**Collaborative multi-agency drug surveillance and response**

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**Aims:**

1. To discuss collaborative and innovative approaches to drug surveillance and timely public health interventions in response to rapid changes in emerging drugs of concern.
2. To provide lessons learned for the audience to apply in their local context.
3. To facilitate information sharing and collaborations in drug surveillance and public health responses at a national level.

**PRESENTATION 1: SurPRISE illicit substances – Lessons learned from the Prescription, Recreational and Illicit Substance Evaluation (PRISE) Program in New South Wales**

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**Introduction:** Substitution, adulteration or contamination of illicit substances have been well recognised, however, detections can be missed due to limited capacity of analytical methods used for toxicology screening in hospitals or alcohol and other drugs (AOD) clinics. The Prescription, Recreational and Illicit Substance Evaluation (PRISE) Program in New South Wales (NSW) facilitates specialised toxicological testing of clinical samples from people presenting to NSW Health facilities with suspected drug related toxicity that is severe and atypical.

**Method:** This is a retrospective review of PRISE Program database from July 2018 to June 2021. Comprehensive toxicology testing was performed at the NSW Pathology Forensic & Analytical Science Service. This study aims to highlight types of confirmed substances that were different from what patients with critical illness or fatalities thought they used.

**Results:** There were 292 cases with confirmed toxicology analysis through PRISE Program during the study period, of which 17 cases were from AOD clinics. Key unintended illicit substances with serious toxicities or deaths included fentanyl and analogue (acetylfentanyl) in cocaine and heroin, carfentanil in dimethyltryptamine, LSD in cocaine, heroin in cocaine, caffeine in amphetamine, benzodiazepine analogues (etizolam, flubromazolam, flualprazolam and clonazolam) in counterfeit alprazolam. Common presentations of patients who subsequently died were loss of consciousness, respiratory depression and out-of-hospital cardiac arrest.

**Discussions and Conclusions:** Clients who use illicit substances are at risk of severe toxicity and death due to unanticipated poisonings, high potency and long half-life from falsified products.

**Implications for Practice or Policy:** Clinicians and clients should be vigilant of unexpected harms from illicit substances. Take home naloxone should be encouraged for people who use cocaine as well as people who use opioids.

**Implications for Translational Research:** The toxicology profile of this study can inform strategic planning for risk communications and promotion of safer use practices.

## PRESENTATION 2: Real or Fake: Alprazolam is trending?

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**Introduction and Aims:** Alprazolam is a highly desired benzodiazepine for non-prescribed use. Surveillance for emerging drug-related harms is a NSW Health priority. Reports of severe toxicity from counterfeit alprazolam with analytical confirmation from the Prescription, Recreational and Illicit Substance Evaluation program prompted enhanced surveillance and a public drug warning in December 2019. We sought to describe the extent and characteristics of counterfeit alprazolam supply and harms.

**Method:** Requests for Suspected Counterfeit Alprazolam Notifications (SCAN) was sent by NSW Health to the Poisons Information Centre (PIC) in December 2019 and all clinicians in July 2020. Additional information and samples were collected from patients.
Data analysed: NSWPIC (2015-20), SCAN (July-December 2020), NSW Health Pathology Forensic & Analytical Science Service Illicit Drug Analysis Unit (2017-20).

**Results:** PIC calls involving alprazolam increased 85% to a peak of 506 calls in 2020. During July-December 2020, there were 91 reports received and 46 confirmed as counterfeit. For those using counterfeit products, 72% were male and most were young (median age: 21.5; IQR: 17.5-29.5 years). Brands involved Xanax (19), Mylan (12), Kalma (8) and all involved 2mg. Analysis of tablets identified (in order of frequency): etizolam, flualprazolam, clonazolam, alprazolam, flubromazolam.
Police seizures of counterfeit alprazolam increased since late 2019, from 0 in 2017 to 105 in 2020.

