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## SYNTHETIC DRUGS AND NEW PSYCHOACTIVE SUBSTANCES – BUENOS AIRES, 16<sup>TH</sup> MAY 2017

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EMCDDA · CICAD /OAS · PAHO / WHO · AIAMP · IDPC · RIOD

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- *Drugs and synthetic drugs, problem contextualization*
- *Amphetamine-Type Stimulants (ATS): Global and regional situation*
- *New Psychoactive Substances (NPS): Global and regional situation*
- **Early Warning Systems (EWS) on NPS**
- **Legislation on NPS**
- **Precursors for production of synthetic drugs/NPS**
- **Synthetic drugs and NPS – Future challenges**

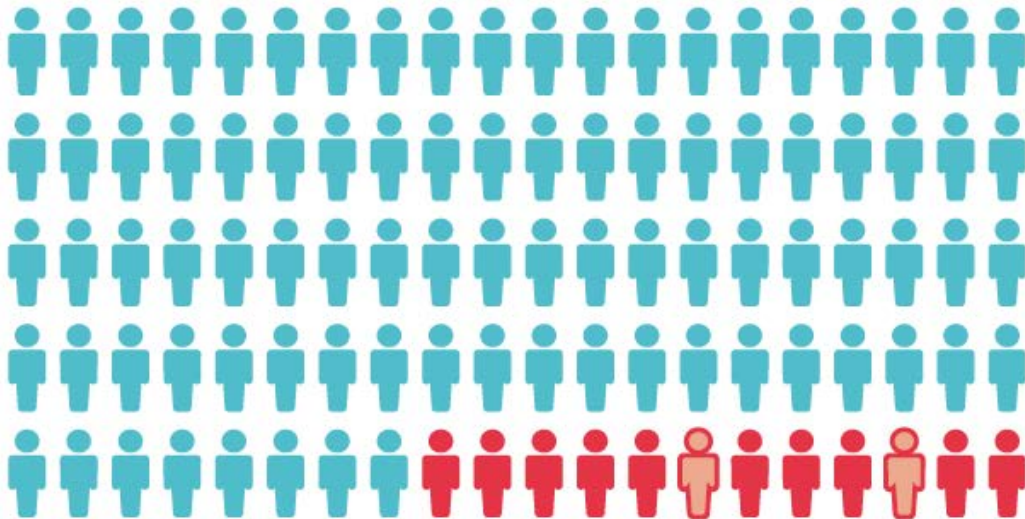




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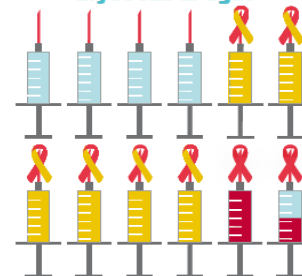
- 247 million people used any drugs at least once in 2014.
- 29.5 million people were users with drug related problems.
- 5.2% was the last year prevalence of use.  
(5.2% of 15-64 years old population used any drugs at least once during last year)

247 millones de personas consumieron drogas en el año anterior



29 millones padecen trastornos relacionados con las drogas, pero solo 1 de cada 6 personas reciben tratamiento

12 millones de personas se inyectan drogas



1,6 millones de las personas que se inyectan drogas viven con el VIH

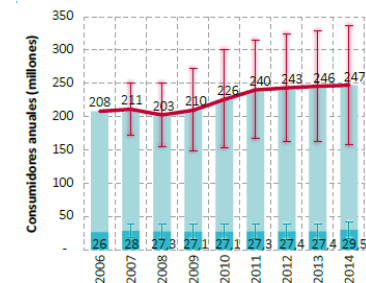
6 millones viven con la hepatitis C

Tendencias mundiales de la prevalencia estimada del consumo de drogas, 2006-2014



■ Prevalencia de personas que consumen drogas (porcentaje)  
■ Prevalencia de personas con problemas relacionados con el consumo de drogas (porcentaje)

Tendencias mundiales del número estimado de personas que consumen drogas, 2006-2014



■ Número de personas que consumen drogas  
■ Número de personas con problemas relacionados con el consumo de drogas

Fuente: Respuestas al cuestionario para los informes anuales.

Nota: Porcentaje estimado de adultos (de 15 a 64 años) que consumieron drogas en el año anterior.

Fuente: Respuestas al cuestionario para los informes anuales.

Nota: Estimaciones correspondientes a adultos (15 a 64 años), basadas en el consumo en el año anterior.

