



UNODC

United Nations Office on Drugs and Crime

Current NPS Threats

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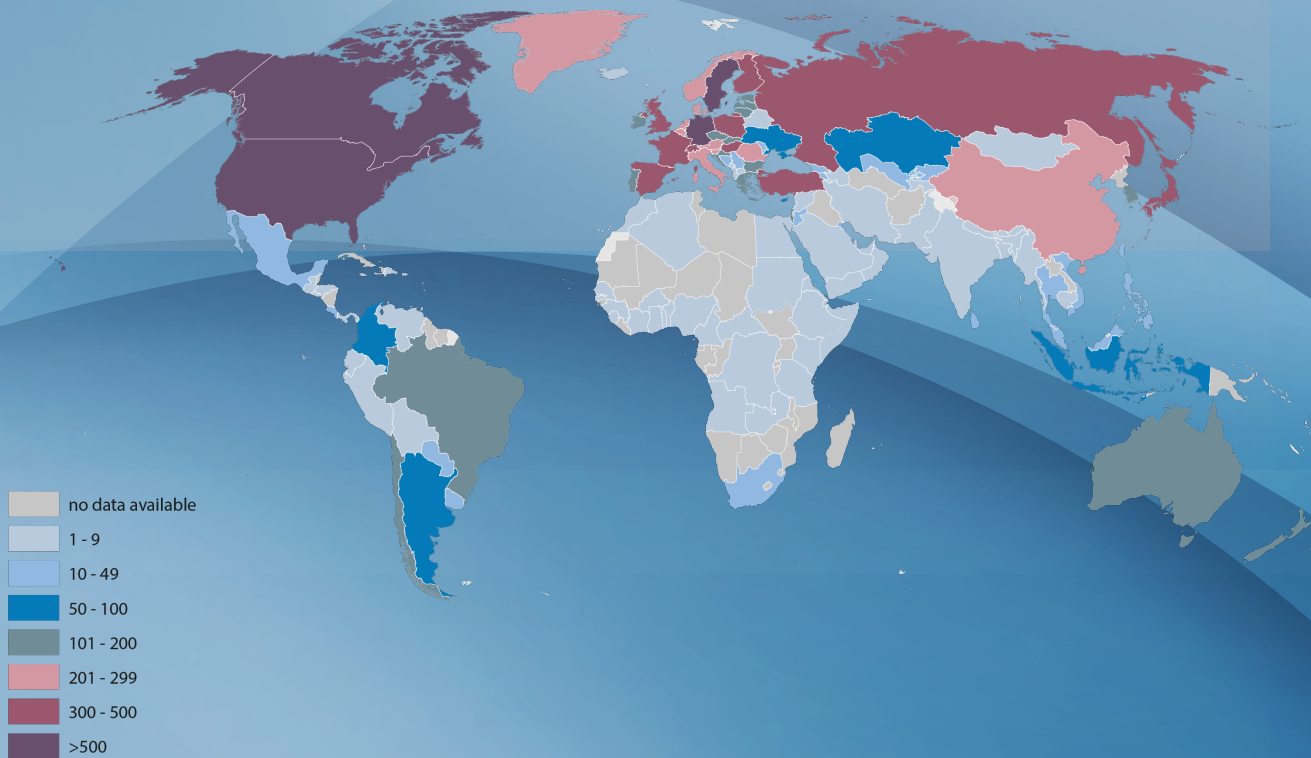


Figure 1: UNODC Early Warning Advisory on New Psychoactive Substances (NPS). Number of NPS reported by country/territory up to 2023

UNODC Early Warning Advisory Toxicology Highlights

- Over 1200 NPS from 141 countries and territories have been reported to the UNODC Early Warning Advisory on New Psychoactive Substances
- Benzodiazepine-type substances continue to be a primary NPS threat, particularly in drug driving and post-mortem cases
- The co-occurrence of a variety of controlled substances with NPS in toxicology cases is a continuing concern

2023

What is the UNODC Early Warning Advisory?

Established in 2013 under the United Nations Commission on Narcotic Drugs Resolution 56/4 (2013), the UNODC Early Warning Advisory (EWA) was the first global monitoring system on new psychoactive substances (NPS). Managed by the UNODC Laboratory and Scientific Service’s SMART forensics, EWA serves as a tool for effective, evidence-based policy responses by monitoring, analysing, and reporting global and regional trends on NPS. Since its inception, UNODC EWA has served as a voluntary online data system that gathers and consolidates both regular and ad-hoc submissions from forensic drug testing and toxicology laboratories, Member States, and partner organisations on NPS.

