



Home Office

Report on the Home Office Forensic Early Warning System (FEWS) – 2015/16

A system to identify New Psychoactive Substances (NPS) in the UK

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1. Executive summary

The Home Office Forensic Early Warning System (FEWS) was set up in 2011 in response to the emergence of new psychoactive substances (NPS). NPS are mainly synthetic drugs manufactured in a laboratory or factory (chiefly based overseas) and are used in the UK, Europe and the rest of the world. Over 500 NPS are controlled under the Misuse of Drugs Act 1971 (MDA) but there are many more that are not controlled.

During 2015/16 FEWS:

- obtained and analysed 2,386 samples from six FEWS collection plans including attending one UK music festival with an on-site laboratory.
- provided support for the Advisory Council on the Misuse of Drugs' (ACMD) ongoing monitoring of NPS; and
- supported decisions relating to the Psychoactive Substances Act 2016.

FEWS collected samples from the internet, head shops¹, a music festival, prisons and through police forces, to identify NPS which are present in the UK or being offered for sale in the UK. The key aim of the collection plans was to collect information on NPS that are being seen in a cross-section of different environments.

Key findings

During 2015/16, out of 2,386 samples seen under FEWS, 1,429 samples contained at least one NPS and of these, 489 samples contained an NPS that was controlled under the MDA at the time of seizure², while 940 samples contained an NPS which was not controlled. A total of 91 different NPS were detected in the samples collected, 44 (48%) of which were already controlled and 47 (52%) were not controlled under the MDA. Of the uncontrolled NPS detected, there were 15³ new compounds which have not been previously encountered in the UK⁴, including alpha-TMT, a tryptamine compound which was also new to the EU at the time of identification⁵.

Of the samples analysed that contained NPS, 35% have been identified as mixtures of two or more substances. Several samples contained four substances. Products with the same brand name such as *Sensate*, *XXX Extreme*, *Berry Bomb*, *Sirus* and *Ching* have also been observed to contain different substances or combination of different substances.

The majority of the NPS encountered across the collection plans were not controlled under the MDA at the time of seizure. For example, 2% of samples obtained from prisons contained an NPS which is controlled under the MDA. Although a low proportion of NPS

¹ A head shop is a commercial retail outlet specialising in the sale or supply of NPS together with equipment, paraphernalia or literature related to the growing, production or consumption of cannabis other drugs.

² This report refers to the control status of the substance under the Misuse of Drugs Act 1971 when it was identified under the FEWS collection plan, aside from the chapter on Government action, which details the current status of control and Government action against substances.

³ Fladrafinil (aka CRL-40941), 4-MPH, 4F- α -PVP, 4-chloro-*N,N*-Dimethylcathinone, 5-APB-NBOMe, 5-MeO-DiBF, α -PHP (α -pyrrol'dinohexanophenone), α -PVT, α -TMT AMB-FUBINACA, MDMB-CHM CZCA, meclonazepam, metizolam, nifoxipam and TH-PVP.

⁴ There were other NPS new to the FEWS project, however these have previously been reported in the UK.

⁵ The compound was identified by Nuclear Magnetic Resonance (NMR) and Liquid Chromatography –Mass Spectrometry (LC-MS) under FEWS. It was initially submitted for analysis as part of police casework.

were seen at the music festival collection plan (16 compounds), the majority of the NPS detected in this particular collection plan were already controlled under MDA.

2. Background to FEWS

This is the fifth annual FEWS report since the programme was set up by the Government in 2011. The objectives of FEWS are to:

- bring together expertise from operational forensic laboratories, chemical standard suppliers and law enforcement agencies;
- analyse samples from a range of collection plans which continue to be reported both to the Home Office and Advisory Council on the Misuse of Drugs (ACMD)
- inform and support decisions relating to the MDA and Psychoactive Substances Act 2016.

This report describes activities undertaken under FEWS, and provides analysis of results of samples tested under FEWS in 2015/16.

The report also highlights: key learning points from the results; key messages on the harms and risks associated with the use of NPS; Government action against NPS; and details of FEWS activity planned for 2015/16.

