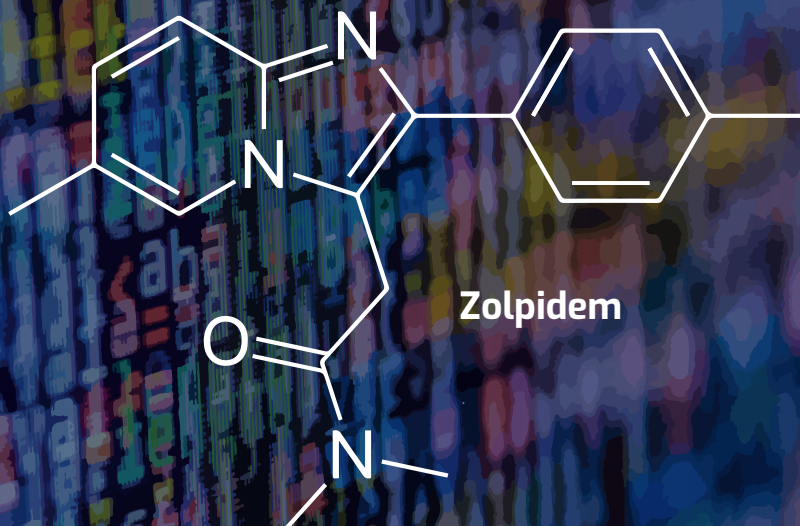
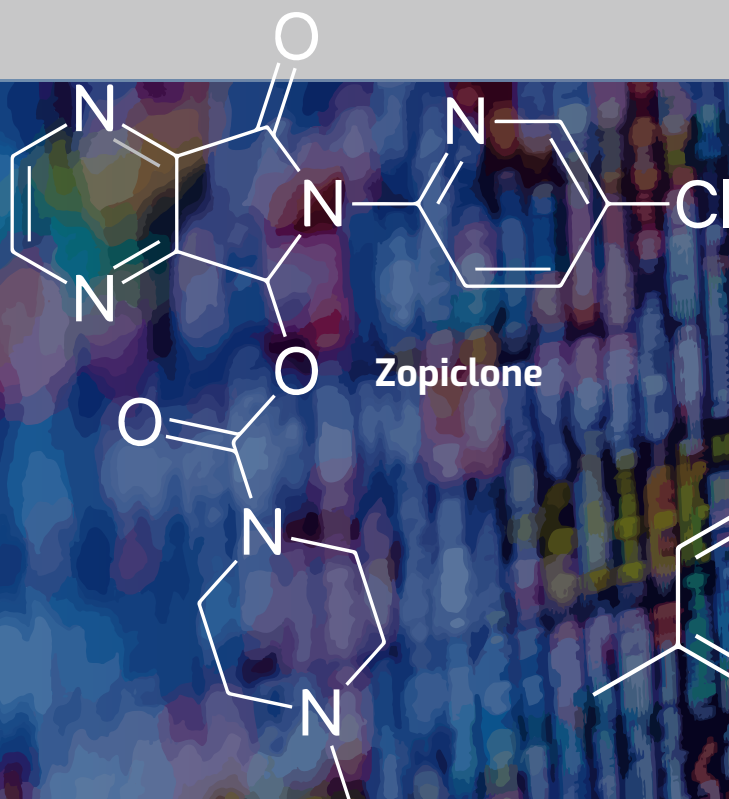


## Annual Report 2019 - 2020



# Contents



	Page
Foreword	1
WEDINOS . . . a reminder	1
New Collaborations	2
WEDINOS Activity	3
The Bigger Picture	4
WEDINOS . . . Samples	5
Key Findings: What . . .	6
Community Settings . . .	7
Community Samples: What . . .	8
Community: How . . .	9
Night Time Economy and Festivals	12
Prescribed Medications - Benzodiazepines and Z-drugs	13

# Foreword



**WEDINOS** 2.0 continues to go from strength to strength and I am delighted to report that in 2019/20 we recorded an 89 per cent increase in the number of samples analysed. This could not have been possible without the contribution of all the individuals, services and organisations that continue to utilise and find value in the system, in addition to all those agencies providing and promoting collaborations, mutual support and innovation.

Throughout this year, the rise in availability and use of prescription medications, legitimate and counterfeit, continue to provide cause for concern, particularly given the breadth in age group, ease of accessibility and level of substitution. As will be further detailed in this report, 42 per cent of samples submitted with purchase intent stated contained substances other than those expected, making it increasingly challenging for individuals to reduce harms to themselves and others as well as for health and related services to respond.

Whilst completing this report the COVID-19 pandemic was declared, and is ongoing. The full impact of the pandemic on local and global drug markets and implications for those using substances will remain unknown for some time to come but useful research briefings provided by the United Nations Office for Drug Control (<https://www.unodc.org/documents/data-and-analysis/covid/Covid-19-and-drug-supply-chain-Mai2020.pdf>) and EMCDDA (<https://www.emcdda.europa.eu/publications/topic-overviews/catalogue/covid-19-and-people-who-use-drugs>) provide interesting insights.

**WEDINOS** has continued to operate and is, at the time of writing, the only drug checking service active in Europe, making it even more vital in providing drug profiling, evidence of geographic trends and provision of harm reduction advice. Thank you again to all who support and contribute.

## WEDINOS . . . a reminder



**WEDINOS** is funded by Welsh Government and launched in October 2013 as a collaboration between Public Health Wales, Cardiff Toxicology Laboratories at University Hospital Llandough (Cardiff and Vale UHB) and the School of Pharmacy at Cardiff University and supported by Welsh Government.

**WEDINOS** provides a framework for the collection and testing of samples of psychoactive substances and combinations of drugs (hereafter referred to as "samples") along with information regarding the symptoms users experienced, both expected and unexpected. Collation of these findings along with identification of the chemical structure of the samples enables the dissemination of pragmatic evidence-based harm reduction information for those using psychoactive drugs or considering use.

The analytical tools used for the profiling of samples includes a Quadrupole Time of Flight (Q-ToF) mass spectrometer (which acts as the primary analytical tool), a Fourier-Transform Infrared (FTIR) spectrometer, Nuclear Magnetic Resonance (NMR) spectroscopy, Gas Chromatography–Mass Spectrometry (GC-MS) and Liquid Chromatography–Mass Spectrometry (LC-MS).