**Discussions and Conclusions:** We observed increasing poisonings involving alprazolam in 2020 which coincides with increasing detections of counterfeit alprazolam in NSW from multiple data sources. Clinicians can incorporate routine questions about drug appearance during discussions about drug use to aid detection of emerging trends.

**Implications for Practice or Policy:** Collaboration with regulators, clinicians and peer-based user organisations are responding with social media campaigns and resources for

harm minimisation. Evaluation of the impact and ongoing surveillance of the illicit market and harms from benzodiazepines is needed.

**PRESENTATION 3: Pure predictions: drug purity changes in NSW during the COVID-19 pandemic**

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**Aims:** We examined whether there was a disruption to the cocaine, heroin and crystal methamphetamine supply in NSW following the first COVID-19 lock down in NSW, using the purity of drug seizures as an indicator.

**Method:** An interrupted time series using an ARIMA model was performed on drug seizure data from April 2017 to March 2021.The model aimed to quantify the change in the monthly median purity of police drug seizures from commercial sized seizures and undercover operations after the introduction of COVID-19 restrictions in April 2020.

**Results:** For methamphetamine and cocaine, there was no significant change in purity. For heroin, missing data after April 2020 meant that the analysis was unreliable.

**Discussion:** We found no evidence of a disruption to methamphetamine or cocaine supply since April 2020 using purity as an indicator. The reduction in heroin submitted for purity analysis may indicate a supply disruption, consistent with reports from the field, though purity data were unable to show this change. The price of methamphetamine and cocaine may have increased from April 2020 which would indicate a supply disruption in the absence of a purity change. The next step planned is to test this by applying this analysis to purity adjusted price.

**PRESENTATION 4: A harmless fantasy? Increasing GHB-related emergency department presentations in NSW**

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**Introduction:** Gamma hydroxybutyrate (GHB) and related substances have a range of toxicity from mild to life-threatening, although little is known about its epidemiology in NSW.

**Method:** Emergency department (ED) presentations related to GHB were identified using keywords in the NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance (PHREDSS) system. Presentations of people aged 16 years and older to participating NSW EDs from 2011-12 to 2020-21 were examined. Results were correlated with confirmed toxicology results of samples seized by police from 2017 to 2020.

**Key findings**
There were 4,239 GHB-related ED presentations in NSW from 2011-12 to 2019-20. Presentations increased more than sevenfold from 2011-12 (169) to 2019-20 (1,298), doubling between 2018-19 and 2019-20.

The greatest relative increases were for ages 25-34 years (ninefold increase), females (8x), triage 1 (10x), those admitted to hospital (10x) and critical care ward (CCW) admissions (9x).

In 2019-20, 49% were aged 25-34 years, 64% male, 30% Triage 1, 25% admitted (7% CCW), 98% in major cities (66% in three central Sydney Local Health Districts).

There were 2,883 samples seized by police from 2017 to 2020, and NSW Health Pathology Forensic Analytical Science Service confirmed substance types. Gamma butyrolactone (GBL) represented (85.3%, n=2,564) of GHB-related substances, and seizures increased threefold from 362 in 2017 to 1,181 samples in 2020, whereas 1,4-butanediol remained stable (mean 92 per year). Two GHB seizures were analysed over the period.

**Discussions and conclusions:** Harms from GHB and availability of GBL appear to have increased. Counts depend on the identification and recording of GHB, which may have changed over time.

**Implications for practice or policy:** GHB harm reduction initiatives are warranted and should target both sexes and young adults.

**Implications for translational research:** Further research into causes of GHB-related ED presentations, such as double-dosing or polypharmacy, to inform harm reduction initiatives.

**Discussion Section:** The discussion will involve representatives from clinical toxicology, addiction medicine, public health, epidemiology and peer-based user organisations. They will share lessons learned along the journey of collaboration across diverse stakeholders within NSW Health and external such as NSW Police and Commonwealth agencies. They will discuss and answer questions from the audience relating to methods and public health responses such as safety alerts, new guidelines and social media. The panel will provide lessons learned and future direction in drug surveillance as well as effective and timely public health responses.

**Disclosure of interest statement**
None.