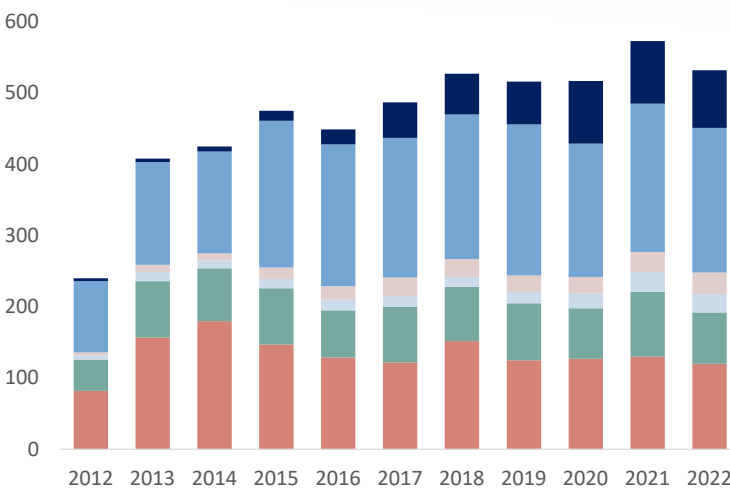
This information contributes to the identification of the most persistent, prevalent, and harmful NPS which pose the greatest threat to public health, thus, assisting in the prioritisation of substances for placement under international control, as well as legislative responses at the national level. Since 2015, over 70 NPS have been placed under International Control and these substances continue to be included in the EWA to assist in and monitor the implementation of international scheduling decisions.

The following report presents the latest information on NPS that has been reported to UNODC and an analysis of over 1,200 cases submitted from toxicology laboratories within 12 Member States from the Americas, Europe, Asia and Oceania between December 2021 and May 2023. Although the analysis allows for a broader understanding of the associated harm of NPS, it is not an exhaustive representation of the variety and toxicity of NPS present globally.

Trend analysis of NPS reported by Member States

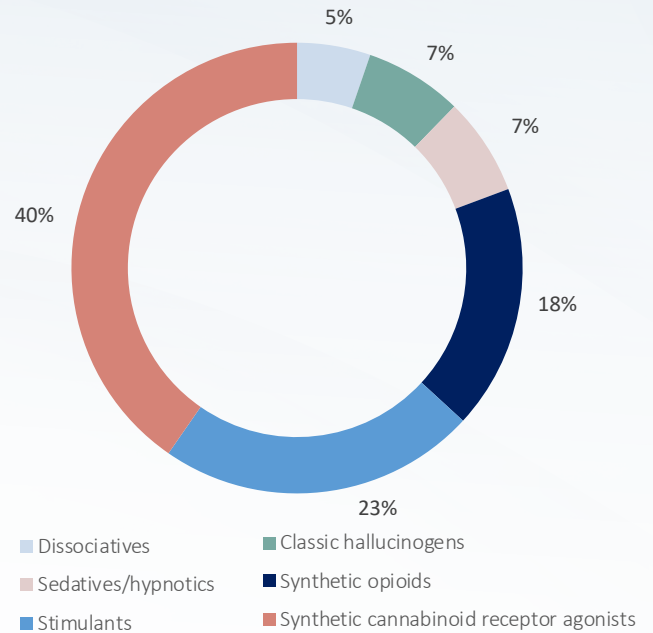
Currently, 1228 individual NPS have been reported to the UNODC EWA by 141 countries and territories worldwide. The NPS situation globally continues to be marked by heterogeneity as 14 countries have identified 300 or more individual substances, while 101 countries have reported less than 50 (Figure 1), illustrating that the challenges faced by countries can differ dramatically.

Figure 2: Emergence of NPS by effect group reported to the UNODC EWA 2012 - 2022



Based on their mode of action, NPS can broadly be classified into six groups and the number of reports of substances within each of these groups from 2012 to 2022 is shown in Figure 2. Considering all reported NPS since monitoring began in 2008, stimulants and synthetic cannabinoid receptor agonists (SCRA’s) constitute the two largest groups of NPS accounting for 756 (66%) of reported NPS. While there continue to be fluctuations in the individual substances are reported each year, the total number of substances reported each year has remained steady, with more than 500 substances being reported to UNODC in each of the last 5 years (Figure 2). The number of new substances that emerge each year has declined in recent years with 45 new substances in 2022 and 18 thus far in 2023. As with the overall trend of NPS reported, the largest groups of new substances are SCRA’s (40%) and stimulants (23%) followed by synthetic opioids (18%) (Figure 3).

