NSW Health

Monitoring and reporting on drug trends in NSW

November 2024

NSW GOVERNMENT

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The NSW Ministry for Health acknowledges the traditional custodians of the lands across NSW. We acknowledge that we live and work on Aboriginal lands. We pay our respects to Elders past and present and to all Aboriginal people.

Further copies of this document can be downloaded from the Drug Summit website www.health.nsw.gov.au/aod/summit

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Acknowledgements

We would like to recognise and acknowledge the powerful voices of those with lived and living experience of alcohol and other drug use.

Key Information

- Illicit substances are manufactured in unregulated markets and the contents and strength are therefore unknown. Variation occurs both between and within batches of illicit drugs and individual tablets and capsules.

- The importation and availability of illicit drugs in Australia exists within a global ecosystem and is highly changeable. Internationally, the decrease in poppy cultivation in Afghanistan has driven the manufacture of synthetic opioids (fentanyl analogues, nitazenes) in Europe and North America. Australia's supply of heroin has remained stable and mostly originates from Southeast Asia but requires continuous monitoring.

- Timely and earlier identification of changes in the illicit drug supply improves public health response and outcomes, however even comprehensive surveillance systems will miss potentially dangerous substances. Substances could be missed because the chosen technology cannot confidently identify the substance, or because only a small proportion of the overall circulating substances are tested.

- Harm reduction initiatives are enhanced by robust drug surveillance. Drug harm can occur from a single instance of use of a substance but occurs more commonly when:
  - repeated or high doses of a substance are consumed (e.g. more than one high dose tablet of MDMA within a short period), or
  - when multiple substances are consumed together (e.g. benzodiazepines taken together with opioids), or
  - when the substance was not what was expected (e.g. an opioid was used when the person thought they had obtained cocaine).

- Regardless of what substances are circulating, promoting a cautious and harm reduction approach, and the wide accessibility of opioid reversal agents (i.e. naloxone) that work for all plant based and synthetic opioids, are pillars of a response. A harm reduction approach includes advice to start with low amounts, increase slowly, limit the combination of substances, not use substances alone and recognise overdose symptoms.

Background

Illicit drugs are produced through a wide variety of manufacture methods, from horticulture to laboratory synthesis. Many illicit drugs are dependent on the importation or diversion of chemicals used as precursors. Drugs arrive in Australia in their finished form (e.g. pill) or in a powder ready for reconstitution (i.e. requiring dilution with a liquid compound). Most illicit substances are imported into Australia in their finished form, but reconstituted products are sometimes used to defeat law enforcement efforts. Domestic production relies on compounds (solvents, reagents, precursors) which often have legitimate industrial applications. Pharmaceutical diversion (where a registered medicine is used for non-medical purposes) is another source of drug supply.

Most illicit substances in Australia originate offshore, except for cannabis (which is locally cultivated) and about a third of methamphetamine supply (which is locally manufactured). Illicit substances are typically imported through organised crime groups.[1,2] The dark web is also a growing marketplace for purchasing substances.[3]

Illicit substances are manufactured in uncontrolled and non-sterile environments leading to variation in quality. Illicit drug manufacturers often substitute (or adulterate) a substance with a cheaper, similar compound or contaminate a substance with a compound with a different effect (e.g. cocaine contaminated with heroin leading to sedation rather than stimulation). This may be intentional (adulteration) or unintentional (contamination).[4] Adulterant or substitute compounds are often inert (i.e. don't cause any meaningful or concerning response when consumed) but may be harmful or toxic.

High risk adulterants (including new or novel psychoactive substances)

The international nature of illicit drug supply requires global information sharing to scan for potential threats. Around 1200 new (or novel) psychoactive substances have been identified in global drug markets over the last decade.[5] North America and Europe are experiencing increasing opioid-related deaths from highly potent opioids, such as synthetic opioids (e.g. fentanyl and nitazenes).

Other trends such as heroin substituted with highly potent opioids (e.g. nitazenes) occur sporadically. However, this is not currently widespread in Australia. The trends vary internationally, with Europe remaining resilient to the trend of fentanyl analogues in the heroin supply despite it becoming endemic in North America over the past decade.[6] However, with the recent supply shortage of heroin caused by the ban on poppy production (used to produce heroin) in the world's largest supply country, Afghanistan, a shift in Europe over the past year has been seen with increasing deaths from nitazenes. Monitoring and reporting from the Australian Criminal Intelligence

[1] Australian Criminal Intelligence Commission. Australia's illicit drug problem: Challenges and opportunities for law enforcement. Submission 54 [Internet]. 2023. Available from: https://www.acic.gov.au/sites/default/files/2023-08/submission_-_australias_illicit_drug_problem_challenges_and_opportunities_for_law_enforcement.pdf. Accessed: 2024 Nov 7.

[2] Australian Criminal Intelligence Commission. Illicit Drug Data Report 2020-2021. Canberra: Commonwealth of Australia; 2023. Available from: https://www.acic.gov.au/sites/default/files/2023-10/illicit_drug_data_report_2020-21_forweb.pdf. Accessed: 2024 Nov 7.

[3] Soska K, Christin N. Measuring the Longitudinal Evolution of the Online Anonymous Marketplace Ecosystem [Internet]. 2015. Available from: https://www.usenix.org/system/files/sec15-paper-soska-updated_v2.pdf. Accessed: 2024 Nov 7.

