall rates of "expected drug only".

^b Note: this question was only asked of peer workers from festival 2 onwards.

Impacts on harm reduction behaviours are a key potential benefit of the drug checking service. This was explored in more detail in the response to Evaluation Question 2 (next section).

Samples submitted by on-site medical workers

While the trial primarily focused on testing samples submitted by people intending to use the substances, a secondary pathway was established to allow on-site medical centre staff to submit samples. Five samples were submitted via the latter pathway. These samples were excluded from the above analysis and are instead presented separately here.

There were two samples submitted following medical presentations of unexpected toxicity, and three samples that were not taken: one “floor find” submitted to the on-site medical centre by a patron, and two samples that had been concealed by a patron who presented to the medical service for assistance with their removal.

Cases of unexpected toxicity leading to medical staff sample submission:

- **Case 1:** a male presented following unexpected symptoms after ingesting two capsules. With his permission, the on-site medical team sent a third capsule to the drug checking site, which revealed that each capsule contained 125 mg MDMA (free base). He was given medical and harm reduction advice, observation and supportive treatment. He surrendered the third capsule in the on-site amnesty bin, preventing further ingestion, and was discharged into the care of a friend. The on-site medical team reported that this case would have been transported to hospital via ambulance if the information from the drug checking service had not been available.
- **Case 2:** a female presented to the on-site medical centre with confusion and altered level of consciousness, after taking a substance she thought to be ketamine. Testing revealed high purity ketamine, and this result was communicated to the treating clinician and clinical lead.

While the number of such samples was small, their inclusion highlights a novel and previously undescribed use of drug checking in the Australian context. Allowing treating clinicians to access qualitative and quantitative results for a substance linked to a medical presentation has clinical value, with the potential to support real-time risk assessment and guide management of patients with suspected drug toxicity. This is explored further below (healthcare worker/provider stakeholder responses).

Service user experience

Service users were asked about the quality of information given about their sample/s (chemical information), quality of health information about the impacts of drugs, and an overall rating of the service. Service users were overwhelmingly positive in their responses, which was consistent across festivals.

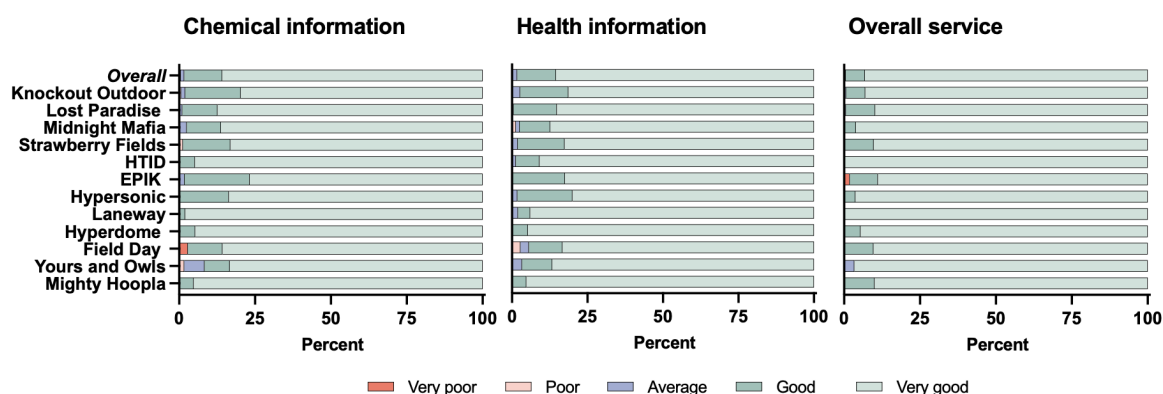


Figure 15 Service user satisfaction with the chemical and health information received, and the service overall

Not shown: missing and “prefer not to answer” responses, $n=34$ for chemical information, $n=43$ for health information, $n=86$ for overall service.

Quality of the chemical information, health information and the service overall was rated as either “good” or “very good”, in 98.4%, 98.2% and 99.5% of cases, respectively.

Online questionnaire responses

A further 333 people that attended music festivals in NSW completed an online questionnaire. Of those, 68 (21.2%) reported attending a music festival outside of Australia with drug checking (37 of whom used the service), while 245 (80.3%) reported attending a festival in Australia with drug checking (152 of whom used the service, 135 at NSW festivals).

The cohort provided information on a total of 265 of their samples that they had analysed at any drug checking service. Samples were commonly expected to be MDMA (27.9%), followed by ketamine (12.5%), cannabis (10.6%), GHB (8.7%), cocaine (8.3%), benzodiazepines (7.9%), dexamphetamine (6.4%), heroin (5.7%), amphetamine (4.9%), methamphetamine (4.9%), 2C-B (1.5%), LSD (1.1%), psilocybin (0.8%), and other (0.4%). Consistent with service data, MDMA and ketamine were most reported, however, there was a greater proportion of other drugs expected in this dataset (e.g., cannabis, GHB). This could be due to differences in sample characteristics, where the service dataset captured a broader range of consumers, whereas the online questionnaire may have targeted more motivated and experienced service users. Furthermore, the drug samples reported on in the online questionnaire were not restricted to NSW services.

Following testing, 182 (68.7%) of the total samples were consistent with what was expected, 33 (12.5%) samples were more pure than expected, 23 (8.7%) samples were less pure than expected, 17 (6.4%) samples were adulterated with a different drug, and 9 (3.4%) samples were a completely different drug. Among the expected drug types with at least 10 samples, amphetamine (100.0%) had the highest proportion of what was expected, GHB (8.7%) had the highest proportion of being a completely different drug, heroin (26.7%) had the highest proportion of being adulterated with a different drug, cannabis (17.9%) had the highest proportion of being less pure than expected, and cocaine (22.7%) had the highest proportion of being more pure than expected.

Within the whole sample, 243 (73.0%) reported that they would use the service if it was made available to them in the future, 325 (97.6%) would encourage others to use the service, and 281 (84.4%) believe it to be beneficial. Overall, these findings demonstrate that

there was considerable demand for the service. Furthermore, it offered unique value in correcting consumer knowledge for a significant portion of drug samples.

Stakeholder interviews

Qualitative analysis of stakeholder interviews identified several key themes about how drug checking adds unique value to existing harm reduction including providing **valuable insight into the drug content which allowed harm reduction practices to be tailored to the service user**. It was noted by service users that often some patrons were already practicing harm reduction, but drug checking results provided key information to guide specific harm reduction practices (which was not possible with any of the existing measures). The benefit of having accurate, reliable and specific knowledge about the drug contents was acknowledged across all stakeholder groups.

“I've been working in the music festival space before we had this and we were seeing people who are, you know, critically unwell at these events and any opportunity that could have prevented that harm is something that I'm really interested in. I think pill testing provides something that is not otherwise available in that space.”—Healthcare worker/provider [G1_1201]

“they can't say it's safe, but at least they can tell (consumers) if it's super dangerous... this is a risky behaviour in the same way as drinking and smoking... it's about risk stratification rather than you know, we're not saying don't do it because we know the reality is that you are or you know are or aren't and you've made that decision.... I think just having that service there brings it front of mind that you know this, this is a risky behaviour” — Paramedic [G5_0302]

“I also found it (engaging with the drug checking service), like, it affected, kind of how much I took, like, making sure it was safe, because both times it was kind of different to what I expected. Like, it was... the drug was the same, but then knowing how much of it was different, so that was helpful” — Service User [G6_1202]

This personalised education was particularly invaluable as often service users had not engaged with health services. It was identified that the drug checking space represented a unique opportunity to engage service users in drug education in a safe, non-judgemental space. Some service users were not aware or had not considered harm reduction practices before accessing the service or were worried to ask about drugs because of the stigma and judgement often associated with them.

“The majority of people who go to drug checking services have never spoken to a health worker in the broad sense and peers, analytical chemists and also people who know about substances, before in their life.”—Analyst/Drug Surveillance Staff [G2_0912]

“Generally, people are really appreciative who've come through the service and the opportunity to talk openly about their drug usage. It's pretty rare to be able to do so, so openly, and especially without like, judgment from the person you're talking to, or without having to be kind of be cautious about what you're saying... So many people have experiences talking to psychiatrists who are prescribing them medication, psychologists. Having to hide their usage, because they're just going to be barred from accessing the kind of help that they actually need, just because they might have taken some drug here and there, regularly, even just casually, just very occasionally. Yeah, so... I think, yeah, we've generally had, like, really positive feedback from people while they use the service.”

– Peer Worker [G4A_1512]

This personalised education and engagement may also have helped service users reflect on their drug use behaviour and consider whether they may need to seek support, potentially preventing service users from developing serious mental and physical health issues.

“You might have someone who actually is developing a dependence, or is developing mental health issues because of their drug use. And you've got this opportunity. In that setting, where people are accessing their drug testing, to be able to then be supported go and see your GP, go and see your drug and alcohol service.”- Analyst/Drug Surveillance

Staff [G2_1201]

Many stakeholders highlighted the **importance that the education and messaging came from peers** and this was a key component in successfully engaging service users.

The peers are like, have that key step in communicating all of that to the patrons in a way that they don't feel like they're being lectured and just feel like they're being helped and that people actually care about them.”- Healthcare worker/provider [G1_1201]

It was great having peers be the ones delivering the information, because it made us more comfortable asking for questions. – Service User [G6_1202]

Stakeholders, particularly health workers/providers and paramedics, spoke about how drug checking **strengthens on-site care, collaboration between services, and informs timely public health responses**. Stakeholders discussed importance of drug warnings and how drug checking has the potential to allow real time public health alerts to festival patrons and healthcare workers if there is a particularly high dose of a drug detected.

“...key benefit that I see is the rapidity of the test results, and available to provide real-time information regarding drug type and purity and potency, to both, the festival patrons, but also the clinicians working in the medical, tent. It is very helpful for us to be able to provide the drug checking tent with substances that we obtain from patients who are very unwell to get, to get immediate knowledge about drug type” – Healthcare worker/provider

[G1_2101]

“The rapidness in which some of the drug alerts are now being able to be put out is also probably helped by pill checking... I think the drug alerts are able to be issued a lot quicker”- Paramedic [G5_1301]

Drug checking services also helped medical teams prepare, better utilise resources and tailor on-site care.

“That's another benefit of the testing that we're able to directly talk to the medical teams, make sure they understand what's circulating and be prepared for presentations related to that.”—Healthcare worker/provider [G1_1201]

“You know it, it really helps people on the fly adapt and enhance their service rather than kind of a week out from the event saying, oh, we think that this might show up...We're able to give real time information, so it's, it's been very, very helpful in enhancing those services on the spot.” – Healthcare worker/provider [G7_1601]

This is important as several service users expressed concerns about adulterants and taking drugs that were not what they thought they were. Previous experiences by paramedics also highlighted that treatment is delayed when people take drugs which are not what they believe them to be increasing the length of stay and treatment costs.

My biggest concern with... always with this sort of stuff was just, like, whether it's adulterated. Especially, like, like, if it's gonna be something that's gonna stay in my system or get picked up on a, random drug, like, roadside drug test or something like that. I use my car for work, so, I'm sort of am concerned about that. I'd never drive under the influence, but, like...I don't want to take something, and then 3 days later, like, get picked up and sort of go, well, hey, this is in your system, go, I've never heard of that drug, or I never bought that drug. – Service User [G6_0902]

*“For example, before the drug trial came in, at, an event we had 3 patients presenting in very quick succession with signs of, severe opiate intoxication. All three, patrons believed and reported that they thought they were taking MDMA. But presented apnoeic, and hypoxic, responding to naloxone. I was able to obtain drug samples from, patients at that event. This was pre-drug... checking, so we did not have access to, forensic analysis to know what the drug contained. We had to treat them presumptively as an opiate overdose. They all required re... re-dosing of naloxone, ended up on naloxone infusions, and went off to hospital, where someone had to stay several days. We were able to facilitate drug checking, but through the standard channels, and got results, I thought it was still pretty quick, within a day or two that showed that it was a potent synthetic opioid.”
– Healthcare worker/provider [G1_2101]*

Several stakeholders highlighted that **drug checking is one important part of the wider harm reduction picture** and should be considered as a tool that strengthens rather than replaces existing harm reduction methods.

“I think the important thing is, is that we offer it as a service, because it's absolutely a part of harm reduction across the board, and that's... that's everyone's game behind the scenes when we go to a festival, is everyone's result is, let's get everyone out safe... out safe at the end of the festival, and home...It's a part of the solution, 100%” – Healthcare worker/provider [G1_1112]

“I just think it's another tool, you know... we really want to make sure our events are as safe as possible, and we do everything that we can to make it that way, and I think drug checking has been... it's not a new concept, like, it's probably new here, but it's not a new concept globally, and we've seen other events overseas do it very successfully, so we were really happy that, we had the opportunity to do it in New South Wales. So yeah, I think it... It's, just another tool to help make the event safer.” – Paramedic/Police

[G3_1112]

Overall, drug checking demonstrated the importance of individualised guided harm reduction rather than generalised advice. Peer workers found that people using the drug checking services really appreciated the opportunity to use the service and get practical advice and another peer worker stated that “getting to do such hands-on harm reduction work has been incredible.”

Social media

Qualitative social media analysis indicated that service users appreciated the unique value that the drug checking service added for harm reduction. Service users discussed how the Drug Checking Trial complemented existing harm reduction services such as DanceWize NSW and the private event medical providers.

Cost of the service

Value added from the Drug Checking Trial should be considered in light of the costs of the service. A detailed costing analysis is presented separately (from Page 64).

2 Did the drug checking service integrate with and enhance the existing music festival harm reduction activities, and drug surveillance and early warning system?

Key observations:

- The service integrated well with existing peer-led harm reduction services, and enhanced drug surveillance conducted by NSW Health.
- The service facilitated harm reduction discussions with people who had never discussed their drug use with a health or harm reduction professional in the past (69%)
- After using the service, the vast majority of people were confident in their capacity to reduce harms associated with using drugs (93%)
- Intended harm reduction behaviours were common following service use, including spacing out doses (64%), increasing water consumption (60%), keeping cool (55%), seeking help if unwell (55%)
- Co-location with peer-based harm reduction services (e.g., DanceWize) and the on-site medical centre was viewed highly by stakeholders, and this facilitated integration and referrals to existing services.
- 22% of people were provided with free take-home naloxone and training on how to use it, meaning they would be able to respond as a bystander to opioid intoxication (e.g., with nitazenes).
- Drug checking results enhanced existing surveillance through PRISE and CoSMoSS, primarily due to the large number of samples tested and the timeliness in receiving results.
- The majority (8 of 10) of public drug warnings issued by NSW Health over the trial period used data from drug checking detections, with warnings about high dose MDMA, ketamine analogues, and synthetic cathinones.
- Public drug warnings have the potential for broader system level impact within and beyond New South Wales.

Integration with existing harm reduction

Prior to the Drug Checking Trial, NSW Health had already implemented a suite of harm reduction measures at music festivals. This included mandatory Health and Medical Plans for festivals with higher risk characteristics, provision of harm reduction guidelines for festival organisers, harm reduction messaging and communication, collaboration with private on-site medical providers, and peer worker engagement and education. The drug checking service was a multidisciplinary model which allowed integration into existing harm reduction activities.

Prior conversations about harm reduction

The key role that peer workers played in guiding users through the drug checking service allowed for integration with existing peer-led music festival harm reduction. This included providing information, resources, and referrals. Importantly, the service engaged with people with limited past experience of harm reduction. Of 976 responding participants, the majority (68.5%, n=669) had never spoken with a health or harm reduction professional about drug use before the service use. This was reasonably consistent across festivals, ranging from 52.4% (Mighty Hoopla) to 77.8% (Hyperdome). Following use of the drug checking service,

all service users had spoken with a harm reduction professional about drug use. This expands the potential reach and impact of existing harm reduction services and messaging.

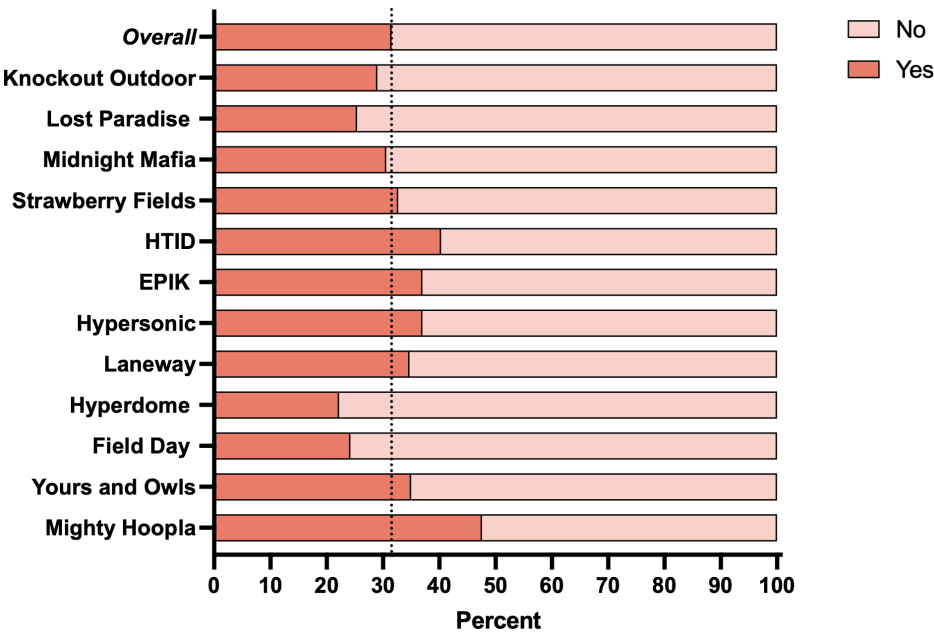


Figure 16 Percent of drug checking service users who had previously discussed harm reduction
Not shown, missing n=34

Confidence in reducing harm from drugs following the drug checking service

Service users were offered the opportunity to fill out an optional survey at the time of service use (separate to the interviews and online questionnaire described below). After using the service, 96.6% (n=938/971) reported being “moderately” or “very” confident in their capacity to reduce harms associated with using drugs, Figure 17.

