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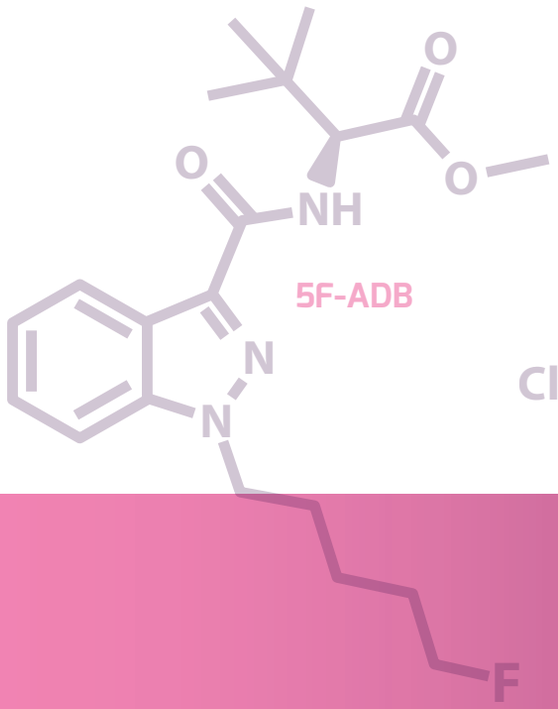
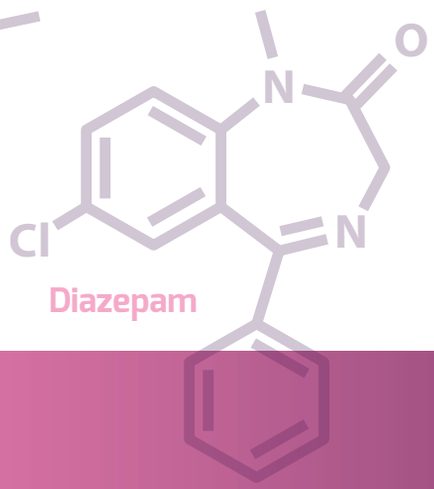
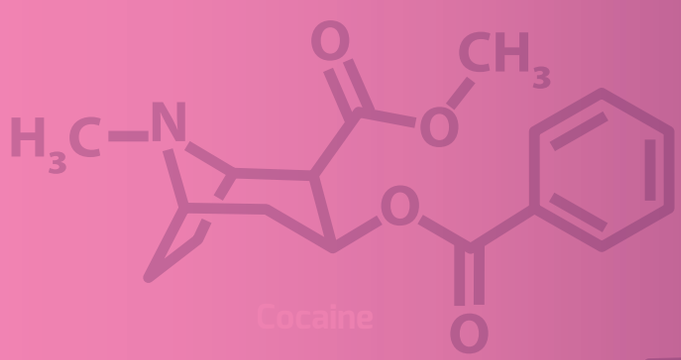
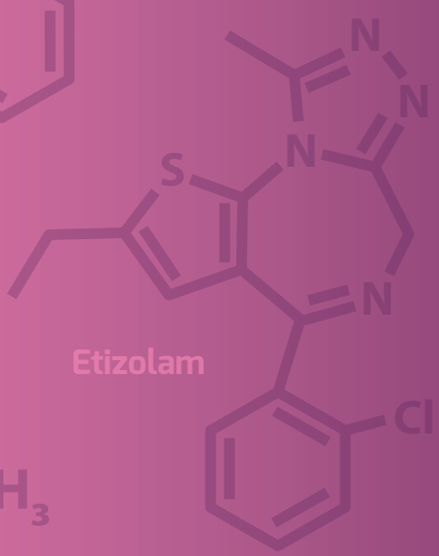




Annual Report
Adroddiad Blynyddol
1st April 2017 - 31st March 2018





Harm Reduction Wales
Lleihau Niwed Cymru

Contents

Foreword

It is a great privilege for me to take over as Chair of the **WEDINOS** Programme Board, our advisory stakeholder body, as together we embark on a new expansionary phase for the **WEDINOS** project. I would like to add my personal gratitude to Prof. Phil Routledge for his expert chairmanship through the early period of the **WEDINOS** project from 2014. We are delighted that the programme is to be funded by Welsh Government until 2025, which will provide stability for the core **WEDINOS** staff and provide a solid basis for expansion of the service in the coming years.

With the advent of **WEDINOS 2.0**, our analytical service has been revamped and expanded. We have installed and piloted our brand new state-of-the-art mass spectrometry (MS) and Nuclear Magnetic Resonance (NMR) spectroscopy offerings. Whilst we apologise for delays in sample analysis during this transition period, we can now report that we are now back to full speed and capacity. Notably, we are now adding infrared (FT-IR) spectroscopy as a new analytical research tool, further enhancing our analytical capabilities.

Our new suite of analytical tools further enhances the service, offering unparalleled quality and reliability within a field notorious for mislabeling and lack of quality control. Recent years have seen the advent of other drug testing services, some mobile and some based on the **WEDINOS** model in other regions. However, **WEDINOS** remains the gold standard for reliable and rigorous scientific analysis of substances of misuse across the whole spectrum and diversity of psychoactive substances. Increasingly these now include prescription only medicines diverted for their addictive and abuse potential.

The **WEDINOS** project has given unprecedented insight into the current state of recreational drug use within Wales, with almost 7,000 samples analysed over the past five years. We enter the era of **WEDINOS 2.0** with the same relentless focus on developing sample collection networks across multiple agencies in Wales, accuracy in our analytical work and provision of harm reduction advice for user groups. Challenges remain in evidencing the impact of our important work and driving the harm reduction agenda. We aim to reach out beyond the Welsh borders to build collaborative international research networks, carrying out work with reach and influence. It is a challenge that we relish and look forward to embarking on this important journey together.

Professor Andrew Westwell,
Cardiff University

Headline Figures 2017/18

WEDINOS provides a mechanism for the anonymous submission and testing of samples of new psychoactive substances and the dissemination of pragmatic harm reduction advice.

Total to date:

8,186 samples received
6,851, analysed
372 substances identified either in isolation of combination.
149 different organisations, services and night time economy venues (night club amnesty bins) from across the UK.

This Year:

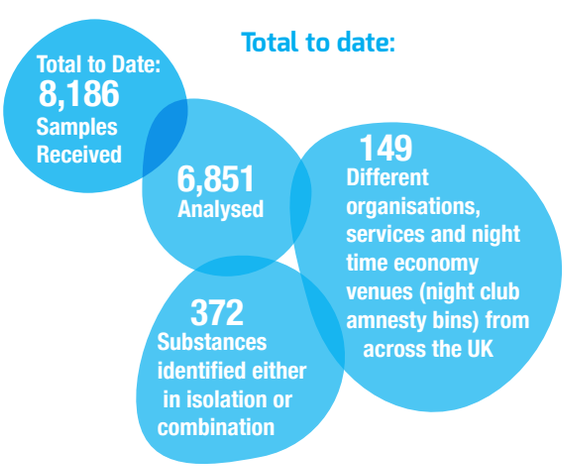
1,728 samples received
1,555 analysed
145 substances identified
64 different organisations, services and night time economy venues from across the UK.

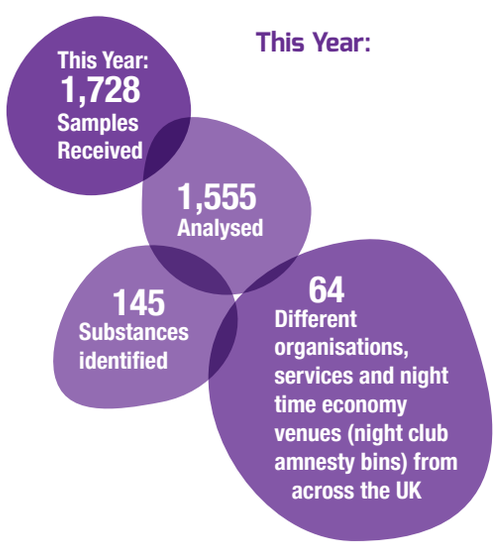
Median age 31 years (average age was 31.3 years), range 14 to 74 years.

For the first time benzodiazepines were the most commonly identified class of mind altering / psychoactive substances.

Consistent with previous years cocaine was the most commonly identified substance.

MDMA pills: 135 samples – average dose 156.05mg, up from 129.48mg in 2016.





To date . . .

Between the launch of the project on 1st October 2013 and 31st March 2018, **WEDINOS** received 8,186 samples analysing 6,851, identifying 372 substances either in isolation of combination.

These samples were submitted from 134 different organisations, services and night time economy venues from across Wales and an additional 15 from across the wider UK.

1st April 2017 to 31st March 2018

For the reporting period 1st April 2017 to 31st March 2018, 1,728 samples were submitted. Of those 1,555 were analysed, with 145 substances identified either in isolation of combination.

65 per cent (n=1,012) samples were submitted from 64 different organisations, services and night time economy venues from across Wales and four from across the wider UK. The remaining 35 per cent (n=543) were submitted by individuals.

Type of Purchase

Of those 1,555 samples, 97 per cent (n=1,508) were mind altering / psychoactive substances; the remaining 3 per cent (n=47) being Image and Performance Enhancing Drugs (IPEDs).

WEDINOS 2.0

WEDINOS was 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 new 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 new psychoactive drugs or considering use.

In 2017, **WEDINOS** was the subject of a Health Impact Assessment (HIA)[1.] collating the opinions and experiences of stakeholders through a variety of means including an online survey, stakeholder events and expert witness interviews. The HIA concluded that **WEDINOS** contributes to a reduction in harm for individuals accessing the service and allows individuals working with substance users to be better informed, therefore contributing to the provision of a more effective service alongside contributing to harm reduction for both the individual and wider society.