[4] 'Adulterant' generally means deliberately added substances used to bulk, mimic, dilute, or enhance the effects of drugs. 'Contaminants' are usually unintentionally added due to poor manufacturing techniques, storage, or production.

[5] United Nations Office on Drugs & Crime. UNODC Early Warning Advisory on new psychoactive substances [Internet]. UNODC; 2024. Available from: https://www.unodc.org/LSS/Page/NPS. Accessed: 2024 Nov 7.

[6] Australian Government: Australian Institute of Criminology. The opioid epidemic in North America: Implications for Australia. Trends and Issues in Crime and Criminal Justice. No 578; 2019. Available from: https://www.aic.gov.au/sites/default/files/2020-05/ti578_the_opioid_epidemic_in_north_america-v2.pdf. Accessed: 2024 Nov 7.

Commission suggests that most Australian heroin seizures come from Southeast Asia, where cultivation has increased in 2020-21.[7] The full impact of the opium ban in Afghanistan has likely not been realised and ongoing monitoring of supply changes is required.

NSW Health analysed 2,597 samples from NSW Police drug seizures between March 2021 to June 2024. These represented targeted seizures of methamphetamine, MDMA (3,4-methylenedioxymethamphetamine), cocaine and heroin in small 'street level' quantities. New psychoactive substances were found in 4% of all samples. Not all 4% were likely to cause increased harms compared with other circulating substances, however, novel synthetic opioids were found in 2 samples, and novel benzodiazepines in 12. A range of other substances have also been found which can cause harm.

High risk adulterants were found, including nitazenes in tablets sold as MDMA, and heroin and high concentration anaesthetics in powder sold as cocaine. Drug purity varied substantially among cocaine, heroin and MDMA samples. While adulteration with high-risk drugs is uncommon in Australia, when detected, it triggers the release of public drug warnings. This contrasts with overseas markets such as the United States of America (USA), where multiple adulterants (often fentanyl) are common, with 17% of seized street drug samples having 5 or more toxic adulterants.[8]

Additionally, NSW Health analysed samples from 700 selected high-risk hospital presentations involving drug toxicity presentations of public health concern from July 2018 to June 2024. Of these high-risk presentations, 7% involved novel synthetic opioids, and a further 9% involved other new psychoactive substances that were the subject of public health warnings. This should not be interpreted as a community sample as it has been highly selected for presentations involving severe and unusual cases, or clusters of drug.

[7] Australian Criminal Intelligence Commission. Illicit Drug Data Report 2020-2021. Canberra: Australian Criminal Intelligence Commission; 2023. Available from: https://www.acic.gov.au/sites/default/files/2023-10/illicit_drug_data_report_2020-21_forweb.pdf. Accessed: 2024 Nov 7.

[8] Colombo Plan. Trends in Toxic Adulterants in Street Drugs in the United States. Center for Forensic Science Education and Research; 2024. Available from: https://www.cfsre.org/images/content/reports/public_alerts/Toxic_Adulterants_Health_Alert_Final.pdf. Accessed: 2024 Nov 7.

NSW Drug Surveillance

The United Nations Office of Drug Control describes the key components of an early warning system to respond to new psychoactive substances, new use patterns and toxic adulterants (Figure 1).[9]

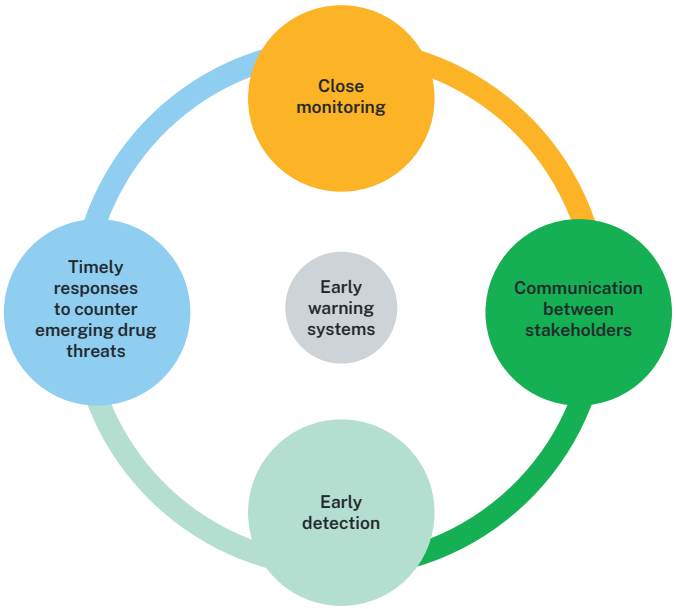


Figure 1: Key components of an early warning system, United Nations Office of Drug Control

NSW Health has a connected system of routine monitoring of health service utilisation for drug associated presentations and admissions, illicit substance seizures and toxicology analysis of biological samples (e.g. blood or urine). NSW Health also contributes and receives incident notifications from a national collaborative network to facilitate information sharing on emerging drugs across jurisdictions. These connected systems enable scanning and response to circulating and emerging illicit substances. A summary of the data sources for the NSW Health surveillance system is outlined in Table 1.

Illicit substance testing is performed by NSW Health Pathology's Forensic and Analytical Science Service (FASS). FASS offers comprehensive toxicology testing including presumptive testing, qualitative analysis, purity and quantitative analysis. The facilities at FASS represent comprehensive and high quality testing, with the ability to test using multiple methods, draw on analytical chemists' expertise, and integrate information with results from clinical samples and health data.