Previous FEWS annual reports are available at:

<https://www.gov.uk/government/publications/forensic-early-warning-system-fews-annual-report>

3. Analysis and findings⁶

The collection plans carried out vary in some aspects each year and are often targeted at different elements of the NPS market depending on ongoing priorities. This makes it difficult to directly compare data and trends from the different collection plans or across different years. The collection method also differs from collection plans and as a result, the proportion of controlled NPS detected in each collection plan varies due to the different method and aims – for example the online collection plan specifically targets NPS, whereas at festivals, NPS cannot specifically be targeted as the samples come from what is submitted to amnesty bins by festival attendees (who are more likely to give up controlled drugs to amnesty bins to avoid police prosecution).

Throughout this report, two different types of figures are referred to in the results - the first is the number of samples in the collection plan which contained a drug or NPS, the second is the number of drug occurrences. The total number of drug occurrences is often greater than the number of samples, because a number of samples contained more than one drug⁷.

Collection Plans

FEWS carried out six targeted collection plans during 2015/16, working with different law enforcement agencies across the UK to collect suspected NPS samples for analysis⁸. Samples were collected from:

- A music festival's amnesty bins and urine analysis from portable lavatories
- An online test purchasing exercise
- Head shops
- Prisons
- Police seizures⁹
- Night-time economy (nightclub and entertainment venues).

Music Festival Collection Plan

CAST attended one music festival in 2015/16 and set up a laboratory for sample analysis on-site. Samples were collected from amnesty bins in collaboration with the police force policing the festival. In summary:

- a total of 497 samples were analysed
- 42 (9%) of the samples analysed contained NPS
- 16 unique NPS were identified
- all of the NPS identified were already controlled under the MDA at the time of seizure, apart from methiopropamine (MPA) which subsequently became subject to a Temporary Class Drug Order (TCDO)¹⁰.

⁶ Percentages have been rounded to the nearest whole number and may not add up to 100.

⁷ As an example if 5 samples are analysed and they all contain 2 drugs each, then the total number of samples is 5, but the total drug occurrences will be 10.

⁸ The majority of the analyses were carried out by forensic laboratories within the FEWS-NPS network.

⁹ This involved submissions of drug samples and/or data of NPS samples seized in both possession and supply cases which had been analysed by participating forces.

MDMA and cocaine were the most commonly encountered drugs, with 52% and 26% of the total occurrences.

A pooled urine collection and analysis was also commissioned at the festival to investigate whether there were any differences between NPS detected in the urine samples and those encountered in amnesty bin samples. A total of 21 unique NPS were detected in the urine samples, including nine NPS which were also identified among the amnesty bin samples. The majority of the NPS detected were stimulant-type drugs which are controlled under the MDA 1971.

Online Collection Plan

An online purchasing exercise that focussed on identifying emerging NPS was carried out. The main objective of the test purchase was to investigate which NPS were available online for purchase in the UK. Synthetic cannabinoids were excluded from this exercise as this group of substances had been targeted in a test purchase undertaken in January 2015. A total of 96 samples were successfully delivered and analysed. Of these:

- 88 samples were found to contain at least one NPS compound (with 6% and 94% samples containing controlled and uncontrolled NPS respectively)
- 50% were branded products
- 54% were delivered as powder, followed by tablets (30%), the remaining 16% were capsules and blotters including one herbal material
- 79% contained one NPS, while 15% contained two or three substances.

One sample which was advertised as powder in a brand named '*Happy Rasta*' was delivered as herbal material and contained 5F-AKB48, a synthetic cannabinoid. A second packet with the same brand name, but bought from a different website, contained ethylphenidate, although it was advertised as MPA on the website.

A total of 32 unique NPS were identified. These include four NPS which were controlled under the MDA at the time of purchase. MPA, which was placed under TCDO in November 2015¹¹ was the most prevalent NPS encountered, followed by 3-fluorophenmetrazine (3-FPM). A total of 11 different uncontrolled benzodiazepine compounds were identified.

Four of the NPS detected in the test purchase were new to both FEWS and the UK. It should be noted that this was a targeted collection plan to investigate the types of NPS which are available to buy from UK websites. Therefore, the substances identified in this collection plan were not necessarily widely available at street level in the UK at the time of the test purchase.

¹⁰Methiopropamine (MPA) was placed under TCDO in November 2015 and has been extended until November 2017

¹¹The TCDO was introduced one month after the test purchase.