At the beginning of April 2018 it was announced that **WEDINOS** was to continue to be fully funded by Welsh Government until 2025. This allowed not only for continuity of this important service, but also for improvements and expansion in capacity and coverage through the purchase of new analytical tools. A Quadrupole Time of Flight (Q-ToF) mass spectrometer, which will act as our primary analytical tool and a Fourier-Transform Infrared (FTIR) spectrometer were added to existing analytical methods including Nuclear Magnetic Resonance (NMR) spectroscopy, Gas Chromatography–Mass Spectrometry (GC-MS) and Liquid Chromatography–Mass Spectrometry (LC-MS).

Following this announcement and the installation of improved and additional equipment, it was decided that the publication of the **WEDINOS** Annual Report be brought forward to cover the reporting period 1st April 2017 to 31st March 2018 and financial years hereafter.

1. Parry-Williams L., Wales Health Impact Assessment Support Unit, WEDINOS Health Impact Assessment Report, 2017

Substance use prevalence . . . the wider perspective

29.5 million

The United Nations Office on Drugs and Crime (UNODC) reported that an estimated quarter of a billion people, or around 5 per cent of the global adult population, used drugs at least once in 2015, this is the most recent estimate available. With about 29.5 million of those substance users, or 0.6 per cent of the global adult population, experiencing harms as a result of their use.

The Crime Survey for England and Wales 2017 reported that 8.5 per cent of adults aged 16 to 59 had taken a drug in the last year, a slight increase from the 8.4 per cent reported in 2016/17. Amongst 16 to 24 year olds, 19.2 per cent had taken a drug in the last year, an increase from 18 per cent the previous year.

Provisional estimates for problem drug* use in Wales, including populations not in contact with any services, in 2015-16 was 49,370 (95 per cent confidence interval (CI) 42,230 – 58,540).

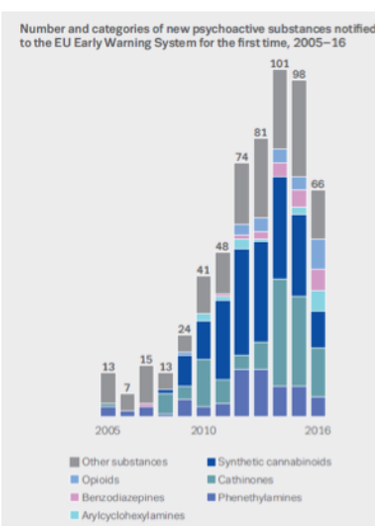
In 2016 drug poisoning deaths In Wales rose by 13.9 per cent to 271, whilst drug misuse deaths rose from 168 in 2015 to 192 in 2016, an increase of 14.3 per cent[2].

The top three substances identified by **WEDINOS** during this reporting period were cocaine and MDMA, followed by Diazepam.

Cocaine
MDMA
Diazepam

These findings are consistent with the European Monitoring Council for Drugs and Drug Addiction (EMCDDA), who state that cocaine and MDMA are the most commonly used illicit stimulants across Europe; showing **WEDINOS** provides a robust evidence base for the UK. Also, consistent with the EMCDDA, **WEDINOS** continues to see a decrease in the number of substances classified as New Psychoactive Substances[3].

*** 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)".**



One thing that is clear from evaluating a samples origin is that the setting i.e. prison, homelessness or night club influences the market and motivations for use.

2. Smith, J. Data mining Wales: The annual profile for substance misuse 2016-17, Public Health Wales, Substance Misuse Programme, 2017

3. European Monitoring Centre for Drugs and Drug Addiction (2017), European Drug Report 2017: Trends and Developments, Publications Office of the European Union, Luxembourg; http://www.emcdda.europa.eu/system/files/publications/4541/TDAT17001ENN.pdf

HUGGARD, HELPING THE HOMELESS

Case Study – Huggard – Sofia Boczek

Huggard substance misuse service has been engaged with the **WEDINOS** project since its launch in late 2013.

*"Although a variety of substances has been submitted, the most common substance class has been synthetic cannabinoid receptor agonists. Results from **WEDINOS** have enabled the service and staff to have a better insight into the chemicals we are dealing with in front line homeless services, enabling us to provide pragmatic, relevant and accurate harm reduction advice possible when dealing with new and potentially harmful substances.*

A example of the usefulness of the service, for me would be in November 2017 we had an increase of extremely problematic SCRA use on site along with an increase in what appeared to be opiate overdoses. Following submitting samples for testing we were informed that all the samples contained 5F-ADB and/or AMB-FUBINACA.

*Using the Philtre Annual report 1st October 2016 – 30th September 2017 as a information resource we were able to identify a link between AMB-FUBINACA and depressant type effects from a reference to 'Spice Zombies' in New York alongside information relating to risks associated with 5F-ADB. We were able to pass this information onto our service users. Using **WEDINOS** resources legitimises the harm reduction advice we give to service users and other services that deal with SCRA use.*

*The **WEDINOS** sample and effects records are easy to fill out and you access the results online. We regularly use the harm reduction segment of the website. **WEDINOS** has provided an invaluable resource for informing training of Huggard staff on the topics of new psychoactive substances and synthetic cannabinoid receptor agonists."*

Case Study – Swansea University

College of Human and Health Sciences
Coleg y Gwyddorau Dynol ac Iechyd

Swansea University
Prifysgol Abertawe

College of Human and Health Sciences | Coleg y Gwyddorau Dynol ac Iechyd
Room 208 Vivian Tower Building | Ystafell 208, Adeilad Vivian Tower
Swansea University | Prifysgol Abertawe
Singleton Park | Parc Singleton
Swansea | Abertawe
Wales | Cymru
SA2 8PP

12 June 2018

Since September 2015 Swansea University have invited WEDINOS (Welsh Emerging Drugs & Identification of Novel Substances Project) to come and help educate their Paramedic students with the most up to date information regarding street drug usage in Wales. These sessions are greatly valuable and very well received. Module feedback received from the students states that they find the external speaker very knowledgeable and approachable. There are 2 cohorts per academic year each of which contain approximately 35-50 students. This means WEDINOS have educated approximately 480 students in Swansea University. 400 of which are now serving Paramedics within Wales, some have gained employment within the rest of the UK and a few have gone abroad to start their career outside of the European Union.

The Paramedic Science staff at Swansea Universities believe similar sessions would be of benefit to any serving UK Paramedic. Because of this, two Senior Lecturers, Tom Hewes and Neil Hore have worked with the WEDINOS Project Manager Dean Acreman to write two articles. One of these articles 'Synthetic Cannabinoids – the threat, the effects and the management' was published in January 2018. The second article, 'Synthetic opiates – the fatal attraction' is to be published in October of 2018.

Hewes, T., Acreman, D & Hore, N. (2018) 'Synthetic Cannabinoids – the threat, the effects and the management'. Volume 8. No. 2. Standby CPD. Class Professional Publishing.

If you require further information, please contact me using the details below.

Best regards,

Tom Hewes
DipHE, BSc, PGCE, MSc, FHEA, MCPara
Senior Lecturer in Paramedic Sciences

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Email | Ebost t.a.hewes@swansea.ac.uk

Prescription Only Medications (POM)

WEDINOS is not the main evidence source for this section.

WEDINOS has identified a large number of samples submitted that are controlled by the Medicines Act 1968, some of which also come under the control of the Misuse of Drugs Act 1971 (MDA 1971).

These substances may enter the market through a variety of ways, as diverted medications, dark web purchases and through unregistered online pharmacies. Research by the Royal Pharmaceutical Society found that an estimated 7% of UK adults have bought a prescription drug using an online pharmacy at some point in their lives[4].

Alongside this, there has also been an upward trend in the prescribing of dependence forming medications and the length of time over which they have been prescribed over the past decade as evidenced by the Natcen study[5]. Over the past five years there has been a three per cent increase in the prescribing of addictive medicines[6], this includes sedatives and analgesics.

- Dependence forming medicines include four main classes:

- Sedatives such as benzodiazepines and Z-drugs

- Antidepressants, including selective serotonin reuptake inhibitors (SSRIs)

- Analgesics (painkillers), including opioid painkillers such as morphine, tramadol and high-dose codeine

- Antiepileptics, notably pregabalin and gabapentin

A 2015 Council for evidence based psychiatry review of the situation in the UK regarding opioid painkillers stated that the demographic for individuals misusing POMs and over-the-counter medicines differed between drug classes and differed from that of individuals using 'traditional' illicit substances. For example, unlike illicit substances, more women rather than men are likely to be at risk in relation to POMs[7].

The Royal College of General Practitioners (RGCP) who advise that 'the profile of individuals who are dependent on prescription opioids is quite different to individuals who are dependent on illicit opioids' reiterates this statement.

4. National Assembly for Wales, Research Service (2016) Research Briefing Misuse of prescription and over-the-counter medications http://www.assembly.wales/research%20documents/16-039%2016-039%20-%20addication%20to%20over%20the%20counter%20prescriptions/16-039-web-english.pdf
5. Macmanus S. Smith N., Prescribing patterns in dependence-forming medicines (2000-2015), NatCen –Social research that works for society (2017) http://natcen.ac.uk/our-research/research/prescribing-patterns-in-dependence-forming-medicines-2000-2015/
6. council for evidence based psychiatry (2015), Briefing note: appg for prescribed drug dependence, http://prescribeddrug.org/wp-content/uploads/2015/10/Briefing-note-for-APPG-PDD.pdf
7. RCGP Substance Misuse and Associated Health Prescription and over-the-counter medicines misuse and dependence https://smmgp.org.uk/media/11949/guidance021.pdf

The 2016 Welsh Government research briefing: Misuse of prescription and over-the-counter medications[7.] stated that drug treatment services had noted the misuse of POMs and OTC amongst users of illicit drugs, with the use of gabapentinoids alongside heroin being commonplace.