NSW Rapid Drug Surveillance and Early Warning System

The NSW Ministry of Health works with a range of stakeholders to collate data from a range of sources to rapidly identify, investigate signals and respond to public health risk relating to drugs (Table 1, and Figure 2).

Although signals are generated from a wide range of sources, a public health response often relies on rapid analysis of biological or substance samples. For this reason, the two main programs which trigger public health responses (including public drug warnings, and clinician safety advisories) are Prescription, Recreational and Illicit Substance Evaluation (PRISE) and Combined Surveillance and Monitoring of Seized Samples (CoSMoSS). These programs are supported by the broader analysis of coronial samples and NSW Police seizures, and contextual awareness through alcohol and other drug services, peer organisations and jurisdictional partners.

[9] United Nations Office on Drugs and Crime (UNODC). UN Toolkit on Synthetic Drugs [Internet]. Available from: https://syntheticdrugs.unodc.org/syntheticdrugs/en/toolkit-index.html. Accessed: 2024 Nov 7

Figure 2: The NSW Ministry of Health works with a range of stakeholders to gather data from a range of sources (further described in Table 1).

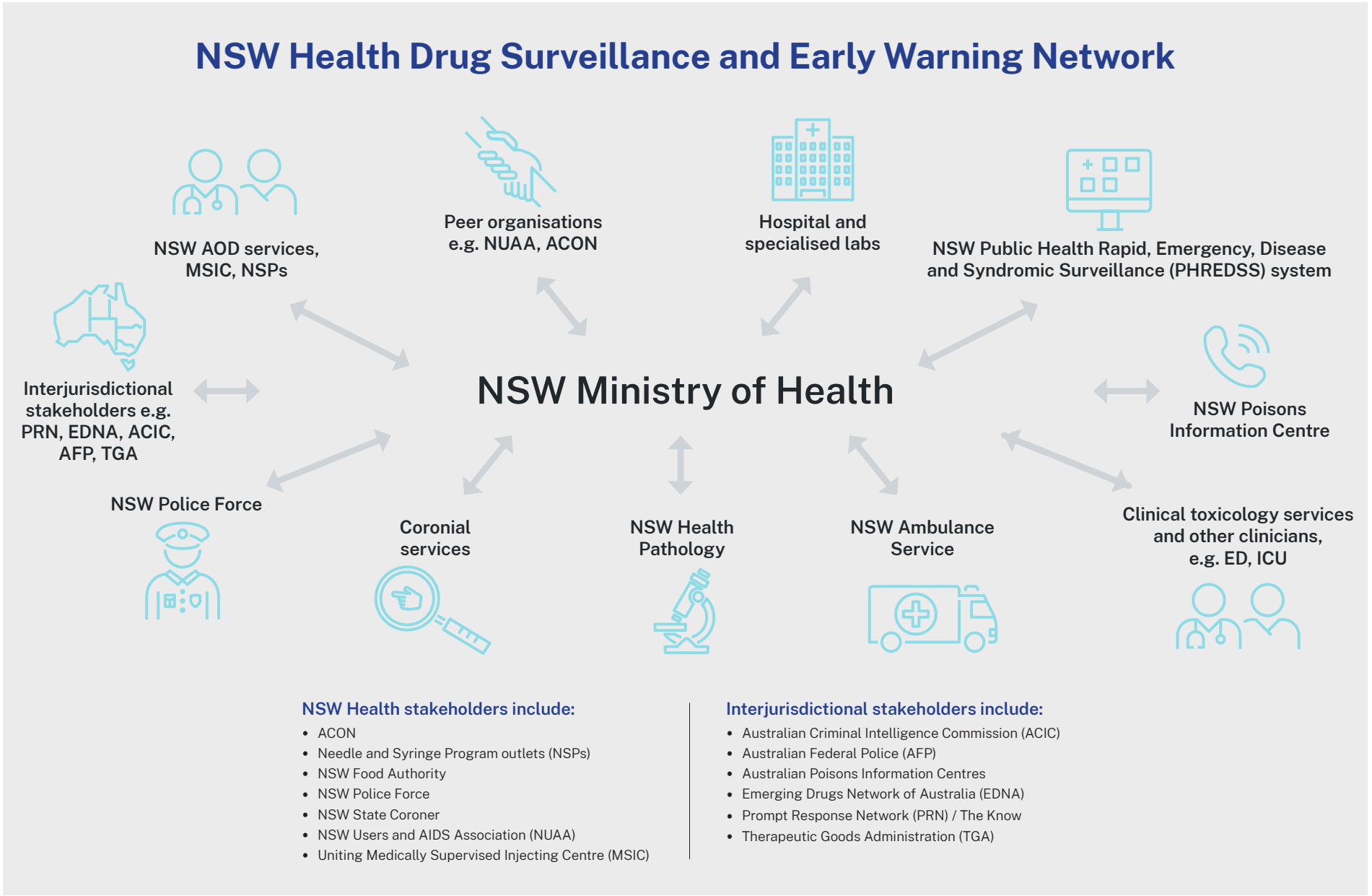


Table 1: Data sources for NSW Health rapid surveillance and early warning system

Data source	Information provided by data source	Update frequency	Notes
Prescription, Recreational and Illicit Substance Evaluation (PRISE) program	Severe/unusual cases and clusters of drug toxicity. Toxicology analysis of blood/urine/substance. Cases are reported from Poisons Information Centre, hospital clinician notifications, ambulance, AOD services (e.g. clinics, MSIC), forensic medicine, peer organisations (e.g. NUAA), NSW Police Force.	Daily	Informs trends in drugs involved in overdoses including novel psychoactive substances (NPS) and polysubstance use. Identifies high-risk drugs to trigger public drug warnings. Analysis is performed on selected cases (150-200 per year) with urgency dependent on clinical/public health need with most providing preliminary results within 1-5 days. Relies on presentations to hospitals, thus, harm has already occurred.
NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance (PHREDSS) system	Counts of drug-related ED presentations by drug, hospital, age, sex. Line list of selected suspected drug-related ED presentations. Signals identified from statistical variation in ED presentations/ ambulance callouts.	Daily Weekly Daily	For trend analysis and epidemiological investigation. For case-finding severe drug ED presentations. Individual cases and clusters of severe and unusual toxicity are followed up with local clinicians. PHREDSS monitors unplanned presentations to NSW hospital emergency departments and 000 calls to NSW Ambulance, grouped by condition. Patterns are monitored to quickly identify unusual patterns of illness, which could signify an emerging trend of public health importance.
NSW Poisons Information Centre	Poisoning calls/consultations.	Real-time	Poisons Information Centre receives calls from the public and health professionals but is self-initiated so underrepresents the total volume. Hospitals with clinical toxicology services (across most of Sydney and Newcastle) capture data in their own data systems. Information is shared with NSW Health as part of PRISE and upon request.
Forensic Toxicology Laboratory, Forensic & Analytical Science Service; NSW Health Pathology	Drug-related deaths by toxicology detections in coronial casework.	Monthly Ad hoc	For signal identification and investigation, and trend analysis. Not all coronial cases undergo toxicology analysis for NPS. Cases with high-risk detections (e.g. nitazenes) or concerns for public health are reported upon detection by NSW Police Force, coroner, forensic pathologist, laboratory.
