



Home Office

Annual Report on the Home Office Forensic Early Warning System (FEWS) - 2016/17

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

November 2018

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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. A number of NPS are controlled under the Misuse of Drugs Act 1971 (MDA) but many continue to emerge. The Psychoactive Substances Act (PSA), which bans the production and supply of psychoactive substances, was enacted in May 2016.

FEWS collected samples from Border Force locations, prison establishments, police forces and attended one music festival, in order to identify NPS which are present 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.

The role of the FEWS project is not to provide an overview of the entire illicit drug market in the UK. The project is design to gather intelligence on the type of NPS encountered in the UK, therefore sample collections are focused solely on NPS. Information on the trends and availability of traditional drugs of abuse is outside the scope of the project.

During 2016/17, the FEWS project:

- Obtained and analysed 1,074 suspected NPS samples as part of the FEWS collection plan activities. A further 1,185 NPS results from normal police casework analysis were made available to the FEWS project as part of the police seizures collection plan;
- Provided support to the Advisory Council on the Misuse of Drugs (ACMD) through the ongoing monitoring of NPS;
- Worked with police forces, forensic service providers and ACMD to identify compounds for in-vitro psychoactive testing, and
- Conducted proactive testing of NPS in support of the Psychoactive Substances Act 2016.

Key findings

Of 2,259 samples seen under FEWS, 1,292 (57%) samples contained at least one NPS and of these:

- 420 samples contained an NPS which was controlled under the MDA at the time of seizure
- 872 samples contained an NPS which was not controlled under the MDA at the time of seizure
- 103¹ different NPS were encountered, 52% of these were controlled, while 48% were not controlled under the MDA at the time of seizure^{2,3}

¹ Including ibogaine (12-methoxyibogaine) an hallucinogenic substance from plant origin

²This figure includes 11 different synthetic cannabinoid compounds which were identified in samples seized after the 3rd Generation synthetic cannabinoid legislation came into effect on 14 December 2016

- Synthetic cannabinoids were the most prevalent group of NPS encountered
- 17 of the NPS encountered were new to the UK at the time of seizure, and the total number of compounds identified through FEWS since 2011 is now 67
- 35% of the samples analysed contained a mixture of two or more substances

The majority of the samples which were submitted and analysed were unbranded, however several branded products seen as part of the police seizure collections were observed to contain different substances or a combination of different substances. These included names such as *Cherry Bomb*, *Exodus*, *Rockets* and *Vertex*.

³ 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

2. Background to FEWS

This is the sixth 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 the 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 during 2016/17. NPS are defined in this report as novel drug compounds which have been synthesised for potential use by people seeking intoxication. This includes a number of psychoactive compounds which have subsequently been controlled under the Misuse of Drugs Act 1971, either as a named compound or under generic definitions.

The collection plans are designed to gather intelligence and obtain snapshots of the NPS compounds being encountered across the UK in specific arenas. Some of the collection plans were designed to focus on a specific group of compounds or elements of the NPS market in response to ongoing legislative priorities, while others were designed to capture a broad range of NPS compounds/groups. The project does not analyse samples that are sent in unsolicited.

FEWS worked with a range of partners across the UK, including police forces, UK Border Force, National Offender Management Service (NOMS), Scottish Prison Service (SPS), forensic service providers,⁴ and third-party suppliers to ensure the success of the collection plans. The information gathered through these collection plans was shared with the ACMD and other partners. The European Monitoring Centre for Drugs and Drug Additions (EMCDDA) were notified of new substances via the UK Focal Points' Early Warning System team.

This report highlights key learning points from the results of the collection plan, key messages on the harms and risks associated with the use of NPS, Government action against NPS and details of FEWS activity planned for 2017/18.

Previous FEWS annual reports are available at:

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

⁴ The FEWS project engaged with forensic service providers contracted by police to undertake analysis of normal casework samples.

3. Analysis and findings⁵

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, 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 the samples contained more than one drug⁶.

Collection Plans

The collection plans varied in some way each year and are often targeted at different elements of the NPS market depending upon ongoing priorities. This makes it difficult to directly compare data and trends from the different collection plans or across different years. The proportion of controlled NPS detected in each collection plan also varies due to the different methods and aims of each sample collection.