# SYNTHETIC DRUGS

- *AMPHETAMINE-TYPE STIMULANTS - ATS*
- *OTHER SYNTHETIC DRUGS*



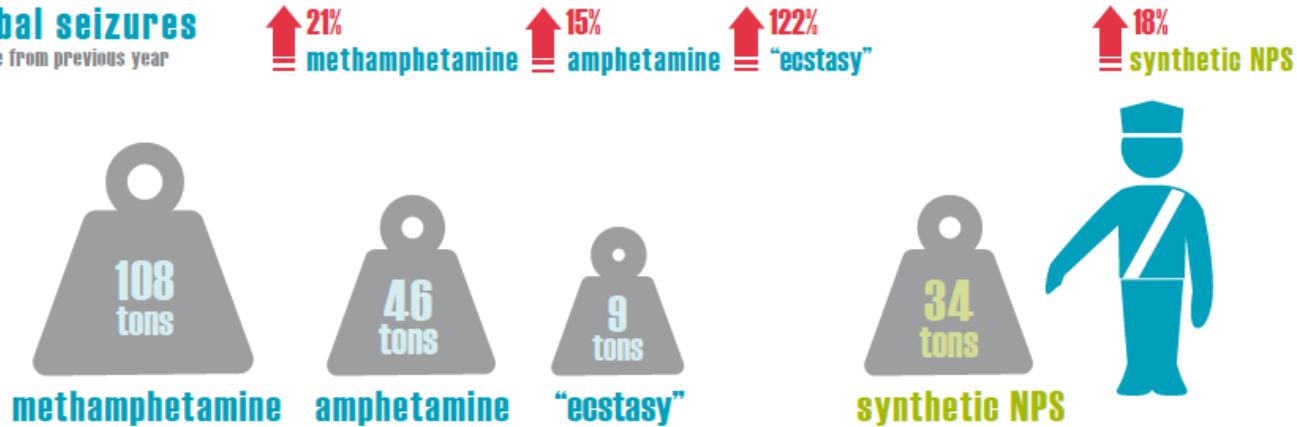


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# SYNTHETIC DRUGS: AMPHETAMINE-TYPE STIMULANTS AND NEW PSYCHOACTIVE SUBSTANCES

## Key figures

### Global seizures change from previous year



2014

### Global number of users



2014

2014

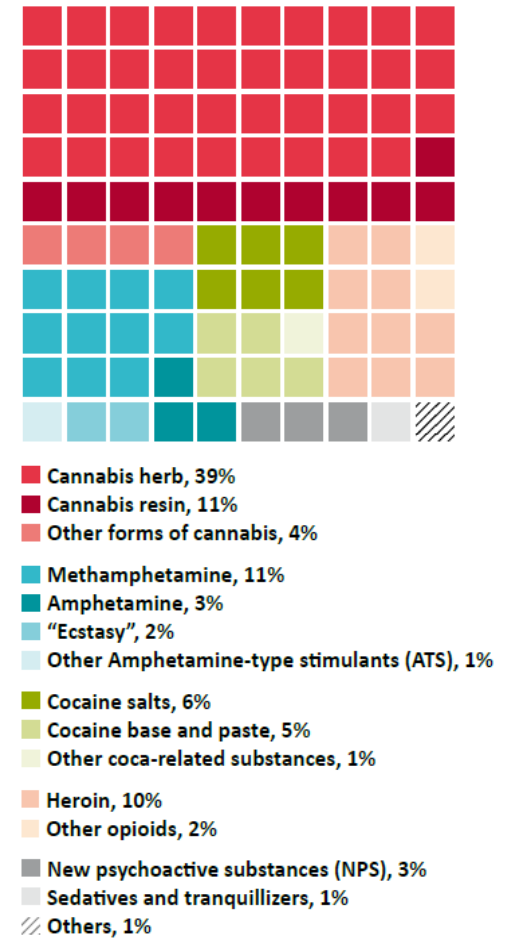
Note: Amphetamines include both amphetamine and methamphetamine. Seizures of synthetic NPS refer to synthetic NPS only and do not include seizures of plant-based substances and ketamine.