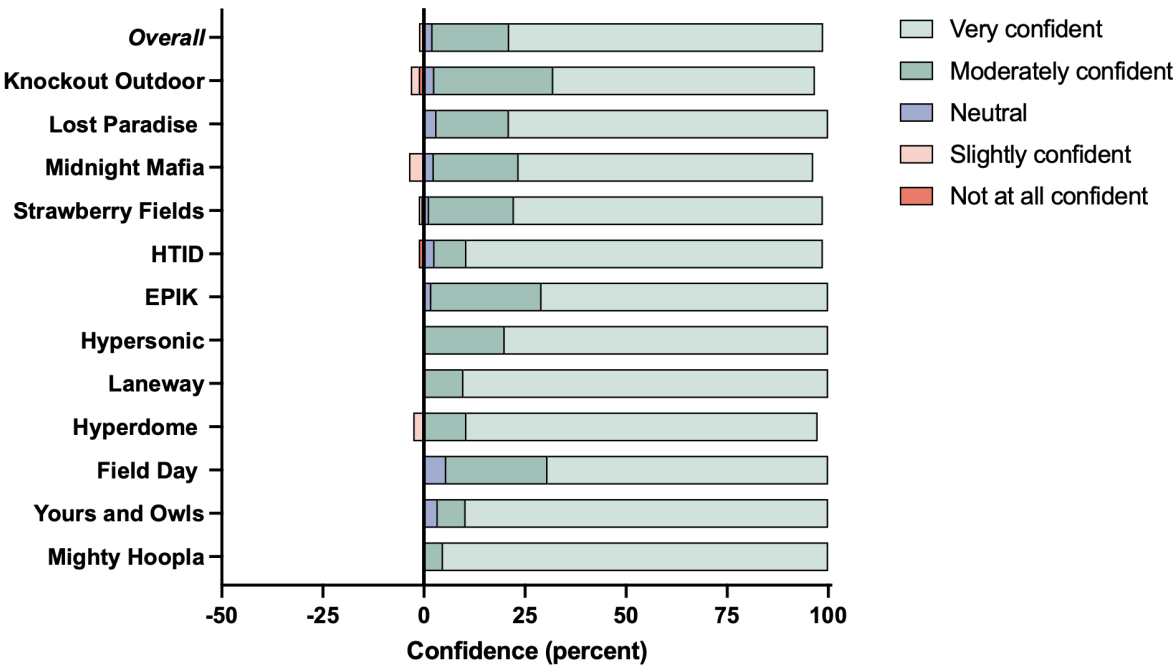


Figure 17 Service user confidence in reducing the potential harms associated with drugs, after using the service, by festival
Not shown, missing n=21, and “prefer not to answer” n=18.

Intended harm reduction behaviours

After discussion with the peer workers, 90.9% (918) service users selected at least one intended harm reduction behaviour, with a tendency to select multiple harm reduction behaviours (median: 5 behaviours). When asked to indicate which harm reduction behaviours they would employ if they were to use the drugs they had tested, the most common harm reduction behaviours reported were: spacing out doses (64.0%), increasing water consumption (59.7%), keeping cool (55.3%), seeking help if unwell (54.9%) and ensuring they had a friend with them who knew what they were using (49.0%), Figure 18. Several other options were selected by more than a third of participants, including not co-ingesting with alcohol or other drugs, or access peer-based service such as DanceWize.

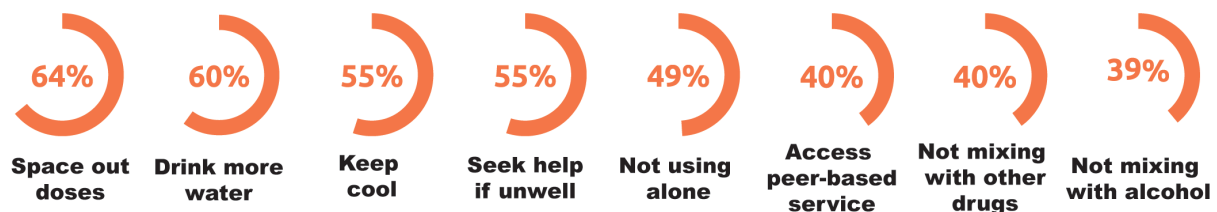


Figure 18 Intended harm reduction behaviours selected by service users at the time of the drug checking service

Harm reduction resources

Peer workers provided harm reduction resources including take home naloxone (n=218, 21.6%), substance pamphlets (n=39, 3.9%) and PeerLine cards (n=10, 1.0%), but most service users did not take any resources (n=591, 62.3%). Referrals were provided primarily to on-site services including the DanceWize festival team (n=61, 6.4%), the on-site medical centre (n=35, 3.7%) and the drug checking service medical team (n=16, 1.7%).

DanceWize interactions

Where available, we compared data from DanceWize reports, for trial festivals and their two previous editions, where available. Data available included counts of:

- Care interactions: care, support and non-clinical assistance provided inside the DanceWize space to intoxicated or distressed patrons
- Roving interactions: brief, crowd-care encounters as the worker moves through the festival, providing information and referring patrons to care or medical services as needed.
- Educational interactions: brief harm reduction conversations
- Consumables provided: harm reduction items provided as part of DanceWize interactions, including water and electrolytes, sunscreen, lollipops, and condoms.

Data were analysed where DanceWize reports were available and the trial festival had at least one historical control, summarised in Figure 19. There was a trend towards more care interactions, but fewer roving interactions, consumables and education interactions during trial festivals. More care interactions may indicate increased awareness of the DanceWize service and/or increased early help seeking. Roving interactions likely increase when the crowd care workers identify patrons who appear intoxicated, distressed, or at risk, and so reduced roving interactions may reflect less visible need in the festival grounds. Consumables are given out during education interventions (amongst others), and it is logical

that these tracked together. It is possible that the trends seen with education interactions and consumables are due to drug checking providing an alternative contact point for harm reduction engagement.

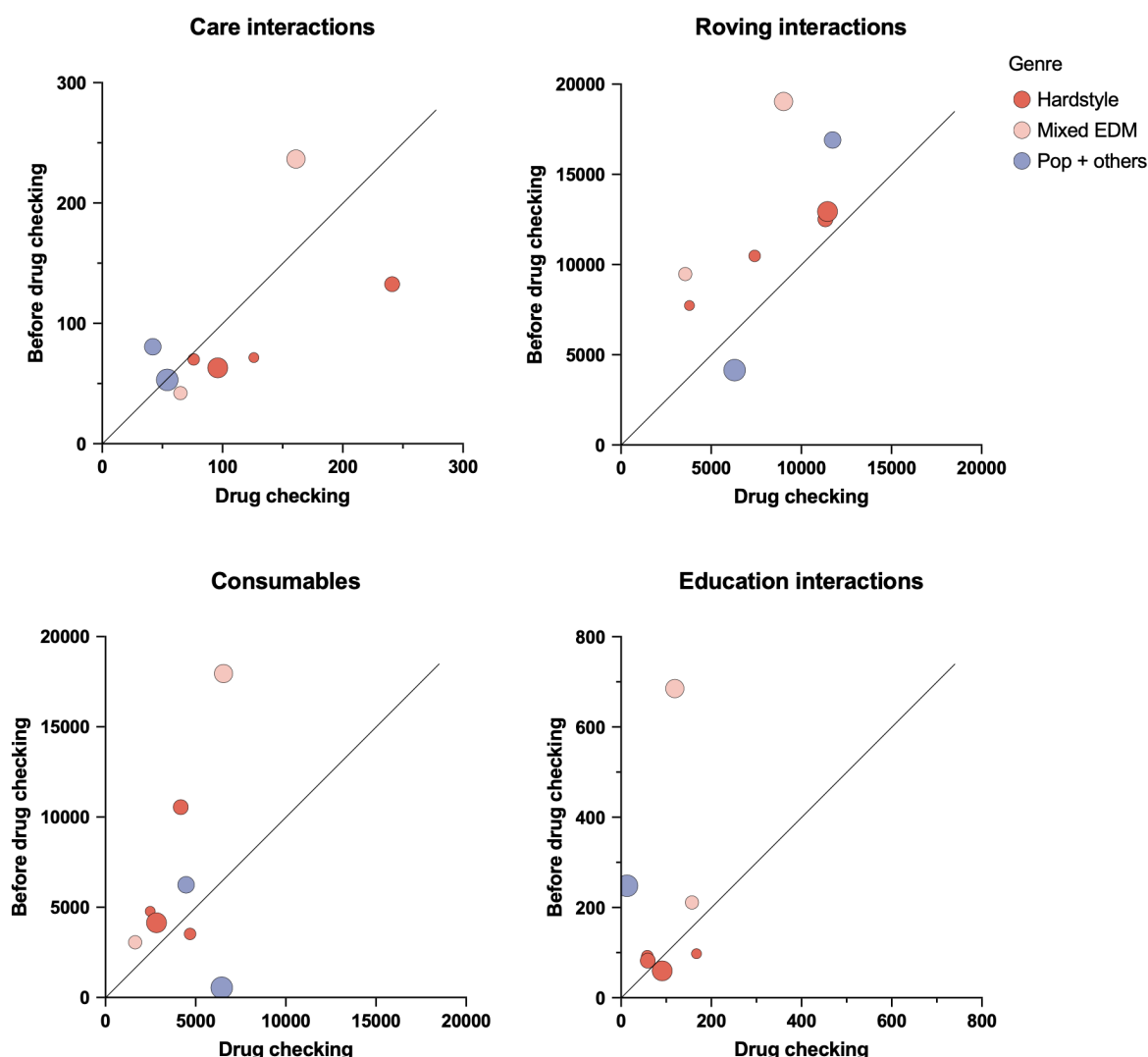


Figure 19 Comparison of DanceWize data between drug checking festivals (x-axis) and the two preceding years (averaged, y-axis).

Bubbles are coloured by main music style offered at the festival and sized by patron numbers. Points above the diagonal line indicate less events occurred on trial festival days.

Reported behaviours from online questionnaire

Use of harm reduction at music festivals was common among those responding to the online questionnaire, with 168 (51.9%) having accessed a harm reduction service at a music festival, most of whom (85.3%) were provided with a harm reduction resource. Of those that had used the drug checking service, a total of 265 of their samples were tested for analysis. This led to a change in their drug use following the results of 195 samples (73.6%), and further harm-reduction behaviours following the analysis of 249 (94.0%) samples. The most common harm reduction behaviours reported included seeking more information about the drug, being careful about mixing the substance with other substances, alerting friends and acquaintances, and taking the drug over a longer period of time. A majority of service users also reported that they were provided with resources related to naloxone (73.3%).

Additional evidence of the effectiveness of this integration was explored in stakeholder interviews, Page 48.

Integration with existing drug surveillance and early warning

Drug checking services can be a valuable addition to early warning systems. For example, the majority of high dose MDMA alerts issued in Australia in 2024 came from the CanTEST Drug Checking service²⁶. The NSW Health drug surveillance and early warning system has been described in detail elsewhere²⁵. Key data sources for drug surveillance and early warning include severe/unusual cases and clusters of toxicity (PRISE), ED presentation surveillance (PHREDSS), Poisons Centre data, drug related deaths, ambulance data, drug seizure information (CoSMoSS, NSW Police), and wastewater monitoring.

Drug Checking results represented a new data source with unique value, and was integrated into the NSW early warning system. For this evaluation we used data from CoSMoSS and PRISE relating to seizures and events (respectively). These data pertain to participating drug checking festivals, and their historical controls in the two years prior, where available, and do not reflect the full spectrum of data collected in either program.

The PRISE dataset contained 70 drug-related incidents in the two years prior to the trial at control festivals, where available (total 35 festival days). During the trial, PRISE recorded 37 incidents in 21 festival days, Table 5. Not all PRISE records had samples tested, but where tested (N=68 overall, including 16 in the trial period), PRISE testing delivered 273 detections across 40 different drugs/metabolites in total across the various cases. Detections include substances taken recreationally, therapeutically, and administered during medical treatment of the event, as well as metabolites. The most commonly detected drugs in the three-year period were MDMA (n=57), MDA (n=52), with MDMA co-detected in all cases, indicating likely presence as a metabolite) and ketamine (n=32).^c Other rare but important drugs detected by PRISE included nitazenes (n=2) and bromazolam (n=1).

Table 5 PRISE festival-related incidents at trial festivals only, and their historical controls (where available)

	Two years prior	One year prior	Drug checking festival
Cases of toxicity	33	37	37
Cases of toxicity per festival day	1.8	2.2	1.8

^aPRISE inclusion criteria for festivals include: any patients requiring ICU or critical care admission; and patients with drug-related hospital presentation, if they were from a festival with multiple hospital transfers.

There were 194 CoSMoSS seizures at trial festivals (21 festival days), compared to 475 in the preceding two years of the control festivals (35 festival days), where available. MDMA accounted for 59.3% of seizures at trial festivals (115/194 total seizures). This equates to 5.5 MDMA seizures per festival day,^d compared to 285 MDMA seizures from 35 historical control festival days, or 8.1 MDMA seizures per festival day. It is important to note that the number of seizures is influenced by multiple factors, including policing operations, and should not be inferred as reflecting the prevalence of drug use at the festivals over time. The average dose of MDMA per unit was slightly higher in the trial period compared to the control period, median 78 mg (IQR, 61.9 to 98.7 mg) for trial festivals, compared with 73.5 mg (IQR, 52.9 to 93.6 mg) in the two years prior. Purity was also higher during the trial period, median 74.5%

^c Note: midazolam was detected in n=36 cases, which likely represents medical administration. Caffeine was detected in n=57 cases which may represent caffeine consumption in food/beverages or as a filler in drugs consumed. Ketamine may represent either drug use or medical administration.

^d CoSMoSS data was not available for the twelfth festival (Mighty Hoopla) at time of writing.

(IQR 41.0 to 77.0%), compared to control, median purity 70.8% (IQR 22.5 to 77.0%). Comparing drug checking results with CoSMoSS detections, average dose of MDMA per unit was higher in the drug checking samples: median 87.5 mg (IQR 71.3 to 107.1 mg), compared to CoSMoSS, median 78 mg (IQR 61.9 to 98.7 mg), Table 6. Purity was also slightly higher in drug checking samples. Trends in dose and purity were largely consistent when examined by form, with the exception of tablets (Table 7).

Table 6 Comparison of drug checking with other aspects of the NSW Early Warning drug surveillance system

	Drug checking	PRISE festivals data (Trial festivals)	CoSMoSS festivals data (Trial festivals)
Model	Samples checked and results given to service user, with the potential to modify behaviours before harm occurs	PRISE detections require referrals from treating clinicians. PRISE inclusion criteria for festivals include: any patients requiring ICU or critical care admission; and patients with drug-related hospital presentation, if they were from a festival with multiple hospital transfers.	Enhanced monitoring samples seized by NSW Police during routine operations.
Time to receive results	<1h	1-40 days depending on urgency/triage	Varies depending on urgency, averaging 15 days but quicker if important/unusual detections are made.
Number of samples checked during the trial period	1,475	16 (note: there were 37 PRISE incidents, but not all underwent toxicological testing)	194 (seizures from trial festivals)
Percent of detections relating to MDMA	64.3%	93.8% (15/16)	59.3% (115/194)
MDMA dose, purity or concentration (where relevant), overall.	Dose: 87.5 mg (IQR, 71.3–107.1 mg) Purity (free base): 78.4% (IQR, 73.8–80.0)	1.1 mg/L* (IQR 0.40-1.8 mg/L)	Dose: 78.0 mg (IQR, 61.9–98.7 mg) Purity (free base): 74.5% (IQR, 41.0–77.0%)

CoSMoSS data not available for the final festival (Mighty Hoopla) at time of writing.

Drug checking data includes missing values for “form” in overall calculation of purity, but not in overall calculation of dose.

**If more than one concentration was available per person, the highest value was used. Note: The typical peak MDMA concentration is 0.15 to 0.3 mg/L after doses of 1 to 1.6 mg/kg in healthy individuals. Serum and blood concentrations over 1 mg/L (sometimes much higher) are typically found in those with fatal outcomes attributed to MDMA. However, high concentrations are not the only factor driving toxicity and fatal outcomes (which are usually from hyperthermia).²⁷*

Table 7 MDMA dose and purity drug checking samples and CoSMoSS seizures related to trial festivals, by form

Form	Drug checking N	CoSMoSS data N
Overall	Dose 517 87.5 mg (IQR, 71.3–107.1 mg) Purity 792 78.4% (IQR, 73.8–80.0%)	87 78 mg (IQR, 61.9–98.7 mg) 109 74.5% (IQR, 41.0–77.0%)
Capsule	Dose 380 85.4 mg (IQR, 68.9–102.0 mg) Purity 339 79.4% (IQR, 77.2–80.3%)	72 74.8 mg (IQR, 56.5–92.1 mg) 66 76.3% (IQR, 72.5–77.5%)
Powder	Purity 89 78.8% (IQR, 77.2–79.8%)	20 68.5% (IQR, 49.0–77.0%)
Tablet	Dose 163 90.5 mg (IQR, 75.0–140.4 mg) Purity 174 61.9% (IQR, 22.1–79.0%)	15 132 mg (IQR, 81.9–140.4 mg) 23 25.5% (IQR, 15.0–28.0%)

CoSMoSS data not available for the final festival (Mighty Hoopla) at time of writing.

Drug checking data includes missing values for “form” in overall calculation of purity, but not in overall calculation of dose. Purity expressed as free base.

Table 6 compares the characteristics of drug checking to PRISE and CoSMoSS, the other two primary data sources for rapid surveillance with analytical confirmation of substances. Comparing results and characteristics across drug checking sample data, CoSMoSS and PRISE suggests drug checking played a complementary role in the NSW early warning system. MDMA detections predominated across all three data sources (Table 6), which is to be expected in the festival setting. MDMA dose and purity were similar to that found in CoSMoSS samples.

The surveillance value-add from drug checking related to the:

- Sample size: drug checking samples far outnumbered PRISE and CoSMoSS, providing greater confidence and understanding in which drugs were circulating at music festivals.
- Timeliness: drug checking results were available rapidly. From a surveillance perspective, this allowed rapid alerts to be released in response to dangerous substances found, during the festival.

The potential benefits of rapid alerts during the festival had been demonstrated prior to the Drug Checking Trial. In 2024, a nitazene was identified in a substance expected to be MDMA (a tablet with a 'Red Bull' logo), on-site at a festival, through collaboration between on-site stakeholders¹³. A cluster of patients who took the tablets presented to the on-site medical centre experiencing toxicity inconsistent with MDMA, but consistent with opioids. Rapid, real-time alerts were sent out including an on-stage announcement at the festival, and a public drug warning followed the next business day after confirmation that the tablets contained a nitazene. While this example occurred prior to the trial, if a similar incident occurred at a festival where drug checking was available, it would provide the capability for more rapid detection and integration into the early warning system, and real-time drug alerts during festivals.

A tangible measure of the impact of drug checking on the early warning system was its contribution to public drug warnings. Between 1 March 2025 and 18 February 2026, NSW Health issued 10 public drug warnings (Table 8, Figure 20). These warnings contained information about the substance, toxic effects, harm reduction information and help-seeking advice, and contact details for support and emergency services. The drug checking service contributed to 8 of the 10 warnings, with drug checking the sole source for 7 warnings. The majority of alerts concerned high-dose MDMA, but the first NSW alert regarding the novel ketamine analogue 2'-fluoro-2-oxo-PCE ("CanKET") was also made as a result of the trial. In addition, the synthetic cathinone N,N-dimethylpentylone (dipentylone) was detected in tablets expected to contain MDMA, resulting in a public drug warning. The fact that the analysis was conducted by FASS staff (who are also responsible for testing PRISE and CoSMoSS samples) likely facilitated integration with surveillance and early warning systems, as the communication channels were well established.

Public drug warnings used information from on-site drug checking results as well as confirmatory testing performed by FASS. When the risk assessment determined that issuing information was of broad public health importance and needed to be done promptly, the information from on-site technology was used without confirmatory testing. In particular, high dose MDMA warnings were based on on-site technology as purity and weight data gathered

on-site allows dose to be calculated. In some instances, public drug warnings were issued based on findings from confirmatory testing as well as on-site findings. In these cases, on-site technology may have indicated the presence of a substance (for example a cathinone), and the exact substance was identified with confirmatory testing by FASS. With this additional detail, a considered risk assessment could be conducted, and messaging was tailored accordingly.