FEWS worked with different law enforcement agencies across the UK to collect suspected NPS samples for analysis. Samples were collected from:

- A music festival
- Border Force parcel hub locations
- Police seizures⁷
- Prisons

Music Festival Collection Plan

The Home Office Centre for Applied Science and Technology (CAST) attended one music festival in 2016 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 601 samples were analysed
- 19 (3%) of the samples analysed contained NPS
- 11 different NPS were identified, nine of which were controlled under the MDA at the time of seizure
- Two of the NPS identified (4-CEC8 and ephylone also known as ethylpentylone) were new to the UK at the time of seizure
- MDMA and cocaine were the most commonly encountered drugs, with 50% and 26% of the total occurrences respectively

⁵ Percentages have been rounded to the nearest whole number, and may not sum to 100

⁶ 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

⁷ 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

⁸ First reported seizure from a person in the UK.

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.

From the samples collected:

- 21 different NPS were detected in the urine samples, eight of these were also identified among the amnesty bin samples
- There were 17 stimulant-type and four dissociative/hallucinogen-type drugs in the urine samples
- 17 of the NPS identified were controlled under the MDA at the time of analysis
- Three of the NPS, ephylone, dimethylmethcathinone⁹ and N-ethyl-hexedrone, were new to the UK. Of these three substances, only ephylone was also detected in the amnesty bin samples.

Border Force Collection Plan

FEWS worked with UK Border Force Officials at two UK parcel hubs to collect and analyse fast parcel samples suspected of containing NPS. A total of 107 samples ranging from 2g to 14kg were seized and analysed. An additional 438 screening data relating to suspected NPS samples from two postal hub locations were made available to the FEWS project. However, this data has not been included in the summary below as the samples were not subjected to confirmatory analysis. Overall:

- 38% of the samples submitted for analysis contained an NPS
- 20 different NPS were identified in the samples submitted to FEWS, five of which were not controlled under the MDA at the time of seizure
- Two of the samples analysed were found to contain mixtures of two NPS, while 40 contained a single NPS compound
- All of the samples analysed were in powder form, including five samples which contained synthetic cannabinoid compounds.

Police Seizures

A number of police forces across the UK submitted samples suspected of containing NPS, and shared data relating to NPS samples submitted as part of normal case work. Of the 1,235 samples¹⁰ included in this collection plan:

- 82% were found to contain an NPS
- 26% of the overall samples contained an NPS controlled under the MDA and 54% contained an NPS not controlled under the MDA¹¹

⁹ Unknown isomer

¹⁰ Including the result of 1,186 NPS analysed by forces directly.

¹¹ The remaining 20% were uncontrolled non-NPS compounds including over the counter medicines and known adulterants

- 92 NPS were identified, including 46 Class A-C controlled NPS and two which were under TCDO at the time of seizure
- Over 63% of all NPS occurrences were synthetic cannabinoids
- Cathinone and synthetic cannabinoid compounds were the most prevalent (26 cathinones and 26 synthetic cannabinoids)
- 15 of the NPS identified were new to the UK at the time of seizure, including 4-fluoroisobutyrylfentanyl (4F-iBF) which was detected along with two other fentanyl derivatives.

Prison Collection Plan

FEWS worked with NOMS, Avon and Somerset Police and Police Scotland to collect and analyse non-attributable¹² samples. FEWS targeted samples which were suspected to contain an NPS, and where possible, traditional drugs of abuse were omitted prior to submission. A total of 316 samples were submitted by 20 prisons and of these:

- 220 samples contained an NPS, with:
 - 95% containing one or more synthetic cannabinoid (97% of total NPS occurrences)
 - 49% containing mixtures of more than one NPS
- 18 synthetic cannabinoids, two benzodiazepines and one cathinone were identified
- 12 of the samples containing NPS were mixed with a controlled traditional drug, such as cannabis or ketamine
- 202 (64%) of samples containing NPS were green herbal material¹³, while 15 (7%)¹⁴ were paper or card which had been soaked in or sprayed with synthetic cannabinoid compound(s)
- 5F-MDMB-PINACA and MDMB-CHMICA were the most prevalent compounds detected.

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 the sources of the samples containing NPS since 2011/12.

Table 1 and **Figure 1** show the types of NPS which have been seen for the first time in the UK through the FEWS collection plans, while Table 2 and Figure 2 outline 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 EMCDDA grouping methods.