Figure 3: New substances reported to UNODC in 2022-23



NPS toxicology case reports

In the data collection period used for this report, 1270 toxicology cases were submitted in which there were over 1400 reports of the identification of 61 individual NPS. The overwhelming majority (89%) of cases involved the identification of a single NPS. The identification of controlled substances and other

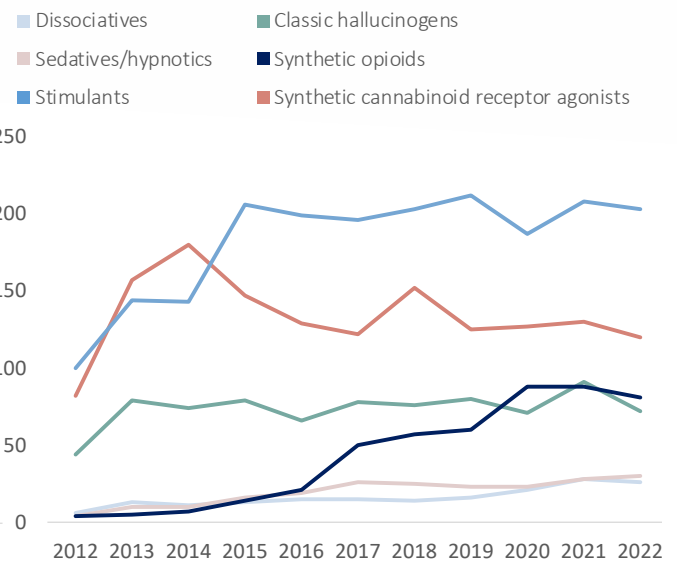
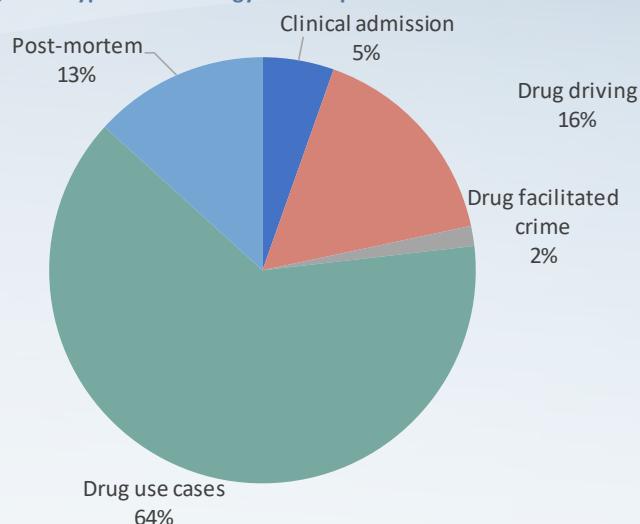
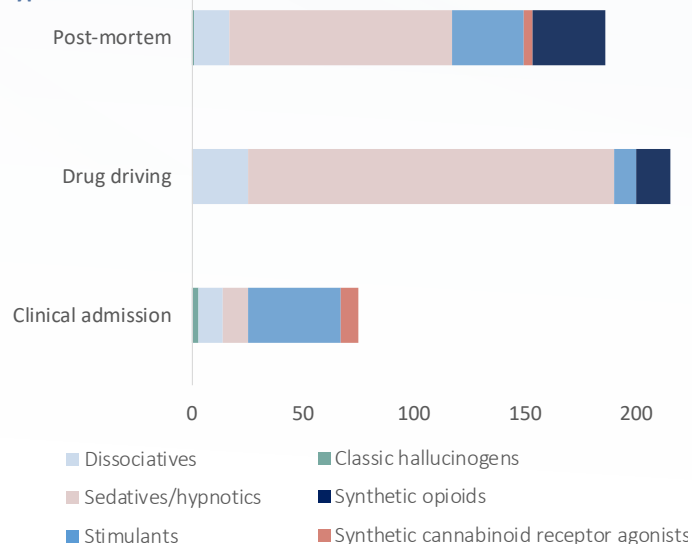