Public drug warnings were displayed at music festivals: in the peer-based harm reduction service space, the on-site medical centre, and within the drug checking service. This increased their reach to service users and festival patrons.

Integration of drug checking data into the existing early warning system represented an important system level outcome with broader impact. Public drug warnings released by NSW Health were amplified by circulation nationally by The Know, on social media (e.g., by NUAA), and to clinical groups through email distribution lists.

Table 8 Summary of public drug warnings during the trial period, and the role of the drug checking

Date	Summary	Source of detection
28/3/2025	Nitazenes found in counterfeit oxycodone tablets in NSW ²⁸ <i>N-desethyl isotonitazene found in counterfeit oxycodone tablets</i>	Non-drug checking source
6/5/2025	Multiple high-dose MDMA (ecstasy) tablets circulating in NSW ¹⁷ <i>5 separate tablet types containing between 145 and 220 mg MDMA free base</i>	Drug checking source
9/9/2025	Multiple opioid overdoses following use of cocaine ²⁹ <i>Ten presentations to hospital in Sydney and Northern NSW with opioid toxicity following use of cocaine</i>	Non-drug checking source
8/10/2025	Multiple high dose MDMA (ecstasy) tablets and capsules circulating in NSW ¹⁶ <i>Tablets containing between 152 to 209 mg MDMA free base</i>	Drug checking source
27/11/2025	Multiple high dose MDMA (ecstasy) tablets and capsules circulating in NSW ³⁰ <i>Multiple tablets and capsules containing between 142 to 233 mg MDMA free base</i>	Drug checking source
27/11/2025	Ketamine analogues recently detected in NSW ³¹ <i>Ketamine analogues 2'-fluoro-2-oxo-PCE (CanKET) and 2-oxo-PCE found in substances thought to contain ketamine and amphetamine.</i>	Drug checking source
12/12/2025	Multiple high dose MDMA (ecstasy) tablets circulating in NSW ³² <i>High dose MDMA tablets containing between 146 and 160 mg MDMA free base</i>	Drug checking source + other source (combined into the same warning)
15/12/2025	Multiple high dose MDMA (ecstasy) tablets circulating in NSW ³³ <i>High dose MDMA tablets containing between 151 to 229 mg MDMA free base</i>	Drug checking source
31/12/2025	Multiple high dose MDMA (ecstasy) tablets circulating in NSW ³⁴ <i>High dose MDMA tablets containing between 151 to 256 mg MDMA free base</i>	Drug checking source
2/2/2026	Multiple tablets containing a high dose of MDMA (ecstasy) and multiple tablets containing a synthetic cathinone (dipentylone) in NSW ³⁵ <i>High dose MDMA tablets containing between 163 and 170 mg MDMA free base. MDMA tablets containing a synthetic cathinone (dipentylone, also known as N,N-dimethylpentylone), and variable dose of MDMA</i>	Drug checking source



Figure 20 Timing of public drug warnings relative to festivals in the Drug Checking Trial.

Stakeholder perspectives on integration with existing harm reduction and early warning systems

Stakeholder interviews discussed the **location and integration of the drug checking service** in detail, and this was a common theme across all stakeholder groups. The integration of the drug checking service with other health and harm reduction related spaces was viewed highly. It also helped to increase the credibility and confidence in the drug checking service as many patrons were already familiar with the harm reduction providers (e.g., DanceWize). The integration, bringing together peer workers, analysts and other stakeholders, also allowed each group to contribute their unique strengths to the drug checking service and provided a personalised experience for service users.

“I think you do need a place to be able to...Like, at least walk in and sort of have a look, or have an excuse of what else you're doing there.” –Service User [G6_0902]

“Definitely the way that we integrate with medical and DanceWize, at all of our events, works really, really well. Good communication. I'm pretty sure that we're also the only state that tests substances for the medical team on-site” – Peer Worker [G4A_2511]

“I like it that it's often co-located ... I feel that that's good to be sort of co-located, and it's good for the patrons to be able to come in through one entrance, where you've got medical, DanceWize, and, drug checking all in one, in one location.” – Healthcare worker/provider [G1_2102]

“We're able to provide that testing, but also to provide our expertise. So hey, I've seen that tablet before that is probably something that we are uniquely placed to provide compared to just training because the techniques are pretty simple...I think that's the key integration that is beneficial for us being there.” – Analyst/Drug Surveillance Staff [G2_0701]

“People already have that confidence at music festivals of DanceWize...Co-locating them with them also adjacent to medical, it just puts all that harm minimization medical things together”- Police/Paramedic [G5_1301]

Co-location also provided a sense of safety and anonymity as concerns were raised by several stakeholders about the safety and privacy of the drug checking service and whether their attendance at the service might make them vulnerable to criminal penalties.

“As long as there is that, combined assurance somehow, you know, whether it's in the information that's advertised online, or in like, in... in person, when you're physically there, if there's, like, signs that sort of, like, reassure you that it's anonymous, I think that that would make people comfortable” – Service User [G6_1901]

“Yeah, I can imagine what works really well is having a single entrance for multiple services, it could be for the peer harm reduction services that's DanceWize us, or another one, and medical and drug checking. So, you know, that whole area is security and police free, and folks walking in could be accessing a Band-Aid or the drug checking service.” – Peer Worker [G4B_1002]

"I have had other people ask if there's an amnesty, sort of, area. And I don't know the answer to that... if there was, like, a confirmation of is, like, and we can basically give a yes-no answer, or, like, I'm sure that'll give someone some confidence if there was a 5 or 10 metre window." – Service User [G6_0902]

Knowledge about the service and its visibility was discussed across stakeholder group interviews. Some participants indicated that knowledge about where the service is, and what it did, was low. However, other participants felt the visibility of the service was good. It is possible that visibility of the service improved as the trial progressed along with confidence that service users would not be harassed or get into trouble for accessing the service. However, several service users stated that improved communication and messaging around when a drug checking service will be available and where it is located prior to the event would be beneficial.

"I think in initial stages, one of the barriers was knowledge of the service..."
Police/Paramedic [G5_1301]

"Promoters have been fantastic and they provide some really good space but people are still reluctant to come in ... I think there's a reluctance because they don't know what we do."—Analyst/Drug Surveillance Staff [G2_1301]

"Definitely has been very visible and has been not so visible... I think we want it to be visible and after the first festival or two we improved signage quite substantially... refined design and layout."—Analyst/Drug Surveillance Staff [G2_0701]

"I've never known, like, where. I've always heard just, like, whispers. Or people are talking about that it's available... but I've never, like, walked past a tent or been like, oh, there's the pill testing. Like... it's always been this sort of elusive..."—... "And if it was more obvious and more easily accessible, and more people were doing it. Definitely, I would absolutely use the service..." – Service User [G6_1601]

"So, the location of it was clear, and there was clear signage to make sure that people were aware that that service was available. It was also made quite clear, if you went and spoke to them, that it was provided anonymously." – Service User [G6_1901]

"The service user confidence in accessing our service, but also their knowledge of what to expect has increased" – Analyst/Drug Surveillance Staff [G2_2011]

"Emphasizing the need for it to have reassurance of anonymity for the people that are using it are really strong on making sure that wherever it is at the festival, it's not surrounded by, like, police presence, because people definitely won't use it if they can see that there are police nearby.... just making sure that people maybe know about it, if it's possible for it to be even, like, advertised prior to the event, that would be helpful." – Service User [G6_1901]

Several interviewees from stakeholder group 2 commented that the Drug Checking Trial happened quickly and **improvements were made across the period of the trial.**

“I think confidence is growing and will hopefully continue to grow...resourcing was something that we've really struggled to get exactly right... so that's a big improvement we can make, particularly from a cost perspective... I think we've got that right now and yeah for the last couple of festivals, we should have the numbers a little bit tighter.”—
Analyst/Drug Surveillance Staff [G2_0701]

“We had to learn on the run very, very quickly. We didn't have a great time to prepare... for instance, all of our staff are paid on overtime because we're not sure that this is going to be an extended thing.”—Analyst/Drug Surveillance Staff [G2_1601]

“The process and the way we deliver the service has improved over the duration”—
Analyst/Drug Surveillance Staff [G2_2011]

Wait time was consistently brought up by stakeholders as an actual or possible barrier for service users. This was a particular concern for single day festivals rather than multi-day festivals. This will be an important consideration if the trial is to be implemented long-term.

“No one's going to want to miss an hour of the festival at drug checking. So having ways that we can make the area a bit more immersive for people or feel like they're still at a festival type event, that means a bit more receptive to waiting may help us capture a few more people.” – Health worker/provider [G1_1201]

“Particularly in a festival setting, you come there with a bunch of mates. And you all want to start enjoying your day, and then the headline act is coming on and you've realised you might wait 15 minutes to be seen. For some people, that can start to become a barrier because they believe, well, people have been taking these substances without drug checking before. And your dealer's word has been good enough before why isn't still good enough now?”—Analyst/Drug Surveillance Staff [G2_0912]

“The first time it took about an hour, which was one issue that kind of, like, it would have discouraged... it didn't discourage me from using it again, but I can see, like, the second time, it was about 25 minutes in total, which I thought was pretty reasonable and pretty quick.” – Service User [G6_1202]

It was also **acknowledged that integration of drug checking into existing harm reduction measures, rather than replacing them, is important.**

“A limitation is the perception that drug checking is “the solution...seen as the thing that's going to solve it (drug overdoses)” which is incorrect...” drug checking is a tool”—
Police/Paramedic [G5_1501]

“This drug checking is not a panacea for drug related harm. We need to make sure all of these other features that have been built in through a lot of amazing work and collaboration with health and peer organisations and so many different bodies, aren't forgotten about with the excitement of a new harm reduction initiative being implemented.”—Analyst/Drug Surveillance Staff [G2_0912]

The importance of strong stakeholder relationships was also a key theme across all stakeholder groups with acknowledgement that the ability to provide a positive beneficial experience to service users and prevent drug harms was due to good communication,

respect for each other's expertise and having people coming together for the common good of ensuring safety at musical festivals.

"I think we work really well together, in a collegiate supportive, friendly, open manner."
Healthcare worker/provider [G1_2101]

"Staff interaction with (the Drug Checking Trial) has lifted mood, productivity and general kind of staff morale... everyone wants to be involved... I think the why comes down to people think that they're actually doing good community work and we're helping people, , making the NSW community a safer part." – Analyst/Drug Surveillance Staff [G2_1601]

"Everyone brings a different expertise, so the peer workers have credibility and expertise in the way that they communicate the information back to our service users, and they also play a critical role in helping that service user feel comfortable in the service... on the flip side, we have the analysts that are conducting the actual testing of the drugs and they have credibility in the work that they're doing" – Analyst/Drug Surveillance Staff [G2_2011]

The **role of police at music festivals** was also discussed across all stakeholder groups. There was an appreciation of the important role police have in maintaining public safety and that police had been receptive to avoiding the drug checking area as any police presence would prevent people from accessing the service.

"I think one of the roles that the police have in the community is to keep people safe, and so if their focus is on that, like, keeping people safe, you know, you know, removing anyone who might be aggressive, or, you know, that kind of thing, I think that that sort of thing can be beneficial." – Service User [G6_1901]

"The police don't even sort of hang around, they... I don't know if they've been instructed, or they sort of have different goals, or anything like that, but, like, they're never sitting there looking, they're never taking photos, or... like, they're never really loitering around that area, so, like, again, that gave me a lot more confidence." – Service User [G6_0902]

"I get where the police are coming from ... they seemed to respond very well to the event organisers for this event because I believe the police may have had line of sight to ... the area where the drug checking was going on and they were asked to move and they did, which was great. But yeah, that heavy police presence is gonna hinder it." – Healthcare worker/provider [G1_2102]

However, many interview participants felt there was mixed messaging and confusion around the role of police at music festivals.

"I think it's counterintuitive having ... a heavy police presence... It was quite a lot actually. It was like 40 or so searches and a couple of arrests for supply. Yeah, which, you know is good. But then in the sense it's like, I wonder if ... if that didn't occur whether that would have changed the numbers A) for the checking service or B) medical presentations for drug affected people also." – Healthcare worker/provider [G1_2102]

This was acknowledged in NSW police stakeholder interviews, which emphasised their support for the Drug Checking Trial. However, this does not appear to have permeated throughout the festival community, with participants across different stakeholder groups

commenting that the police did not seem interested in the health and welfare of people who are using drugs.

"The conflict in the public eye and mixed messaging is probably the challenge for us...We [the police] have been supportive throughout it...Everything is about public safety for us – for the patrons and the community" – Police [G5_1401b]

"Doesn't seem like they care so much about the health and well-being of people so much as they care about, like, enforcing some sort of power, and like, yeah, but that's... just a personal opinion...I also respect a lot of the work that they do". – Service User [G6_1601]

"They say it's for stopping supply, but we both, we all know it's actually predominantly directed towards the people who are consuming them and this becomes a real barrier to making sure that people feel safe going to the service... I've spoken to many people who even though I have assured them that it would be safe, do not feel comfortable to go into such a service." – Analyst/Drug surveillance staff [G2_0912]

Stakeholder interviews suggest that there could be greater clarity about the role of the police at music festivals, particularly in comparison to festival security. More direct messaging about their support of the Drug Checking Trial would also be beneficial, as there was some confusion and variation in perception of this across stakeholders. Similarly, service users reported variable experiences with police which could impact service use.

"I mean, with security...for the most part, they have fun, and the punters love them, you know? ... They know that they're not police, they're not there to enforce the law, they're there to enforce safety ... If someone goes up to them and says, hey, do you know where the drug checking service is? Security would be like, oh, yeah, it's over there... A copper would be... would just be, like. Why do you want to know?" – Service User [G4A_2511]

Appropriate and targeted training and education for police officers attending festivals is crucial. This could be facilitated by strengthening relationships between the police and harm reduction organisations which would further facilitate integration of any drug checking service at festivals.

"It's important to have strong briefing knowledge and communication to the police so they are aware of it." – Police/Paramedic [G5_1401b]

Social media perspectives on harm reduction

Service users on social media consistently commented on the synergistic relationship between DanceWize NSW and the Drug Checking Trial, particularly regarding their shared entrances. Service users commented on the fact that the shared entrances helped decrease the fear and stigma associated with using the drug checking service. A consistent concern for service users online was the conflict between policing activities (such as drug detection dogs) and access to the service site, which may have dissuaded potential service users from accessing harm reduction services.

3 Was the drug checking service associated with reduced rates of drug-related harms at participating music festivals?

Key observations:

- Descriptive trends suggested reduced rates of drug-related harms with drug checking, including:
 - reduced drug-related hospital presentations, across all festival styles,
 - reduced proportion of presentations with a triage category of 1 or 2 (immediate and urgent treatment needed, respectively),
 - reduced ICU admissions,
 - several festivals (Hyperdome, Yours and Owls, Laneway and Mighty Hoopla) were not associated with any drug-related hospital presentations during the drug-checking year.
 - there were two confirmed drug-related deaths in 2023, but these cannot be compared to one death in 2024 and one in the trial period as the causes of death are still under investigation by the coroner.
- Inferential statistical analysis was not possible due to small case numbers and lack of historical control data for some festivals.
- Drug-related hospital presentations were predominately associated with MDMA, ketamine, and cocaine, consistent with the substances being presented for testing.
- The demographic profile of drug-related hospital presentations closely matched that of service users using the drug checking service, indicating that the trial is reaching the population at highest risk of drug-related harms.
- There were no major changes to the demographic experiencing drug-related harms between the control and trial years.
- Stakeholders reported a reduction in severe medical presentations, including fewer cases requiring intubation, at festivals with drug checking.

NSW Health collated information on hospital presentations from various NSW Health data sources on all festival-related hospital presentations after each festival which required an agreed Health and Medical Plan. This has been done routinely and allowed for a partial comparison of the trial festivals with their two most recent previous occurrences. The festivals with historic comparisons are listed in Table 1. We calculated the total number of festival days for each period, as it was assumed the number of hospital presentations could be influenced by the length of the festival.

Drug-related harms during the trial, compared with previous years

Our primary outcome of interest was drug-related hospital presentations. Because drug-related hospital presentations were infrequent and key historical data were incomplete, inferential statistical testing was not feasible. Descriptive trends, however, suggest a reduction in drug-related medical events with the implementation of drug checking services. In total, there were 274 festival-related hospital presentations (across the trial year and two previous years, where relevant), including 174 drug-related presentations. There was an average of 2.9 and 4.4 hospital presentations per festival day, two years and one year prior to the Drug Checking Trial, respectively. There were 2.3 hospital presentations per festival day during the Drug Checking Trial (Table 9). Several festivals (Hyperdome, Yours and Owls, Laneway, and Mighty Hoopla) had zero drug related hospital presentations in the drug

checking year. There was also a trend towards reduced ambulance transfers, reduced hospital presentations with triage category 1 or 2 (immediate/urgent), reduction in PRISE referrals and ICU admissions (Table 9, Figure 21).

Table 9 Drug related medical events, comparing the trial festival, to the same festival one and two years prior, where available*

	Two years prior	One year prior	Trial festival
Number of festivals with available data	9	9	12
Number of festival days	18	17	21
Events per festival day (total count)			
Drug-related ambulance transfers/day (total)	1.9 (34)	3.5 (60)	2.0 (41)
Drug-related hospital presentations/day (total) [†]	2.9 (52)	4.4 (74)	2.3 (48)
Hospital attendance with 1/2 triage category/day (total) [‡]	0.8 (15)	1.6 (28)	0.7 (15)
Drug-related ICU admissions/day (total)	0.9 (17)	0.8 (13)	0.6 (12)
PRISE referrals/day (total) [~]	1.8 (33)	2.2 (37)	1.8 (37)

* See separate section on drug-related deaths on p. 56.

[†]Includes people who self-presented, plus ambulance transfers.

[‡]Based on Australasian Triage Scale (ATS), corresponding to “immediate” and “urgent”

[~]PRISE inclusion criteria for festivals include: any patients requiring ICU or critical care admission; and patients with drug-related hospital presentation, if they were from a festival with multiple hospital transfers.

Most events are shown as events per day to account for different denominators in each year; the total events per year follow in brackets.

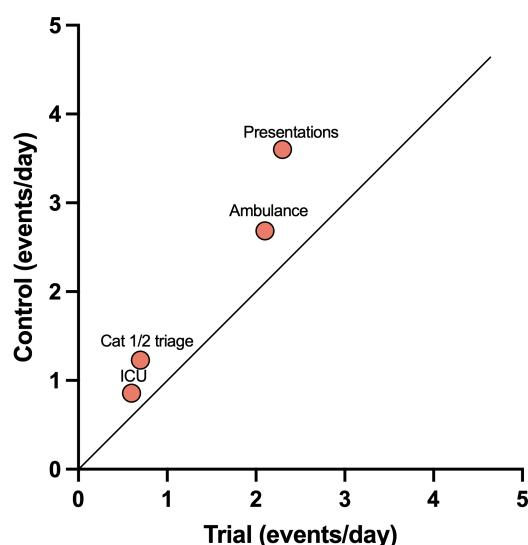


Figure 21 Drug related medical events (per festival day), comparing the trial period (x-axis) and historical controls (y-axis)

Bubbles lying above the diagonal line indicate fewer events during the trial year.