¹² Samples which were found on the prison estates and are not attributed to an individual

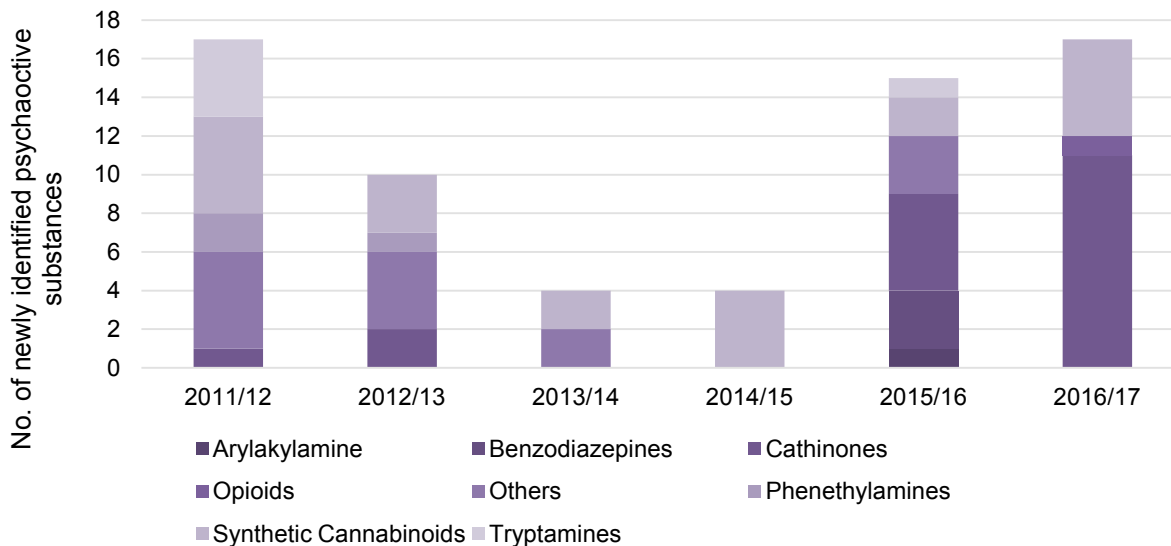
¹³ Excludes an additional 46 samples reported as brown herbal matter which contained cannabis

¹⁴ An additional 10 paper/card samples did not contain any drug compounds

Table 1: Chemical groups of newly identified psychoactive substances identified through FEWS 2011/12 to 2016/17

Chemical group	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	Total number of new substances identified through FEWS since 2011
Arylakylamine	0	0	0	0	1	0	1
Benzodiazepines	0	0	0	0	3	0	3
Cathinones	1	2	0	0	5	10	18
Opioids	0	0	0	0	0	1	1
Others	5	4	2	0	3	1	15
Phenethylamines	2	1	0	0	0	0	3
Synthetic Cannabinoids	5	3	2	4	2	5	21
Tryptamines	4	0	0	0	1	0	5
Total	17	10	4	4	15	17	67

Figure 1: Chemical groups of newly identified psychoactive substances 2011/12 to 2016/17