Subpopulations and Trends

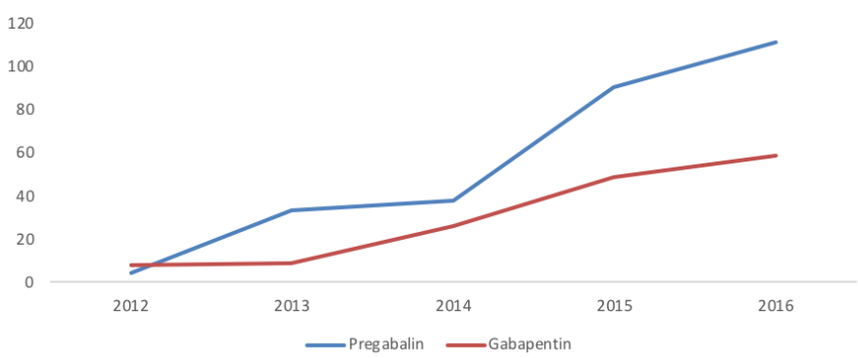
The 2017 Higher Education Alcohol and Drugs Survey reported that 8.8 per cent of university students surveyed had used a prescription drug in the last year[8.].

A 2009 study by Holloway and Bennett found that the lifetime prevalence of prescription drug misuse (using prescription drugs not prescribed to the person) was 33% among students and 24% among staff. The main medications misused were pain relievers, followed by sedatives and sleeping aids[9.].

In 2016 England and Wales deaths involving tramadol, a POM analgesic, also controlled as a class C substance under the MDA 1971; fell from a high of 220 in 2015 and down from a high of 240 in 2014.

This is not the case for gabapentinoids or benzodiazepines (as discussed in the benzodiazepine section of this report). In relation to gabapentinoids, the antiepileptics pregabalin and gabapentin, deaths have increased year on year since 2012.

Chart 1: Deaths involving gabapentinoids



Why WEDINOS and harm reduction messages are important

We should remember that over half of all drug poisoning deaths involve more than one drug and/or alcohol. Individuals using substances must therefore be informed about the effects of using more than one substance. For instance the adverse effects on the central nervous and respiratory systems from poly use of depressant substances; or the increased risk of serotonin toxicity in individuals who are using stimulant substances whilst also using selective serotonin reuptake inhibitors. Serotonin syndrome / toxicity results from an excess of serotonin in the central nervous system. It is an adverse effect from the use of particular drugs (prescribed, illegal or legal) or as a result of the interaction between drugs and is potentially life threatening.

8. Holloway, K and Bennet (2018), T, Characteristics and correlates of drug use and misuse among university students in Wales : A survey of seven universities. Addiction Research and Theory, Vol. 26, No. 1, 02.01.2018, p. 11-19
9. Holloway, K & Bennett, T (2011) Prescription drug misuse among university staff and students: A survey of motives, nature and extent, Drugs: Education, Prevention and Policy, 19:2, 137-144, DOI: 10.3109/09687637.2011.594114

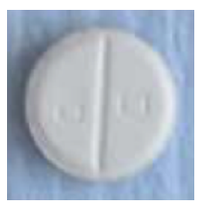
Benzodiazepines

'MSJ' Diazepam

Etizolam (markings describe diazepam tablets)

Alprazolam

Lorazepam



Diclazepam

Clonazepam

Clonazolam

Phenazepam

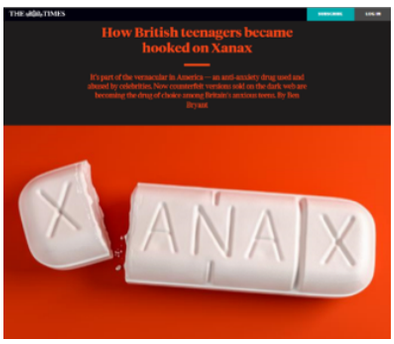
Temazepam

Benzodiazepines are a class of chemicals used in the treatment of anxiety and sleep disorders. Benzodiazepines are agonists at the benzodiazepine site on the GABA-A receptor, resulting in an increase in gamma-aminobutyric acid (GABA).

GABA contributes to motor control, vision, and many other cortical functions as well as regulating anxiety.

This class includes substances such as diazepam, alprazolam and others. Most benzodiazepine names end in “pam” or “am”. Benzodiazepines are prescribed to produce sedation and sleep. They are used for treatment of anxiety, insomnia, alcohol withdrawal, convulsions, and muscle spasm; their amnesic properties are helpful for surgery and painful or distressing procedures.

Almost all therapeutic and adverse effects of benzodiazepines arise from their action on the Central Nervous System.



https://www.thetimes.co.uk/article/how-british-teenagers-became-hooked-on-xanax-2fh6tqznw

The European Monitoring Council for Drugs and Drug Addiction (EMCDDA) express concern around the growth in the benzodiazepine market, with 20 benzodiazepines being monitored; six of which were first reported to the Early Warning System in 2016 (EWS)[10].

In 2015, the number of benzodiazepine seizures almost doubled from the previous year. The vast majority of samples submitted to **WEDINOS** were in tablet form; however, powder samples were also present. The EMCDDA also report benzodiazepines being available in capsule form.

In Wales for illicit drug seizures measured by dose, benzodiazepines were by a considerable margin the drug most seized, with 113,000 doses in 2015-16, an increase of 39.9 per cent from 2014-15[11].

However, it remains difficult to report the prevalence of benzodiazepine use, The EMCDDA state that there is a lack of self-reported prevalence data on the use of benzodiazepines in the general population, however some data is available.

The Crime Survey for England and Wales 2016/17 reports 0.4 per cent of the adult population having used 'tranquillisers' in the previous twelve months, this is higher for young people at 0.6 per cent of 16 to 24 year olds.

The Global Drugs Survey 2018 found 9.5 per cent of the whole sample (total respondents=>130,000) had used benzodiazepines in their lifetime, with 5.7 per cent having used in the previous year.

There were 482 hospitalisations in Wales in 2014-15 relating to benzodiazepines, compared with 1,860 for opioids, 778 for cannabinoids and 148 for cocaine[12].

The Office for National Statistics report: Deaths related to drug poisoning in England and Wales: 2016 registrations, shows a year on year increase in 'any benzodiazepine' mentioned on a death certificate between 2012 and 2016, with 406 reported in 2016, an increase from 284 in 2012.

In Wales, benzodiazepines were identified as one of three groups of substances, alongside other opiates (not including heroin/morphine) and cocaine as attributing to an increase in drug related deaths in 2016, however, we must note that deaths involving benzodiazepines, also often involved other substances, particularly heroin/morphine.

10. European Monitoring Centre for Drugs and Drug Addiction (2017), European Drug Report 2017: Trends and Developments, Publications Office of the European Union, Luxembourg; http://www.emcdda.europa.eu/system/files/publications/4541/TDAT17001ENN.pdf
11. Substance Misuse Programme, Public Health Wales (2017), Data mining Wales: The annual profile for substance misuse 2016-17; http://www.wales.nhs.uk/sitesplus/documents/888/FINAL%20profile%20for%20substance%20misuse%202016-17%20%282%29.pdf
12. Research Service, Welsh Government (2016), Misuse of prescription and over-the-counter medications; http://www.assembly.wales/research%20documents/16-039%2016-039%20-%20addication%20to%20over%20the%20counter%20prescriptions/16-039-web-english.pdf

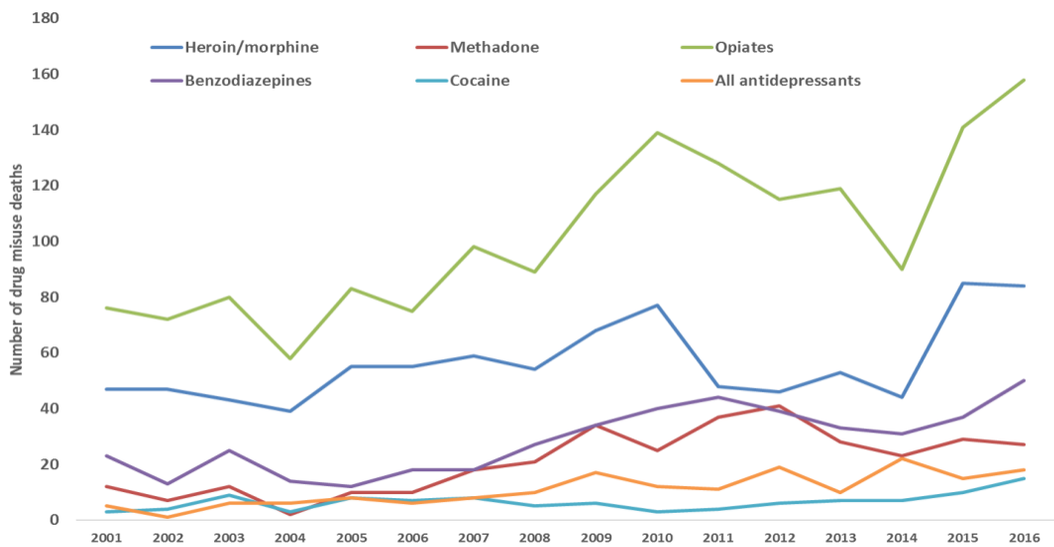


Chart 2: Drug misuse deaths by named illicit drug groups and registered year of death 2001-2016. N.B. deaths from 'Heroin/Morphine' are a subset of 'Opiate' deaths[13].