Opioid-related ambulance callouts	Ambulance attendances by location, age, sex, transport.	Weekly	Identifies cases with naloxone administration or when an opioid protocol was followed.
Combined Surveillance and Monitoring of Seized Samples (CoSMoSS) program	Purity and composition of street level drug seizures (including from music festivals) from NSW Police Force for drugs suspected to be MDMA, cocaine, heroin, methamphetamine.	Monthly Ad hoc	Identifies high dose MDMA and high-risk drugs to trigger public drug warnings. Results typically return 2-9 weeks after seizure. Reports information on what the suspected substance was by NSW Police Force but not by the client. Currently covers seizures from music festivals and three NSW Police Regions. Cases with high-risk detections (e.g. nitazenes) are reported upon detection.
NSW Police Force seizures analysed by the Illicit Drug Analysis Unit, Forensic & Analytical Science Service; NSW Health Pathology	Purity and composition of drug seizures from NSW Police Force, subject to routine testing.	Ad hoc	Informs trends in purity and adulterants. Identifies high-risk drugs to trigger public drug warnings. Cases with high-risk detections (e.g. nitazenes) or concerns for public health are reported upon detection.
Wastewater	Drug consumption as measured in wastewater.	4-monthly Ad hoc	The National Wastewater Drug Monitoring Program (NWDMP) reports on 12 licit and illicit drugs every 4 months, about 6 months after sample collection. As the NWDMP does not monitor for NPS, NSW Ministry of Health has an existing relationship with University of Queensland to analyse wastewater for substances of concern on request, e.g. nitazenes in response to a signal.
Drug residue	Drugs detected in discarded injecting equipment and drug packaging.	Ad hoc	Analysis of contents of sharps bins to support public health investigations of clusters of drug overdoses in people who inject drugs. Supports surveillance of overdoses managed in the community. Testing performed on discarded injecting equipment and other drug paraphernalia provided by NSW Needle and Syringe Programs, NUAA and Medically Supervised Injecting Centre.
Reports from interjurisdictional networks: Prompt Response Network / The Know, and Emerging Drugs Network of Australia	Public drug warnings, notifications of high-risk drugs detected and trends in other jurisdictions.	Real-time	PRN/The Know involves sharing drug intelligence across jurisdictions and peer networks and is coordinated by the National Centre for Clinical Research on Emerging Drugs. EDNA is a time-limited research project performing blood toxicology analysis of patients presenting with severe and/or unusual toxicity at a small number of sentinel hospitals across parts of Australia. Results typically take 3 weeks.
Media monitoring	Reports of overdoses in the community reported in media articles.	Daily	Identifies additional signals to investigate/validate through other sources.

The CoSMoSS program has provided the NSW Government and its agencies with key surveillance data that generate public health responses related to potentially dangerous substances circulating at street level. It commenced as a pilot at NSW music festivals and now includes samples from three Police Regions across the state.[10] The CoSMoSS program is only available for seized substances and therefore does not offer direct to consumer services. Given the drug seizures are of street level drugs, CoSMoSS does not supply information on composition of drugs higher up in the supply chain. The program is also limited by lack of real-time feedback (up to 9 weeks lag between drug seizure and result availability).