## DRUG TRAFFICKING

# Amphetamine-type stimulants

- Total number of psychoactive substances globally under control: 244 (as of January 2016)
- Seizures data show most trafficking involved a much lower number of substances
- Most trafficked drugs, according to UNODC/WDR, 2014:
  - **Cannabis in its different presentations: 54%**
  - **Amphetamine-type stimulants: 17%**
  - **Opiates and coca-related substances: 12% each**
  - **New psychoactive substances: 3%**
- ATS seizures have increased over seven-fold since 1998, which suggests a growth of synthetic stimulants drug trafficking larger than that of traditional plant-based drugs.
- The enhancement of precursors control reduced the amount of “ecstasy” seizures between 2008 and 2011.
- The use of internationally uncontrolled precursors may have had an influence in the number of “ecstasy” seizures for the 2011-2014 period, twice as much as the previous one.

**FIG. 21** Breakdown of drug seizure cases reported worldwide, by type of drug, 2014



Source: Responses to the annual report questionnaire.

Note: Information presented in the figure is based on 2.2 million seizure cases reported to UNODC by 63 countries.

# Amphetamine-type stimulants - ATS

- Amphetamine-type stimulants:
  - ✓ Involve mainly amphetamine and methamphetamine.

Other substances included:

- ✓ methcathinone
  - ✓ phencyclidine
  - ✓ ephedrine
  - ✓ pseudoephedrine
  - ✓ methylphenidate
  - ✓ MDMA or «ecstasy», an amphetamine-type derivate with hallucinogenic properties.
- ATS and opiates are globally among the mostly used substances after Cannabis.
  - In recent years, the majority of the annual global ATS seizures involved methamphetamine.
  - Since 2009 the annual global seizures of methamphetamine come mostly from Asia and North America.

ATS  
is an acronym for  
Amphetamine Type  
Stimulant  
Ⓢ  
by allacronyms.com





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# Injecting use of ATS

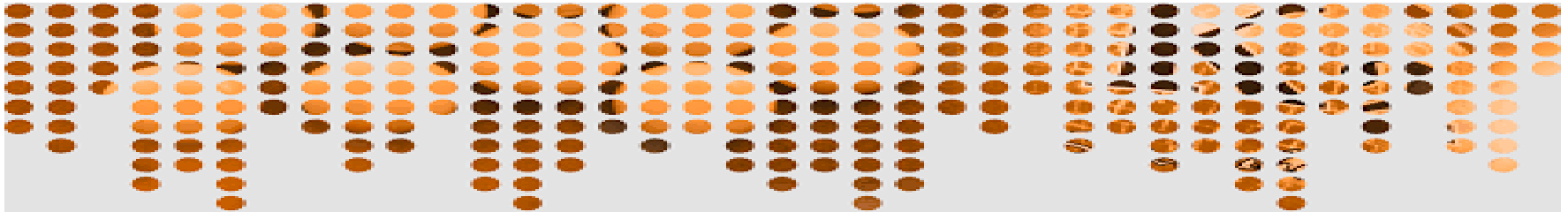
- Countries in different regions worldwide have notified the injecting use of ATS.
- **Americas:** The use of injecting methamphetamines and synthetic cathinones have been reported in certain regions of North America.
- **Europa:** The injecting use of synthetic cathinones have been notified, with users injecting heroin and amphetamines as well.
- A study in Hungary, cited by EMCDDA, shows pentedrone as the mainly used substance of the injecting cathinone class. Other reported substances were the stimulants 3,4-Methylenedioxypropylamphetamine (MDPV), mephedrone, and 4-Methylethcathinone.
- In recent years in Greece, both low-threshold services and treatment agencies have regularly informed of the use of crystal methamphetamine among injecting opiates users. This practice has been reported particularly on people injecting opiates who come from migrant marginalized communities in Athens.





# Amphetamine-type stimulants POLY-CONSUMPTION

- Poly-consumption of drugs is the combined use of opiates and stimulants like cocaine and amphetamines, a common practice widely reported in international studies.
- Since the last decade, the use of amphetamines and methamphetamines have spread in different regions, whereas the number of NPS –which are stimulants– seems to show a steady increase.
- Data on poly-consumption are rarely gathered. Nevertheless, poly-consumption patterns of amphetamines and NPS have been increasingly reported in different regions.