13. Substance Misuse Programme, Public Health Wales (2017), Drug related deaths in Wales 2016, Cardiff; http://www.wales.nhs.uk/sitesplus/documents/888/Drug%20related%20deaths%202016%20-%20analysis%20of%20data%20from%20Office%20for%20National%20Sta....pdf

WEDINOS and Benzodiazepines

To date **WEDINOS** has identified 17 benzodiazepines, with nine recorded (not for the first time) in 2017 to 2018. Diazepam was the most prevalent. Other recorded benzodiazepines were etizolam, alprazolam (xanex), lorazepam, diclazepam, clonazepam, clonazolam, phenazepam and temazepam.

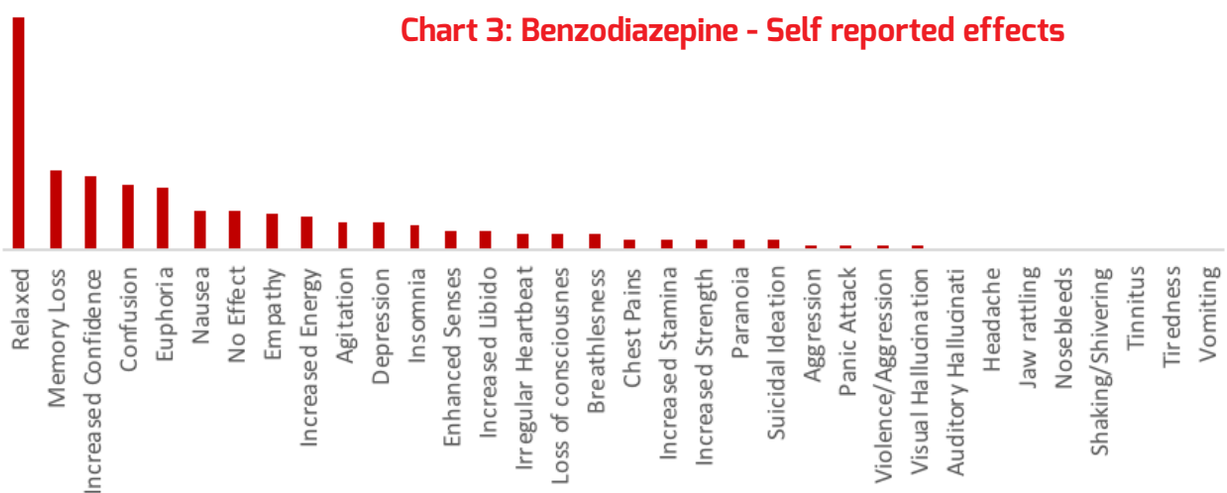
45%

Despite several benzodiazepines being licensed POMs in the United Kingdom and some 'designer benzodiazepines', licensed medications elsewhere in the world, from the results of **WEDINOS** analysis we can see that substance substitution is taking place. Of the 108 samples submitted in the belief that they were diazepam, 45 per cent (n=49) were found upon analysis to contain a different substance or no active compound.

Purchase intent	Substance upon analysis	Number
Diazepam	Etizolam	30
Alprazolam	Etizolam	5
Diazepam	Alprazolam	4
Diazepam	Chlorpheniramine	4
Alprazolam	Caffeine	3
Diazepam	Zolpidem	3
Alprazolam	Diclazepam	2
Diazepam	Zopiclone	2
Diazepam	Phenazepam	2
Alprazolam	Lorazepam	2
Diazepam	Lorazepam	1
Diazepam	Nitrazepam	1
Alprazolam	Clonazolam	1
Diazepam	Clonazolam	1
Diazepam	Tadalafil	1
Diazepam	Diclazepam	1
Alprazolam	Zopiclone	1
Alprazolam	Diazepam	1

Implications
This is concerning, not only due to the differences in tablet/substance doses, with therapeutic doses varying from 0.25mg to 20mg depending on the benzodiazepine; but also due to the substance half-lives. For example alprazolam and lorazepam are both immediate acting (half-life of drug and metabolites 6–24 hours); whereas diazepam and clonazepam are long-acting (half-life of drug and metabolites longer than 24 hours.) Both factors increase the potential for an individual to suffer from adverse effects that can be caused by the substance. Individuals submitting samples of benzodiazepines to **WEDINOS** experienced the following effects.

Chart 3: Benzodiazepine - Self reported effects



Paradoxical effects
Benzodiazepines characteristically cause sedation, but rarely their use is associated with talkativeness, euphoria, excitement, aggression, anxiety, restlessness, agitation, irritability, nightmares and vivid dreams, confusion, hallucinations, psychoses, tachycardia and sweating.

Paradoxical effects may be accompanied by amnesia — individuals who suffer these effects not remember their behaviour.

Long-term effects
Long-term use of a benzodiazepine is associated with:

Depression or aggravation of depression. In these circumstances the disinhibiting effect of benzodiazepines may precipitate suicide

poor concentration and attention

impaired cognitive function, this may take 6 months or longer to improve after stopping use

Emotional blunting

Impaired visual-spatial ability and motor skills

Memory impairment

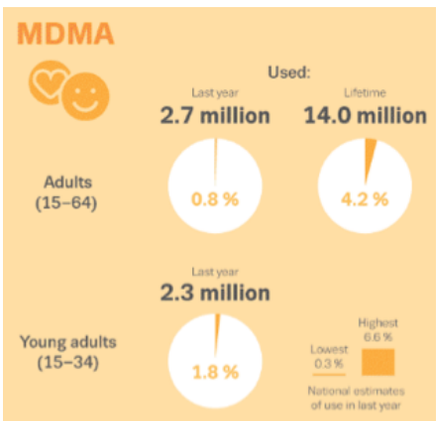
Increased reaction time[14].

Research suggests that long-term benzodiazepine use can cause brain shrinkage and is associated with an increased risk of Alzheimer's disease[15].

Individuals taking benzodiazepines should be aware that their combined use with other CNS and respiratory depressants, including opioids and alcohol, is linked to increased toxicity.

14. MHRA, Benzodiazepines learning module, **http://www.mhra.gov.uk/benzodiazepines-learning-module/13.con234573?useSecondary=&showpage=6**
15. Council for evidence based psychiatry, Briefing note: APPG for prescribed drug dependence (2015), **http://prescribeddrug.org/wp-content/uploads/2015/10/Briefing-note-for-APPG-PDD.pdf**

Ecstasy and Apathy 2



MDMA – (3,4-Methylenedioxymethamphetamine)

The main illicit stimulant drugs available in Europe are cocaine, amphetamine, methamphetamine and MDMA.

It is estimated that 0.8 per cent of European adults (2.7million) aged 15 to 64 took MDMA in the last year, with lifetime prevalence rising to 4.2 per cent (14million); with a market valued at 0.7billion euros[16].

The Crime Survey for England and Wales reports that 1.3 per cent of 16-59 year olds had used "Ecstasy" in the last year.

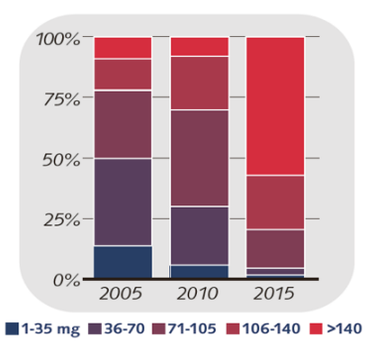
30.5 per cent of respondents to the Global Drugs Survey 2018 (total respondents =>130,000) reported using MDMA in the past year, the second most commonly used substance behind cannabis.

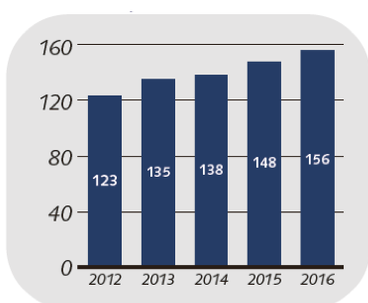
New MDMA tablet designs, in various colours, shapes and brand logos, are constantly being introduced into the market.

In the 2000s there was a decline in the production of MDMA paralleled by a fall in the content of MDMA within tablets, this is attributed to a lack of precursor chemicals required for the manufacture of MDMA.

However, over the past few years there has been an increase in production of and content within MDMA tablets.

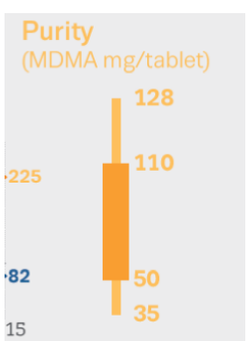
Dosage - picture to date





Average dosage of MDMA in ecstasy-pills (in mgs).