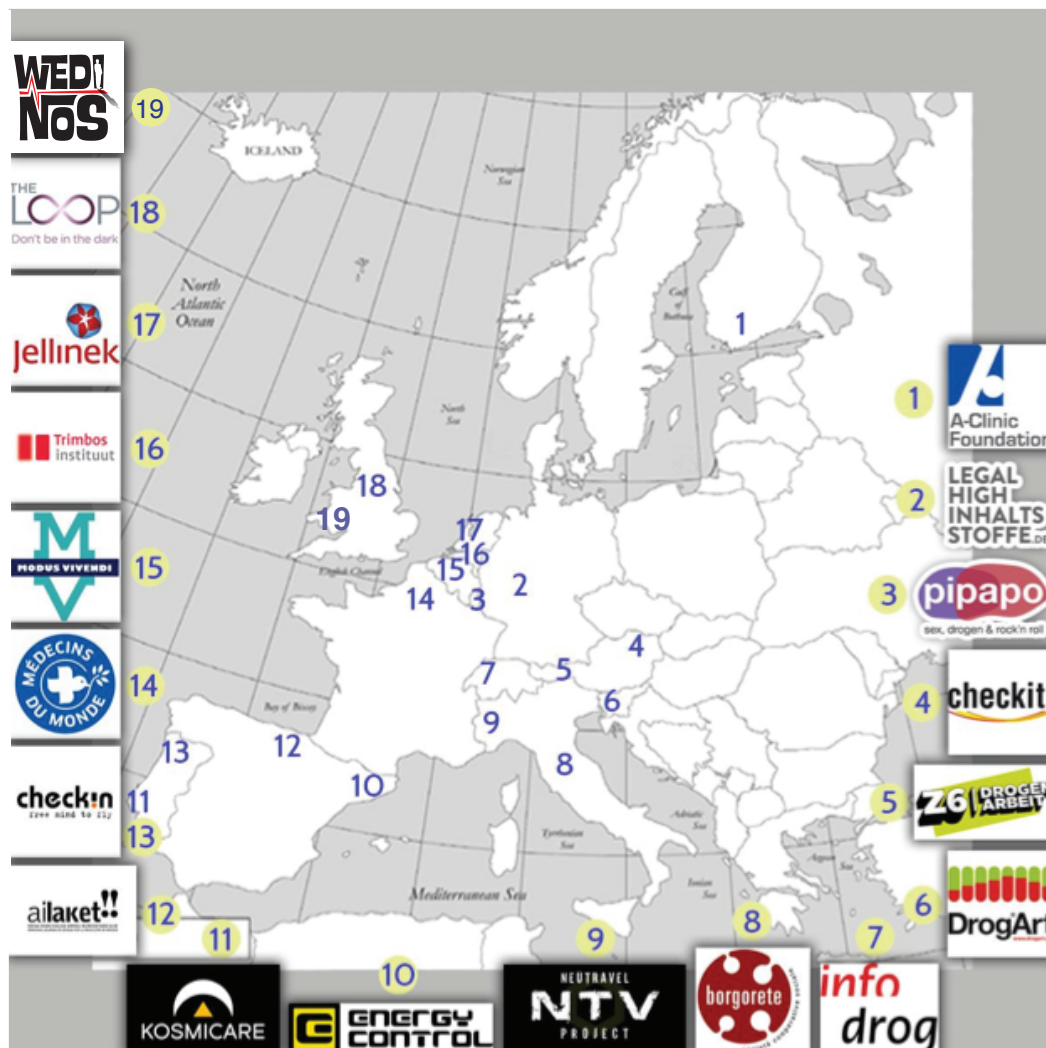
## 2 New Collaborations

Since project launch, **WEDINOS** has worked, and shared information, with a diverse range of stakeholders and collaborators at a local, UK and European level including UK Focal point, Drug Harms Assessment Response Team, and the European Monitoring Centre for Drugs and Drug Addiction.

In July 2019, **WEDINOS** accepted an invitation to become a contributor to the Trans-European Drug Information project (TEDI) data collections, analysis and future publications. The Trans-European Drug Information project (TEDI) is a network of European fieldwork Drug Checking services, from across 14 countries, that share their expertise and data within a European monitoring and information system.

During 2011 TEDI developed a database system that collects, monitors and analyses the evolution of various European drug trends in recreational settings. The aim of this monitoring and information system is to help to optimize public health, prevention and harm reduction intervention strategies/programs. It serves as an early warning system and a tool for monitoring the evolution of recreational drug markets in Europe.

Other collaborators and nations are shown on the TEDI network map:





# WEDINOS Activity

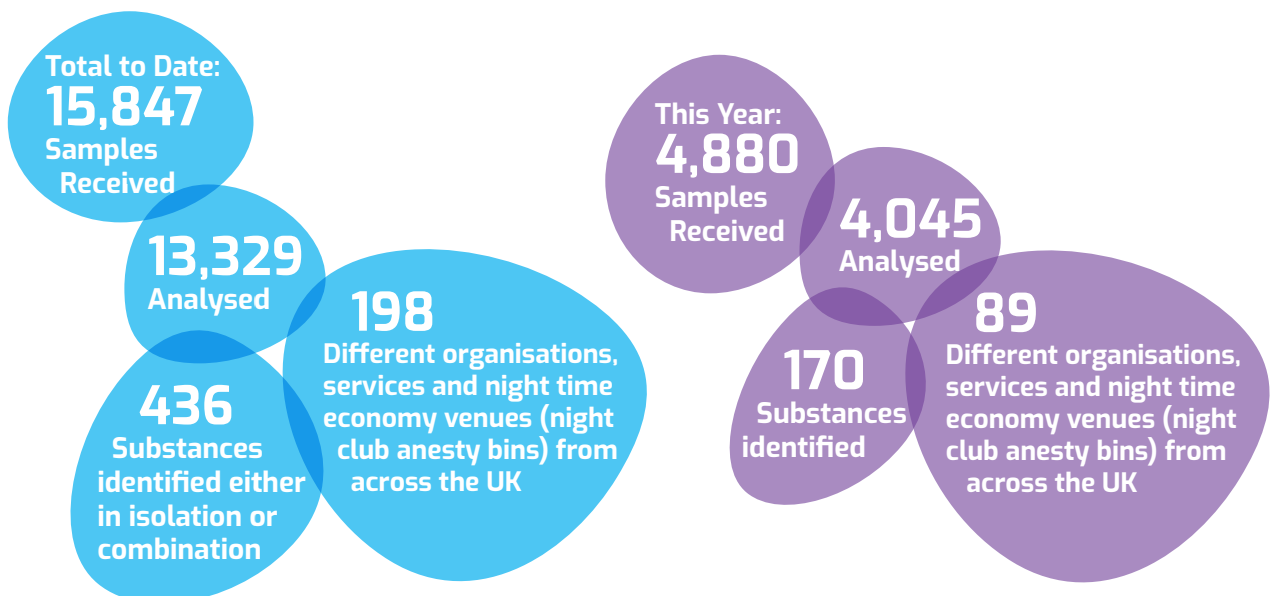
## Total Samples to Date:

- 15,847 samples received
- 13,329, analysed
- 436 substances identified either in isolation or combination.
- 198 different organisations, services and night time economy venues (night club amnesty bins) from across the UK.