The PRISE program offers rapid extensive analysis of biological samples and illicit substances (if sample available) from severe/unusual toxicity or clusters of case presentations at NSW Health facilities and deaths.[11] It is centrally coordinated to triage and prioritise testing to maximise the value of resource-intensive testing. The program enhances clinical management of patients presenting with severe toxicity and identifies circulating substances with potential for significant public health impact. Findings from PRISE contribute to NSW Health's public drug warnings and clinical safety advisories to health professionals. This program is limited to analysing a relatively small number of samples but is highly selected for cases with maximum public health impact. It provides detailed analysis including quantitation and analysis of biological samples (e.g. blood, urine) and substances. The requirement for harm to have already occurred limits the ability to prevent harms initially but can prevent further harms from occurring.

The NSW model is unique across Australia in its partnership between health and policing services, with its multiple inputs as described above. The strengths of NSW's current drug surveillance system include its ability to detect a range of substances with high levels of accuracy, including new psychoactive substances and rare adulterations or substitutions. This high level of accuracy relies on advanced and evolving chemical analytical techniques, generally through forensic laboratories and research institutions. The response arm of the drug surveillance program is streamlined and responsive because of the sources and type of testing, and the integration of multiple clinical and law enforcement elements.

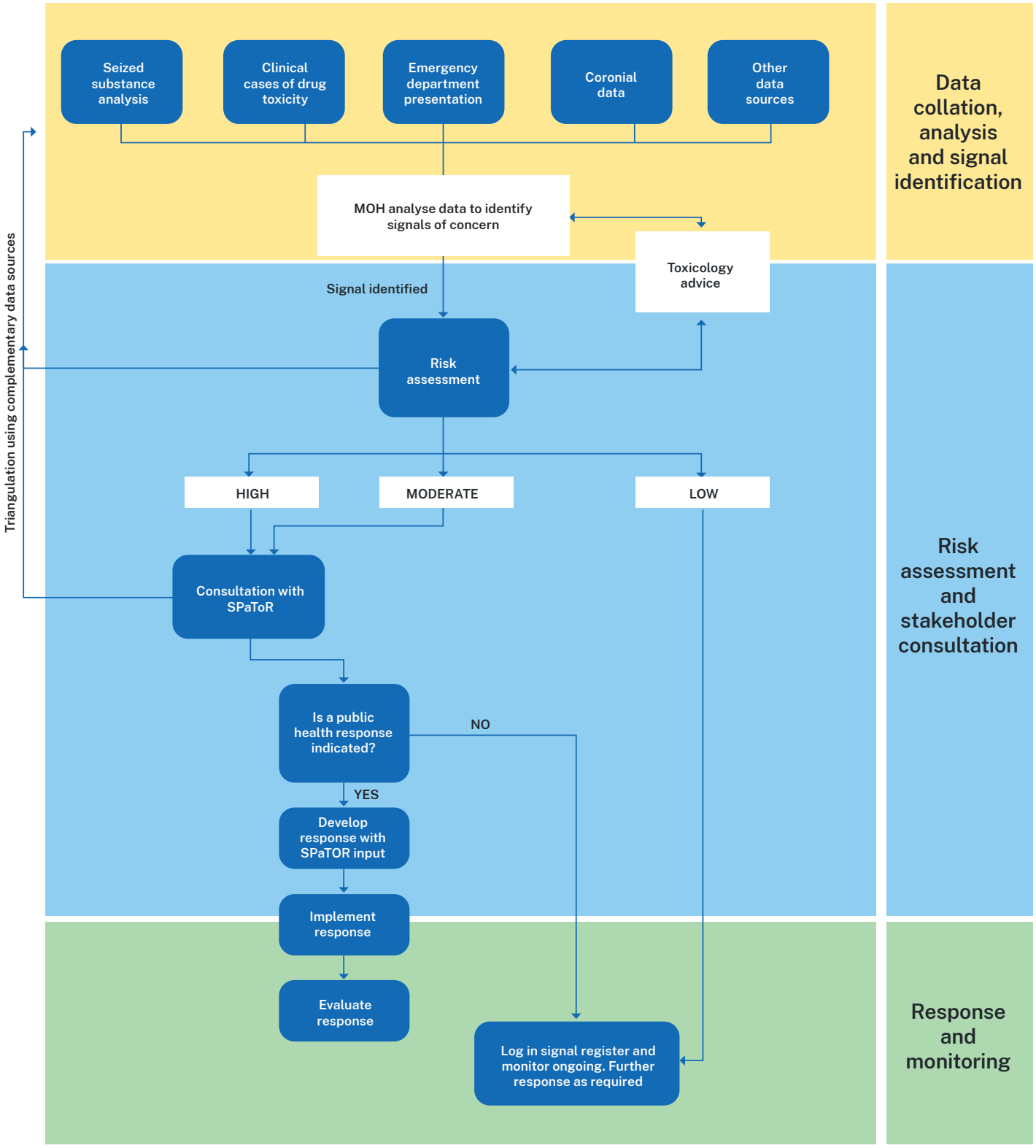
The limitation of the current NSW approach is the representativeness of drug 'supply' inputs for testing. No single source of illicit drug 'supply' for analytical testing is representative of the market. Another key gap is understanding and monitoring drugs which result in a non-fatal overdose without a presentation to hospital. That includes up to one third of ambulance callouts where a person is not transported to hospital. Analysis of discarded sharps from disposal bins is expected to cover part of this monitoring gap, but only for people who inject drugs. Each additional input improves representativeness, but at additional cost and potential risk. The risk with a client-facing drug checking service is of providing false reassurance (e.g. incorrect drug identification/ quantitation, unpredictable individual differences in drug metabolism etc.) despite carefully chosen technologies and extensive education. This risk is weighed against the potential benefits of influencing client decisions on consumption and providing the surveillance system an opportunity to identify dangerous substances and, if needed, act prior to broader public health harm.