Drugs Information and Monitoring System (DIMS) – Annual Report 2016



EMCDDA –
European Drug Report 2017

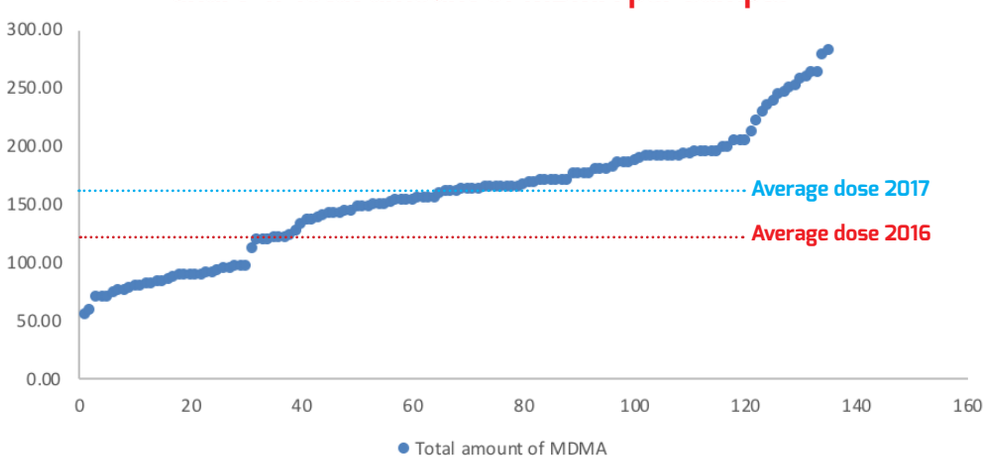
16. European Monitoring Centre for Drugs and Drug Addiction (2017), European Drug Report 2017: Trends and Developments, Publications Office of the European Union, Luxembourg. http://www.emcdda.europa.eu/system/files/publications/4541/TDAT17001ENN.pdf

In the 1990s and 2000s the average MDMA content of tablets was somewhere between 50–80 mg[17.]. In April; 2016 the averages were closer to 125 mg MDMA per tablet, while there were also reports of 'super pills' found on the market in some countries with a reported range of 270–340 mg[18.].

Following a 2017 collaboration with criminal justice services in England, **WEDINOS** received and analysed 135 tablets from festivals containing MDMA. The following outlines the results of our analysis:

- 35 tablets
- Average weight – 430mg (weight range: 178.3mg to 62.6mg)
- Average dose – 156.05 (up from 129.48mg in 2016) (dose range: 55.27mg to 282.89mg).

Chart 4: Total amount of MDMA per sample



MDMA content varies from batch to batch and tablet to tablet, in Gold Bar tablets analysed the dosage varied by 118mg from the lowest to the highest dosed tablet. With 73 per cent of all tablets analysed containing over 140mg of MDMA.

Doses over 120mg MDMA should be considered as high and users should be aware that they are at increased risk of adverse effects. Adverse effects of MDMA use can include: visual hallucinations, confusion, agitation, hypertension, seizures and coma[19.]. Fatalities have been described in individuals who have consumed 150mg MDMA[20.]. Effects occur within 1 hour and last 4-6 hours after 75-150 mg, and up to 48 hours after 100-300 mg.

Health professionals: please refer to TOXBASE (**www.toxbase.org**) for current management advice.

17. Global Drugs Survey 2018 (GDS18) **https://www.globaldrugsurvey.com/gds-2018/**
18. Recent changes in Europe's MDMA/ecstasy market - Results from an EMCDDA trendspotter study, EMCDDA, Lisbon, April 2016 available at **http://www.emcdda.europa.eu/system/files/publications/2473/TD0116348ENN.pdf [accessed 15th August 2016]**
19. R.C.Baselt. Disposition of toxic drugs and chemicals in man (fifth edition), Methylenedioymethamphetamine pg. 562-563, 2000.
20.. G.p.Dowling, E.T. McDonough and R.O.Bost. 'Eve' and 'Ecstasy', a report of five deaths associated with the use of MDEA and MDMA. J.Am.Med.Asso.257: 1615-1617, 1987

Full results of this MDMA dosage project will be published Summer 2018

Individuals who are determined to use should therefore not be apathetic in their approach. Be aware of doses, duration of effects, the effects themselves and potential risks. Start with a low dose, quarter of a tablet and wait for effects. Some of the substances that MDMA is substituted for have a duration of onset up to two hours. If it feels different from what you are expecting, or if you feel nothing after a long wait (which you should not from a MDMA pill), do not take any more in the hope that increasing the dose will increase the positive psychoactive effects. Take time to relax regularly and cool down to avoid overheating. Make sure you have more days where you don't use, than days where you use. Use in a safe environment with trusted company. Tell someone you are with what you are taking.

The following, and similar information can be found in the Substance Information section of the **WEDINOS** web site. 3,4-Methylenedioxymethamphetamine (MDMA) is a ring substituted derivative of methamphetamine. It is one of the most popular recreational psychoactives. It is known for its empathogenic, euphoric, and stimulant effects, and has also been used in psychotherapy. MDMA causes release of serotonin, and to a lesser extent dopamine, in the brain. It is known for its empathogenic, euphoric, and stimulant effects. - If you are going to take ecstasy that you are unfamiliar with, avoid taking a whole pill, and absolutely do not double drop. - Start with half a pill or even quarter of a pill and wait at least 2 hours before re-dosing. - Be aware that pills being sold as ecstasy may contain other drugs such as PMA which can be stronger, longer lasting and more dangerous. PMA can also take longer to have an effect. Unless it is tested you cannot be sure what you are taking. - Take time to relax regularly and cool down to avoid overheating. - Effects can be more intense if snorting so start with a small amount to see how it affects you. - Avoid mixing with depressant drugs, especially alcohol which can dull the effects of ecstasy and increases your chance of dehydration. - If it feels different from what you are expecting, or if you feel nothing after a long wait (which you should not from a MDMA pill), do not take any more in the hope that increasing the dose will increase the positive psychoactive effects. Do not take any more MDMA-related products either. - When taking Ecstasy / MDMA don't drink too much water. Sip a pint of water per hour max. - Make sure you have more days where you don't use, than days where you use. - Use in a safe environment with trusted company. - Tell someone you are with what you are taking.

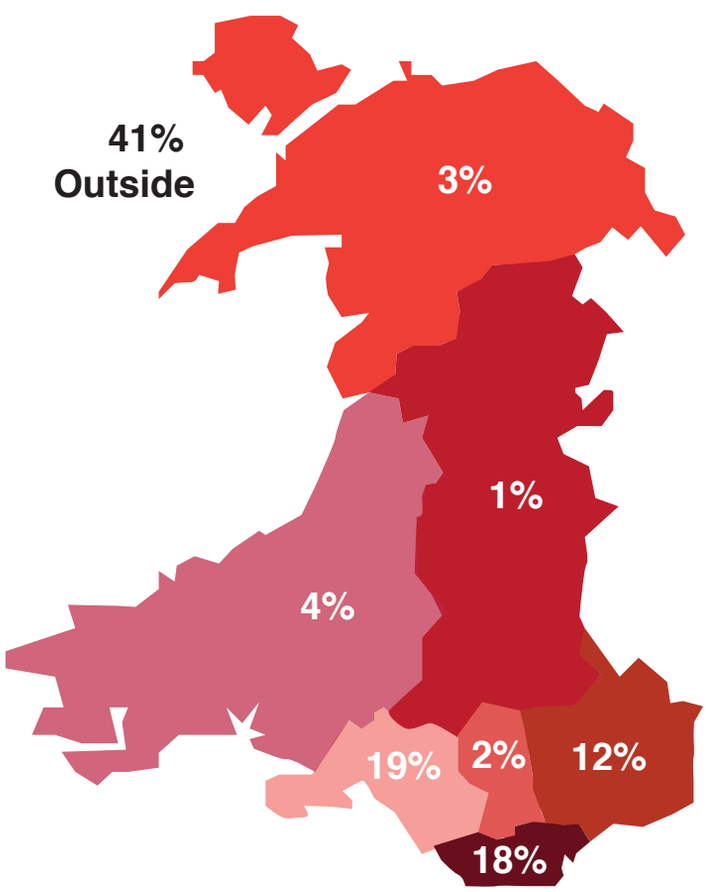
Toxicity
Symptoms of MDMA toxicity can include visual hallucinations, confusion, agitation, coma and hypotension. Seizures, hyperpyrexia, hypoglycaemia, rhabdomyolysis and panic disorder have also been reported after overdosage. Severe toxic features are usually idiosyncratic and unrelated to dose ingested or previous duration of exposure. Features of severe toxicity include cardiac arrhythmias, hyponatraemia., convulsions, delirium, coma, hypotension and cardiovascular collapse.

Short Term Effects
Common features include mood elevation, euphoria, tachycardia, mild hypertension, dilated pupils, dry mouth and sweating. In some cases transient nausea, jaw clenching, confusion, dizziness, ataxia, nystagmus, abdominal pain and diarrhoea may occur. Use of MDMA can cause memory impairment, poor concentration, sleep disturbance, flashbacks and hallucinations. Depression, panic attacks, anxiety and psychosis have also been reported.

Mind altering / psychoactive substances – the Where, Who, What and How.

Of the 1,508 mind altering / psychoactive samples, 59 per cent of samples were received from within Wales, 36 per cent from England, 3 per cent from Scotland, 2 per cent from Northern Ireland.

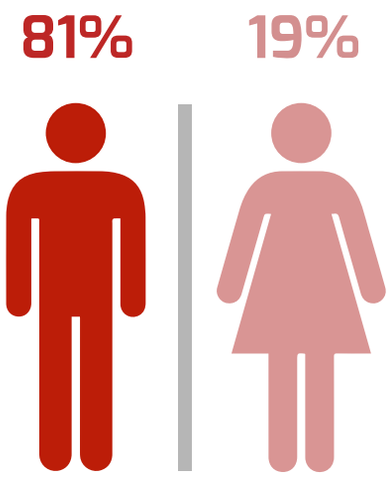
With the continued use of the internet for the purchasing of mind altering / psychoactive substances and what is effectively a borderless market that crosses many demographics, it is important that we are able to monitor substance use trends from across the United Kingdom. Through active engagement organisations, services and night time economy venues, we are also able to discuss potential differences in substances used and potential harms by people who use recreationally, those that become dependent, individuals who have suffered acute adverse effects and those in a criminal justice setting.