Figure 4: Types of toxicology cases reported



substances in addition to the NPS present will be discussed later. As shown in Figure 4, 64% of the cases submitted were drug use cases, primarily from South-East Asia, and 90% of these cases involved the use of ketamine with the remainder primarily synthetic cannabinoid receptor agonists. In less than one third of the ketamine use cases from South-East Asia (30%), it was the only drug identified while in almost two thirds of the ketamine use cases (61%), MDMA was present, mostly as the only other substance identified. The other case types submitted contained 234 (16%) reports of NPS in driving under the influence of drugs cases (DUID), 191 (13%) reports of NPS in post-mortem (PM) cases, 78 (5%) reports of NPS in clinical admissions (CA), and there were 22 reports of NPS specified as cases of drug-facilitated crime (DFC). Figure 5 illustrates the reports of NPS classified by their effect groups across the post-mortem (PM), driving under the influence of drugs (DUID), and clinical admissions (CA) cases.

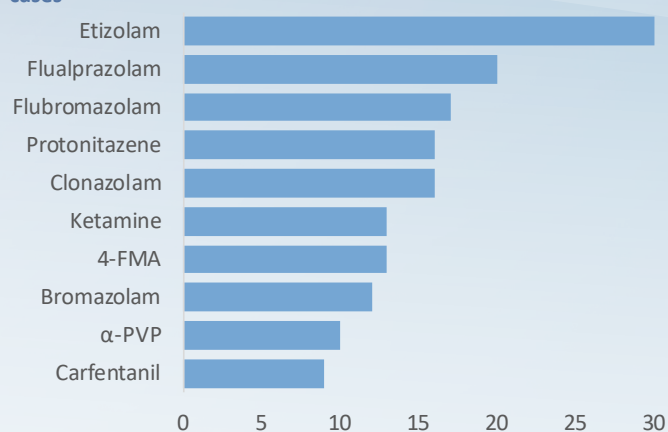
Figure 5: Substance groups reported across main toxicology case types



Post-mortem (PM) cases

Within the 133 PM cases in the current reporting period, there were 191 reports of NPS detected. Benzodiazepine-type NPS accounted for 52% of the substances reported, with etizolam (n=30) being the most commonly reported substance followed by flualprazolam (n=20) and flubromazolam (n=17) (Figure 6). Synthetic opioids accounted for 17% of reports in PM cases with notably protonitazene (n=16) being the most reported substance followed by carfentanil (n=9). In comparison with

Figure 6: Substances most often reported in post-mortem (PM) cases



previous reporting periods, there has been an increase in the reporting of nitazenes with both metonitazene and isotonitazene being detected in addition to protonitazene in PM cases and a decrease in the identification of fentanyl analogues such as acetylfentanyl (n=3) and acryloylfentanyl (n=1). Stimulants also accounted for 17% of the NPS reported in PM cases with 4-fluoromethamphetamine (4-FMA) (n=13) and α-pyrrolidinovalerophenone (α-PVP) (n=10) predominating.

While benzodiazepines were reported in PM cases in all regions, cases involving opioids were reported solely in North America, and cases involving stimulants primarily in Europe, South-East Asia, and Oceania. Finally, ketamine has also been reported in 13 fatalities, with the majority occurring in South-East Asia and a small number (n=3) in North America.

With regard to the relative contribution that the NPS identified in PM cases had in the fatalities, it should be noted that this was undetermined in 74% of cases. Nevertheless, in 10 cases the NPS was deemed causal to the outcome of the event; four involved the stimulant α-PVP, two involved 4-FMA, two involved bromazolam and one case each involved α-pyrrolidinoisohexanophenone (α-PiHP) and deschloroetizolam. An additional challenge and complication in assigning the relative contribution of the NPS identified is the poly-drug nature of the PM cases.

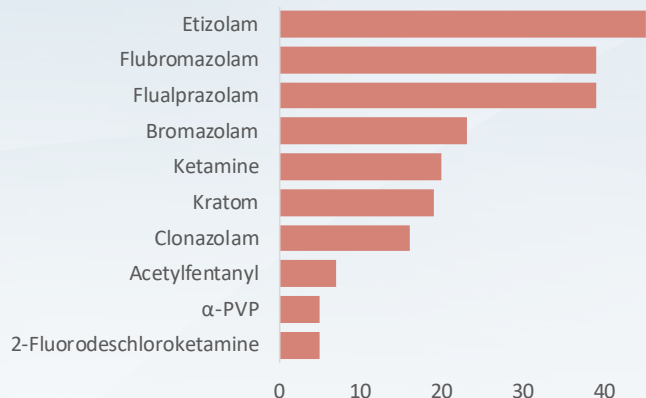
Driving under the influence of drugs (DUID)