## Total Samples this Year:

- 4,880 samples received representing an increase of 79 per cent from 2018/19
- 4,045 analysed **^ UP 89 per cent**
- 170 substances identified **^ UP 17 per cent**
- 89 different organisations, services and night time economy
- Venues from across the UK **^ UP 16 per cent**
- Median age of sample providers 32 years (range 12 to 80 years)
- As in the previous two years benzodiazepines were the most commonly identified class of mind altering / psychoactive substances.
- Consistent with previous years cocaine was the most commonly identified substance within all samples:
  - Most commonly identified in the community was diazepam, followed by cocaine
  - Night time economy – Cocaine, followed by MDMA
  - Criminal justice settings – Nicotine, followed by buprenorphine and 4F-MDMB-BINACA

**Fig. 1: WEDINOS activity to date and in last year 2019/20**



# The Bigger Picture



Global, European, England & Wales and Welsh estimates:

The United Nations Office for Drugs and Crime (UNODC) estimate that globally in 2017, 271 million people, or 5.5 per cent of the global population aged 15 to 64 had used drugs in the previous year. With some 35 million people having a substance misuse disorder that required treatment services. In 2017, 585,000 people died as a result of drug use. More than half of those deaths were the result of untreated hepatitis C leading to liver cancer and cirrhosis; almost one third were attributed to drug use disorders. Most (two thirds) of the deaths attributed to drug use disorders were related to opioid use<sup>1</sup>.

The European Monitoring Council for Drugs and Drug Addiction, reported that around 96 million people, or 29 per cent of the population of the European Union aged 15 to 64, had tried illicit drugs in their lifetime<sup>2</sup>.

The Crime Survey for England and Wales (CSEW) 2018/19 reported that 9.4 per cent of adults aged 16 to 59 had taken a drug in the last year, a slight increase from the 9 per cent reported in 2017/18. This equates to around 3.2 million people or 1 in 11 adults aged 16 to 59. Amongst 16 to 24 year olds, 20.3 per cent reported taking a drug in the last year, an increase from 19.8 per cent the previous year, accounting for around 1 in 5.

For the first time in 2017/18 the CSEW reported data relating to the use of drugs by adults aged 60 to 74. In 2018/19 1.1 per cent of this population reported last year drug use; in 2018/19 the figure was 1 per cent<sup>3</sup>.

Provisional headline figures for problem drug use\* estimates in Wales, including populations not in contact with any services, suggest that the total number of problem drug users in 2017-18 was 52,600 (95% confidence interval (CI) 45,230 – 65,050).

## Harms from Substance Use

In Wales, the overall number of hospital admissions for poisonings with named illicit drugs has increased by 4.4 per cent from 6,488 in 2017-18 to 6,786 in 2018-19. Compared to 2014-15 there has been a 17.2 per cent increase in illicit drug admissions.

In 2018, 327 deaths due to drug poisoning were registered in Wales, an increase of 25.8 per cent from the previous calendar year. Of all drug-poisoning deaths, 208 (63.6 per cent) were identified as a drug misuse death, an increase of 12.4 per cent from 185 deaths in 2017. Both the number of drug misuse deaths and other drug poisonings are the highest reported over the last 10 years<sup>4</sup>.

1. World Drug Report 2019 (United Nations publication, Sales No. E.19.XI.8). <https://wdr.unodc.org/wdr2019/> [accessed 7th April 2020].

2. European Monitoring Centre for Drugs and Drug Addiction (2019), European Drug Report 2019: Trends and Developments, Publications Office of the European Union, Luxembourg. [http://www.emcdda.europa.eu/system/files/publications/11364/20191724\\_TDAT19001ENN\\_PDF.pdf](http://www.emcdda.europa.eu/system/files/publications/11364/20191724_TDAT19001ENN_PDF.pdf) [accessed 28/04/20].

3. Drugs Misuse: Findings from the 2018/19 Crime Survey for England and Wales, Statistical Bulletin: 21/19, Home Office (2019). [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/832533/drug-misuse-2019-hosb2119.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832533/drug-misuse-2019-hosb2119.pdf) [accessed 28/04/20].

\* In this context problem drug use (PDU) is defined by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) as "injecting drug use or long duration or regular use of opioids, cocaine and/or amphetamines (including amphetamine type substances)".

4. Turner, D., Smith, J., Data mining Wales: The annual profile for substance misuse 2018-19, Public Health Wales, Cardiff. <http://www.wales.nhs.uk/sitesplus/documents/888/-Final%20Annual%20Profile%202018-19%20ENGLISH.pdf> [accessed 28/04/20].

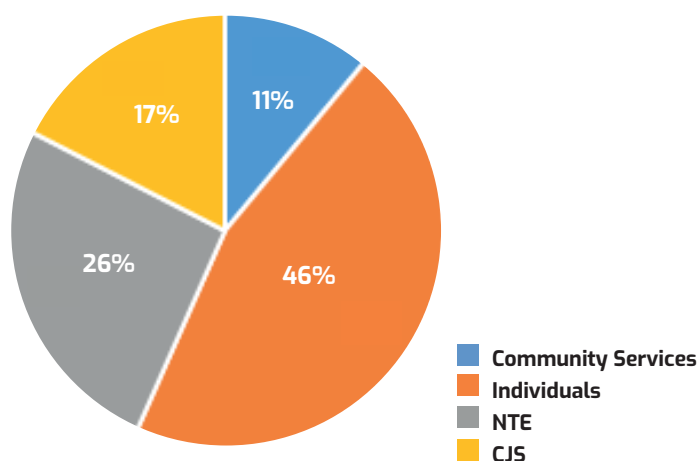
## 5 WEDINOS . . . Samples

In total **WEDINOS** received and analysed 4,045 samples from 89 services and settings across the UK, as well as from individuals. These samples can be separated into three broad categories:

- Community
- Night Time Economy (NTE) (Pubs and Nightclubs) and Festivals
- Criminal Justice Settings

Samples submitted from the NTE via amnesty bins, and Criminal justice Settings as non-attributable finds, are not accompanied by any information relating to purchase intent, effects or demographics.

**Sample Source**



**4,045**  
samples from  
**89**  
services

## 6 Key findings: What . . .

### Most commonly identified substances – All samples

The most commonly identified chemical group of psychoactive substances were benzodiazepines, for the third successive year. A total of 13 benzodiazepines were identified in 2019/20, an increase from 11 the previous year, however, of these four were only identified on one occasion, and a further seven on less than 10 occasions.