Raw counts of medical events per festival are not shown, for privacy reasons. However, when comparing the same festival's data during the trial period and the 1–2 years prior, a trend towards decreasing hospital presentations during the trial year is seen. This was seen across festivals of all sizes and music styles (Figure 22).

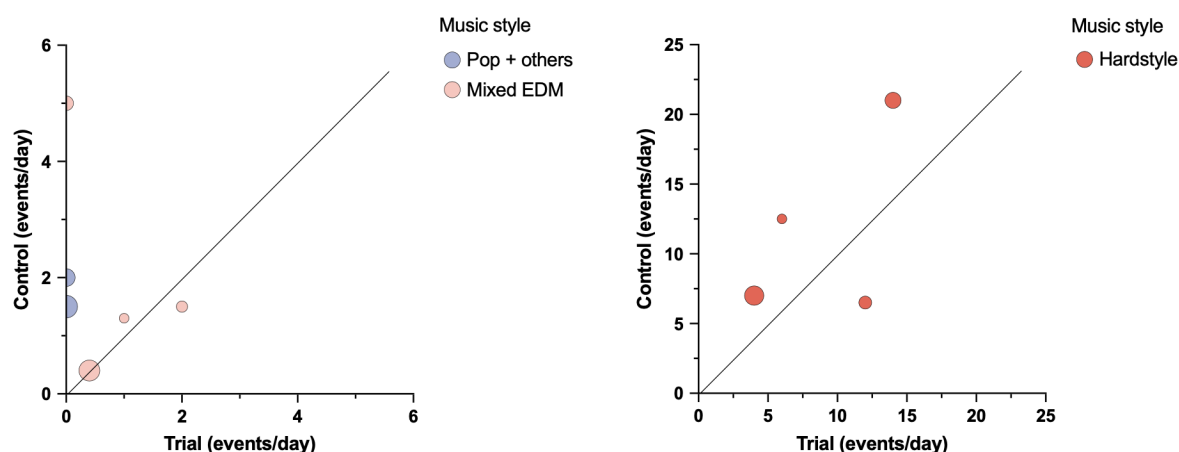


Figure 22 Drug related presentations (events per festival day), comparing trial period (x-axis) and historical controls (y-axis)

Bubbles are sized according to patron numbers, and coloured according to main music style. Left panel is mixed EDM, with Pop + others, while right panel is Hardstyle EDM festivals (note different scale of axes). Points above the diagonal line indicate fewer events occurred on the trial festival days.

Not shown: Two festivals with no historical control data.

Characteristics of people presenting to hospital for drug-related harms from music festivals

Age and gender distribution of people presenting to hospital for drug related harms was similar during the Drug Checking Trial compared to control years. During the Drug Checking Trial, from trial festivals, the median age was 22 years (IQR, 20 to 26 years). This was comparable to one year prior (median 22 years, IQR 20 to 24 years) and the same as two years prior (median 22 years, IQR 20 to 26 years). Males predominated overall, (62.4%, n=108/173 where sex was recorded) which was similar the trial year (64.6%, n=31/48) compared to the two years prior (61.6%, n=77/125).

Substances reportedly involved in drug-related hospital presentations

Drug(s) involved in presentations were noted in the medical record based on history provided and presenting symptoms. MDMA was the drug most commonly involved in drug-related hospital presentations, mentioned in 88.6% of cases in the trial year (39/44 where drug was stated), compared to 83.8% of cases in the two preceding years (83/99 where drug was stated). Other common substances mentioned varied between the periods, and included cocaine: 22.7% of trial cases (n=10) versus 5.1% of control cases (n=5), and ketamine: 2.3% of trial cases (n=1) versus 15.2% of control cases (n=15). Other drugs were mentioned in 13.6% of trial cases (n=6) versus 18.2% of control cases (n=18).

Substances detected in drug-related hospital presentations

From PRISE data, where analytical confirmation was obtained, the most common substance detected was MDMA. While there was a trend towards lower PRISE referrals during the Drug Checking Trial, the proportion of referrals where MDMA was detected was higher: trial period, 93.8% of cases (15/16 with analytical confirmation); control years, 80.8% of cases (42/52). Other common substances detected included MDA, which may be present as an MDMA metabolite: 87.5% of trial cases (n=14), 73.1% of control cases (n=38). Ketamine was present in 31.3% of trial cases (n=5), and 51.9% of control cases (n=27); noting that ketamine may be present due to medical administration as a sedative. The cocaine metabolite benzoylecgonine was detected in 25.0% of trial cases (n=4), and 17.3% of control cases (n=9).

Triage category

When looking at how the drug-related hospital presentations were triaged (Table 10, Figure 23) under the Australasian Triage Scale (ATS), 13 were triaged as Immediate (Cat 1) and two as Urgent (Cat 2) from the ten trial festivals, vs 11 and 17 respectively from the festivals in the preceding year. There was a trend towards fewer Immediate and Urgent presentations in the trial year, particularly when the total number of festival days is accounted for: 1.6 immediate or urgent presentations per festival day in the year preceding the trial, compared with 0.7 per festival day in the Drug Checking Trial period. However, triage category was unknown/missing for many events, so this finding should be treated with caution.

Table 10 Triage categories for festival drug-related hospital presentations

Triage Category	Two years prior		One year prior		Drug checking festival	
	N	%	N	%	N	%
Unknown/missing	36	69.1%	35	47.2%	18	37.5%
1: Immediate treatment needed	15	28.8%	11	14.8%	13	27.0%
2: Urgent treatment needed			17	22.9%	2	4.1%
3: Serious condition			1	1.3%	10	20.8%
4: Moderate condition	1	1.9%	10	13.5%	5	10.4%
Total	52	100.0%	74	100.0%	48	100.0%
Festival days	18		17		21	
Total/festival day	2.9		4.4		2.3	

Expressed in Australasian Triage Scale (ATS) categories.

Note: historical data not available for all festivals, and the denominator (festival days) differs for each year: two years prior (18 festival days), one year prior (17 festival days) and trial year (21 festival days).

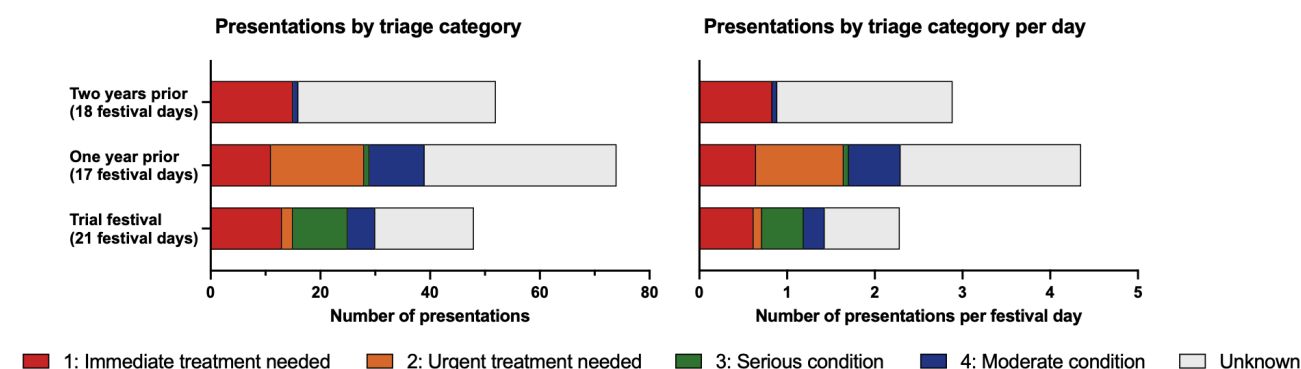


Figure 23 Triage category of drug-related hospital presentations related to the trial festivals, and two years prior, where available

The left panel presents raw numbers, while the right panel is adjusted by number of festival days. Data is expressed in Australasian Triage Scale (ATS) categories.

Note: historical data not available for all festivals, and the denominator (festival days) differs for each year, as indicated on the bar legend.

Drug related deaths

Our data contained information on five separate deaths: three in 2023, one in 2024, and one in 2025. The first four are listed in the PRISE data. Two deaths from 2023, as well as the 2024 and 2025 deaths, are listed in the medical incident data supplied by NSW Health. All festival-related deaths are subject to coronial investigation. One death from 2023 (although concurrent with a festival) was deemed to be not festival related, as the person concerned was not a festival patron. This death was not included in festival-related medical incident data from NSW Health. The two deaths from 2024 and 2025 are still under coronial investigation, and at the time of writing, it has not been determined whether they are drug-related. A further death from a non-Drug Checking Trial festival in February 2026 was not in

our data and is also still under investigation. The two remaining deaths from 2023 were determined to be drug-related by the NSW coroner. Due to the outstanding coronial investigations, it was not possible to compare drug-related deaths between control and trial festivals.

Stakeholder views on health impacts of drug checking

Analysis from the stakeholder interviews with healthcare workers/providers and paramedics at the Drug Checking Trial indicated a general perception of fewer adverse events and hospital transports compared to the same festivals in previous years. This was also noticed by peer workers and festival organisers and promoters.

“There is a clear reduction in intubating numbers...I can tell you I've certainly noticed a, a distinct drop in serious presentations.” Healthcare worker/provider [G1_2101]

“So. I think definitely in terms of cost effectiveness, it's certainly cost effective in reducing transports and bed hours in hospital, you know, it's certainly effective in, in education and it's certainly effective in terms of intelligence that drives good patient care”. – Analyst/Drug Surveillance Staff [G5_0302]

“It has changed the flow of our care space and the intensity and the waves of peaks, which means we're actually able to give better care to the people who are coming in”—
Peer Worker [G4B_0701]

“I've noticed, well, if you look at our statistics of how many people end up in hospital on the nights of our events, the two events we had drug checking was significantly lower than previous events...Just because I've seen it myself, that it, has made our events safer. Since we implemented drug checking, our hospitalisation rate has gone down dramatically. So, that alone is enough reason to say, yeah, let's keep it going.” – Festival Promoter/Organiser [G3_1112]

4 What are the characteristics of music festivals that would most benefit from drug checking?

Key observations:

Music festivals most likely to benefit from drug checking include events:

- Where MDMA use is likely to be prevalent, including electronic dance music (EDM) events, particularly hardstyle events
- With a young target demographic (18–29 years), particularly those who are likely to be drug naïve
- With high patron numbers
- In regional areas, particularly multi-day festivals
- Held in hot conditions
- Where patrons are aware of the service and feel safe to use it

The service was utilised and well-received at all the festivals where drug checking was trialled. However, decisions around future drug checking services in NSW should consider the settings which would most benefit from this intervention.

Assessing this is challenging because the festivals that were chosen for the trial were specifically chosen based on their anticipated need for drug checking. Selection criteria included festivals which had previously been associated with multiple deaths in recent years. In addition, festivals with characteristics associated with drug-related health harm were prioritised, including: those requiring an Agreed Health and Medical Plan (under the *Music Festivals Act 2019* (NSW)), those with a predominantly young target demographic (18–29 years), larger event size, high energy or EDM style music, and anticipated high temperatures on the day of the event.

Factors that were measurable for the evaluation were music style, patron numbers, weather conditions and event type/location. These are summarised against uptake of the service in Figure 24.

Music style

EDM style music festivals have been associated with drug-related harms, most likely due to (i) high rates of MDMA use, (ii) vigorous dancing, and (iii) crowded/hot environments. Most festivals in the trial offered high energy or EDM style music, with 4 “hardstyle” and 5 “mixed EDM” (including trance) festivals. The Yours and Owls and Mighty Hoopla festivals offered Pop + EDM, and had the lowest hourly service utilisation rate on a visit and sample basis. However, it should be noted that Yours and Owls was the first in the trial, and festival patrons may have been more likely to use the service as the trial proceeded. In addition, Yours and Owls was the only festival in the trial not requiring an Agreed Health and Medical Plan.

Patron numbers

The drug checking service at Knockout Outdoor was the busiest of the trial, which aligned with its high patron numbers.

Weather conditions

We collected temperature (as defined by the maximum recorded temperature on the day of the festival, according to the BOM). Amongst the festivals offering EDM, there was a trend

towards the service being used less on cooler days (Hyperdome, Field Day), however this may reflect patron numbers at those events.

Event type/location

The two regional multi-day camping festivals (Lost Paradise, Strawberry Fields) showed high uptake of the service. These two festivals also had high rates of unexpected/inconclusive results, and high detection of high-dose MDMA, suggesting possibly greater need at these types of events (see Evaluation Question 1 for more details).

While there was not enough data to analyse these trends statistically, or with a great deal of certainty, they are summarised visually in Figure 24. Caveats to this include unmeasured factors including police activities (including the use of drug detection dogs) at each festival, non-policing areas, and drug checking site prominence within the festival.

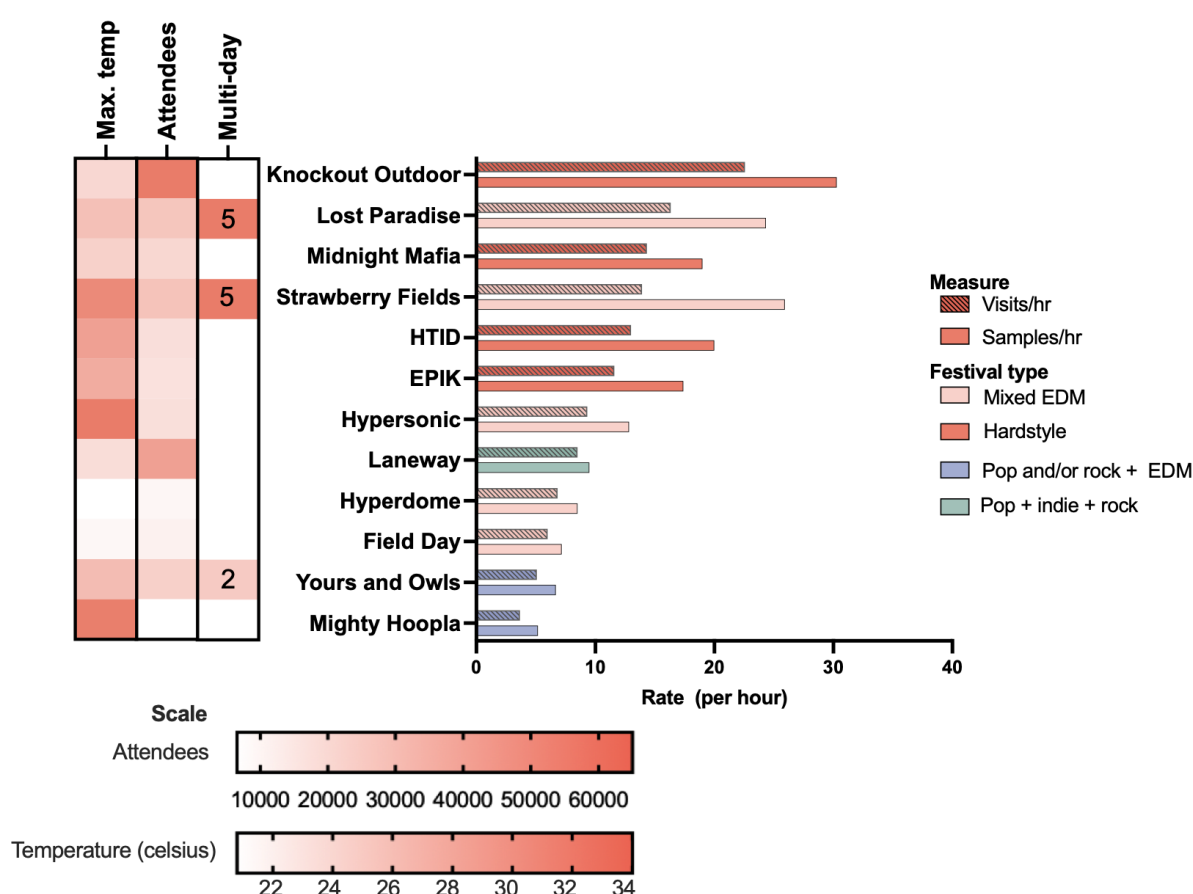


Figure 24 Drug checking utilisation: visits per hour (patterned bars) and samples per hour (solid bars)

Showing variables that may affect drug checking uptake, including patron numbers (darker = more patrons), multi-day (coloured = multi day, label represents length of festival in days), maximum temperature recorded during the festival (darker = higher temperature), music style (bar colours).

Note: multi-day festival length is based on number of days covered by the Health and Medical Plan, which may differ from the advertised dates.

Service use by time of day

We analysed service visits per hour and by festival, Figure 25. It is difficult to draw firm conclusions, due to the varying opening hours, and relationship to festival timelines (e.g., when headline acts play), which are unmeasured here. However, uptake of the service tended to be higher in the mid-late afternoon. This may correspond to service users timing

their visit around when they would like to use drugs and also festival acts. Some festivals were busiest at service opening (Lost Paradise Day 3, Hypersonic, Strawberry Fields Day 3), which may indicate value in opening earlier. Quiet times were most common towards the end of opening hours.

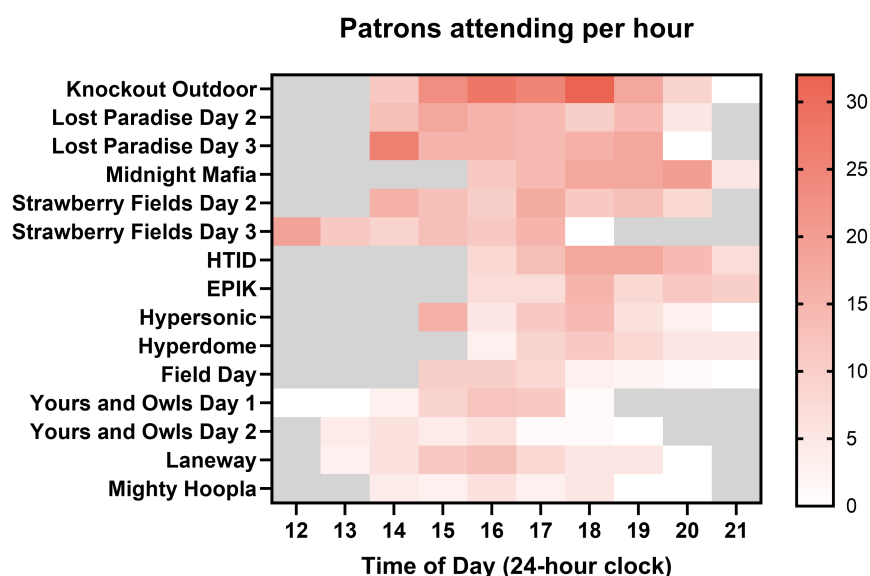


Figure 25 Service use by time of day and festival

Opening hours differed by festival (and by day, for multi-day festivals)

Count based on number of people submitting samples, rather than number in group.