Head Shop Collection Plan

Trading Standards and Police Forces across the UK carried out bespoke operations for the FEWS collection plan and also shared results of samples that they had already collected on operations in 2015/16. Of the 398 samples analysed:

- 38 unique NPS were identified, including
 - 21 stimulant-type drugs (7 controlled and 14 uncontrolled)
 - 17 different synthetic cannabinoid compounds
- 66% contained synthetic cannabinoids
- 5F-AKB48 and 5F-PB22 together accounted for 85% of the total occurrences of synthetic cannabinoids
- 5 of the NPS encountered were new to the UK, all of which were uncontrolled in the UK at the time of seizure.

Prison Collection Plan

FEWS worked with NOMS, Avon and Somerset Police and Police Scotland to collect and analyse samples suspected to contain NPS¹², from 20 prisons across the UK. Of the 386 samples submitted, 260 were found to contain NPS. The results included:

- 99% of the occurrences of NPS were synthetic cannabinoids, with the main substances being 5F-AKB48, MDMB-CHMICA and 5F-PB22
- 47% of the samples analysed contained mixtures of NPS, with a small number containing five different compounds

Most of the samples were unbranded, and although there were a small number of branded products, these were not sufficient to undertake comparisons between brands.

A total of 20 different synthetic cannabinoid compounds were detected in this collection plan, some of which were not detected in the previous year. Synthetic cannabinoids are often referred to as 'Spice' in prisons; this suggests just one drug/substance and does not convey the variation seen in this group of compounds. The use of the term 'Spice' may therefore be unhelpful when considering the detection, response and treatment in prisons.

Police Seizures

A number of police forces across the UK submitted samples suspected of containing NPS¹³, and also shared data of NPS samples from casework. A total of 731 analyses were presented for FEWS and of these, 374 were found to contain controlled NPS and 249 contained non-controlled NPS. The summary of the results obtained are as follows:

- 27 unique class A-C drugs and 2 substances which were under a TCDO, with cathinone derivatives (Class B) being the most prevalent.
- 28 unique non-controlled NPS, including:

¹²FEWS only requested suspected NPS samples to be submitted, where possible traditional drugs of abuse such as cocaine, heroin, etc were filtered out.

¹³Forces were asked to only submit samples which had been edit tested to eliminate MDMA, cocaine, amphetamine etc.

- 12 synthetic cannabinoids, of which 5F-AKB48, 5F-PB-22 and MDMB-CHMICA were the most prevalent
- 8 benzodiazepines
- Other NPS detected which were not controlled under the MDA were 2-AI, 3F-phenmetrazine, methamnetamine, mexedrone, methoxypiparamide and MPA (currently under TCDO, but not controlled at the time of seizure)
- 6 of the NPS identified were new to the UK, including α -TMT, a Class A tryptamine which was also new to EU at the time of seizure¹⁴.

Night-time Economy

A collection plan was undertaken to identify whether NPS were routinely being encountered in samples seized/confiscated at night-time economy venues such as nightclubs and event venues, which conduct searches as a condition of entry. From 278 samples analysed:

- the majority were found to contain traditional drugs such as MDMA and cocaine
- 18 different NPS were identified in 36 (13%) samples
- cathinone derivatives (stimulants) accounted for 50% of the NPS detected
- chloromethylcathinone (CMC), methylethcathinone and mephedrone (4-MMC) were the most prevalent NPS detected.

Two synthetic cannabinoids, ADB-CHMICA and MDMB-CHMICA, were also reported, and both compounds were detected as mixtures in two samples containing herbal materials. There were some similarities with the data obtained through the police seizure collection plan in that the majority of NPS detected were stimulant-type drugs, and these were mainly cathinone derivatives.

FEWS identified 15 new NPS in 2015/16, which is up from the four new NPS seen the previous year. Five of these new substances were identified from the 'head shop' collection plan, during which a total of 400 samples were submitted and analysed, four were identified through online test purchase and six through police seizure collection plan. The unknown police samples were initially part of casework submissions; however, the compounds could not be identified through conventional analysis, and were submitted to FEWS for further analysis. Some of the new compounds were found as mixtures with other controlled or uncontrolled NPS.

¹⁴The collection plan is the first time α -TMT has been reported to EMCDDA and added to the EDND database.

Trends Across Collection Plan Data

The tables and graphs below outline the trend in the types of NPS which have been identified through the FEWS project which were new to the UK and sources of the samples containing NPS since 2011/12.

Table 1 describes the types of NPS compounds which have been seen for the first time in the UK through the FEWS collection plans, while table 2 outlines the controlled status of these new compounds. Compounds which did not fit into any of the main chemical groups were classified as 'others' as directed by EMCDDA¹⁵ grouping methods.