As with the previous two year's findings, diazepam was the most commonly identified benzodiazepine followed by etizolam. However, alprazolam (commonly known as Xanax) moved down to fourth place, being replaced by flualprazolam. Flualprazolam is most commonly identified as a substitute for alprazolam, and increasingly diazepam. This is a potential risk for individuals using benzodiazepines as dosage and potency varies greatly.

Cocaine was the most commonly identified psychoactive substance by **WEDINOS**.

The European Monitoring Council for Drugs and Drug Addiction states that Europe's cocaine market continues to grow, with both the number of seizures and volumes seized at an all-time high. This is further evidenced by an increase in the availability of cocaine, with reports that, at retail level, there are the highest estimates of cocaine purity in a decade.

The CSEW 2018/19 reported that last year use of cocaine increased among adults aged 16 to 59 from 2.1 per cent in the 2011/12 CSEW to 2.9 per cent in 2018/19. The comparable figures for those aged 16 to 24 were 4.1 per cent and 6.2 per cent.

The number of deaths where cocaine was mentioned in England and Wales, almost doubled between 2015 and 2018; with 637 deaths related to cocaine in 2018, compared with 320 deaths in 2015.

Consistent with previous years, caffeine was the most popular bulking/cutting agent identified, however, as well as being found in combination with other substances, several samples of powders and tablets were found to contain caffeine in isolation.

**Table 1: Most commonly identified mind altering/psychoactive substance WEDINOS samples.**

	2019/20	2018/19
1	Cocaine	Cocaine
2	MDMA	MDMA
3	Diazepam	Ketamine
4	Ketamine	Caffeine
5	Etizolam	Diazepam
6	Caffeine	5F-ADB
7	4F-MDMB-BINACA	Etizolam
8	Cannabis	Alprazolam
9	Flualprazolam	Cannabis
10	Alprazolam	Amphetamine

As previously mentioned, **WEDINOS** receives samples from a wide variety of community settings, **WEDINOS** works closely with Welsh police forces in relation to the NTE, and the six Welsh prisons, reporting separately on finds that have no evidentiary value. In the next two sections of this report we focus on samples from community settings and the NTE and festivals.

# 7 Community Settings . . .

## Most commonly identified substances – All samples

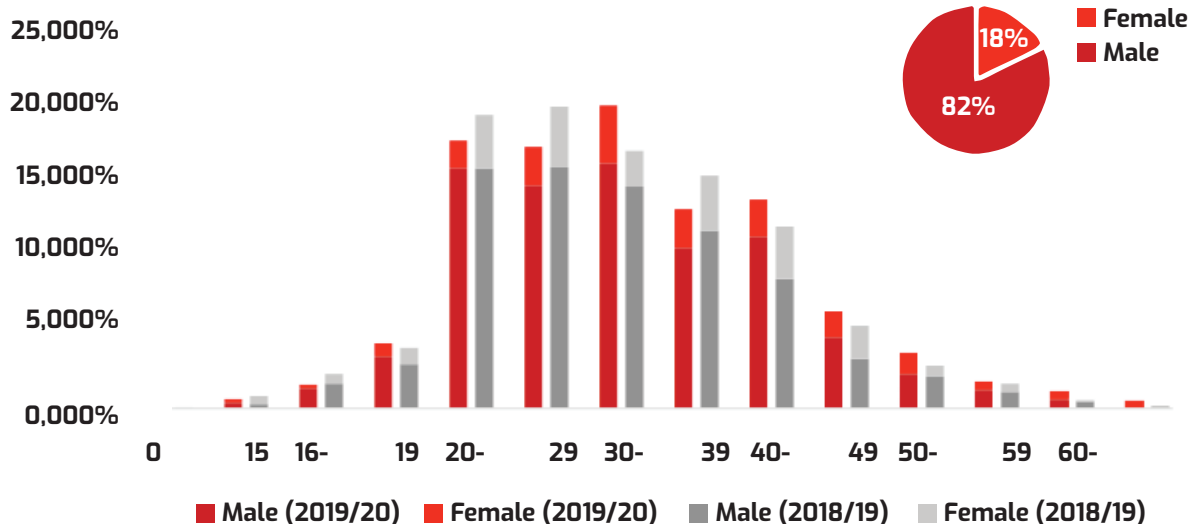
**2,291 samples were submitted from community settings including education, health (incl. Emergency Departments), mental health, housing and homelessness, substance misuse services and individuals.**

Of these 2,291 samples, demographic information was available for 89 per cent (n=2,030). 82 per cent of the samples were submitted by males and 18 per cent by females. Compared to 79 per cent male and 21 per cent female in 2018-2019.

The median age for all mind altering / psychoactive sample providers (Wales and wider UK) was 32 years, range 12 to 80 years, expanding the range from 13 to 74 years in 2018-2019.

- Females - median age was 35 years (32 years in 2018-2019) (range: 14-75 years)
- Males - median age was 31 years (range 12-80 years).

**Chart 1. : Profile of psychoactive sample providers**



**Samples submitted by individuals in the age range 0-17 years, in order of prevalence, included, but not exclusively: MDMA, 4F-MDMB-BINACA, cannabis, ketamine and the benzodiazepines diclazepam and flualprazolam (all purchased as alprazolam).**

**For older adults aged 60 years and above included samples containing diazepam, etizolam, cannabis, zopiclone, buprenorphine, amphetamine and 2C-B.**



# Community Samples: What . . .

Since the launch of **WEDINOS** in 2013 the project has consistently evidenced the substitution of substances within the UK's illicit drug market. Table 2 shows the changes in the "top ten most common" substances at the submission stage (purchase intent) and the post analysis.

Samples listed as unknown include those submitted under a name that does not allow the substance or category of substance to be identified, samples found or unknown substances, for examples, those submitted by health care staff from patients with acute effects in an emergency department or mental health unit.