Drug-driving cases represented the second largest group of toxicology cases during the current reporting period (n=234). By far the most commonly reported substances within this group were benzodiazepine-type NPS, accounting for 165 (71%) of reports followed by 25 (11%) reports of dissociatives and 19 (8%) cases involving kratom. 15 (6%) reports showed the detection of synthetic opioids and 10 drug-driving related cases involved stimulant NPS. The top four substances reported in DUID cases were etizolam (n=45), flubromazolam (n=39), flualprazolam (n=39), and bromazolam (n=23) (Figure 7). The continuing persistence of benzodiazepine-type NPS in DUID, in addition to their predominance in PM cases continues to highlight the threat potential of this substance group.

The reader can be referred to previous NPS threats reports ([link](#)) in which selected methods for the identification of benzodiazepines in biological matrices were provided and information on the metabolism of benzodiazepine-type NPS. In addition, it is noteworthy that two synthetic opioids, acetylfentanyl (n=7) and protonitazene (n=4), were also

reported in DUID cases, a concern given the potential effects of opioid use on driving capabilities. Blood and urine were matrices of choice for the detection of benzodiazepine-type NPS with blood concentrations ranging in PM cases from 5 to 180 ng/ml for bromazolam, 5-43 ng/ml for etizolam, and 0.5-12 ng/ml for flualprazolam. Within DUID cases the reported concentrations of flualprazolam and etizolam were 8.1-27.9 ng/ml and 7.7-90 ng/ml, respectively.

Figure 7: Substances most often reported in DUID cases



Clinical Admission (CA) cases

Within 51 cases of clinical admissions, there were reports of the identification of 78 NPS, with the most common type being stimulants with 42 (54%) case reports. 78% of these stimulant case reports were due to the consumption of synthetic cathinones such as 3,4-methylenedioxy-α-pyrrolidinohexanophenone (MDPHP), alpha-PVP and 3 or 4 methylmethcathinones (MMC). These cases were primarily acute intoxications with reported symptoms such as agitation and mild tachycardia. Notably, half of these cases also involved the consumption of controlled stimulants, primarily methamphetamine. 11 clinical cases reported the identification of dissociatives, primarily ketamine. In several cases patients stated having consumed substances other than those identified in the toxicology analysis, which may have contributed to the unexpected effects reported by patients and the need to seek clinical attention. Benzodiazepines were identified in a small number of clinical cases although no case circumstances were provided.

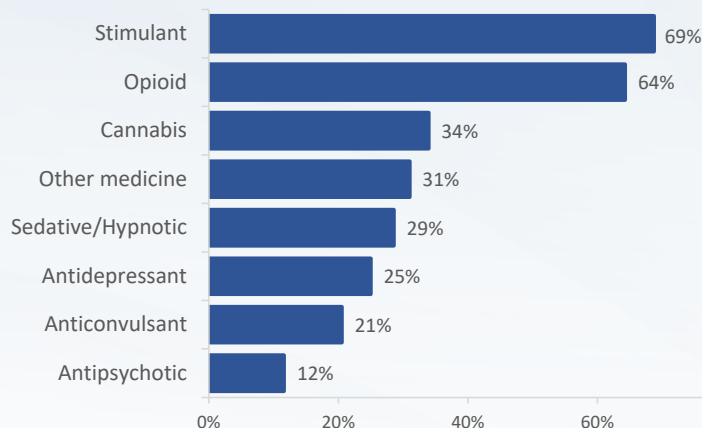
Drug-facilitated crime (DFC) cases

In a small number of cases (n=17), NPS were identified in drug-facilitated crimes. Ketamine was reported in 7 cases from South-East Asia, while benzodiazepines (clonazolam, etizolam, and flubromazolam) were reported in 6 cases. As highlighted in the previous Current NPS Threats V report, poly-drug cases are rare in this case type with only two cases reported in this period.

Poly-drug use in NPS cases

Similar to previous Current NPS Threats Reports, the pattern of poly-drug use continued to be an important feature and consideration in NPS casework. Controlled drugs were found in the majority of PM cases and for example in n=83 (62%) cases, between 2-6 other drugs were identified in combination with the particular NPS present. Cocaine was the substance most often reported, in 40% of poly-drug PM cases, followed by fentanyl and (non-NPS) benzodiazepines in 32% of cases, each. Collectively, the presence of multiple substances was most abundant in drug use cases, followed by DUID cases and PM cases. The range of substance types in PM cases is illustrated in figure 8.