Samples were received from all seven Welsh Health boards. Abertawe Bro Morgannwg University LHB provided the largest proportion, at 34 per cent. This accounts for 19 per cent of all psychoactive samples submitted during this reporting period.

It should be noted that this does not represent the spread, use or concentration of psychoactive substance use in Wales. It highlights the geographic variation in the engagement and proactive response of services with the **WEDINOS** project.

Who . . .



Of the 1,508 samples, demographic information was available for 56 per cent (n=841), with the remaining samples submitted as finds within services, from amnesty bins and by criminal justice services that had no evidentiary or forensic value, hence with no self-report effects form.

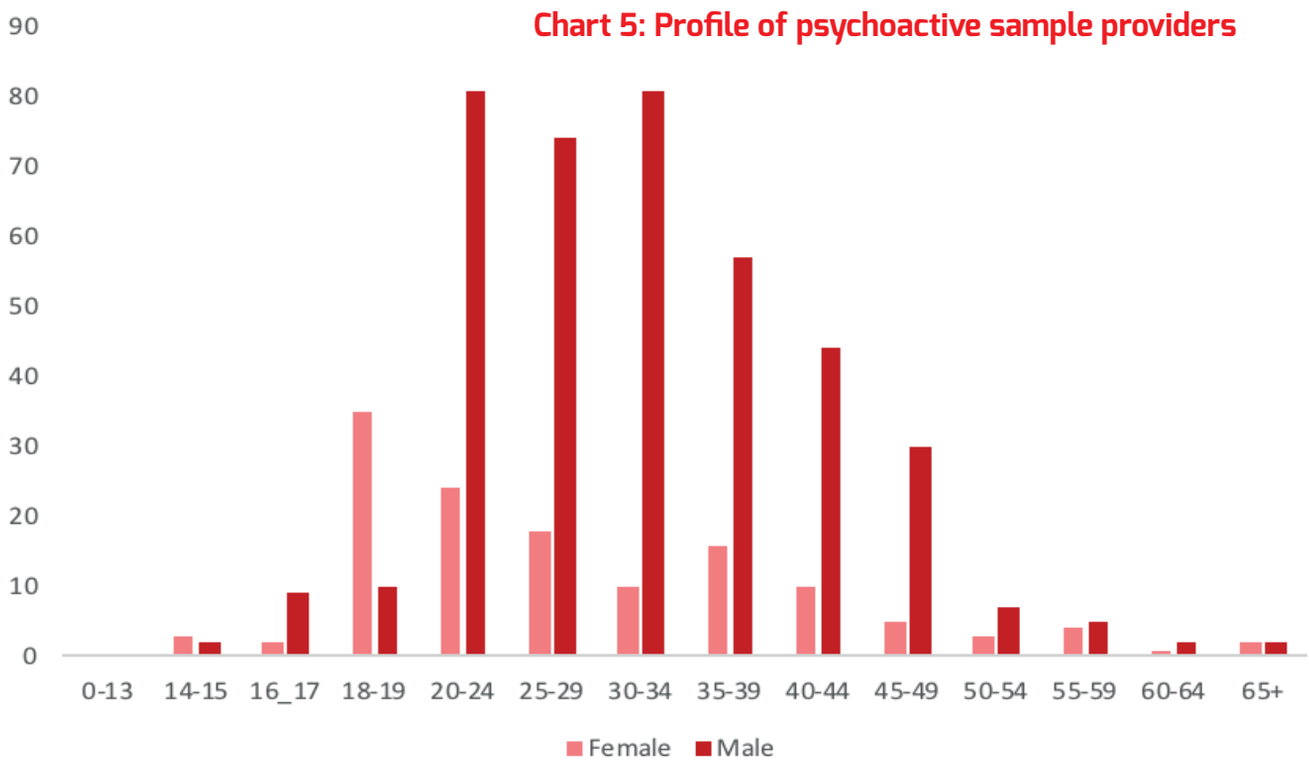
81 per cent of the samples were submitted by males and 19 per cent by females.

The median age for all mind altering / psychoactive sample providers (Wales and wider UK) was 31 years (average age was 31.3 years), range 14 to 74 years.

Females - median age was 25 years and an average age of 29.1 years (range: 15-74 years).

Males - median age was 31 years, with an average age of 31.9 years (range 14-65 years).

Chart 5: Profile of psychoactive sample providers



Samples submitted by individuals in the age range 0-17 years, in order of prevelance, included: MDMA, the benzodiazepine etizolam, cannabis and the synthetic cannabinoid receptor agonist (SCRA) MDMB-CHMICA.

For older adults aged 60 years and above included samples containing N-ethy hexedrone, mephedrone, cannabis, diazepam and zopiclone.

Key Findings - What . . .

Most commonly identified substances

https://www.theguardian.com/society/2018/jan/24/prescription-drug-addiction-government-launches-investigation

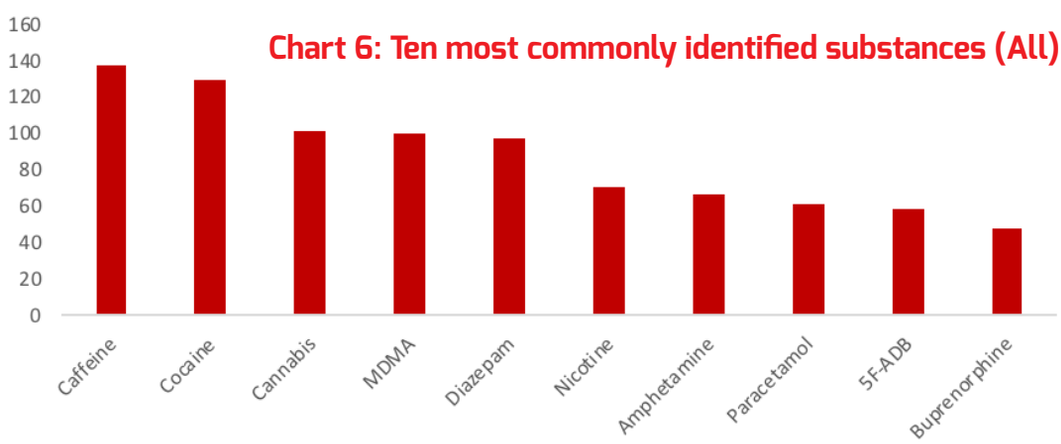
The most commonly identified chemical group of psychoactive substances were benzodiazepines, with 9 benzodiazepines' identified. Diazepam was the most commonly identified benzodiazepine followed by etizolam and alprazolam (commonly known as Xanax). This is a potential risk for individuals using benzodiazepines as dosage and potency varies greatly, for example etizolam is 7 to 10 times as potent as diazepam.

Cocaine was the most commonly identified psychoactive substance (excluding caffeine) by **WEDINOS**. UK Focal Point informs that powder cocaine is the most prevalent stimulant used in the UK, and second most prevalent substance overall behind cannabis. Following a fall in the mean purity of cocaine at user level from 51 per cent in 2003, to 20 per cent in 2009, but has risen since, and was 54 per cent in 2016. Crack cocaine purity was the highest recorded in 2016 at 71 per cent[21].

The number of deaths where cocaine was mentioned in England and Wales, has risen year on year from 139 in 2012 to 371 in 2016[22]. Many of these deaths are believed to be heroin users who also use crack cocaine[23].

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.

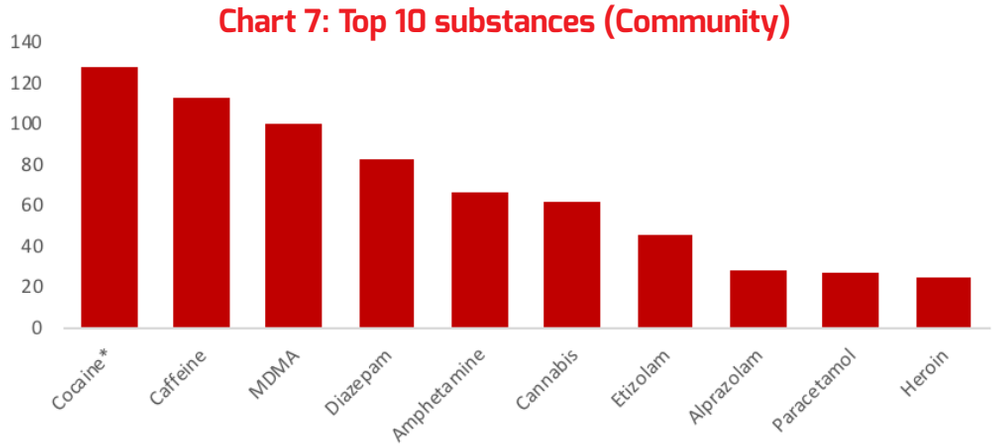
Chart 6: Ten most commonly identified substances (All)



As previously mentioned, **WEDINOS** receives samples from a wide variety of community settings, **WEDINOS** works closely with the six Welsh prisons and reports separately on finds that have no evidentiary value. If we remove these samples the make-up and order of the Top 10 changes.

21. UK Focal Point - United Kingdom Drug Situation 2017, London, 2018; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/697805/UK_drug_situation_Focal_Point_annual_report_2017.pdf
22. The Office for National Statistics report: Deaths related to drug poisoning in England and Wales: 2016 egistrations; https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/deathsrelatedtodrugpoisoninginenglandandwales/2016registrations#deaths-involving-selected-substances
23. European Monitoring Centre for Drugs and Drug Addiction (2017), United Kingdom, Country Drug Report 2017, Publications Office of the European Union, Luxembourg; http://www.emcdda.europa.eu/system/files/publications/4529/TD0116925ENN.pdf

Chart 7: Top 10 substances (Community)



* 34 samples were found to contain Levamisole.