**Table 2: Most common substances pre (perceived) and post (actual) analysis**

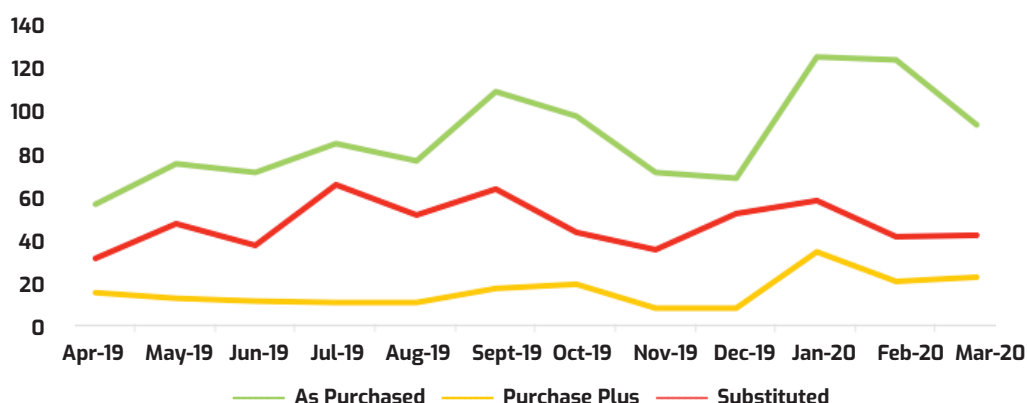
No.	Community purchase intent	Community post analysis
1	Diazepam	Diazepam
2	Unknown	Cocaine
3	Alprazolam	Etizolam
4	Cocaine	MDMA
5	MDMA	Caffeine
6	Ketamine	Flualprazolam
7	Amphetamine	Alprazolam
8	SCRA	Ketamine
9	Zopiclone	Cannabis
10	Cannabis	Amphetamine

**42%**  
of samples submitted  
did not contain what  
was expected.

As the chart demonstrates, there are a lot of changes between the pre and post analysis lists. Etizolam and flualprazolam are not present on the pre analysis list, however, sit as the third and sixth most commonly identified substances overall. In fact both substances were only listed a total of 25 times in the pre analysis purchase intent. Following analysis these substances were identified on a combined total of 359 times.

It may be argued that the high pre analysis presence of "unknown" substances would be the biggest influencer of this change, however, even after removing these samples we find that over the past year 42% of samples submitted to **WEDINOS** with a substance listed in the purchase intent did not contain what was expected. Some samples were found to contain the purchase intent and other substances; such as a sample purchased as MDMA, that was found to contain MDMA and 2C-B upon analysis. Other samples were found to contain a different substance or substances; for example a sample purchased as alprazolam, that was found to contain flualprazolam and etizolam. The levels of additional substances and substitution are shown in Chart 2.

**Chart 2. : Sample contents - Post Analysis**



9

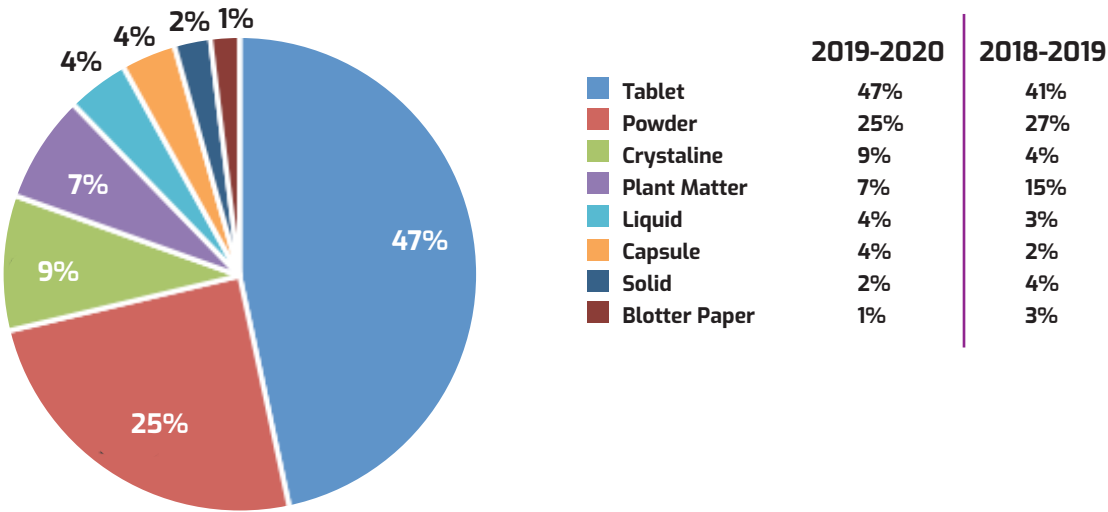
Community: How . . .

Form of sample

WEDINOS requests the 'form of sample' for each submission to monitor and report the various forms substances appear on the market and potential differences in method of consumption.

Chart 3. Form of Psychoactive samples

Form - Community samples 2019-2020

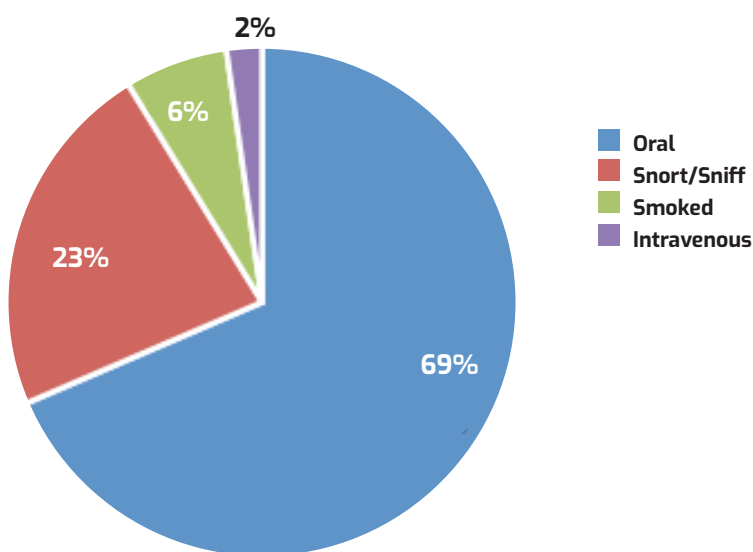


This year we have seen an increase in the proportion of tablets, along with an increase in crystalline and with decreases in plant matter.

## Method of Consumption and Harm Reduction Advice

Assuming that all plant matter samples are smoked, the remaining samples (pills, liquids, tabs, granules etc) were ingested through a variety of methods, most common, 69 per cent was oral consumption (swallowing, bombing) followed by snort / sniff at 23 per cent, as shown in Chart 4., consistent with previous years.

**Chart 4. Method of Consumption (excl. Plant Matter)**



Two per cent reported intravenous injecting of substances.

Injecting drug use carries with it inherent risks of bacterial and viral infection over and above the risks / toxicity of the substance being injected.

Samples injected primarily contained heroin, followed by amphetamine, other samples contained cocaine (purchased as crack cocaine), diazepam, methamphetamine and one sample fentanyl (purchased as China White)

All injecting, regardless of the substance, carries a significant risk of serious infection and other implications. Individuals who currently inject drugs or have previously injected should get tested for blood borne viruses.