At the start of the FEWS project in 2011/12, 17 NPS compounds were identified as being new to the UK. This number gradually decreased after this until 2015/16, when 15 new NPS were identified as new to the UK.

The number of new NPS seen through the collection plans could be as a result of emerging trends across Europe, introduction of new legislation and control status from source countries.

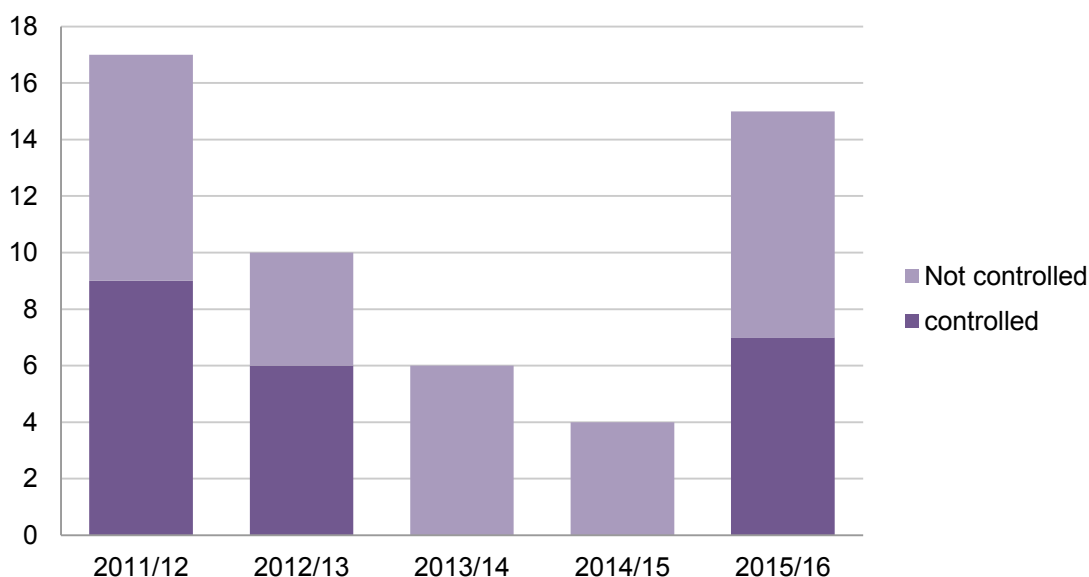
Table 1: Groups of new NPS identified through FEWS 2011/12 to 2015/16

Chemical group	2011/12	2012/13	2013/14	2014/15	2015/16	Total number of new substances identified through FEWS since 2011
Arylakylamine	0	0	0	0	1	1
Benzodiazepines	0	0	0	0	3	3
Cathinones	1	2	0	0	5	8
Opioids	0	0	0	0	0	0
Others	5	4	2	0	3	14
Phenethylamines	2	1	0	0	0	3
Synthetic Cannabinoids	5	3	2	4	2	16
Tryptamines	4	0	0	0	1	5
Total	17	10	4	4	15	50

The types and control status of the substances encountered varies from collection plans as illustrated in **Table 1 and Figure 1** below. This is mainly due to the different collection methods employed. The online collection plan specifically targeted NPS, whereas for music festival and night-time economy samples, NPS cannot be targeted as the samples analysed were those surrendered into amnesty bins by attendees. Traditional drugs were intentionally avoided in the police seizure and prison collection plans, while head shop proprietors were more likely to openly display and sell substances which are perceived to be uncontrolled under the MDA to evade prosecution, albeit a number of such compounds were found to contain mixtures of control and uncontrolled NPS.

¹⁵ European Monitoring Centre for Drug and Drug Addiction.

Figure 1: The number and classification of new NPS identified in the UK through FEWS



At the beginning of the FEWS project, the new NPS identified were 53% controlled and 47% non-controlled. This trend changed in 2013/14 and 2014/15 where all the new NPS identified were not controlled under the MDA, however, in 2015/16 these were 47% controlled and 53% non-controlled (see **Table 2**).