# Amphetamine-type stimulants

## CROSS-TOLERANCE

- Drug dependence: Includes craving, deprivation syndrome, and tolerance.
- The “joint use” of drugs may have a cumulative or synergetic effect, which overall enhances the psychoactive experience, with a possible outcome of developing tolerance.
- A linked phenomenon is the “cross-tolerance”: pharmacological feature of a drug generally having the same effect on the nervous system as another drug.
- The “cross-tolerance” phenomenon partly explains a behaviour among users of frequent substitution of drugs for those drugs with similar effects.
- Examples of such pattern of drug use include the consumption of:
  - Alcohol with benzodiazepines, cannabis, or cocaine;
  - Combined use of heroin, benzodiazepines, and antihistamines;
  - Alcohol with opioids (methadone, fentanyl, etc.);
  - And use of cocaine and other stimulants, like amphetamine and methamphetamine.



# Amphetamine-type stimulants and HIGH RISK SEXUAL CONDUCTS

- Recent studies have found that people injecting stimulants present sexual conducts of high risk and show higher prevalence of HIV than people injecting opiates.
- A study released in 2015 found that people injecting stimulants (cocaine and amphetamines) have more sexual partners and more frequent sexual encounters with occasional partners than people injecting other drugs.
- Additionally, the risk of contracting HIV is 3.6 higher among injecting cocaine users than this drug's non-injecting users, and the risk increases three-fold among people injecting ATS if compared to non-injecting ATS users.



# Amphetamine-type stimulants and HIGH RISK SEXUAL CONDUCTS

- Stimulants users report high injecting frequency, compulsive relapse, and higher probability of reporting shared use and reuse of needles and syringes, which may be contaminated.
- The reason of this is the short duration of effects -particularly NPS, which are stimulants-, in comparison to opiates.





European Monitoring Centre  
for Drugs and Drug Addiction

# Recent changes in Europe's MDMA/ecstasy market

Results from an EMCDDA trendspotter study  
April 2016

## MDMA

## Ecstasy-type substances

# European Union countries MDMA or “Ecstasy”-type substances

- In recent years, signs of higher amounts of production and availability of MDMA have emerged, due to:
  - Aperture of new online markets
  - Reports of increased use
  - Alerts of MDMA tablets of high doses, as well as tampered tablets
  - Evidence of low but potentially increasing number of hospital admissions due to MDMA
  - Death reports from MDMA in certain countries.

(Source: EMCDDA 2016 report on «Recent changes in the Europe’s MDMA/ecstasy market»)



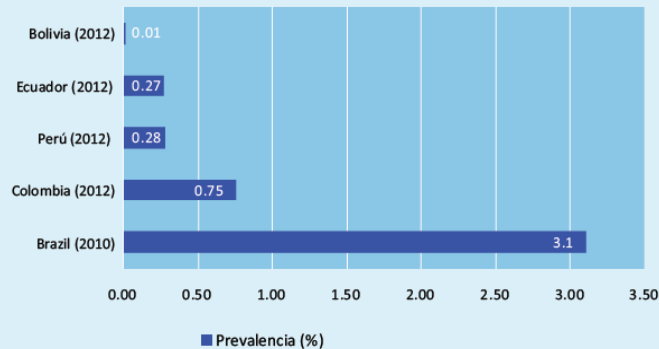
# European Union countries MDMA or “Ecstasy”-type substances

- MDMA and local markets of NPS interact seemingly in a limited manner.
  - An example of this is the potential interaction between cathinones -like mephedrone- and MDMA, despite the available evidence seemingly suggesting that NPS regularly are coupled with other drugs instead of replace them, in particular among frequent users.
- Thus, MDMA and ecstasy caplets have been associated to substitutions and sub-products (PMMA).
  - Nevertheless, the situation of tablets sold as ecstasy, while containing any NPS as the main active ingredient instead of MDMA, has been mostly reverted.
  - Since 2011 MDMA has been recovering a central spot in the European drug market as a sought out non adulterated merchandise.



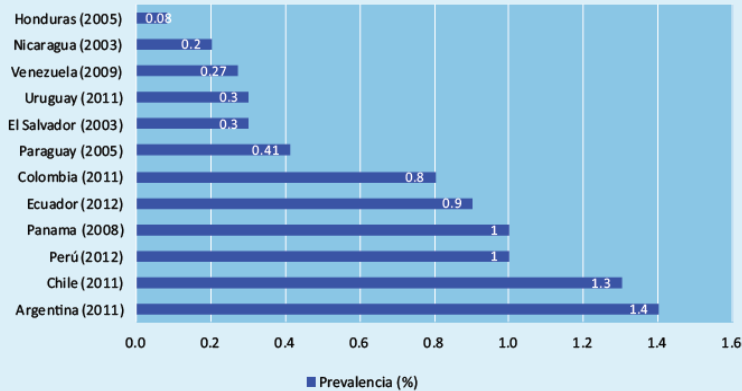
# CELAC countries MDMA or “Ecstasy”-type substances