Figure 8: Other substances identified in PM cases of poly-drug use



Regarding poly-drug use in DUID cases, a similar trend as in PM cases was evident. The overwhelming majority of cases had multiple controlled substances and medicines present with cocaine being identified in 49% of cases and fentanyl as well as benzodiazepines equally identified in 23%. It should be noted that fentanyl in both PM and DUID cases was reported solely from North America with the exception of one PM case in South-East Asia.

The diversity in the types of substances identified in poly-drug use cases associated with the use of NPS continues to highlight the complexity of analytical toxicology and the challenges faced by forensic toxicologists. This highlights the importance of the collaboration between UNODC and toxicology laboratories through the Tox-Portal in the early identification of threats and the subsequent provision of appropriate scientific information and assistance to forensic service providers.

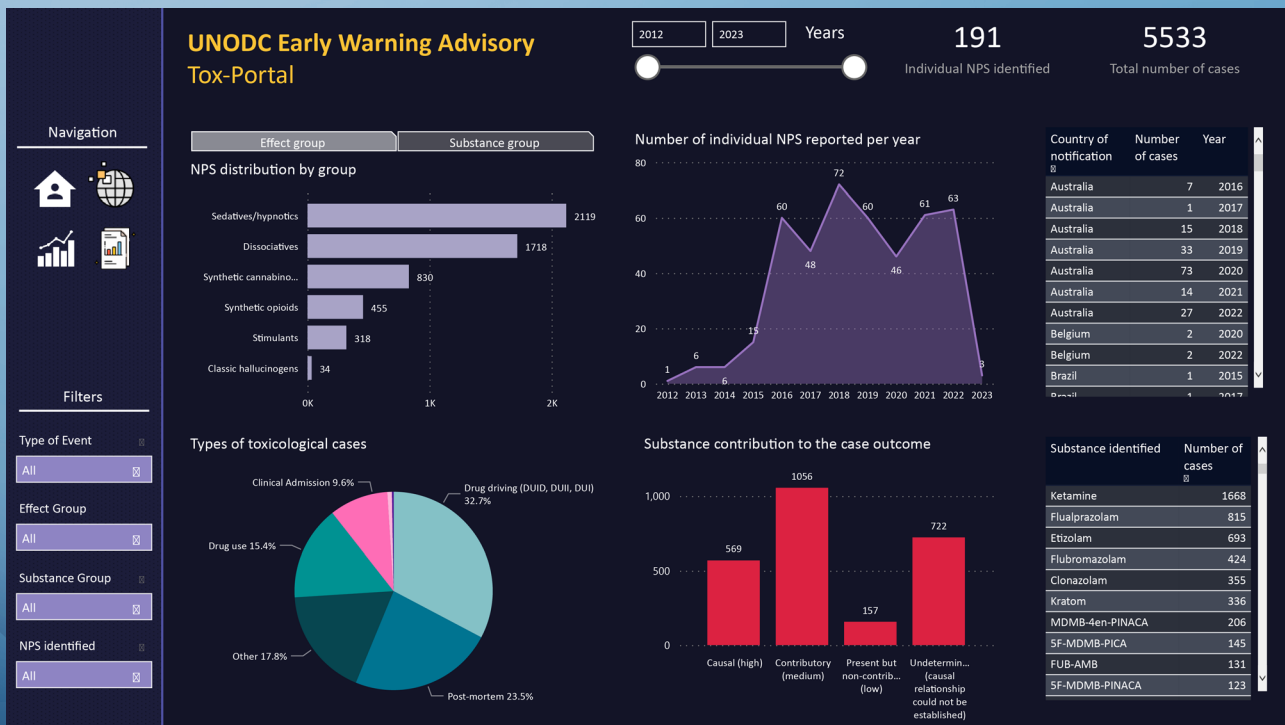
For further information on NPS that have been placed under international control since 2015, please refer to the UNODC EWA open access data dashboard ([link](#))



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UNODC has introduced a new interactive feature of the Tox Portal, a Data Dashboard, which allows registered users to analyse and visualize submitted case information involving new psychoactive substances. The Data Dashboard can now be accessed after logging in with your user credentials at www.unodc.org/tox.



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*Note: The boundaries and names shown and the designations in this document do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

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