The Toxicity Response, Epidemiology and Surveillance (TRES) team at Centre for Alcohol and Other Drugs, NSW Ministry of Health, acts as a central surveillance point (see Figure 2). The TRES team collate and analyse multiple data sources to identify signals of concern, and assess the level of risk, seeking external expertise when required (see Figure 3). Public health action is determined, planned and delivered in response to signals of concern, in collaboration with key stakeholders. The NSW Standing Panel on Toxicity Risk (SPaToR) is convened when required to support risk assessment and response planning. The individuals on SPaToR represent a range of disciplines including clinical toxicology, addiction medicine, emergency medicine, public health and peer agencies. Additional stakeholder representation is sought when required.

[10] NSW Health. Combined Surveillance and Monitoring of Seized Samples (CoSMoSS) [Internet]. Available from: https://www.health.nsw.gov.au/aod/resources/Pages/cosmoss.aspx. Accessed: 2024 Nov 7.

[11] NSW Health. Prescription, Recreational and Illicit Substance Evaluation (PRISE) Program [Internet]. Available from: https://www.health.nsw.gov.au/aod/programs/Pages/prise.aspx. Accessed: 2024 Nov 7.

Figure 3: Simplified process diagram for NSW Health Drug Surveillance and Early Warning Network. SPaToR refers to the NSW Standing Panel on Toxicity Risk. The individuals on SPaToR represent a range of disciplines including clinical toxicology, addiction medicine, emergency medicine, public health and peer agencies.



Emerging substances and the NSW response

The response to novel psychoactive substances must rely on multiple sources of samples at different levels of illicit drug manufacture and supply/sale. Because of the novel chemical composition of these compounds, non-technician applied drug testing technologies that rely on known chemical comparisons are not able to reliably detect these new substances. Detection of novel substances frequently requires scientists to refer to international catalogues and conduct extensive laboratory-based testing using multiple platforms. This is the reason most existing drug checking services are affiliated with a university or institutional laboratories, where unknown samples can be tested and the knowledge of which can be shared for surveillance and safety messaging purposes.

NSW Health Pathology FASS can conduct this high sensitivity testing in NSW. This does not guarantee that every substance will be identified and quantified but rather that the most accurate testing available can be conducted if needed. NSW Health would continue to share deidentified intelligence with NSW Police for supply reduction activities.

The capture of information on dangerous new psychoactive substances with negative public health impacts would allow NSW to be better informed and able to tailor a public health response. A further enhancement of the system could be achieved through responding to new signals of harm by requesting people present their samples for testing. This approach is already being implemented in other jurisdictions, such as New Zealand.

Drug harms in the community

New psychoactive substances are a concern in Australia. These substances are designed to mimic drugs that are either regulated and difficult to procure (e.g. opioids), or controlled and illicit, to subvert drug laws. These substances belong to several drug classes (summarised in Table 2) and have health effects that are often unknown.

There has been a recent increase in the number of public drug warnings regarding new psychoactive substances. Detections of new psychoactive substances in NSW coronial cases have also increased (by 64% between 2022 and 2023). Despite these rises, new psychoactive substances contribute a small component of the overall drug-related harms in the community.

There were 34,646 drug-related hospitalisations in 2022-23 in NSW.[12] Although adulterants and new psychoactive substances can cause serious harms, they are currently relatively uncommon causes of overdose compared to all illicit drugs and pharmaceuticals.

[12] Centre for Epidemiology and Evidence. HealthStats NSW. Sydney: NSW Ministry of Health. [Internet]. Available from: https://www.healthstats.nsw.gov.au/r/115724. Accessed: 2024 Nov 7.

Table 2: New psychoactive substances of concern

Drug class and examples	Adverse effect	Public health risk
Synthetic opioids: • Nitazenes • Fentanyl analogues	Opioid effects include sedation, slow breathing, low blood pressure and heart rate. Opioids are dependence forming and commonly cause death in overdose.	Extremely potent compared with other naturally occurring and synthetic opioids (e.g. fentanyl), therefore much smaller doses cause overdose. Responsive to naloxone. Synthetic opioids have been found as adulterants in cannabis vapes.
Synthetic cannabinoids: • FUB-AMB • 'Kronic' • 'Spice'	More potent than naturally occurring cannabis and effects include psychosis, high blood pressure and heart rate, electrical abnormalities of the heart, slow breathing and seizures.	Potent and often used for relaxing effect without expectation of toxic effects at the standard doses of naturally occurring cannabis.
Synthetic cathinones: • 'Bath salts' • Alpha-PVP • Eutylone	Stimulant-like effects cause stimulant use disorders, paranoia, high blood pressure, seizures, and electrical abnormalities of the heart.	Previous alerts issued because synthetic cathinones are being sold as MDMA.
Synthetic benzodiazepines: • Bromazolam • Etizolam	Benzodiazepine effects include sedation, slow breathing, low blood pressure and heart rate. Benzodiazepines are dependence forming and commonly cause death in overdose.	Potentiating effects when taken with opioids, so can cause overdose rapidly when contamination or substitution present.