Table 2: The number of NPS, controlled and non-controlled under the MDA, encountered for the first time in the UK through the different collection plans between 2011/12 to 2015/16

Chemical group	2011/12		2012/13		2013/14		2014/15		2015/16		Total number of new substances identified through FEWS since 2011	
	Controlled	Non-controlled	Controlled	Non-controlled	Controlled	Non-controlled	Controlled	Non-controlled	Controlled	Non-controlled	Controlled	Non-controlled
Internet	4	4	3	0	0	4	0	4	2	2	9	14
Head shops	0	0	0	0	0	1 ^a	0	0	0	5	0	5
Festivals	0	1	0	0	0	0	0	0	0	0	0	1
Police non-casework	5	3	0	0	0	0	0	0	5	1	10	4
Border Force samples	0	0	3	4	0	1 ^a	0	0	0	0	3	4
Total per year	9	8	6	4	0	4 ¹⁶	0	4	7	8	22	28

¹⁶ The NPS seen in head shops and Border Force which were also seen in the internet collection plan. Therefore, the total number of new compounds seen in 2013/14 was four.

^a Not included in total figure as the compound was also encountered in the on-line collection plan.

Table 3: The number of *times substances* (controlled and non-controlled drugs under the MDA, including NPS), encountered by FEWS were reported through each of the collection plans

Collection Source	Number of samples	Controlled Drugs (Traditional)			New Psychoactive Substances	
		Class A	Class B	Class C	Controlled	Non controlled
Internet	96	0	0	0	5	101
Head Shops	398	0	0	0	36	553
Festivals	497	379	32	3	47	1
Police	731	0	12	55	404	386
Prisons	386	8	39	31	6	426
Night-time Economy	278	202	31	3	33	13

4. Action taken by Government to tackle NPS

In July 2017 (after the period covered by this report) the Government published a new Drug Strategy which sets out a range of action to prevent the harms that drugs cause. This includes educating young people about the risks, helping dependent people through treatment and recovery support, and supporting law enforcement to tackle the illicit trade. Our Strategy sets out universal action that helps to build resilience and support health and wellbeing among all young people as well as targeted preventative action for groups at particular risk of drug misuse, including the homeless, the families of drug users, and young people with a range of vulnerabilities.

FEWS forms part of the Government's wider action to tackle the issue of NPS, which includes the Psychoactive Substances Act 2016, the UK-wide Drugs Early Warning System, the NPS Expert Panel Review, and the introduction of Temporary Class Drug Orders (TCDO) under the MDA¹⁷.

Alongside the Government's comprehensive domestic response, we are delivering targeted international action to develop a sustainable international scheduling system focused on the most prevalent, persistent and harmful NPS and action to enhance international law enforcement cooperation.

Legislation

So far, the Government has controlled over 500 NPS, including through group or generic definitions, as well as some substances that have not been seen in the UK, following assessment of their harms under the MDA. Hence, some of the drugs advertised for sale as NPS are already controlled or 'illegal' under the MDA.

The Psychoactive Substances Act 2016, which received Royal Assent in January 2016, creates a blanket ban on the supply of psychoactive substances for human consumption. Given the serious risks and unpredictable effects of these substances, the Government's view is that it is unacceptable that these drugs have been readily available and openly sold in our communities. The Act commenced in May 2016 and is intended to end the game of cat and mouse between producers/suppliers of NPS and the UK Government.

For NPS with harms that warrant a possession offence or higher penalties, the temporary and permanent controls provided by the MDA will continue to be necessary, and the ACMD will continue to assess the harms of individual NPS as required and advise their control under the MDA where appropriate.

As such, the Government took action and temporarily controlled several NPS over the period covered by this report, supported by FEWS evidence. On 27 June 2015, the Government implemented a Temporary Class Drug Order which covered seven methylphenidate-based compounds and specified derivatives. The majority of these

¹⁷ The Misuse of Drugs Act 1971 ("the 1971 Act") controls drugs that are "dangerous or otherwise harmful" primarily under a three-tier system of classification (A, B and C) which provides a framework within which criminal penalties are set with reference to the harm a drug has or is capable of having when misused and the type of illegal activity undertaken in regard to that drug.

substances and products were made the subject of temporary control by the Misuse of Drugs Act 1971 (Temporary Class Drug) Order 2015 .