### Injecting


GIG  
Cymru  
NHS  
Wales


Iechyd Cyhoeddus  
Cymru  
Public Health  
Wales

- Don't share any injecting equipment; this includes water, spoons and filters as well as needles and syringes. It is best practice to use a filter for drawing up
- Ensure you have enough needles for repeat injecting
- Rotate Sites
- Ensure any wounds are treated as soon as possible
- Heat and redness at injecting site – seek medical attention
- Ensure that your equipment is correct for its intended use
- Injecting intensifies everything about the drug experience
- Most New psychoactive substances are water soluble and do not require the addition of an acid (usually citric acid or ascorbic acid (Vit C)).



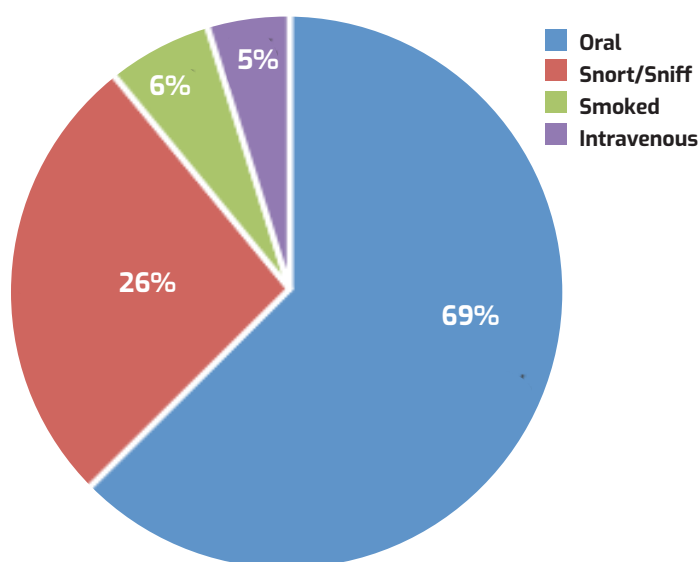
Injection




For further harm reduction information please visit:  
[http://www.wedinos.org/harm\\_reduction\\_advice.html](http://www.wedinos.org/harm_reduction_advice.html)

Focusing on the method of use for powders and crystalline materials, the most common method of consumption was snorting/sniffing with 63 per cent reporting this as shown in Chart 5, compared to 56 per cent in 2018-2019.

Snorting/sniffing potentially caustic or toxic substances carries additional risks related to damage to the nasal passages as well as potential transmission of blood borne viral infection when sharing snorting paraphernalia in the presence of nasal passage damage and blood. As previously mentioned, any injection of substances is of concern and carries a risk of introducing bacterial infection into the body.

**Chart 5. Method of Consumption - Crystalline and Powders**



**Insufflation (Sniffing / Snorting)**







- Always use clean devices (snorter)
- Use your own device
- Don't share devices; there may be traces of blood on your equipment
- Snort high up the nostril to avoid the most sensitive soft tissue
- Clean out nasal passages after use, with damp tissue or a ear bud
- Alternate nostrils to lessen damage to one side
- If your nose is bleeding – give it a rest

# Night Time Economy and Festivals

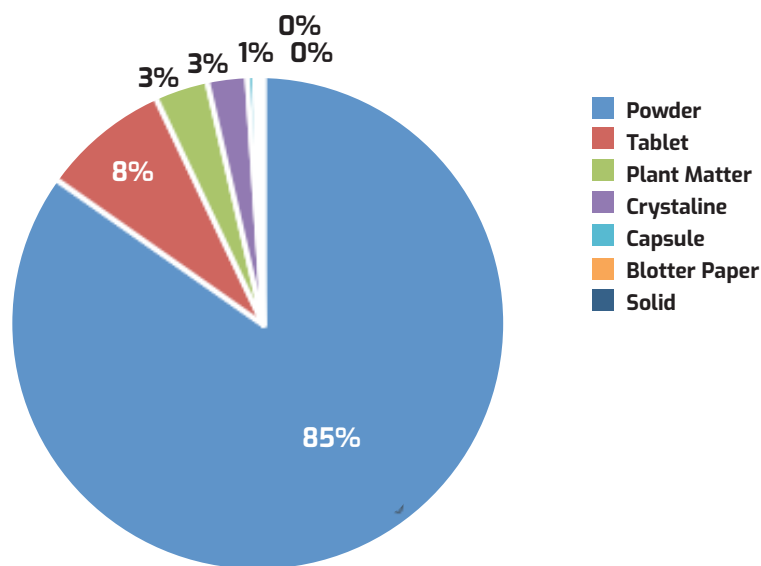
Building on the work established in 2018-2019, **WEDINOS** has strengthened the programmes partnership with the Welsh police forces and festival welfare services, receiving and analysing, 1,048 samples from nightclub and festival amnesty bins. This is an increase of ▲ 209 per cent from the 339 received and analysed in 2018-2019.

Although no demographic, purchase intent or effects data is available with these samples; the results of analysis allow us an insight into the substances that are in circulation within the night-time economy and festivals.

Within the 1,048 samples, 46 substances were identified; with seven being bulking agents or metabolites of major psychoactive substance. Four samples contained no active compound.

The most commonly identified substances; in order of prevalence were cocaine, MDMA and ketamine. Excluding other stimulants and hallucinogenic drugs such as cathinones and substances from the 2C group; cannabis, benzodiazepines and synthetic cannabinoid receptor agonists were also identified. 85 per cent of samples received from NTE and festivals were powders, followed by 8 per cent in tablet form. This is a stark contrast to community submissions where the largest proportion of samples were tablets (45 per cent), followed by powders (25 per cent).

**Chart 6. NTE Sample Form**



Cocaine was the most commonly identified substance in powder form, followed by ketamine and MDMA. Other substances identified as powders included: amphetamine, mephedrone, methamphetamine, BZP, caffeine, paracetamol, alprazolam, flualprazolam and buprenorphine.



# Prescribed Medications – Benzodiazepines and Z-drugs.

The misuse of prescription and over-the-counter medicines has arisen as a significant public health issue in recent years<sup>5</sup>.

The 2018/19 CSEW estimated that 6.4 per cent of adults aged 16 to 59 had taken a prescription-only painkiller for “medical reasons” in the last year and a further 0.2 per cent of respondents said that they had taken a prescription-only painkiller solely for the feeling or experience it gave them<sup>6</sup>.

Presentations to the emergency department associated with the non-medical use of benzodiazepines and/or Z-drugs are common<sup>7</sup>. Drug-related acute toxicity presentations to 26 (sentinel) hospitals in 18 European countries are monitored by the European Drug Emergencies Network (Euro-DEN Plus). In 2017, the hospitals recorded 7 267 presentations. Almost a quarter of presentations involved the misuse of prescription or over-the-counter drugs (most commonly benzodiazepines and opioids)<sup>8</sup>.