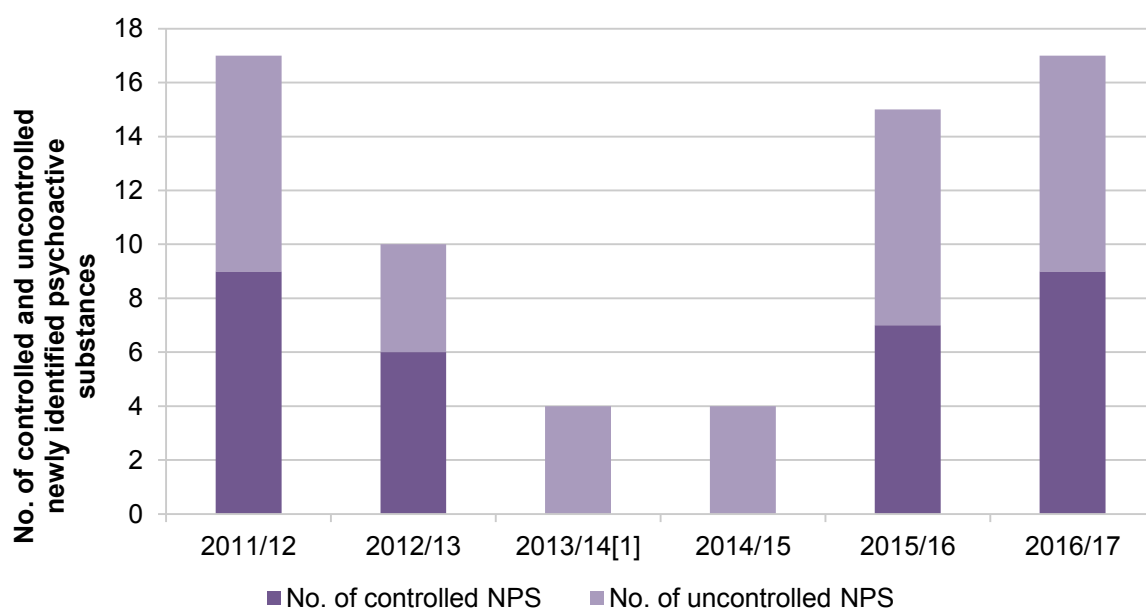


There was a slight increase in the number of newly identified psychoactive substances in the UK in 2016/17 compared with 2015/16. The newly identified psychoactive substances fall into three chemical categories; cathinones, synthetic cannabinoids and opioids. Eleven of the newly identified psychoactive substances are cathinones, and only one of these is not controlled under the MDA. All the five new synthetic cannabinoids reported in the 2016/17 collection plans were controlled as Class B in December 2016 along with other third generation synthetic cannabinoid compounds.

Table 2: The number of NPS, controlled and uncontrolled under the MDA, encountered for the first time in the UK through the different collection plans since 2011

Year	No. of controlled NPS	No. of uncontrolled NPS	Total
2011/12	9	8	17
2012/13	6	4	10
2013/14 ¹⁵	0	4	4
2014/15	0	4	4
2015/16	7	8	15
2016/17	9	8	17

Figure 2: The number and classification of newly identified psychoactive substances identified in the UK through FEWS



The main aim of the FEWS collection plans is to identify NPS being encountered across the UK, therefore where possible, traditional drugs of abuse were filtered out of the collection and only samples suspected of containing NPS were forensically analysed. However, it was not possible to target only NPS in the festival collection plan, as the samples were sourced from items that had been surrendered to amnesty bins by festival attendees.

As outlined in **Table 3** and **Figure 3**, the majority of the festival samples contained Class A-C traditional drugs of abuse, and this includes two occasions where they were mixed with an NPS. Forty-six samples obtained from the prison collection plan contained cannabis/cannabis resin and eight¹⁶ of these contained one or more synthetic cannabinoids. Ketamine was reported in four of the prison samples where it was detected in combination with synthetic cannabinoid compound in herbal smoking mixtures, one of

¹⁵ Figures from previous years have been revised and may not match those that have been previously published

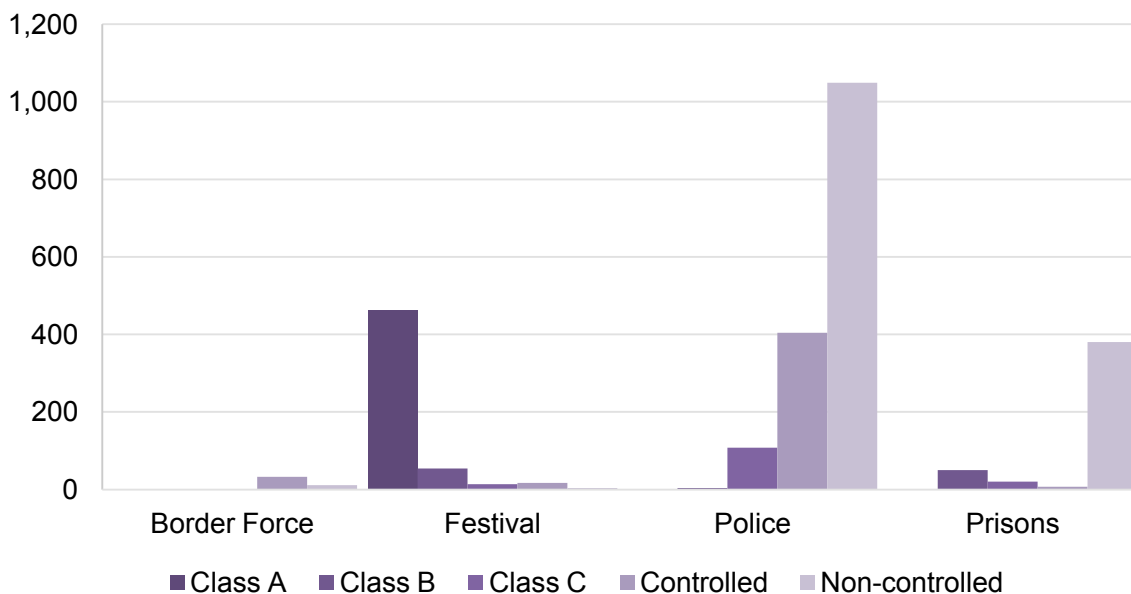
¹⁶ Detected in seven herbal smoking mixtures and one paper sample

which had three different synthetic cannabinoids. Traditional drugs of abuse were intentionally omitted from the police seizure data submitted by participating forces; however, controlled benzodiazepines were included for intelligence purposes. The NPS identified in the police seizure and prison samples were mainly synthetic cannabinoids which were not controlled under the MDA at the time of seizure.