Prevention, Treatment and Information Sharing

The Government is clear that we need a balanced response to tackling drug misuse which includes action to reduce demand and build recovery. Reducing drug misuse is a key part of our evidence-based Drug Strategy and our approach recognises that to resist drug use young people and others need support to build resilience and life skills to tackle the range of factors that can make people vulnerable to misusing drugs. Our approach combines universal action with targeted action for those most at risk or already misusing drugs. This includes supporting investment in evidence-based programmes, which have a positive impact on young people and adults, giving them the confidence, resilience and risk management skills to resist drug use. For example, further to the action set out in the 2015 FEWS Annual Report, the Government has:

- refreshed its NPS Resource Pack for informal educators and frontline practitioners (created in partnership with key partners) to prevent drug taking among young people by challenging their behaviour and being clear about the risks and harms involved. This information has also been updated in line with the Psychoactive Substances Act 2016;
- published a Public Health England (PHE) toolkit (Jan 2016) in response to increasing use of NPS in prisons. The toolkit is designed for prison staff and provides information on the effects of various NPS and how to manage the problems they cause in prison.
- published new guidance to support those who commission and deliver services for men who have sex with men (MSM) involved in chemsex. The briefing includes information on prevalence and guidance for local teams in recognising and engaging with clients.
- A further resource is Public Health England's toolkit for substance misuse commissioners which helps local authorities and NHS England to respond to NPS use and problems in their areas.

Effective intervention and treatment is at the heart of the Drug Strategy and is essential in supporting individuals to overcome their drug misuse. We have focused our efforts on empowering local areas to provide services that meet the needs of the local population and develop a holistic approach that goes beyond the treatment system to include other essential factors to support recovery, such as access to stable housing and employment. High quality treatment is fundamental to helping people recover from their dependency. We have a well-embedded and comprehensive drug treatment system and within this there is a range of services responding to the challenges and harms posed by NPS. Action includes:

- Project NEPTUNE (a multi-disciplinary group of experts, funded by the Health Foundation), which published the first set of evidenced-based clinical guidelines to treat NPS, is now developing online learning and clinical tools, as well as exploring how the guidance might be adapted for staff working in non-medical settings.

- PHE is developing a NPS intelligence system, which aims to reduce the length of time between drug-related health harm emerging and effective treatment responses to these harms. There are two key components of this work:
 - Piloting a new system (IDRRIS - Illicit Drugs Reaction Reporting & Information System) to collect information about adverse reactions and harms caused by NPS and other drug use
 - Establishing an NPS clinical network of leading clinicians and experts to analyse the data coming from IDRRIS and other existing drugs intelligence systems, to identify patterns and harms, and agree appropriate clinical responses to NPS problems.

Enforcement

The police and local authorities have been using the new powers under the Anti-Social Behaviour, Crime and Police Act 2014 to issue Community Protection Notices, Public Space Protection Orders and Closure Notices and updated [guidance](#) was issued in March 2015 which gave many examples of the effective use of these powers to prevent head shops selling NPS, close them down or stop people from possessing NPS.

International actions on NPS

In 2015-2016 the EMCDDA published risk assessment reports on [4,4'-DMAR](#) and [MT-45](#), which were both subsequently controlled at EU level. Both of these were already controlled under the MDA.

In 2015-2016 the World Health Organisation reviewed nine NPS, and following a decision at the 2016 UN Commission on Narcotic Drugs the international community controlled eight NPS – MT-45, acetylfentanyl, α -PVP, 4-FA, 4,4'-DMAR, PMMA, phenazepam and methoxetamine - under the 1961 or 1971 UN drug conventions. All NPS which were controlled at international level were already controlled under the MDA following advice from the ACMD.

4. Looking Forward

- The 2016 Psychoactive Substances Act, which came into effect on 26 May, fundamentally changes the way we tackle new psychoactive substances – as this landmark legislation bans the sale, supply, production and distribution of psychoactive substances for human consumption and gives police and local authorities greater powers to tackle the reckless trade.
- Nearly 500 people have been arrested since the Government's landmark Psychoactive Substances Act came into force. Police are also continuing to tackle retailers. Since 26 May 2016, when the Act came into force, over 300 retailers across the UK have either closed down or are no longer selling psychoactive substances; police have arrested suppliers and action taken by the National Crime Agency has resulted in the removal of psychoactive substances being sold by UK based websites.
- The FEWS project has continued into 2017 and 2018. Due to the effect of the Psychoactive Substances Act 2016, collection plans have been adapted and alternative avenues found to monitor use of NPS across different sectors. FEWS has continued to work with enforcement agencies and forensic service providers and provide information to support the Home Office, the Advisory Council for the Misuse of Drugs and wider government.



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