Stakeholder interview analysis

Weather conditions, particularly how hot conditions increase the risk of drug harms, was a common theme across interviews with all stakeholder groups.

“Heat always plays a factor... it increases the risk significantly of like, you know, serotonin syndrome. And yeah, those sort of ... adverse outcomes.” – Healthcare worker/provider [G1_2102]

“And will wherever you are like it's hot, there's heat, there's a whole bunch of other factors that kind of tie into why it's really important to have drug testing there because when we talk to punters who come in to discuss what they should do or just get hydrolyte or put sunscreen on, we let them know, like, hey, these are the factors to be aware about.” – Peer Worker [G4B_0701]

Weather is probably the biggest one for us ... Paramedic [G5_1301]

The ones that are more related to drug related harms will be the the really, really hard, the large hard style single day events because they're big, they're hot, they're crowded. They're a single day. People take way too many drugs.” – Analyst/Drug Surveillance Staff [G7_1601]

Drug checking was suggested by several stakeholders to be particularly important for **drug naïve and young people** as they are often less experienced in using drugs, and may not have considered or accessed harm reduction resources before.

“I think the biggest benefit would be for the novice drug user, the people who don't perhaps yet know, about how the drugs affect them, about what dosing they should, you know, they should try, how to take drugs safely. So, you know, being given information that just because it comes as one tablet or one cap doesn't mean you should take the whole cap, straight away.” – Healthcare worker/provider [G1_2101]

“I think the people it's helpful for are people who are new to festivals and new to drug taking at festivals, I think that's one group who may be drawn to having their drugs checked because they just don't know a lot about them and are seeking information.” – Healthcare worker/provider [G1_1201]

“Festivals where you're looking at a younger crowd ideally is the one where the service gets used the most. You know the younger people who maybe haven't done drugs before and have got their first pingers on them and they really want to get them tested. Um, those are kind of the events that I think really would benefit from it.” – Peer Worker [G4B_1501]

However, the possibility that the trial was biased towards these demographics and the **importance of considering and tailoring to the needs of different demographics** was also raised. Additionally, the importance of reducing stigma which may be a barrier for older demographics who may previously have come into contact with the criminal justice system due to their use, was also highlighted.

So, we've noticed some of the events the music festivals have a slightly older demographic and then maybe less likely to utilise the service. – Paramedic [G5_1301]

“And I think that people that are new to drug use, so someone that hasn't had many drugs before, like typically the younger audience, they I think potentially a less...there's like less they had to deal with less stigma around drug use and because of that, they might feel more comfortable accessing a service like this, and maybe the older clientele could have, you know, had trouble with police in the past. And there's a lot of fear around, you know, getting involved in disclosing drug use because in the past...so I think that, yeah, I would say it's skewed towards slightly younger audience, but I think that's the reason why that is mainly because of the types of events we go to.” – Peer Worker [G4A_0412]

Both **multiday and single day festivals were regarded as important sites for drug checking** but for different reasons. Multiday, people had more time to wait in line for drug checking and may pace their drug use. Single day patrons had less time and therefore would like access to drug checking services ahead of time (e.g., either having the service run the day before or access to a fixed site might be beneficial).

“I think that there seems to be that the people at the multi-day events will be more likely... it's important to have that available early on in the festival space and not so much towards the end whether they've used the majority of the drugs.” – Healthcare worker/provider [G1_1201]

“Multi day festivals, people are a lot more prepared to sort of take a bit of time out in one day to come and have a chat with a peer and get their drugs tested”—— Analyst/Drug Surveillance Staff [G2_0701]

“As the trial has gone on, we've discovered overwhelmingly the biggest demand we've had has been at the multi-day regional festivals. So those are the only ones where we have been absolutely overwhelmed with demand. And I think there's a few different reasons for that. The main one is probably that people have time... We do see drug related harm at the multi days, but it's not that extreme level of constant people going to hospital like we see it at those single day events, when it when it's hot...” - Analyst/Drug Surveillance Staff [G7_1601]

There was also acknowledgement among stakeholders that the current trial only catered for people at music festivals. Although it was out of scope for the trial, participants emphasised that the wider community must be considered if fixed site drug checking services are to be implemented in NSW going forward.

“Sometimes when the event is going to run really late, like all the way to midnight, where it's the type of culture of event where there will be parties happening after when people leave the event... they continue to party afterwards, and based on the type of drugs that they're taking, they might be up all night, they might want to do a redose.” – Peer worker [G4A_1901]

“I think the group that are missed here are the group that are using substances at parties, at home, or people who regularly use and they are at risk of harm” – Analyst/Drug Surveillance Staff [G2_0912]

Hardstyle/EDM style music was commonly mentioned as a potentially higher risk for drug related harms.

“EDM type events, obviously the really high-risk ones where that type of music means people are more likely to use stimulants.” – Healthcare worker/provider [G1_1201]

“It's got to be tailored to a specific demographic and maybe that demographic changes over time... at the moment I think the EDM space is where you're gonna get the most bang for buck” – Police/Paramedic [G5_0302]

“Yeah, I mean, I think... I know it's been particularly well received by the hardstyle community, so at the, kind of, Sydney Olympic Park Hardstyle raves that, yeah, folks are really eager for their info, which has been really exciting to hear, because I know that that's a very young demographic, but it's also, a multicultural demographic, and, can give us a lot of information about. Yeah, kind of more general drug-taking trend.” – Peer worker [G4B_1002]

Online questionnaire

The online questionnaire identified two sub-samples of people that may significantly benefit from accessing the service. This included 117 (35.1%) respondents that reported prior experience of an injury or illness due to drug use at a music festival, and 46 (13.8%) that had previously been reprimanded/caught by police in possession of drugs or using drugs at a music festival. Those experiencing an injury or illness were significantly more likely to be male (48.5%) compared with non-male (21.3%) and living in regional/rural/remote areas (62.4%) compared to living in metropolitan areas (23.3%). Likewise, those that had previously been reprimanded/caught by police in possession of drugs or using drugs at a music festival were more likely to be male (23.7%) compared to non-male (3.7%) and living

in regional/rural/remote areas (30.7%) compared to living in metropolitan areas (6.5%). Overall, these findings suggest that patrons that are male and live in regional/rural/remote areas may benefit most from drug checking via reducing associated adverse outcomes.

Summary

Drawing on existing research and the above data from this evaluation, festival characteristics most likely to benefit from drug checking are presented in Table 11.

Table 11 Characteristics of festivals most likely to benefit from drug checking

Characteristic	Rationale
Electronic dance music particularly “hardstyle” festivals	High uptake of service at these festivals during the trial indicates service user demand. High rates of MDMA consumption at these events (typically), vigorous dancing increasing risk of stimulant hyperthermia
Multi-day festivals, particularly in regional areas	High uptake of the service in these types of festivals during the trial indicates high demand. This was also raised by multiple stakeholders in the qualitative analysis. Distance from tertiary health facilities makes these events higher risk and so harm reduction from drug checking could have a greater impact.
Events frequented by people in the 18–29 years age group, particularly those likely to be drug naïve	Based on the high uptake of the service by this demographic at festivals during the trial, and that this demographic is overrepresented in drug related medical harms (in this evaluation), and drug-related deaths at music festivals. ³⁶ People new to drugs and/or new to festivals were identified in the stakeholder interviews as a group most likely to use the service and benefit from it.
Larger event size	Use of the service was higher at events with more patrons. Large event size coupled with any of the above characteristics (i.e., EDM style, multi-day camping festivals, with a young target demographic) would make a festival more likely to benefit from the service.
Events where the ambient temperature is likely to be high	High temperatures compound the risk of stimulant hyperthermia ³⁷ . In these settings, drug checking offers the opportunity for detecting high-dose MDMA and offers harm reduction opportunities related to dose and heat mitigation. (Noting that planning for the service will generally have to be done long before accurate forecasts for the festival days are available).
Events where patrons are aware of the service and feel safe to use it	As detailed in qualitative data from Evaluation Question 2. This includes consideration of messaging, signage, co-location with medical and peer services, and police activities.

Costing analysis

Key observations:

- The NSW Drug Checking Trial cost an estimated total of \$786,340 in its establishment year.
- Complete festival-specific cost data for the drug checking service were available for the first seven of the 12 festivals included in the costing analysis.
- Across the 12 music festivals included in the evaluation, the base case (set up and operate service as implemented in the trial including one off capital costs) the average cost was estimated as \$65,529 per festival and \$52,423 per festival day.
- Under the ongoing service scenario (excluding capital equipment costs and assuming 50% confirmatory testing) the average cost estimate was lower at \$46,685 per festival and \$37,348 per festival day.
- Service data across the 12 festivals: 1,010 service visits; 1,846 people attended the service; 1,475 samples tested.
- Average unit cost measures across the NSW Drug Checking Trial were lower for the ongoing service scenario compared with setting up and operating the service (base case):
 - Set up and operate service (base case): \$779 per service visit, \$534 per sample tested, \$426 per person who attended the service.
 - Ongoing service (scenario analysis): \$555 per service visit, \$380 per sample tested, \$304 per person who attended the service.
- Festival-specific costs show a downward trend across the festivals with time, reflecting efficiencies gained as the service processes stabilised and logistical and procurement processes improved.
- Cost per festival in the ongoing service scenario (\$46,685) was broadly comparable to existing NSW Health-funded harm reduction activities (\$44,001 per festival).
- The drug checking service provided additional harm-reduction activities, technical and surveillance capabilities, and was complementary to the existing activities.
- The NSW Drug Checking Trial costs compare favourably to similar trials in Queensland and the ACT, noting differences in cost inclusions and service models.
- An economic evaluation that includes short- and long-term outcomes to NSW Health and festival patrons, would be required to determine the cost-effectiveness and societal benefit of the additional costs of an ongoing drug checking service.

This costing analysis estimated the economic cost to NSW Health of establishing and operating the NSW Drug Checking Trial at selected music festivals over a 12-month period (1 March 2025 to 28 February 2026). The trial delivered a mobile, event-based drug checking service, distinct from a fixed-site drug checking model.

The analysis examined the costs incurred by NSW Health for the following two harm reduction strategies:

- Existing harm reduction activities provided by NSW Health at the same festivals, and
- Delivery of the Drug Checking Trial.

This final report presents the preliminary cost analysis results for the drug checking service delivered over 15 operational days at 12 participating music festivals held between 1 March 2025 and 28 February 2026. Complete festival-specific cost data for the drug checking

service were available for the first seven of the 12 festivals included in the costing analysis. Complete festival-specific cost data for the remaining five festivals were not available at the time of reporting.

The costing analysis in Australian dollars adopted an NSW Health funder perspective and included only those components wholly or partly funded by NSW Health. Costs borne by festival organisers, the Commonwealth Government, or other agencies were excluded unless otherwise stated.

Table 12 summarises the key components of both the Drug Checking Trial and existing harm reduction services delivered at NSW music festivals, with funding sources and whether it was included in the costing analysis. A large part of the existing harm reduction services at music festivals in NSW are funded by festival organisers. However, all components of the Drug Checking Trial were funded by NSW Health, except for the provision of naloxone which was funded by the Commonwealth. Consistent with the NSW Health perspective, the costing analysis included only those components, within both strategies, funded wholly or partially by NSW Health. As per standard practice, the cost for the independent evaluation of the program (i.e., this report), which was funded by NSW Health, has not been included in this costing analysis.

Table 12 Summary of key components and resourcing of Drug Checking Trial and existing harm reduction activities at NSW music festivals

Components of harm reduction intervention	Provider	Funded by	Data	Included in costing analysis
NSW music festivals—Existing harm reduction activities				
Peer-based harm reduction services	DanceWize NSW	NSW Health and Music festival organisers	DanceWize funding agreement with NSW Health	Yes – NSW Health contribution only
On-site medical service provision	Private medical providers	Music festival organisers	N/A	No
Health and medical plan	Music Festival organisers and Private medical providers	Music Festival organisers	N/A	No
Harm reduction activities (including assessing festival risk, and approval of the health and medical plans, etc.)	NSW Health Staff	NSW Health	NSW costing data	Yes
Ambulance services	NSW Ambulance	Music festival organisers	N/A	No
Police harm reduction and law enforcement services	NSW Police	Music Festival organisers & NSW Police	N/A	No
NSW Music festivals - Drug Checking Trial				
Peer support service	NUAA	NSW Health	NUAA funding agreement with NSW Health	Yes
Naloxone	NUAA	Commonwealth government	N/A	No
On-site drug checking	FASS	NSW Health	NSW costing data	Yes
Drug disposal services	FASS	NSW Health	NSW costing data	Yes*
Confirmatory testing analysis	FASS	NSW Health	NSW costing data	Yes*
Drug checking service – Quality control and troubleshooting	NSW Health Staff	NSW Health	NSW costing data	Yes

* = Service provided in-kind by FASS during trial

Costing analysis of existing harm reduction activities funded by NSW Health

From the NSW Health perspective, existing harm reduction activities comprised:

- Peer-based harm reduction services delivered by DanceWize NSW
- Harm reduction coordination, clinical oversight, and surveillance undertaken by NSW Health staff

The DanceWize NSW service is primarily funded through an annual NSW Health grant and provides coverage to approximately 25–35 music festivals per year (up to 40 festival days). Funding is supplemented by contributions from festival organisers, estimated at approximately 30% of the annual program budget in 2025–26. Services are delivered in

accordance with the NSW Health Guidelines for music festival event organisers: Music festival harm reduction (2024)²³, and include peer outreach, brief interventions, supervised care spaces, and close coordination with on-site medical services and emergency responders (NSW Ambulance) for escalation of medical care for patrons.

The DanceWize service model includes permanent and casual employed staff (such as program lead, lead/event coordinators, support coordinators, and Event Control Centre (ECC) representatives, etc.) and trained volunteers for roles such as Team leaders, Key peer educators (KPEs) and rovers. The DanceWize service model relies heavily on trained volunteers. An estimated pool of 600 trained volunteers is required to meet the minimum number of volunteers required for 35 festivals (40 festival days) per year³⁸. The DanceWize NSW reports for the peer-based harm reduction program during 2025 indicated that the number of rostered volunteer staff ranged from 8 to 12 Team leaders and 35 to 76 KPEs per festival (based on event size and whether they were single or multi-day events). While the NSW Health grant funds recruitment, training, supervision, and support costs, the economic value of the volunteer labour (estimated as being greater than \$200,000 per annum)³⁸ has not been included in this analysis.

The NSW Health team for existing harm reduction activities includes five staff members (i.e., Medical Advisor, Clinical Toxicologist and Public Health Advisor, and three non-clinical team members). As part of the usual harm reduction program, the NSW Health team centrally coordinates the NSW Health response to serious drug-related harms at music festivals that require an agreed Health and Medical Plan (HMP), with the aim of supporting safer events. The NSW Health team acts as a single point of contact for festival organisers and health stakeholders, including NSW Ambulance, local health districts, private medical providers, peer-based harm reduction services, and specialist advisors. Core activities of the team include assessing festival risk, reviewing events and HMPs against NSW Health guidelines, providing feedback to strengthen harm reduction and clinical preparedness, and coordinating pre-event briefings. During and after events, medical advisors also provide on-call oversight, monitor serious presentations and outcomes, liaise on toxicology testing with the PRISE team, and lead post-event data capture and debriefs. The NSW Health team provides workforce training, contributes to guideline and legislation revisions, and enables continuous system learning to reduce drug-related harm at music festivals.

NSW Health funds a data team within the business-as-usual process for existing harm reduction, and they are responsible for managing and evaluating data sets such as service utilisation, medical event reporting and follow-up, etc. to inform subsequent harm reduction measures and strategies. However, this costing information was not available for inclusion in this analysis. Further, it would be difficult to apportion the costs to individual music festivals.

Based on available data for the costing analysis, NSW Health expenditure on existing harm reduction activities is estimated at approximately \$968,009 per year, covering 25–35 festivals—see Table 13. This equates to an average cost per festival ranging from \$27,658 (35 festivals) to \$38,721 (25 festivals).

In 2024–25, the existing harm reduction program provided by NSW Health supported 22 festivals at an average cost of \$44,001 per festival. A similar or greater number of festivals are anticipated in 2025–26. It is important to note that these estimates are expected to

understate the cost of existing harm reduction activities with respect to DanceWize NSW as they exclude volunteer labour, and NSW Health’s uncosted data surveillance.

Table 13 Summary of costs for existing harm reduction activities funded by NSW Health

Existing harm reduction activities at NSW music festivals	Cost (Australian dollars)	Number of music festivals
Total annual cost of harm reduction program	\$968,009 per year	25 to 35 festivals per year
Anticipated minimum cost per festival	\$27,658 per festival	35 music festivals
Anticipated maximum cost per festival	\$38,721 per festival	25 music festivals
Average cost per festival for 2024–2025	\$44,001 per festival	22 music festivals

Costing analysis of the Drug Checking Trial funded by NSW Health

The costing analysis of the Drug Checking Trial from a NSW Health perspective, included a combination of estimates and available costing data. This included general costs across the whole program (made up of capital, periodic and operating costs) and festival-specific costs for the drug checking service. A detailed breakdown of the components is listed in Table 14.

Capital costs incurred for the trial included purchases of testing equipment including two Near Infrared (NIR) spectrometers, two Fourier Transform Infrared (FTIR) spectrometers, and information technology equipment such as electronic tablets and cases. In addition, one-off goods and services such as staff uniforms, hardware for service set up, and promotional and printed resources including signage were also incurred. If the drug testing service was to be continued, these capital and one-off costs would not be incurred on an annual basis, which was the timeframe for the trial. Ongoing operation would, however, include general equipment operating costs such as maintenance that are not included in the estimates for the trial. General operating costs for the trial included the NUAA peer support program funded through a grant by NSW Health, consumables for the on-site drug-checking service (e.g. test strips), general goods and services, and promotional resources. It is understood that no additional insurance or accreditation were required by NSW Health to operate the Drug Checking Trial.

Festival-specific costs included staff time (NSW Health, including FASS), equipment hire, secure hand-to-hand courier services for transport of illicit substances discarded in amnesty bins, internet access, staff travel and accommodation, and incidentals. These costs varied by festival duration (single or multi-day event), festival size, and geographic location (Sydney metropolitan or outside Sydney/regional NSW). Although confirmatory testing and disposal services were provided in-kind by FASS during the trial, it was appropriate to include these costs in the analysis, as they represent activities that would fall to NSW Health were the service implemented on an ongoing basis. However, the operational costs associated with the physical disposal of discarded drugs during the trial were negligible and therefore excluded from the costing.

The costing analysis for the Drug Checking Trial included a base case and a scenario analysis. The base case refers to the drug checking service as implemented in the Drug Checking Trial and included the cost of setting up a new drug checking service (including the capital equipment, and one-off goods and services costs) and the costs for providing the service at the 12 music festivals included in the evaluation.

The purpose of the scenario analysis is to provide a closer estimation of the operational costs for an ongoing drug checking service at NSW music festivals. The scenario analysis

takes account of the high up-front capital costs and higher than expected confirmatory testing.