Table 3: The number of times that substances (controlled and uncontrolled drugs under the MDA, including NPS), encountered by FEWS were reported through each of the collection plans in 2016/17

Collection Source	No. of samples	Controlled Drugs (Traditional)			New Psychoactive Substances	
		Class A	Class B	Class C	Controlled	Non-controlled
Border Force	107	0	0	0	33	11
Festival	601	463	54	14	17	4
Police	1,236	0	4	108	404	1,049
Prisons	316	0	50	20	7	380

Figure 3: The number of times controlled and uncontrolled drugs, including NPS, encountered by FEWS were reported through each of the collection plans in 2016/17



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 work 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 a number of NPS, via group or generic definitions. Hence, large numbers of the drugs perceived as so-called 'legal highs' are actually already controlled under the MDA.

Furthermore, the Psychoactive Substances Act was enacted on 26 May 2016. The Act creates a blanket ban on the production, distribution, sale and supply of psychoactive substances in the UK. The Act restricts substances which are "capable of producing a psychoactive effect in a person who consumes it, by stimulating or depressing the person's central nervous system, it affects the person's mental functioning or emotional state and is not an exempted substance". Following the introduction of this legislation, head shops which have been selling uncontrolled NPS complied with the law and on-line vendors operated from the UK also stopped offering these compounds for sale.

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. The ACMD will continue to assess the harms of individual NPS as required and advise their control under the MDA where appropriate.

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.

The Third Generation Synthetic Cannabinoid generic legislation commenced on 14th December 2016, bringing a number of synthetic cannabinoid compounds under the remit of the MDA as Class B drugs.

In June 2016, the government extended the Temporary Class Drug Order which covered seven methylphenidate-based compounds (initially introduced in June 2015) along with an additional 5 related compounds. The extension allowed the Government and the ACMD to gather sufficient evidence of medical and/or social harms to inform its deliberations for further advice. Twelve methylphenidate-based compounds were subsequently controlled as Class B substances in May 2017, alongside 16 designer benzodiazepines under Class C and the opioid U47700 under Class A. On 27 November 2017, methiopropamine (MPA) was permanently controlled as a Class B drug.

Enforcement

Since the Psychoactive Substances Act 2016 came into force, there has been a significant enforcement response. Over 300 retailers across the United Kingdom have either closed down or are no longer selling psychoactive substances; police have arrested suppliers; and action by the National Crime Agency has resulted in the removal of psychoactive substances being sold by UK based websites. In 2016, there were 28 convictions in England and Wales and seven people jailed under the new powers. This rose to 152 convictions in 2017 with 62 people immediately sent to custody.

Prevention, Treatment, and Information Sharing

The Government has taken a range of actions to reduce harms from the continuing evolution of these substances including the development of local toolkits, a refreshed resource pack for educators, and world-leading NPS treatment guidelines.

In addition, PHE has developed a NPS intelligence system, which aims to reduce the length of time between drug-related health harms emerging and effective treatment responses to these harms. There are two key components of this work:

- piloting a new system (RIDR - Report Illicit Drug Reactions) to collect information about adverse reactions and harms caused by NPS and other drug use; and
- establishing a NPS clinical network of leading clinicians and experts to analyse the data coming from RIDR and other existing drugs intelligence systems, to identify patterns and harms, and agree appropriate clinical responses to NPS problems.

NHS England has carried out an extensive review of its specification for substance misuse treatment in prisons and consequently increased the focus of provision on NPS.

International actions on NPS

The 2017 Commission on Narcotic Drugs agreed to schedule the following NPS under international conventions, following World Health Organisation advice: U-47700, butyrfentanyl 4-MEC (4-methylethcathinone), ethylone, pentedrone, ethylphenidate, MPA (methiopropamine), MDMB-CHMICA, 5F-APINACA (5F-AKB-48) and XLR-11. All of these substances are controlled in the UK under the Misuse of Drugs Act 1971.

Furthermore, the Commission agreed to include the fentanyl precursors 4-anilino-N-phenethylpiperidine (ANPP) and N-phenethyl-4-piperidone (NPP) in the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988.

5. Looking Forward

The FEWS project has continued into 2017 and 2018, building on its previous work to support the implementation of the PSA. This will be achieved through its testing programme to support the enforcement of the Act and through its collection plans and work with forensic service providers to monitor and identify emerging new substances of harm. The project will also continue to provide information to support the Home Office Advisory Council on the Misuse of Drugs and wider government.



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