As shown in chart 7 nicotine, the synthetic cannabinoid receptor agonist (SCRA), 5F-ADB, and buprenorphine are no longer present, being replaced by the benzodiazepines, etizolam and alprazolam. Levamisole is one of the most commonly identified substances, this has not been included as a stand alone figure in this chart as it is exclusively identified in combination with cocaine.

Most commonly identified New Psychoactive Substances
The term "new psychoactive substances (NPS)" has been legally defined by the European Union as a new narcotic or psychotropic drug, in pure form or in preparation, that is not scheduled under the Single Convention on Narcotic Drugs of 1961 or the Convention on Psychotropic Substances of 1971, but which may pose a public health threat comparable to that posed by substances listed in those conventions. **Council of the European Union decision 2005/387/JHA**

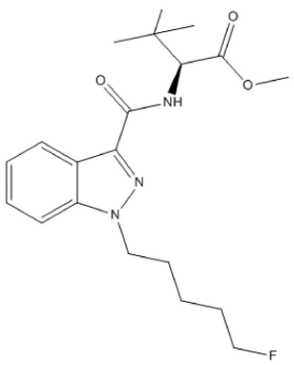
The most commonly identified NPS groups are benzodiazepines and Synthetic Cannabinoid Receptor Agonists (SCRAs). The term Synthetic Cannabinoid Receptor Agonist (SCRA) covers all synthetic substances that bind to one of the two known cannabinoid receptors (CB1 or CB2). Of the ten most commonly identified NPS profiled by **WEDINOS** in the last year, two were benzodiazepines and two were SCRAs, as shown in Table 1, with 9 and 12 unique substances being identified from each group respectively in all samples submitted during this reporting period. For further information on benzodiazepines please see page 10.

Table 1: Most commonly identified New Psychoactive Substances

Top 10	NPS (all samples)	NPS (community)
1	5F-ADB	Etizolam
2	Buprenorphine	Alprazolam
3	Etizolam	5F-ADB
4	AMB-FUBINACA	AMB-FUBINACA
5	Quetiapine	Ketamine
6	Alprazolam	BZP
7	Mirtazapine	Zopiclone
8	Ketamine	N-ethyl hexedrone
9	BZP	4-CEC
10	Zopiclone	Pregabalin

Of the NPS (all samples) six substances are available as prescribed medications, rising to seven if you include etizolam, which although not prescribed in the UK is available elsewhere in Europe. These substances appear available on the open internet.

In relation to the SCRAs, of the 12 reported, nine were identified on less than 10 occasions. The most commonly identified SCRAs being the potent and ultra potent 5F-ADB and AMB-FUBINACA. The following information has been previously published in Philtre Annual Report 2016/17.



5F-ADB and AMB-FUBINACA

5F-ADB

5F-ADB (also known as 5F-MDMB-PINACA or MDMB(N)-2201) was first notified to the European Early Warning System (EU EWS) on 6th January 2015 (Hungary) following a seizure in Budapest on 2nd September 2014 in white powder form. **WEDINOS** first identified this substance on 26th November 2016, also in white powder form submitted from the Warrington area of North West England. Since then the project has received samples found to contain 5F-ADB, primarily in a ready to smoke plant matter mixture, but also in powder form.

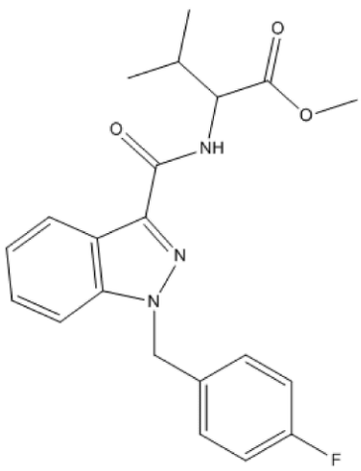
Described as a potent SCRA, 5F-ADB is structurally similar to MDMB-CHMICA. Under UK legislation 5F-ADB is controlled by the Psychoactive Substances Act 2016. Supply, manufacturing, import/export of this substance is illegal. Personal possession, except in a custodial setting, is not.

In July 2016 5F-ADB was subject to a EMCDDA alert following being associated with 5 deaths and 4 acute intoxications in Germany. All acute intoxications were described as 'potentially life threatening'. All cases related to the smoking of 5F-ADB in a plant matter mixture. It must be noted that post mortem exposure to other substances was analytically confirmed from biological samples.

In one case where the cause of death was a heroin/morphine overdose, it was stated that '5F-ADB and Lorazepam likely reinforced the effect of the heroin'[24].

This follows reports of 10 deaths associated with 5F-ADB that occurred in Japan between September and December 2014[25].

24. 5 deaths and 4 acute intoxications associated with synthetic cannabinoid 5F-MDMB-PINACA (5F-ADB), EU Early Warning System Alert, EMCDDA, July 2016.
25. Hasegawa, K. & Wurita, A. et al., Identification and quantitation of 5-fluoro-ADB, one of the most dangerous synthetic cannabinoids, in the stomach contents and solid tissues of a human cadaver and in some herbal products. Forensic Toxicol., 2015.



AMB-FUBINACA
AMB-FUBINACA also known as FUB-AMB and MMB-FUBINACA was first notified to the EU EWS on 4th December 2014 in a seizure of white powder in Sweden. First identified by **WEDINOS** in powder form on 16th November 2015 in a white powder sample submitted from Peterborough. Samples have been received in powder and ready to smoke plant matter mixtures.

On 12th July 2016, a SCRA caused the acute intoxication of 33 people in New York. Serum, whole blood and urine samples (from eight patients) along with samples of a plant matter mixture analytically confirmed the presence of AMB-FUBINACA.

It was concluded from this that the potency of AMB-FUBINACA is consistent with strong depressant effects that account for the "zombielike" behavior reported in this mass intoxication and is described as an "ultrapotent" SCRA[26]. In vitro pharmacologic studies indicate that it is 85 times as potent as THC and 50 times as potent as JWH-018, one of the earliest SCRA's at the CB1 receptor site.

Focus on

5F-ADB / 5F-MDMB-PINACA	**AMB-FUBINACA**
• 6th January 2015 – Hungary	• 6th November 2014 – Sweden
• Potent SCRA	• Ultra potent SCRA
• Sept to Dec 2014 – 10 deaths in Japan	• July 2016 – 33 acute intoxications in New York, USA.
• July 2016 EMCDDA alert – acute intoxications and fatalities in Germany	• 85 times as potent as THC and 50 times as potent as JWH-018

85 times 50

26. Axel J. Adams et al., "Zombie" Outbreak Caused by the Synthetic Cannabinoid AMB-FUBINACA in New York.

Legal Status - Substitution . . .
From project launch to date **WEDINOS** has consistently noted and described the substitution of substances, generally from within the same class of substance e.g. one stimulants for another. We have also seen substitution between classes, e.g. sample purchased in the belief it was ketamine was found upon analysis to contain beta-hydroxyfentanyl.

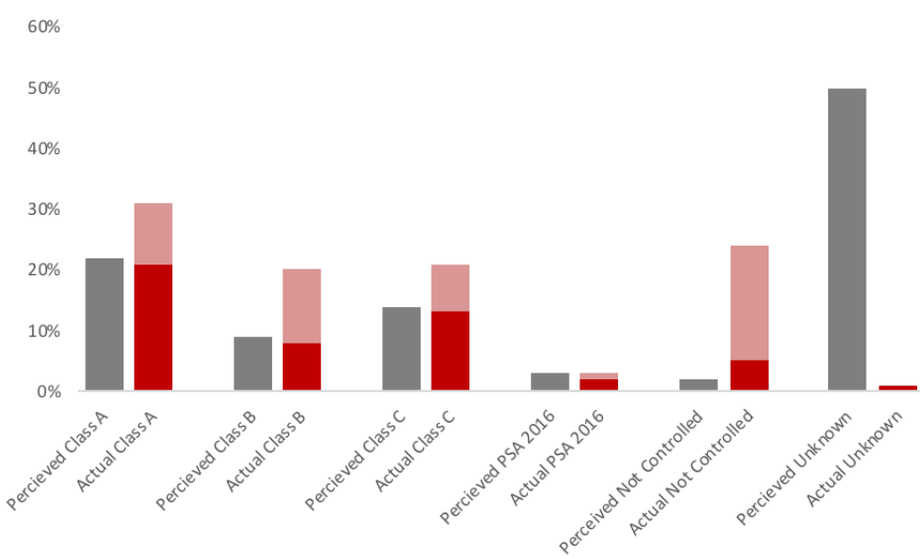
This substitution can have additional negative and unexpected impacts on the end user, not only legally and socially (changing controlled drug status); but also physically and psychologically. With substitution of substances, dose, purity, time of onset and an individuals tolerance may vary. This may increase the potential for an individual to experience adverse effects.

A number of samples were submitted with no effects with no 'Sample and Effects Record', and as such are recorded as legal status unknown.

As Chart 8 indicates, many samples had a different legal classification to that believed by the purchaser. Based on the highest classified substance present following analysis, samples controlled as Class A increased from 341 samples to 478; Class B rose from 141 to 317, and Class C from 222 to 321. Samples controlled by PSA 2016 fell slightly from 45 to 41. However, several samples were re-classified into and out of these 'controlled' groups.

24 samples remain unknown due an insufficient amount of material to analyse or were plant matter with no psychoactive properties. Many of the substances that remain uncontrolled are legislated by the Medicines Act 1968 and are prescription only medicines. Samples were submitted by criminal justice services.