An ongoing drug checking service would not incur the high capital equipment costs on an annual basis. FTIR spectrometers have a service life of about 5 to 15 years, based on warranty periods^{39,40}, while NIR spectrometers have a typical lifespan of 10 years⁴¹. There are several ways to account for capital costs in an economic analysis. For example, amortising, which spreads the cost over the expected lifetime of the equipment: over 5 years for the FTIR spectrometer and over 10 years for the NIR spectrometer. Further, the equipment could be used as a shared resource within FASS (i.e., used for purposes other than festivals), in which case the cost would also be shared. For simplicity and to avoid double counting upfront set up costs, the scenario analysis excluded the costs of capital equipment, specifically the NIR and FTIR spectrometers.

During the Drug Checking Trial, confirmatory laboratory testing was conducted primarily for quality assurance purposes during the first three music festivals. At these early events, almost all samples (98%) underwent confirmatory testing, and FASS reported a high level of agreement between on-site testing and confirmatory analyses. Across the remaining nine festivals, confirmatory testing was undertaken when on-site technology could not provide a comprehensive result or when a sample was escalated for public health assessment. The proportion of samples receiving confirmatory analysis during festivals four to eleven ranged from 33% to 87%, with an average of 44%. At the final festival, 100% confirmatory testing was undertaken due to concerns about additional substances in expected MDMA samples, which had been reported by other jurisdictions. With MDMA anticipated to be the most common substance, testing all samples was both logistically simpler and ensured comprehensive monitoring. The decision to conduct higher levels of confirmatory testing from samples collected at the final festival also demonstrates the strong integration of the Drug Checking Trial with NSW Health's existing surveillance systems, with decisions informed not only by on-site analytical findings but also by broader surveillance information, including emerging trends and alerts identified through routine statewide systems. Across all 12 festivals, 54% of samples underwent confirmatory testing. To better reflect an ongoing drug checking service delivery, the scenario analysis incorporated a conservative assumption that 50% of samples would undergo confirmatory testing.

Table 14 Summary of costs components for drug checking service within the NSW Health Drug Checking Trial, funded by NSW Health

Resource category		Item description
General costs for drug checking service		
<i>Periodic costs</i>	Capital equipment	Near Infrared (NIR) spectrometer x 2 Fourier Transform Infrared (FTIR) Spectrometer x 2 Includes associated analysis software and data libraries.
	Information technology equipment	Electronic tablets Tablet cases
	Goods and services	Staff uniforms General (e.g., cash box for amnesty box to store discarded drug samples for destruction, storage, clipboards, etc.) Hardware for drug checking service set up Suitcase for transporting electronic tablets
	Promotion/Printed resources	Printing Signage
<i>Operating costs</i>	Peer-support program	Peer-based support program specifically for drug checking service (provided by NUAA)
	Goods and services	Drug checking consumables (e.g., test strips, laboratory supplies, etc.) General (e.g., stationary, etc.)
	Promotion/Printed resources	Fidget spinners Other promotional items
Festival-specific costs for drug checking service		
<i>Festival-specific operating costs</i>	FASS staff	Staff time (i.e., analysts and implementation staff) to conduct on-site drug checking service
	NSW Health staff	Staff time (i.e., clinical, implementation, & non-clinical staff) for quality control, troubleshooting, & decision-making
	Goods and services	Equipment hire (e.g., air conditioners, marquee, fencing) Secure courier transport for disposal of discarded drug samples Internet access
	Additional staff costs and incidentals	Staff travel Staff accommodation Staff meals Car hire
	Confirmatory testing analysis	Cost of confirmatory drug analysis by FASS team (at fixed-site FASS laboratory)

Total cost and average cost per music festival

The results for the costing analysis are summarised in Table 15 which includes the base case (i.e., setting up and operating the drug checking service as implemented in the trial) and the scenario analysis (i.e., an ongoing drug checking service). At the time of preparation of this final report, complete festival-specific data for the drug checking service were only available for the first seven of the 12 festivals included in this costing analysis. For the remaining five festivals, the missing festival-specific cost items are nominal for two events (local area travel), modest for two events (local travel and equipment hire such as marquee and air-conditioning), and minor for the final multi-day regional festival (equipment hire; staff travel, accommodation, and meals). Inclusion of the outstanding cost data will refine the results from the analysis, though it is not expected to significantly change the estimated average costs per festival and per festival day, and per metric (cost per service visit, sample tested, and person who attended the service).

The average drug checking service costs per festival and per festival day were calculated using the total cost of the Drug Checking Trial across all 12 festivals and the 15 operational days of the drug checking service, respectively. This included the total general costs and all available festival-specific costs for the drug checking service. Cost of the service for individual festivals were derived by combining the average general costs per festival with the festival-specific costs available for that event.

Under the base case scenario, the estimated cost to NSW Health of delivering the Drug Checking Trial across 12 music festivals was \$786,340 (rounded to the nearest dollar), equivalent to an average cost of \$65,529 per festival. The total cost of operating the drug checking service varied by festival, ranging from \$53,098 to \$97,225 per festival—see Figure 26. When expressed per festival day, this corresponded to an average cost of \$52,423 to set up and deliver the service. Again, these results should be considered in the context of the outstanding festival-specific cost items outlined above; however complete data are unlikely to significantly alter these estimated costs.

Higher total costs for the drug checking service were typically associated with the multi-day festivals held outside the Sydney metropolitan region, including Yours and Owls 2025 (Wollongong), Strawberry Fields 2025 (Tocumwal, regional NSW), and Lost Paradise 2025 (Glenworth Valley, Central Coast NSW). These higher costs largely reflect the longer operating periods, travel and accommodation requirements, and additional logistical complexity associated with regional locations.

Across the Drug Checking Trial, both festival-specific (see Figure 27) and total costs (see Table 15) showed a downward trend, with single- and multi-day services becoming less costly over time. Figure 27 presents the per day festival-specific costs disaggregated into staff, goods and services, travel and accommodation, and confirmatory testing. Staff costs were the largest contributor, followed by goods and services, particularly infrastructure hire, and both were the main drivers of festival-specific expenditure for the drug checking service. The figure also reflects the operational and logistical learnings identified by NSW Health staff throughout the trial, which contributed to greater efficiency and lower costs over time for the drug checking service. The first single-day and multi-day services (Midnight Mafia 2025 and Yours and Owls 2025) required higher staffing levels to support the initial set-up and refinement of the service. As processes for the drug checking service became more established and stable, fewer NSW Health staff were required on-site, resulting in reduced staffing costs at later festivals. Figure 27 also highlights two single-day festivals as exceptions to this downward cost trend. Knockout 2025 required a larger staffing complement due to its substantially larger festival size, while Field Day 2026 incurred higher staffing and infrastructure costs due to public holiday penalty rates and increased hire charges.

Similarly, the reduction in goods and services costs demonstrated the logistical and procurement improvements achieved during the trial. Early reliance on higher-cost infrastructure, such as marquee hires, was replaced with lower cost yet operationally suitable alternatives, including fencing and lower-cost marquee options. These adjustments helped reduce both festival-specific and total costs. The decreasing cost trend of the drug checking service across festivals also reflects efficiencies gained through repetition: as the service was delivered more often, coordination improved, fewer staff were needed to troubleshoot,

infrastructure choices became less costly, and the festival-specific costs and therefore the total cost of running drug checking services generally decreased as the trial progressed. Efficiencies were also observed in confirmatory testing. While almost all samples (98%) from the drug checking service at the first three festivals were sent for confirmatory analysis, the on-site testing accuracy demonstrated during those early events enabled the proportion of confirmatory testing to be reduced to 45% across the subsequent nine festivals. Although confirmatory testing is not a major cost driver, this reduction contributed to overall efficiency gains.

Overall, the increased efficiencies and reduced costs (both festival-specific and total cost) demonstrated over the time of the trial suggest that these costs would likely stabilise if the drug checking service were delivered regularly across the music festival season. Further, average costs across the whole trial are likely to overestimate ongoing costs.

In the scenario analysis, which reflects the operation of an ongoing drug checking service, the estimated cost across the 12 festivals was \$560,217 (rounded to the nearest dollar), with an average total cost of \$46,685 per festival and \$37,348 per festival day respectively. The total costs of the service at each of the festivals ranged from \$34,153 to \$78,067 and is consistent with the expected variation in festival duration, size, and location.

The ongoing drug checking scenario average estimates per festival (\$46,685 cf. \$65,529) and per festival day (\$37,348 cf. \$52,423) are substantially lower when compared with the base case (set-up and operate the service for 12 months). This reduction reflects the lower operating costs once capital equipment is in place and accounted for as a one-off cost. The spectrometers—representing approximately 43% of total general costs—constitute the largest upfront investment; once purchased, the contribution to ongoing operational costs will be lower. As a result, an ongoing drug checking service will have lower average and total costs per festival, compared to the trial.

The scenario analysis coupled with the downward trajectory in costs from improved operational efficiencies over the trial suggests that the ongoing drug checking model stabilises and progressively lowers recurrent expenditure. Thereby providing a clearer basis for planning and budgeting for ongoing drug checking services across future NSW festival seasons.

Table 15 Estimated total costs and average costs of Drug Checking Trial at NSW music festivals—NSW Health perspective

Festival [^]	Service days (Festival days)	Base case (Set up and operate service)			Scenario analysis (Ongoing service)		
		Average general costs per festival	Total festival- specific costs	Total cost of service at festival	Average general costs per festival	Total festival- specific costs	Total cost of service at festival
Yours and Owls†	2 (2)	\$44,139.50	\$53,084.79	\$97,224.29	\$25,340.33	\$52,725.89	\$78,066.22
Midnight Mafia	1 (1)	\$44,139.50	\$24,417.73	\$68,557.23	\$25,340.33	\$23,874.53	\$49,214.86
Hyperdome	1 (1)	\$44,139.50	\$22,226.48	\$66,365.98	\$25,340.33	\$21,983.98	\$47,324.31
Knockout	1 (1)	\$44,139.50	\$25,939.93	\$70,079.43	\$25,340.33	\$26,250.33	\$51,590.66
Strawberry Fields†	2 (5)	\$44,139.50	\$37,913.21	\$82,052.70	\$25,340.33	\$38,019.91	\$63,360.24
Hypersonic	1 (1)	\$44,139.50	\$12,999.36	\$57,138.86	\$25,340.33	\$12,989.66	\$38,329.99
EPIK	1 (1)	\$44,139.50	\$12,347.13	\$56,486.63	\$25,340.33	\$12,036.73	\$37,377.06
Lost Paradise†***	2 (5)	\$44,139.50	\$18,673.23	\$62,812.73	\$25,340.33	\$19,090.33	\$44,430.66
Field Day*	1 (1)	\$44,139.50	\$19,603.91	\$63,743.41	\$25,340.33	\$19,652.41	\$44,992.74
HTID*	1 (1)	\$44,139.50	\$9,680.40	\$53,819.90	\$25,340.33	\$9,874.40	\$35,214.73
Laneway**	1 (1)	\$44,139.50	\$10,821.90	\$54,961.40	\$25,340.33	\$10,821.90	\$36,162.23
Mighty Hoopla**	1 (1)	\$44,139.50	\$8,957.91	\$53,097.40	\$25,340.33	\$8,812.41	\$34,152.74
<i>Column totals</i>		\$529,673.98	\$256,665.97	\$786,339.95	\$304,083.98	\$256,132.47	\$560,216.45
Total cost of drug checking service trial		\$786,339.95 TOTAL COST			\$560,216.45 TOTAL COST		
Average cost of drug checking service trial per festival (across the 12 festivals)		\$65,528.33 per FESTIVAL			\$46,684.70 per FESTIVAL		
Average cost of drug checking service trial per FESTIVAL DAY (based on the 15 service days across the 12 festivals)		\$52,422.66 per FESTIVAL DAY			\$37,347.76 per FESTIVAL DAY		

[^] Festivals in chronological order from March 2025 to February 2026

†=multi-day music festivals located out of Sydney metropolitan area

TBC = To be confirmed;

\$ = Australian dollars

* = incomplete cost data for staff travel

** = incomplete cost data for equipment hire and staff travel

*** = incomplete cost data for equipment hire and staff travel/accommodation/meals

Values may not sum to totals in table due to rounding

Base case: Drug checking service as implemented in the trial (i.e., set up and operating drug checking service)

Scenario analysis: Ongoing drug checking service excluding capital equipment costs and assuming 50% confirmatory testing.

Note: multi-day festival length is based on number of days covered by the Health and Medical Plan, which may differ from the advertised dates.

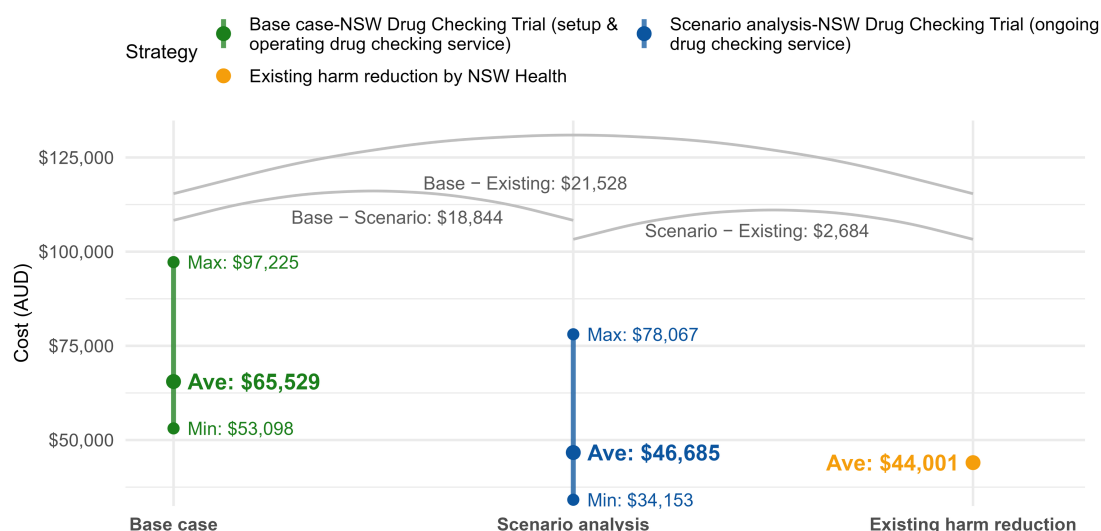


Figure 26 Average cost per festival day of NSW Drug Checking Trial (base case and scenario analysis) and existing harm reduction activities funded by NSW Health

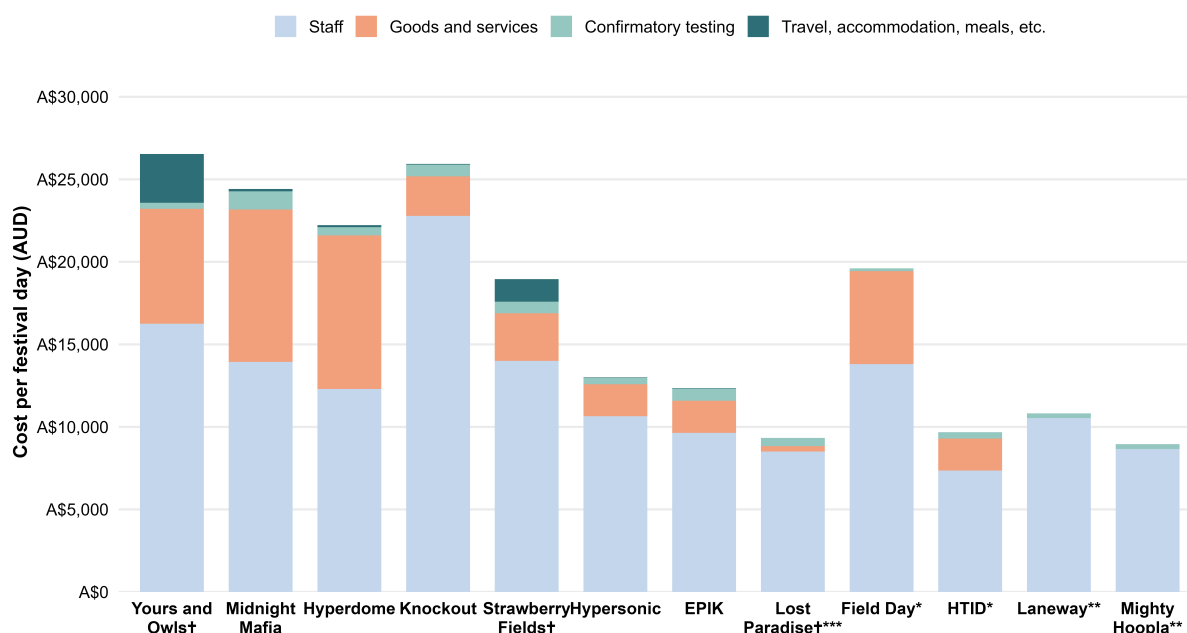


Figure 27 Festival specific base case costs for the 12 festivals included in the NSW Drug Checking Trial

Bar graphs give the breakdown of the per day festival-specific costs relating to staff (FASS and NSW Health), goods and services (air conditioner hire, couriers, marquees, fencing etc.), staff travel and accommodation, and confirmatory testing by FASS. Festivals are arranged in chronological order from March 2025 to February 2026.

†=multi-day music festivals located out of Sydney metropolitan area

TBC = To be confirmed

\$ = Australian dollars

* = incomplete cost data for staff travel. ** = incomplete cost data for equipment hire and staff travel.

*** = incomplete cost data for equipment hire and staff travel/accommodation/meals.

Average cost per service visit, per sample tested, and per person who attended a drug checking service

From the drug checking service data collected across the 12 festivals, five samples submitted for testing were removed prior to analysis. Their exclusion has minimal impact on the overall cost estimates. These samples were submitted by on-site medical staff rather

than by the intended user group of music festival attendees, placing them outside the scope of the NSW drug-checking service. Accordingly, they were omitted from the costing analysis.

After excluding these samples, the NSW Drug Checking Trial recorded 1,010 service visits across the 12 music festivals, whereby 1,846 people attended the service and 1,475 samples were tested—see Table 16. As noted earlier in the report, a service visit could involve one person or multiple people attending together. While multiple individuals may have attended the service as part of a single service visit, not all submitted a sample for testing. Hence, the number of samples tested is less than the number of people who attended the service.

The service data collected for the NSW Drug Checking Trial and the total cost expenditure to date, enabled estimation of the average cost per service visit, per sample tested, and per person who attended the drug checking service across the 12 music festivals, and for each individual festival. These results are summarised in Table 17. Again, these estimates should be interpreted in context of the outstanding festival-specific cost data outlined earlier, however the missing data are not expected to change the results significantly. The average estimated costs for each of the metrics (per service visit, sample tested, and person who attended) are calculated from the total cost of the Drug Checking Trial over all 12 festivals (i.e., the total general costs plus the total available festival-specific costs for all 12 festivals), and estimated costs per metric for the individual festivals are calculated from the total costs for the service for each festival (i.e., the average general cost per festival plus the available festival-specific costs). The cost per metric included the costs for the whole drug checking service including the peer support component (i.e., not just the analytical cost).