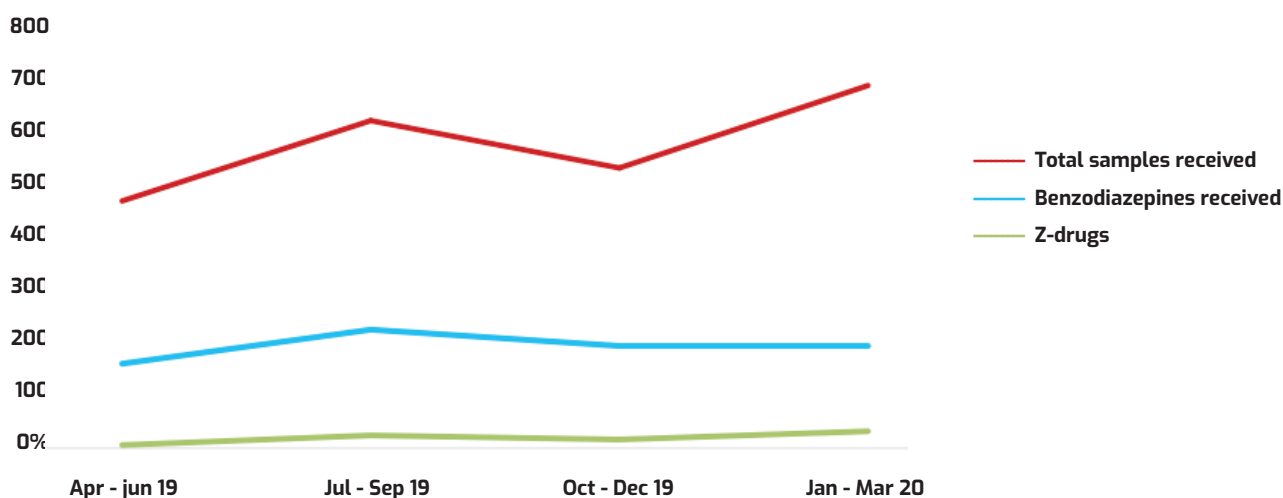
In Wales in 2018-19 there were 889 benzodiazepine related admissions involving 772 individuals. The European age-standardised rate was 29.7 admissions per 100,000 population<sup>9</sup>.

Over the last few years there appears to have been an increase in the number, type and availability of new psychoactive substances belonging to the benzodiazepine class, which are not controlled under international drug control laws. Some of these are sold as fake versions of commonly prescribed anti-anxiety medicines such as alprazolam and diazepam, making use of existing distribution networks in the illicit drug market. Others are sold online, sometimes under their own names, marketed as ‘legal’ versions of authorised medicines<sup>10</sup>.

Of the 2,291 community setting samples submitted to **WEDINOS** in 2019-2020, 41 per cent (n=945) were submitted in the belief that they were medications or derivatives, such as new designer benzodiazepines. Of that 945 samples a high proportion, 90 per cent (n=846) were submitted as benzodiazepines or z-drugs.

The number of samples submitted as benzodiazepines and Z-drugs per quarter is shown in chart 7, alongside the total numbers of samples received.

**Chart 7.**



5. Roberts, H, Research Briefing: Misuse of prescription and over-the-counter medications, Welsh Government (2016) <https://www.assembly.wales/research%20documents/16-039%2016-039%20-%20addiction%20to%20over%20the%20counter%20prescriptions/16-039-web-english.pdf> [accessed 28/04/20].

6. Drugs Misuse: Findings from the 2018/19 Crime Survey for England and Wales, Statistical Bulletin: 21/19, Home Office (2019), [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/832533/drug-misuse-2019-hosb2119.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832533/drug-misuse-2019-hosb2119.pdf) [accessed 28/04/20].

7. Lyphout, C., Yates, C., Margolin, Z. et al. Presentations to the emergency department with non-medical use of benzodiazepines and Z-drugs: profiling and relation to sales data. *Eur J Clin Pharmacol* 75, 77–85 (2019). <https://doi.org/10.1007/s00228-018-2550-1>.

8. European Monitoring Centre for Drugs and Drug Addiction (2019), *European Drug Report 2019: Trends and Developments*, Publications Office of the European Union, Luxembourg, [http://www.emcdda.europa.eu/system/files/publications/11364/20191724\\_TDAT19001ENN\\_PDF.pdf](http://www.emcdda.europa.eu/system/files/publications/11364/20191724_TDAT19001ENN_PDF.pdf) [accessed 28/04/20].

9. Turner, D., Smith, J., Data mining Wales: The annual profile for substance misuse 2018-19, Public Health Wales, Cardiff. <http://www.wales.nhs.uk/sitesplus/documents/888/Final%20Annual%20Profile%202018-19%20ENGLISH.pdf> [accessed 28/04/20].

10. World Drug Report 2019 (United Nations publication, Sales No. E.19.XI.8). [https://wdr.unodc.org/wdr2019/prelaunch/WDR19\\_Booklet\\_1\\_EXECUTIVE\\_SUMMARY.pdf](https://wdr.unodc.org/wdr2019/prelaunch/WDR19_Booklet_1_EXECUTIVE_SUMMARY.pdf) [accessed 28/04/20].

Zopiclone and zolpidem were the most commonly reported Z-drugs, under purchase intent. Diazepam and alprazolam were the most commonly reported benzodiazepines.

Alprazolam is not available from the NHS, but can be obtained on a private prescription in the UK. Illicit alprazolam, normally in the form of counterfeit Xanax tablets, can be bought from street level drug markets and is also available to purchase from illegal websites and social media apps<sup>11</sup>.

Alprazolam has a similar mechanism of action to diazepam but is approximately 10–20 times more potent, is reported to have greater propensity for nonmedical use (NMU), causes more severe withdrawal symptoms and is more toxic in overdose compared to other benzodiazepines<sup>12</sup>.

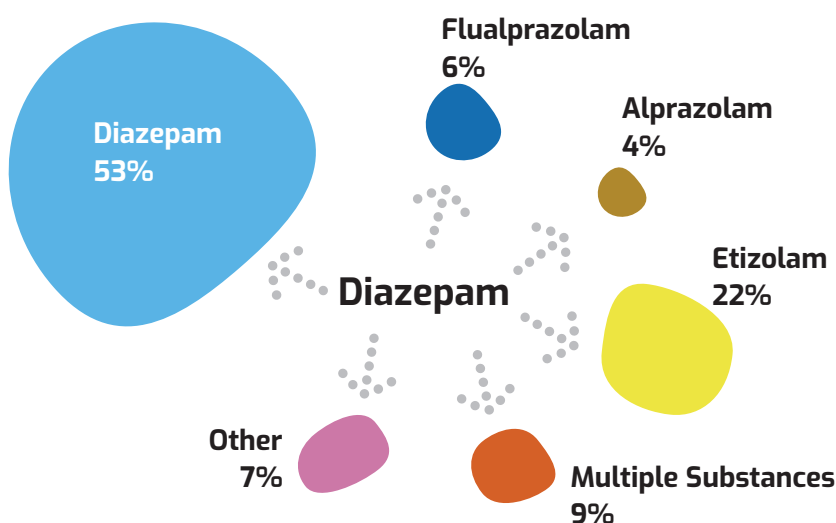
Many of the alprazolam tablets available on illicit markets are not of pharmaceutical grade, but are in fact counterfeit. This is a major concern because these counterfeit products may contain very variable amounts of alprazolam, making it hard for people to decide how much to take. Counterfeit Xanax has also been shown to sometimes contain other drugs and/or potentially dangerous adulterants<sup>7</sup>.