Drug harms at music festivals

Causes of harm, hospitalisation and death at music festivals are multifactorial. The most reported drug taken at festivals is MDMA. This is either as 'ecstasy' (in tablet form) or 'molly' (in crystalline form). Investigations into hospitalisations and deaths at NSW music festivals over the last 7 years reveal a majority include drug-related harm, with MDMA contributing to almost all cases of death and a significant proportion of hospitalisations.

From 2017 to September 2024, there have been 10 deaths at NSW music festivals. All deaths were of people between 18 to 26 years of age and all deaths were associated with MDMA use either exclusively, or in combination with another drug. A review of each of these deaths demonstrated variable blood levels of MDMA. That is, the dose that was taken (independent of other factors) was not a predictable indicator of toxicity. The deaths of people with lower blood concentrations of MDMA were associated with ambient maximum temperatures of higher than 33 degrees Celsius, raising the suggestion that high ambient temperature may be a risk factor for toxicity.

Unlike heroin, where toxicity and adverse effects are predictably related to the dose, MDMA toxicity is harder to predict because of the way MDMA is processed in the body and is influenced by a range of genetic and processing factors. Australian and international studies examining blood levels of MDMA in post mortem examinations of MDMA-attributable fatalities show a wide range of lethal blood levels.[13,14]

[13] Roxburgh A, Lappin J. MDMA-related deaths in Australia 2000 to 2018. Int J Drug Policy. 2020 Feb;76:102630. doi: 10.1016/j.drugpo.2019.102630. Epub 2019 Dec 19. Available from: https://pubmed.ncbi.nlm.nih.gov/31865118/.

[14] Milroy CM. "Ecstasy" associated deaths: what is a fatal concentration? Analysis of a case series. Forensic Sci Med Pathol. 2011 Sep;7(3):248-52. doi: 10.1007/s12024-010-9220-7. Epub 2011 Jan 25.

Drug checking services

Drug checking, commonly referred to as 'pill testing', involves consumers submitting a sample of a substance for chemical analysis. Testing is facilitated by a health or peer worker. The worker's role is to explain both the drug checking results and the limitations of testing. A harm reduction intervention is also delivered, that encourages safer use of drugs and alcohol, and provides information regarding recognising overdose symptoms and other risk factors associated with adverse events. Consumers sign a waiver that details the limitations of testing and acknowledgement that testing does not assure the 'safety' of the substance.

Drug checking services may also offer a range of co-delivered health services. Drug checking services are either fixed site or mobile. Fixed sites generally offer more comprehensive services including access to other health programs such as sexual and reproductive healthcare. Mobile services are usually targeted towards drugs of interest and focus on harm reduction advice appropriate to the context (e.g. advice on heat management and alcohol use at music festivals). Drug consumption is generally not permitted at drug checking services.

The expected benefits of a program of drug checking include:

1. Benefit to the individual including real-time information that may guide discarding drugs or using drugs in a less harmful way and promote help seeking in the event of overdose or harm.
2. Contribution to the state (and national) drug surveillance and early warning systems to identify and respond to emerging risk and signals of potential drug harm.
3. The provision of higher quality testing and advice compared to self-test kits or strips that are reasonably widely used, have poorer accuracy and don't contribute to surveillance.

The limitations of a program of drug checking include:

1. Drug checking cannot account for how a substance is processed in the body and the natural differences between people taking the same substance type and dose. Similarly, if multiple substances are taken, drug checking cannot provide information about the interactions of drugs taken that may contribute to harm.
2. The choice of technology impacting the accuracy of results, such that certain low concentration substances or novel psychoactive substances aren't detected.
3. The lack of quality control in illicit drug manufacture means that any sample of a whole product (e.g. pill scraping, powder etc.) may not be representative of what a person consumes.
4. Drug checking alone does not address the context and environment of where drugs are being taken (e.g. music festivals) which may pose independent or cumulative risk of harm.

Unknown impacts of a program of drug checking include:

1. Limited evidence to determine cost effectiveness compared with other harm reduction interventions.
2. A persistent evidence gap in demonstrating causal links between drug checking and overdose prevention (such as rates of overdose, hospitalisation or death).
3. The broader legal and social context where drug use is illegal, and fear of criminalisation exists – and its impacts of service usage and reach for marginalised populations.

Evidence of effectiveness of drug checking services

Systematic reviews combine research that investigates a consistent question, usually across a variety of settings or geographical locations. Pooled results allow a more accurate ascertainment of the 'truth'. Systematic reviews examining whether drug checking services are effective are often limited in the outcomes they can measure. For example, no research on drug checking services can answer the question of whether a drug checking service will cause a decrease in deaths or severe harms. Instead, research tries to determine the client's level of satisfaction with using the service and their intention of drug use behaviour or otherwise, given a specific result.