In the base case scenario (i.e., setting up and operating the drug checking service as implemented in the NSW Drug Checking Trial), the average cost per service visit across the 12 festivals was \$779 (range: \$321–\$2,414)—see Figure 28 and Table 17. The average cost per sample tested was \$534 (range: \$216–\$1,713), and the average cost per person who attended the service was \$426 (range: \$195–\$1,562). The higher estimates for Yours and Owls 2025 reflected the higher costs for operating the drug checking service its first festival, which was also a multi-day event, as well as lower utilisation compared with the other multi-day events in the trial. The higher per metric estimates for Field Day 2026 were driven by increased staffing and infrastructure costs arising from public holiday penalty rates and higher hire charges. In contrast, the high per metric costs for Mighty Hoopla 2026 were primarily due to lower utilisation of the drug checking service at that event.

In the scenario analysis (i.e., excluded capital equipment costs and assumed 50% confirmatory testing rate to reflect provision of an ongoing drug checking service), the average cost per service visit was \$555 (range: \$227–\$1,553), the average cost per sample tested was \$380 (range: \$153–\$1,102), and the average cost per person who attended the service was \$304 (range: \$138–\$1,005)—see Figure 28 and Table 17. All estimates reported here are rounded up from the values presented in Table 17.

The pattern in the estimated average cost per metric (i.e., cost per service visit, per sample tested, and per person who attended), across the 12 festivals is less straightforward than the observed trend for total expenditure per festival. Although the cost per festival (festival-specific and total cost) generally decreased over the course of the trial, the cost per service visit, per sample tested, and per person who attended, was variable as it was influenced by additional operational factors—notably the number of service visits delivered, the number of

samples submitted, and the number of people who attended the on-site testing service. As these factors varied considerably between festivals, they affect variation in the cost per metric not seen in the overall expenditure for each festival. As the drug checking service transitions from a trial to an ongoing service, operating costs are expected to stabilise and decrease, and thus the average cost per metric should also decline as the service becomes more established and consistently utilised at NSW music festivals. Higher and steadier utilisation would allow fixed set-up costs to be spread over a larger number of service activities, thereby reducing the average cost per service visit, per sample tested, and per person who attended the drug checking service.

The variability in the cost per metric estimates across festivals is also a key reason for the inclusion of the scenario analysis, which provides a closer estimate of the cost of operating an ongoing drug checking service. The scenario analysis excluded the capital costs of the spectrometers and incorporated an assumed 50% rate of confirmatory testing. The results indicate lower costs of an ongoing drug checking service model for all three metrics e.g., the estimated average cost per sample tested decreased from \$534 in the base case to \$380 under the scenario analysis.

The average cost per person who attended the NSW drug checking service was also lower in the ongoing drug checking scenario analysis compared to the base case (\$304 cf. \$426). Reporting the cost per attendee is appropriate for several reasons. While service visits varied in structure—ranging from a single person submitting one or multiple samples, to multiple people attending where not all submitted a sample—reporting the cost per person who attended the service remains informative. When group service visits occurred, all attendees received information about the submitted sample, as well as counselling and support from the NUAA peer-support service. Engagement with the drug checking service was therefore beneficial not only for individuals who submitted a sample, but also for those who attended without submitting a sample, as they received drug-specific information and harm reduction support to help inform decisions about drug consumption at the music festival.

Table 16 Summary of service visits, drug samples tested and people attended service at Drug Checking Trial at NSW music festivals—NSW Health perspective

Festival[^]	Number of service visits	Number of drug samples tested	Number of people who attended
Yours and Owls	61	80	103
Midnight Mafia	86	114	163
Hyperdome	41	51	91
Knockout	158	212	318
Strawberry Fields	167	311	291
Hypersonic	56	77	110
EPIK	58	87	109
Lost Paradise	196	292	323
Field Day	36	43	59
HTID	78	120	156
Laneway	51	57	89
Mighty Hoopla	22	31	34
Total	1,010	1,475	1,846

[^] Festivals in chronological order from March 2025 to February 2026

Table 17 Estimated cost per service visit, per sample tested, and per person who attended service at Drug Checking Trial at NSW music festivals—NSW Health perspective

Festival [^]	Service days (Festival days)	Base case (Set up and operate service)			Scenario analysis (Ongoing service)		
		Cost per service visit	Cost per sample tested	Cost per person who attended	Cost per service visit	Cost per sample tested	Cost per person who attended
Yours and Owls†	2 (2)	\$1,593.84	\$1,215.30	\$943.93	\$1,279.77	\$975.83	\$757.92
Midnight Mafia	1 (1)	\$797.18	\$601.38	\$420.60	\$572.27	\$431.71	\$301.93
Hyperdome	1 (1)	\$1,618.68	\$1,301.29	\$729.30	\$1,154.25	\$927.93	\$520.05
Knockout	1 (1)	\$443.54	\$330.56	\$220.38	\$326.52	\$243.35	\$162.23
Strawberry Fields†	2 (5)	\$491.33	\$263.84	\$281.97	\$379.40	\$203.73	\$217.73
Hypersonic	1 (1)	\$1,020.34	\$742.06	\$519.44	\$684.46	\$497.79	\$348.45
EPIK	1 (1)	\$973.91	\$649.27	\$518.23	\$644.43	\$429.62	\$342.91
Lost Paradise†***	2 (5)	\$320.47	\$215.11	\$194.47	\$226.69	\$152.16	\$137.56
Field Day*	1 (1)	\$1,770.65	\$1,482.40	\$1,080.40	\$1,249.80	\$1,046.34	\$762.59
HTID*	1 (1)	\$690.00	\$448.50	\$345.00	\$451.47	\$293.46	\$225.74
Laneway**	1 (1)	\$1,077.67	\$964.24	\$617.54	\$709.06	\$634.43	\$406.32
Mighty Hoopla**	1 (1)	\$2,413.52	\$1,712.82	\$1,561.69	\$1,552.40	\$1,101.70	\$1,004.49
Average cost per metric (from the total cost of the trial across 12 festivals)		\$778.55	\$533.11	\$425.97	\$554.67	\$379.81	\$303.48

[^] Festivals in chronological order from March 2025 to February 2026

†=multi-day music festivals located out of Sydney metropolitan area

TBC = To be confirmed

\$ = Australian dollars

* = incomplete cost data for staff travel

** = incomplete cost data for equipment hire and staff travel

*** = incomplete cost data for equipment hire and staff travel/accommodation/meals

Base case: Drug checking service as implemented in the trial (i.e., set up and operating drug checking service)

Scenario analysis: Ongoing drug checking service excluding capital equipment costs and assuming 50% confirmatory testing.

Note: multi-day festival length is based on number of days covered by the Health and Medical Plan, which may differ from the advertised dates.

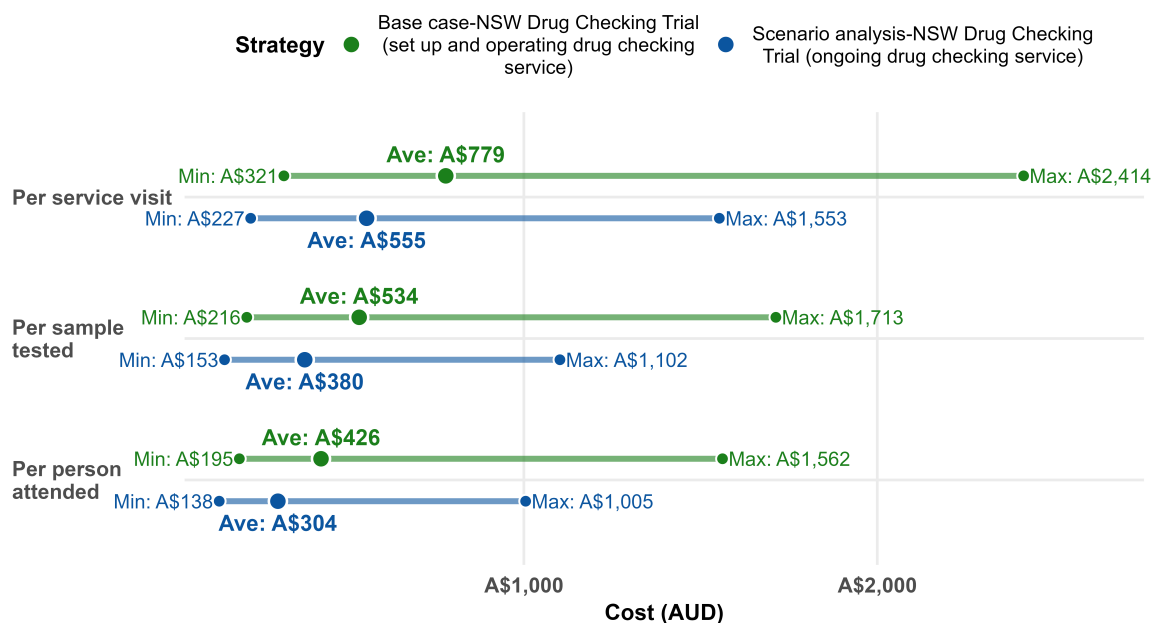


Figure 28 Average costs per service visit, sample tested, and person attended estimated from the NSW Drug Checking Trial (base case and scenario analysis)

Comparison with costs for the existing harm reduction activities

The average cost per festival in the base case scenario (\$65,529; range: \$53,098–\$97,225) is higher than the average cost per festival for existing harm reduction activities funded by NSW Health (\$44,001 per festival)—see Figure 26. However, this comparison is not directly equivalent, as the existing harm reduction activities represent an ongoing service, whereas the base case in the trial includes capital equipment set up costs for the drug checking service.

A more appropriate comparison is therefore with the scenario analysis. Under this scenario, the estimated average cost of \$46,685 per festival (\$34,153–\$78,067) for an ongoing drug checking service is comparable to the cost of existing harm reduction activities (\$44,001 per festival). However, it is important to note that the drug checking service is not a replacement for existing harm reduction activities. Rather, if implemented on a continuing basis, it would operate alongside these activities as part of an overall strategy for harm reduction at NSW music festivals. The comparison is provided to place into context the level of additional costs required to achieve the additional harm-reduction activities, and technical and surveillance capabilities not provided by the existing harm-reduction services.

Comparison with other Australian drug checking services and trials

There have been three drug checking service trials in Australia—in Queensland, the ACT, and Victoria. Costing information is available only for the Queensland trial and the 2018 ACT pilot.

The Victorian Pill Testing trial is ongoing at the time of reporting and includes both fixed-site and event-based drug checking services. It is funded by the Victorian Government and operated by a consortium of non-government organisations^{42,43}. However, no comparison with the NSW Drug Checking Trial estimates is possible, as no costing data have been included in the published reports to date⁴⁴.

Comparison with Queensland drug checking service trial

In 2024 Queensland Health trialled a drug testing service that included two fixed testing sites, three music festivals, and Schoolies¹⁹. The Queensland drug checking service was provided by two non-government organisations—CheQpoint (fixed and event-based services) and Pill Testing Australia (event-based services only)—and was funded by the Queensland Government¹⁹. In comparison, the NSW Drug Checking Trial was event-based, government-funded, and delivered directly by the NSW Government with peer support services provided by NUAA. Whilst the Queensland model of a mix of fixed and event-based services differs from the NSW model, a comparison of the costs incurred by Queensland Health with those estimated for the NSW Drug Checking Trial is informative as to overall costs of different service models.

The total cost of \$786,340 incurred by NSW Health for the Drug Checking Trial is broadly comparable to the \$739,682 cost for Queensland Health to deliver their 12-month drug checking service between March 2024 and April 2025¹⁹. However, the Queensland cost estimates did not include location costs for the fixed or mobile sites, staff time and labour costs for mobile services, equipment costs at mobile sites, or confirmatory testing. The Queensland drug checking service delivered 952 service visits, with 1,341 people attending, and 1,530 samples tested (including 402 service visits, 666 attendees, and 597 samples tested at three music festivals)¹⁹. By comparison, the NSW Drug Checking Trial delivered 1,010 service visits, with 1,846 people who attended the service, and 1,475 samples tested at the 12 music festivals. These figures indicate broadly comparable levels of service delivery, despite differences in service scope and cost inclusions.

The average cost per sample tested in both the base case (\$534) and scenario analysis (\$380) of the NSW Drug Checking Trial is higher than the estimated cost per sample tested of \$335 reported in the evaluation of the Queensland drug checking service¹⁹. However, these estimates are not directly comparable, as the Queensland evaluation calculated costs only for the fixed site service and the cost per sample tested was not estimated for event-based services due to costing challenges. The average commercial testing rate reported in the Queensland evaluation report was \$667 per sample tested (range: \$250–\$1,000)¹⁹. In both the base case and scenario analysis of the NSW Drug Checking Trial, the cost per sample tested compare favourably with the rate reported in the Queensland evaluation¹⁹, particularly as the NSW estimate includes all costs associated with provision of drug checking (i.e., all of the harm reduction support as well as the analytical cost).

Comparison with 2018 ACT pill testing pilot

The 2018 ACT pill testing pilot estimated the cost of delivering on-site drug checking at a single music festival to be approximately \$34,000, including \$5,000 for paramedic and security staff. The pilot reported 125 people attending the service, and 83 drug tests were conducted⁴⁵. This 2018 ACT pilot was delivered by the STA-SAFE consortium, a group of non-government organisations that self-funded all services and equipment for the drug-checking service⁴⁵—a model that is likely not sustainable for ongoing service provision without government funding. While the 2018 ACT estimate is lower than the NSW Drug Checking Trial's base case average cost per festival, the ACT cost does not include set up costs for a spectrometer or confirmatory testing.

The 2018 ACT estimate is more comparable to the \$46,685 average cost per festival estimated for the scenario of an ongoing service in the NSW Drug Checking Trial, that excludes the upfront capital costs. Importantly, the NSW costing analysis provides a more comprehensive reflection of both general (periodic and operating) costs and festival-specific operating costs, across metropolitan and regional NSW settings.

From the costing and service information in the 2018 ACT pill testing pilot trial⁴⁵, the cost per drug test was estimated to be \$410 (rounded to the nearest dollar). The average cost per sample tested in the base case of the NSW Drug Checking Trial (\$534) is higher than this ACT estimate. However, the ACT pilot reflected an ongoing drug checking service and did not include capital equipment costs. When these capital costs are excluded in the NSW scenario analysis, the estimated average cost per sample tested (\$380) is more comparable to the 2018 ACT estimate (\$410).

No comparison with the 2019 ACT pill testing trial is possible as no costing data has been included in the published evaluations or reports. The drug checking service for the 2019 ACT trial was delivered and self-funded by Pill Testing Australia, a non-government organisation^{46–48}. No comparison was made with the ACT CanTEST drug checking service—funded by the ACT Government and operated through a collaboration of non-government organisations⁴⁹—because CanTEST is a fixed-site service and not comparable with the mobile, event-based service model in the NSW Drug Checking Trial.

Costing analysis: conclusion

The NSW Drug Checking Trial demonstrated a downward trajectory in festival-specific and total costs over time as the trial progressed, reflecting the improved efficiencies attained in the drug checking service. In the base case, the cost to NSW Health was \$786,340 for the drug checking service across the 12 music festivals (\$65,529 per festival; \$52,423 per festival day). The scenario analysis suggested that an ongoing service would be associated with lower operating costs. Removing capital equipment and assuming 50% confirmatory testing rate in the ongoing service scenario yields a lower total cost of \$560,217 (\$46,685 per festival; \$37,348 per festival day). In the base case (set up and operate service), unit costs averaged \$779 per service visit, \$534 per sample tested, and \$426 per person who attended the drug checking service. Under the ongoing service scenario, these average unit costs decreased to \$555 per service visit, \$380 per sample tested, and \$304 per person who attended the service.

From a NSW Health perspective, the cost of delivering the Drug Checking Trial on a per festival basis is broadly similar to the cost of the existing NSW Health-funded harm reduction activities. However, the drug testing service provided specialised services and resources that were complementary to the existing harm reduction activities provided by NSW Health. These included clinical and technical expertise, purpose-built infrastructure and equipment, consumables, confirmatory laboratory testing, and robust quality assurance processes delivered by NSW Health staff.

Importantly, the NSW Drug Checking Trial did not duplicate existing harm reduction activities. Rather, it provided a distinct and complementary function within the festival harm reduction program by delivering individualised, actionable information to service users alongside valuable public health intelligence. When assessed on a per service visit, per sample tested,

and per person who attended basis, the costs of the Drug Checking Trial compare favourably with reported costs of drug checking services and trials in Queensland and the ACT.

This analysis is subject to important limitations. Complete festival-specific cost data remain outstanding for the last five of the 12 festivals included in the Drug Checking Trial. While the estimates presented in the report would be subject to refinement if this additional information was included, it is not expected to have marked impacts on the results relating to the estimated average costs (per festival and per festival day) and average unit cost metrics (per service visit, sample tested, and person who attended the service).

Finally, this is a cost analysis only, that does not value outcomes associated with the NSW Drug Checking Trial as this was not part of the scope of the evaluation. Whether the additional costs associated with on-site drug checking represent 'value for money' depends on the magnitude of the health, safety, and broader societal benefits generated. A full economic evaluation—including a cost-effectiveness or cost-benefit analysis conducted in line with NSW Treasury guidelines and adopting a societal perspective—would be required to assess whether the incremental costs of drug checking are justified by the benefits achieved.

Limitations

These evaluation findings should be considered in light of several limitations.

Service data analysis

Service use data were anonymously collected which means we were unable to link data or measure repeat use of the service.^e Most questions were voluntary which resulted in some missing data, and missingness may be non-random. A number of questions were updated or added part way through the trial and so were not available for all festivals.

Medical event data analysis

Our evaluation of whether drug checking was associated with reduced medical harm was descriptive in nature, due to the lack of appropriate controls. Where possible, we compared medical events at trial festivals with historical control years (two years prior). However, some festivals were missing data on historical controls (i.e., the trial year was the first time the festival was held, or there were some years where the festival did not run).

When historical control data were available, any comparisons do not account for time-varying trends, which are important in this context. In particular, the constantly shifting drug-market and emerging illicit substances make cross-year comparisons inherently challenging. In addition, we were only able to use two years of historical controls, as further lookbacks were impacted by COVID-19 cancellations and restrictions. Key other factors that might alter medical risks (e.g., temperature and humidity, other harm-minimisation strategies employed, police presence and tactics) may also vary substantially year to year.

Ideally, to account for time-varying trends, we would have employed a quasi-experimental method such as a difference-in-differences analysis. This would require suitable matched control festivals (i.e., festivals held during the trial period, with no drug checking). However, there were a lack of suitable control festivals. Festivals included in the trial were selected based on risk criteria (i.e., those deemed higher risk for drug related harm were included in the trial). As a result, festivals without drug-checking would likely have inherently lower risk, which makes them unsuitable as comparators.

Our evaluation plan included the use of data from the on-site medical centres. However, availability of reports varied with time. The level of detail in festival medical centre reports also differed depending on which provider delivered services, and providers for each festival occasionally changed over time. This variability limited the comparability of data across festivals and years, and was thus not included in the analysis. Future evaluations might attempt to record detail from medical service providers including number of clinical presentations, number of non-clinical presentations, non-urgent presentations, urgent presentations, critical presentations and presentations by drug type.