This is not just the case for alprazolam as online pharmacies have a growing presence. While some pharmacies are legitimate, others are not and may either be a scam or provide drugs of uncertain origin, uncertain drug type, or inconsistent dosing<sup>13</sup>.

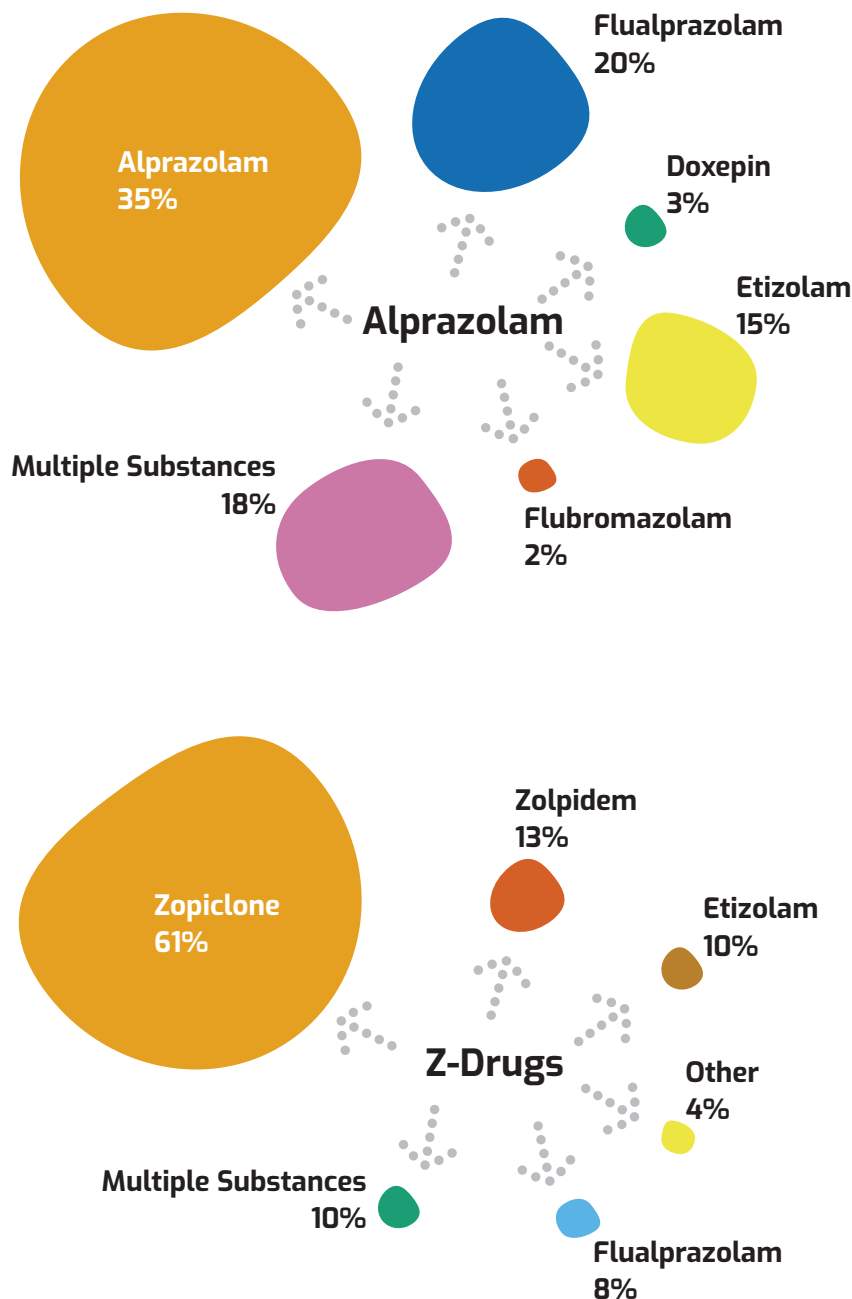
These statements can be further supported by the results of **WEDINOS** samples submitted, not only alprazolam, but also diazepam. Although, we are unable to comment on the actual source of these substances.

#### Substitutions amongst prescribed medications:

The infographics below show the levels of substitution, and common identified substitutes amongst samples submitted to **WEDINOS** as diazepam, alprazolam and Z-drugs (specifically zopiclone and zolpidem).



11. O'Connor R. Public Health England. Alprazolam (Xanax): What are the facts? <https://publichealthmatters.blog.gov.uk/2018/07/30/alprazolam-xanax-what-are-the-facts>.  
 12. Hockenhuil, J, Amioka, E, Black, JC, et al. Nonmedical use of alprazolam in the UK: Results from a nationally representative survey. *Br J Clin Pharmacol*. 2019; 85: 1841–1845. <https://doi.org/10.1111/bcp.13959>  
 13. Kelsie Watkins, O. Hayden Griffin & Elizabeth A. Gardner (2019) Investigation of black box drugs purchased from an online pharmacy, *Journal of Substance Use*, 24:4, 445–449, DOI: 10.1080/14659891.2019.1595197



There are concerns that these online pharmacies and unregulated access is likely to increase use of prescribed medications, non-medical use and dependence<sup>14</sup>.

The Medicines and Healthcare products Regulatory Agency (MHRA) issued a statement saying: ***"We urge patients to obtain their prescription medicine through a registered pharmacy or a GPhC-approved website. Purchasing medicines from any other source, particularly from a website based overseas, is potentially a risk to health. There is no guarantee that medicines purchased online meet the set standards of quality and safety that are mandatory in the UK."***

If individuals have, any concerns over the legitimacy of an online pharmacy encouraged to report to them to the MHRA here: <https://medicine-seller-register.mhra.gov.uk/report/>

14. Joanna Hockenfull, David M. Wood & Paul I. Dargan (2020) The Availability of Modafinil and Methylphenidate Purchased from the Internet in the United Kingdom Without a Prescription, Substance Use & Misuse, 55:1, 56-65, DOI: 10.1080/10826084.2019.1654516