Evidence demonstrates consumer support for drug checking services as a method of reducing drug-related harms.[15] Research across Canada, the United States, the United Kingdom, and Europe has shown that when analysis results do not align with the expected substance, patron disposal of the drug ranges from 0-10%. Studies also examined patron reports of behaviour change after drug checking. Though there are significant variations based on the population and setting, 16-87% of patrons stated the results impacted their drug use.[16,17]

In the Australian Capital Territory (ACT), the piloted package of services delivered through CanTEST was evaluated and showed that 70% of patrons reported never accessing a healthcare worker for information about their drug use prior to attendance and 66% accepted a general or alcohol and other drug specific intervention. In the ACT, actual drug use post-drug checking aligned with reported patron intentions. When the expected substance was not detected, an additional substance was found or the results were inconclusive, the drug was less likely to be used (32% reported 'definitely will not use') than when the expected substance was found (7% reported 'definitely will not use').[18]

Drug Information and Alerts Aotearoa New Zealand describe the value of drug checking services in their mix of sample inputs to provide actionable intelligence (e.g. safety alerts). In this system, despite many sources of intelligence, similar to the NSW system, results from drug checking services generates the highest number of alerts.

Community sentiment for drug checking services

Public support for drug checking services has increased, and support among people who use drugs is strong. Data from the National Drug Strategy Household Survey highlights increasing public support for harm reduction policy measures. Between 2019 and 2022-23, the largest increase in support was shown for drug checking services, increasing from 57% in 2019 to 64% in 2022-23.[19] People who recently used drugs indicated higher levels of support, demonstrating strong levels of service acceptability from the target audience group.

This is consistent with findings from a 2018 Australian survey of people who recently reported use of psychostimulants and/or hallucinogens at licensed venues or festivals. The study found high levels of service acceptability, with 94% supporting mobile services, and 85% supporting fixed site services. Respondents noted that police support was a key factor in whether they would utilise the service, with 94% indicating they would not use the service if there was fear of arrest.[20]

[15] Guirguis A, Moosa I, Gittins R, Schifano F. What About Drug Checking? Systematic Review and Netnographic Analysis of Social Media. Curr Neuropharmacol. 2020;18(10):906-917. doi: 10.2174/1570159X18666200413142632.

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National and international context

Three Australian jurisdictions operate or intend to commence operating drug checking services, the ACT, Queensland and Victoria. Each jurisdiction has chosen a different model of mobile and fixed site services.

Australian Capital Territory

Following two drug checking trials run by the ACT Government in 2018 and 2019 at the Groovin the Moo music festival, a 6 month trial for CanTEST, Australia's first fixed site drug checking service, was implemented in 2022 and extended until December 2024. The service is operational for 6 hours per week and available to surge hours during festival weekends.[21]

A recent independent pilot program evaluation published in April 2023 found that most service users were young men (aged 34 years and younger).[22] There were relatively few people who reported injecting drugs. Seventy percent of participant respondents reported never previously accessing a healthcare worker for information or advice about drug use. Interventions and services offered at the site included a range of nurse-delivered alcohol and other drug and general health screening, treatment and referrals.

Immediate results for substance identification are provided to clients of the service. A proportion of unidentified samples are sent to the Australian National University School of Chemistry laboratory for gold standard testing and quality assurance.

The NGO service provision has cost approximately $1.44 million over the first 2.5 years of operation. Initial in-kind contribution of staffing and on-loan equipment have meant significant underestimates.

The ACT Government has announced it will continue to fund CanTEST from January 2025 until June 2027, extending its current funding commitment by $1.8 million.[23,24] This figure includes NGO service provision and additional costs to ACT Health. This figure does not include the capital expenditure.

Queensland

The Queensland Government committed close to $1 million to fund the delivery and evaluation of drug checking services in Queensland over a two-year period, including two fixed sites and festival-based services in 2024 and 2025.[25]

Queensland's fixed site drug checking service CheQpoint is operating in Brisbane and the Gold Coast. The service is a partnership between the Queensland Injectors Health Network, The Loop Australia, and the Queensland Injectors Voice for Advocacy and Action.

Harm Reduction Australia has also been engaged to provide festival-based services throughout 2024 and 2025. Drug checking services were recently provided at the multiday festival Rabbits Eat Lettuce Festival in Queensland over the four day 2024 Easter long weekend. Over 200 samples were submitted for testing, and the average age of patrons of the service was 28 to 30 years. Testing was conducted by Pill Testing Australia and showed that MDMA and ketamine were prevalent.[26]

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Victoria

The Victorian Government announced that it will trial drug checking services over 18 months, including mobile and fixed services.[27] The intention is for mobile services implemented at up 10 music festivals in the upcoming festival season. A fixed site will open in mid-2025 in an inner Melbourne suburb close to nightlife and transport operating with targeted hours in partnership with a community or tertiary health provider. The trial period is intended to allow the Government to test different models of delivery, in preparation for a permanent facility or mobile services.

International context

Various models of drug checking have operated in various international settings (including New Zealand, United Kingdom, USA and Canada), over decades.[28] Differing access models, testing technologies and public health response frameworks are utilised in each country. New Zealand uses a combination of fixed and mobile site services and combines some drug checking sites with sexually transmitted infection screening clinics. The Netherlands uses fixed site drug checking services and implements a 'red alert' system through media outlets and a dedicated mobile app, activated when a substance of concern is identified.[29] This allows a rapid dissemination of information to people who use drugs. Canada offers multiple fixed site testing services, with sample submission also possible through the post.[30] Drug checking services in Austria allow samples to be dropped off at a network of participating pharmacies and publishes fortnightly public warnings with analysis results.[31]

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