Ideally, the festival medical event data would have been complemented with data from the NSW Poisons Information Centre and hospital toxicology units. A combined dataset would be needed because the nearest hospitals for most trial festivals had bedside toxicology services

^e Partway through the trial, a question was added to the service user questionnaire to gather whether the service user had used the drug checking service before, however this could not be used to link responses.

who do not call the poisons centre. However, a combined dataset would require additional ethics and governance approvals which were not possible in the timeframe of this evaluation.

Qualitative analysis

Online questionnaire participants may not be representative of average NSW music festival patrons. Recruiting through social media websites such as LinkedIn may target certain demographics while overlooking others (e.g., people experiencing financial hardship). Furthermore, most music festivals take place in metropolitan locations, and therefore residents in regional areas may be underrepresented. Also, those that favour drug checking services may be more motivated to complete the questionnaire than those that oppose it.

Purposive sampling was utilised to identify stakeholders for interviews which may have biased data collection towards people more engaged with the Drug Checking Trial. Although a large number of interviews were conducted (n=45), the number of interviews within each stakeholder group was small (n=5–8) and therefore data saturation may not have been reached limiting the depth, breadth and validity of findings. However, there was a consistency in themes (e.g., acceptance of service) that emerged across groups providing confidence in the results. It is also important to note that several participants held multiple employed positions (e.g., health worker with both private and public practice roles). Additionally, several participants belonged to multiple stakeholder groups, in these instances participants were asked all questions relevant to them and the semi-structured interview methodology allowed a robust collection of data. Due to time constraints the analysis of the interviews could only be top level, further in-depth analysis is planned which may yield important sub themes.

Costing analysis

The costing analysis included the drug checking service delivered across all 12 festivals included in the NSW Drug Checking Trial. However, complete festival-specific cost data were not available at the time of reporting. In particular, the festival-specific cost data are incomplete for the drug checking service implemented at the final five festivals of the trial. The estimates presented from the costing analysis should be considered in light of the outstanding festival-specific cost data and may be refined as additional information becomes available. However, the inclusion of the remaining festival-specific costs from the final five festivals is not expected to significantly change the average costs estimated per festival, festival day, and for the average costs per metric (per service visit, per sample tested, and per person who attended the service). One-off costs including capital equipment, were averaged across all of the 12 festivals over the 12-month period of the trial. As the capital items have a longer operating life than 1 year, the base case cost estimates are higher than would be expected if drug checking were to be continued. This has been addressed in part through a scenario analysis, however there are many ways in which the capital costs could be accounted in an on-going program. Finally, the learning period for drug testing occurred as the trial progressed (i.e., there was no pre-trial 'wash in' period), and the data suggest improved efficiencies, and hence reduced costs, in delivery of the service with time. Finally, the economic component of the evaluation focused solely on costing analysis, as long-term outcomes, market factors, full economic evaluation methods, and linked data analyses were out of scope. Accordingly, outcome valuation was excluded.

It was beyond the scope of this evaluation to make a direct comparison of the costing for the NSW Drug Checking Trial with other Australian services. Complete costing data are not publicly available for all Australian drug checking services. The NSW model is also unique in its sole focus on mobile testing at participating music festivals, meaning the models of various drug checking services are not directly comparable.

Conclusions and future directions

Summary of main findings

The impact of the Drug Checking Trial was not limited to individual-level substance information. The trial generated system-level benefits including increased engagement of at-risk festival-goers with harm reduction services, adoption of safer behaviours, strengthening of harm reduction culture at events, and valuable contributions to early warning and drug monitoring systems. There were fewer drug-related hospital presentations, ambulance transfers, and ICU admissions when drug checking was present, compared to the previous two years' data. The cost of the service was comparable with similar services run in Queensland and the ACT.

The drug checking service delivered unique value. Drug checking of 1,475 samples identified unexpected substances in 8% of cases, and 4% of MDMA tablets/capsules were high dose. This allowed service users to make a more informed decision about their drug use, with guidance of experienced peer workers. Drug checking changed behaviours, and decisions to use less, not use and/or discard the substance were more common amongst people given an unexpected or inconclusive result. Overall, 4% of samples were discarded in the on-site amnesty bins.

The NSW Drug Checking Trial service was well-utilised overall, and feedback on the service was overwhelmingly positive. Service users and key stakeholders expressed strong support for the program, and data indicated this would likely strengthen over time as the program matures and refines.

The program integrated well with existing harm reduction programs. Even when only the expected substance was found, the service provided unique opportunities for harm reduction. Most people were new to harm-reduction services and reported that they intended to engage in harm reduction behaviour, including spacing out doses, keeping well hydrated, and seeking help early. Harm reduction resources also showed high uptake, with over one fifth of service users provided with free take-home naloxone and training on how to use it. More broadly, the service was seen to have a positive impact on setting the safety culture regarding drug use at music festivals. This was reflected in survey responses and stakeholder interviews.

During the trial period, there were eight public drug warnings released by NSW Health informed by drug checking service results. There were 10 warnings in total over the period, so **drug checking was well integrated and had a major impact on NSW Health's early warning system.** These alerts have flow on effects as they are amplified via social media and shared with other jurisdictions. The testing being conducted by NSW Health (FASS) likely streamlined incorporation into the existing early warning system. The main existing analytical inputs to the NSW early warning system are PRISE and CoSMoSS. While drug checking, PRISE and CoSMoSS all primarily detect MDMA within the festival setting, they have unique and complementary surveillance roles. Drug checking tested many more samples during the trial period than PRISE and CoSMoSS, increasing knowledge on substances circulating in NSW and increasing the likelihood of detecting rare but dangerous substances. In addition, results are available within the hour (usually much quicker), allowing for very rapid surveillance and real-time alerts, including during an event, if needed.

When compared to historical controls, **there was evidence for reduced medical events when drug checking was present at music festivals.** This included a reduction in hospital presentations: from 3.6/festival day in historical controls, compared to 2.3/festival day during the trial. In addition, there was a trend towards fewer ambulance transfers (2.7/day vs 2.0/day), fewer Immediate and Urgent presentations (1.2/day vs 0.7/day), and fewer ICU admissions (0.9/day vs 0.6/day).

Music festivals with higher risk of drug-related harms, and where patrons were willing to engage with the service were most likely to benefit. **Festivals most likely to benefit from drug checking are those offering EDM, particularly hardstyle music, festivals with a young target demographic, larger events, multi-day festivals in regional areas, and events where the ambient temperature was likely to be high.**

The NSW Drug Checking Trial cost \$786,340 in total, with an average estimated cost of \$65,529 per festival (range: \$53,098–\$97,225), compared with an estimated \$44,001 per festival for existing harm-reduction activities. The service provided additional harm-reduction activities and valuable surveillance information, complementing rather than replacing existing activities. Festival-specific costs showed a downward trend across the trial, reflecting efficiencies gained as service processes stabilised and logistical and procurement systems improved. On a unit cost basis, the service cost \$779 per service visit and \$534 per sample tested. The costs of an ongoing testing service would, however, be lower due to high one-off costs of capital equipment and improvement in operational efficiencies. The scenario analysis suggests annual operating costs for the same number festivals to be on the order of \$560,217 (\$46,685 per festival; \$37,348 per festival day), with unit costs falling to \$555 per service visit and \$380 per sample tested.

Comparison to previous studies and other models

The NSW Drug Checking Trial adds to the body of evidence to indicate that drug checking services change user behaviours, particularly when results are unexpected. Other publicly available evaluations of drug checking in Australia have shown similar results in terms of changed behaviour, service user satisfaction, costs (as detailed in the Costing section), and contribution to existing harm reduction and early warning systems.^{19,46}

The impact of drug checking on health outcomes, particularly on acute medical presentations for drug-related harm, is naturally of interest to the public, government and stakeholders. Of the three Australian drug checking services that have public evaluations at the time of writing, the current evaluation has provided the most health information. The ACT Pill Testing trial at the 2019 Groovin' the Moo festival reported 39 people assessed by ACT Ambulance Service paramedics in the trial year, with four transported to hospital (two relating to intoxication with alcohol and/or other drugs). This was compared with 85 assessments and three hospital transports in the year prior to the trial.⁴⁶ The Independent evaluation of the fixed site CanTEST service did not include data on drug-related hospital presentations or admissions "due to lags in administrative data collection and access".⁴⁹ The Queensland trial did not assess ambulance treatment or hospital presentations quantitatively, however one stakeholder interviewed reported (anecdotally) no hospital transports from the trial festival, compared to five to eight in the preceding years¹⁹.

The current evaluation's analysis of quantitative health event information is only possible with NSW Health's prospective collection and follow up of festival-related hospital presentations for festivals requiring a Health and Medical Plan. This medical data is collected prospectively by NSW Health, triangulating information from on-site medical teams, ambulance, the PHREDSS (Public Health Rapid, Emergency, Disease and Syndromic Surveillance) system, hospital electronic medical records and coronial records. This has allowed us, where possible, to compare to previous editions of the trial festival run in the two preceding years. While the relatively small sample size and lack of historical controls for all festivals precluded formal statistical analysis, descriptive statistics indicate reduced drug related harm at festivals where drug checking is available.

Various models of drug checking operate globally. The NSW Drug Checking Trial focused on drug-related harms at music festivals. MDMA is the main cause of drug-related deaths at music festivals³⁶. MDMA use is typically experimental and infrequent, with most people consuming it only a handful of times in their lives rather than as part of regular drug use⁵⁰. The average person who uses MDMA may do so only several times, often in specific social or festival contexts. The evaluated model of drug checking is therefore designed to meet the needs of these occasional, non-routine users. Occasional users are less likely to have ever discussed their drug use with a harm reduction or healthcare professional, and this was borne out in the evaluation data. While peer workers are present at music festivals under the status quo, the drug checking service increased engagement with peer workers and the vast majority of service users indicated that they would engage in harm reduction behaviours following the service, which was supported by the results of the online survey of reported behaviours.

The NSW Drug Checking Trial did not have a fixed site component. The demographics of service users, and the samples submitted for testing at fixed sites differ to those in this trial and other event-based drug checking services^{19,49}. Specifically, a wider variety of samples tend to be presented at fixed site services, particularly opioids and benzodiazepines^{49,51,52}. These fixed site services are more likely to report unexpected results and more likely to result in samples being discarded^{19,49}.

Table 18 compares basic demographics and service user characteristics, sample volume, expected and detected samples across the three drug checking services in Australia with publicly available evaluations to date (Queensland and ACT). NSW is the only trial that was solely event-based: CanTest is primarily a fixed-site model and the Queensland Drug Checking Trial was a mixed model. The NSW Drug Checking Trial was the busiest in terms of rate of samples tested (per hour or per day) and had the highest proportion of MDMA expected and detected. Public drug warnings originating from the NSW Drug Checking Trial have been mainly relating to MDMA, whereas CanTest and Queensland alerts have also included nitazenes.

The Victorian Pill Testing trial is currently underway, however comparison of monthly reports from fixed site services with the Victorian event-based drug checking shows similar trends (i.e., a broader range of substances submitted and detected at fixed site services, whereas festival-based checking is mostly MDMA)^{52,53}.

Table 18 Comparison of key data from this evaluation with other drug checking evaluations in Australia

	NSW	ACT ⁵¹	QLD ¹⁹
Model	Event based	Fixed site (CanTest, noting that event-based testing has been previously available at selected festivals in ACT)	Mixed: fixed-site and 4 events
Gender distribution	62% male 33% female 5% non-binary/other term	70% man/male 27% woman/female 3% non-binary/other term	70% male 28% female 2% non-binary
Age distribution	86% aged <30	69% aged <35	47% aged <30
Sample volume	16.0/hour 73.8/day	6.9/hour	14.7/day
Percent who had never spoken to a peer or health professional about substance use	69%	70%	54%
Top substances expected†	MDMA (68%) Ketamine (19%) Cocaine (8%) 2-CB (1%)	MDMA (37%) Cocaine (14%) Ketamine (13%) Steroid (5%) Methamphetamine (3%) Benzodiazepine (2%) Heroin (2%) LSD (2%)	MDMA (42%) Ketamine (14%) Cocaine (13%) Methamphetamine (7%) LSD (4%) 2-CB (2%) Heroin (2%) Alprazolam (2%)
Top substances detected	MDMA (64%) Ketamine (20%) Cocaine (8%) MDA (2%) 2-CB (1%)	MDMA (29%) Cocaine (12%) Ketamine (8%) Methamphetamine (5%) Heroin (2%)	MDMA (33%) Cocaine (17%) Ketamine (11%) Methamphetamine (11%)
Percent unexpected	8%	16%	12% (unexpected psychoactive)
Percent discarded	4%	10%	10%
State/territory government drug alerts resulting from drug checking detections	Seven alerts about high dose MDMA* One alert about ketamine analogues One about a synthetic cathinone	One public health alert and two community alerts in the first six months. Alerts about a nitazene, ketamine analogue, and a synthetic cathinone	Three nitazene alerts, one alert about cocaine containing phenacetin.

† Substances expected in 1% or more of samples are listed

*8 alerts total, one combined high-dose MDMA warnings with the synthetic cathinone detection

Future directions

Stakeholders and service users saw substantial unique value in the drug checking service and have strongly advocated for drug checking services to be continued and expanded. There is evidence of broader public support across NSW and Australia³. Stakeholders and service users cite wide ranging benefits including informed decision making about drug use, improved service user understanding, contributing to the safety culture at music festivals, reduced overdoses, expanded opportunities for harm reduction, and contributions to the state's drug surveillance and early warning system.

The NSW Government is faced with several options at the conclusion of the trial. The terms of reference of this evaluation did not include a recommendation for the future of the service. However, we present the following option appraisal, grounded in the evaluation findings.

Option 1: continue the service in its current form. The event-based drug checking could continue at festivals most likely to benefit (see Evaluation Question 4).

Implications: This would maintain demonstrated benefits observed during the trial (identification of high-risk substances, trend towards decreased drug-related harm, engagement with priority populations for harm reduction messaging, and contribution to the early warning system). Prospective, ongoing evaluation of hospital presentations should be continued to strengthen the evaluation of the health impacts of drug checking.

Limitations: Ongoing cost to the government, and the current operational model may not fully meet demand or geographic need (i.e., some festivals with higher risk characteristics did not have drug checking during the trial period).

Enablers: The workforce is highly trained and operational, key stakeholders are engaged, efficiencies gained throughout the trial period would likely to continue to reduce costs. Capital expenditure has already been made, so ongoing costs are lower than set up and implementation costs.

Option 2: scale up the service to include more festivals. The service could be expanded to include more festivals, allowing broader coverage.

Implications: Expanding the service to include more events could increase access and mean benefits are more widespread. More samples tested over a broader group of service users would improve monitoring of emerging substances.

Limitations: This would increase operational costs and may require additional qualified workers, however, analysis of workforce capacity was not in scope of this evaluation. If two festivals happened concurrently more equipment may need to be purchased or testing may need to be outsourced.

Enablers: The trial has established operational systems, workflows, trained staff and partnerships with event organisers that can be scaled up with additional resourcing.

Option 3: scale up the service to include a fixed site service. This option could be considered alone, or in combination with Option 2.

Implications: Expanding the service to include fixed-site drug checking would improve access to the service by people who use drugs but are not attending the festivals where drug checking is available. This would also allow people who prefer to take their drugs before entering the festival to use the service. A fixed-site service would likely receive a broader range of substances (i.e., more opioids, benzodiazepines, steroids). The expansion would therefore broaden the reach of harm reduction, health impacts and strengthen contributions to early warning systems. This would need to be balanced against resource implications.

Limitations: Significant additional costs involved and logistical challenges (finding a site, deciding on operating hours and staffing).

Enablers: Implementation could draw upon experience with operation of fixed-site services in other Australian jurisdictions (ACT, Victoria, Queensland) and internationally. There is

stakeholder support for expansion, and evidence that this would meet the needs of more people in the community.

Option 4: discontinue the service. The service could cease now that this trial has concluded.

Implications: Decisions around drug taking at festivals would no longer be able to be informed by analytical information. Likely large reduction in first-time harm reduction conversations, and early warning detections and alerts.

Risks: Reversal of benefits observed during the trial: drug related hospital presentations may rise, harm reduction behaviours may decrease (there is a new cohort of young people entering the festival scene every year).

Enablers: None beyond cost savings from not providing the service—noting that a full cost-benefit evaluation that included health outcomes was not performed. The overall cost to the NSW government may potentially be lower with drug checking if it consistently results in reduced critically ill patrons.

Ongoing evaluation, monitoring and risk assessment

A key next step is to undertake a full economic evaluation of the NSW drug checking service. While the costing analysis presented here provides useful estimates of service delivery costs, it does not quantify the outcomes described elsewhere in the evaluation or the broader system benefits generated by the drug checking service. A comprehensive economic evaluation would also require access to additional outcome data—including linked health, toxicology, and hospital datasets—to compare results with and without the service and to quantify benefits such as reduced drug-related harms, avoided hospital presentations, and enhanced early warning capability. Conducting a cost-effectiveness or cost-benefit analysis aligned with NSW Treasury guidelines, and adopting a societal perspective, would allow government to assess whether the incremental costs of drug checking are justified by the health and system gains achieved.

Publication of comprehensive, and ideally disaggregated (e.g., fixed-site vs event-based) costing data for Australian drug checking services would further facilitate comparison across various service delivery models.

The quantitative component of this evaluation used routinely collected operational and health data. Prospectively, a more comprehensive evaluation could be designed where specific variables of interest are captured consistently across events. This would enable evaluators to answer more specific questions about the mechanisms surrounding the effect of the drug checking service on drug use and drug-related harms. In addition, if the service continues this dataset will grow. This would enable more robust inferential analyses to better quantify the health benefits of drug checking.

In addition, a prospective survey of people who experienced drug-related harms (such as presentations to the on-site medical centre) could explore whether they used the drug checking service, and if not, why not. This would shed light on potential barriers to use of the service or to following harm reduction advice.

If the service is to be continued, targeting of resources to higher-risk events would be strengthened by a better understanding of what makes a festival higher-risk for drug-related

harm. Key variables would include: sociodemographic characteristics of patrons, festival type (music style, format, location, single vs multi day), climactic conditions (temperature, humidity, rainfall), harm reduction activities on-site, and drugs detected on-site (PRISE, CoSMoSS, drug checking results, where available); with the primary outcome being drug-related hospital presentations. This would have benefits beyond drug checking, and allow more targeted resource allocation in the music festival harm reduction space.

Finally, it is worth noting that the NSW Drug Checking Trial (and other NSW harm reduction activities and this evaluation) have several unique features compared to the service models evaluated in other states and territories. The NSW government should consider the potential mutual benefit for all jurisdictions engaged in drug checking to increasingly collaborate. An analysis of all drug checking interventions in Australia would provide a larger dataset that might be able to better capture any resulting health benefits. In that regard it would be useful to push for a national minimum dataset to ensure consistent capture of core variables across jurisdictions, to allow comparisons of the different models. This would support the creation of shared national indicators and reporting, facilitating monitoring of trends and early warning outputs. While this trial could be regarded as generally having been very successful, there continued to be young people hospitalised with drug-related problems. A broader collaboration should lead more rapidly to even better harm-reduction solutions.

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