Chart 8: Proportion of controlled and not controlled / legal – perceived and actual (Psychoactive Substances)



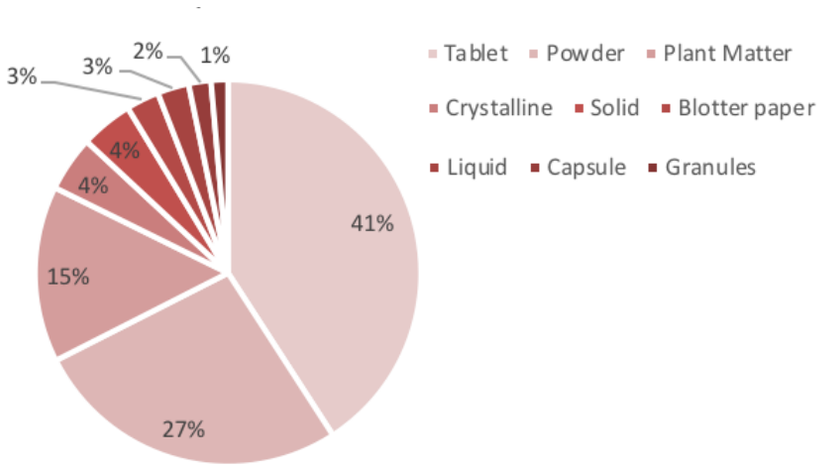
This is similar to findings from our previous annual report (Sept 2016 to Oct 2017) indicating a early continuing trend in the prevalence of prescription only medicines in **WEDINOS** samples.

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 9: Form of psychoactive samples

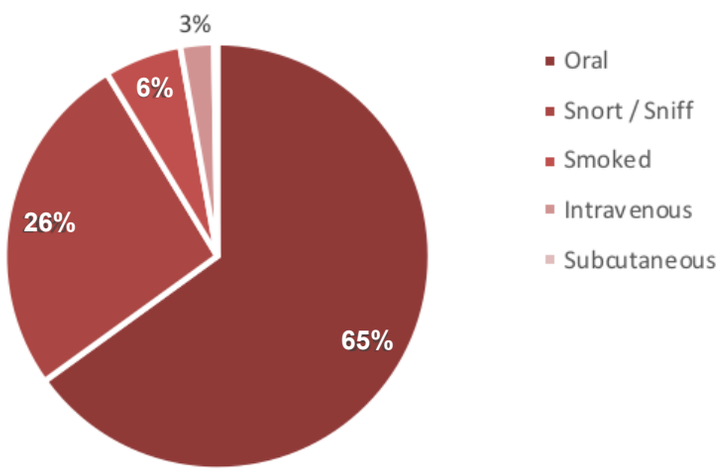


This is similar to previous years, with slight decreases in powder (33 per cent 2016/17) and plant matter (18 per cent 2016/17), the main difference between years is the emergence of blotter paper and capsule samples submitted in this reporting period.

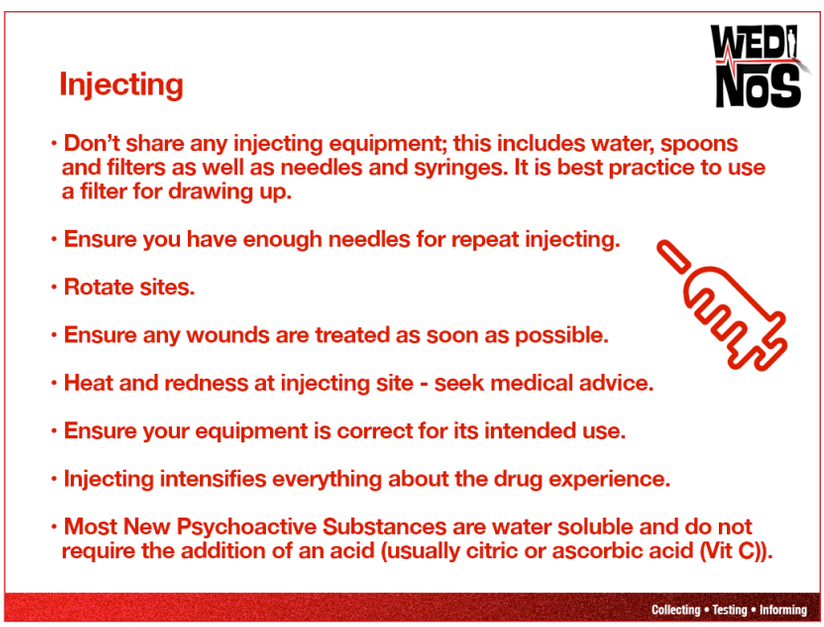
Method of consumption and Harm Reduction advice

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, 65 per cent was oral consumption (swallowing, bombing) followed by snort / sniff at 26 per cent, as shown in Chart 10.

Chart 10: Method of consumption and Harm Reduction Advice



Three 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, one sample contained N-ethyl hexedrone and camfetamine (purchased as Mephedrone in Leeds), another contained caffeine (purchased as amphetamine in the Vale of Glamorgan).

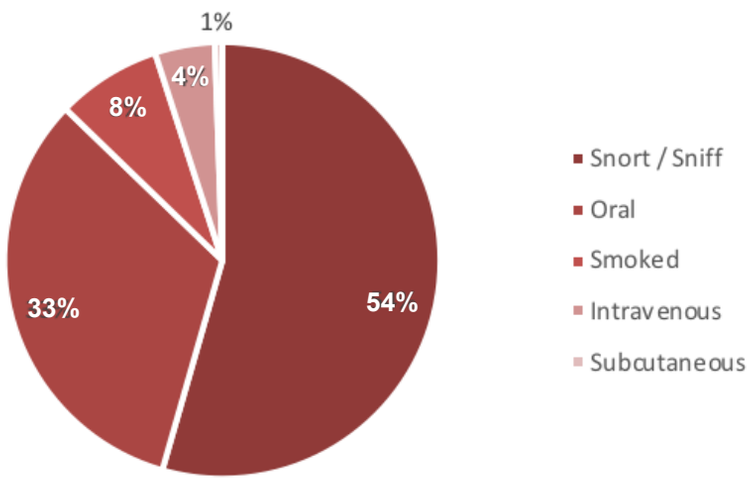


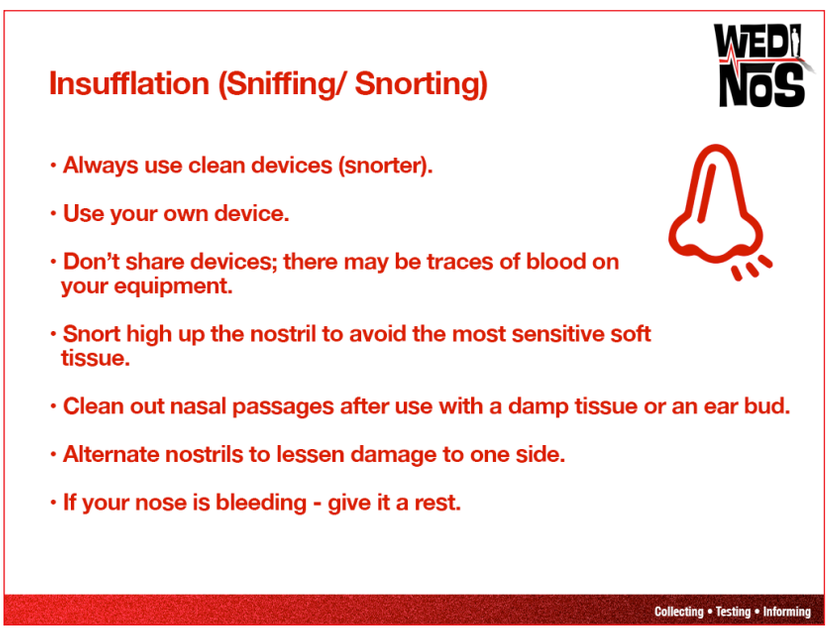
For further harm reduction information please visit:
http://www.wedinos.org/harm_reduction_advice.html

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.

Focusing on the method of use for powders and crystalline materials, the most common method of consumption was snorting/sniffing with 54 per cent reporting this as shown in chart 11. 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 precense of nasal passage damage and blood. As previously mentioned any injection of substances is of concern and carries a risk of introducing bacteriaor infection into the body, the subcutaneous injection is in relation to an amphetamine sample submitted from Carmarthenshire.

Chart 11: Method of Consumption - Powders





The Future

WEDINOS has been hugely successful with over 8,100 samples received from a diverse range of individuals, services and organisations from across Wales and the wider UK; and the project continues to be met with enthusiasm, proactive engagement and support.

Over the past year **WEDINOS** has been pleased to provide input to many regional, national and international harm reduction, health, toxicology and criminal justice conferences; as well as being featured in national media on several outlets including press, radio and television. This has enabled the project team to continue to raise awareness of the service provided and also to gain valuable experience and learnings to help to develop **WEDINOS** further in a way that responds to the needs of the individuals using the service.

As has been alluded to within this and previous reports; over recent years there has been an increase in the potency and dosage of street / consumer level substances. With the upgraded and increased analytical options, **WEDINOS** will have increased capacity to conduct specific projects to investigate and evidence potency, dosage level and trends over time. Whilst maintain the day to day analytical reporting of a substances content via the website will not change.

WEDI NOS

GIG CYMRU NHS WALES
Iechyd Cyhoeddus Cymru
Public Health Wales

Llywodraeth Cymru
Welsh Government

Harm Reduction Wales
Lleihau Niwed Cymru