Figura 2. Prevalencia de último año de consumo de éxtasis entre los estudiantes universitarios de países seleccionados, último año disponible

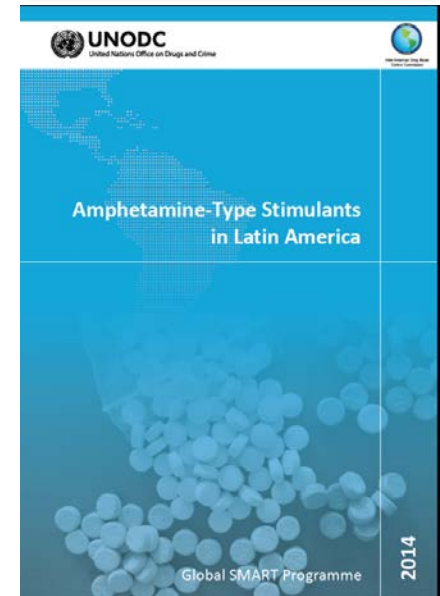
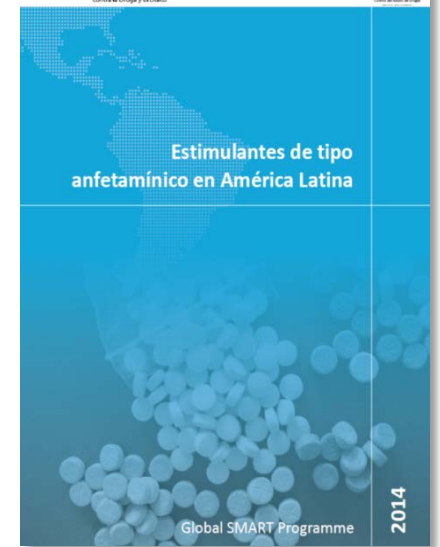


Fuentes: Primera Encuesta Nacional sobre el uso de alcohol, tabaco y otras drogas entre estudiantes universitarios en las 27 capitales de Brasil, SENAD, Brasilia, 2010; GS-CAN, II Estudio Epidemiológico Andino sobre el Consumo de Drogas en la Población Universitaria, Informe regional, 2012 (PRADICAN)

Figura 3. Prevalencia de último año de uso de éxtasis entre los estudiantes secundarios de países seleccionados, último año disponible



Fuentes: DAINLAC; CICAD; Informe Mundial sobre Drogas 2013; 'Informe Ejecutivo, IV Estudio Nacional sobre Prevención y Uso de Drogas entre Estudiantes de Secundaria', Presidencia del Consejo de Ministros, Comisión Nacional para el Desarrollo y Vida sin Drogas, Lima, 2012; 'Noveno Estudio Nacional sobre Drogas en la Población Escolar de Chile, 2011, desde el 8vo año de educación básica al 4to año de secundaria', Chile 2012.







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# CELAC countries MDMA or “Ecstasy”-type substances

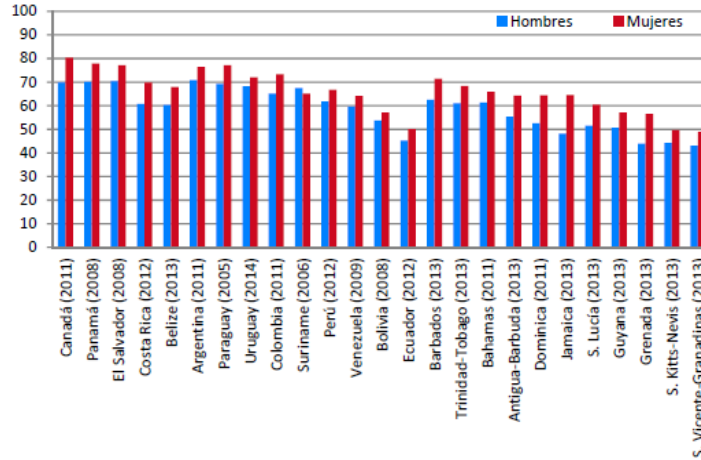


Gráfico 6-13: Percepción de gran riesgo del uso de “éxtasis” frecuentemente en estudiantes secundarios

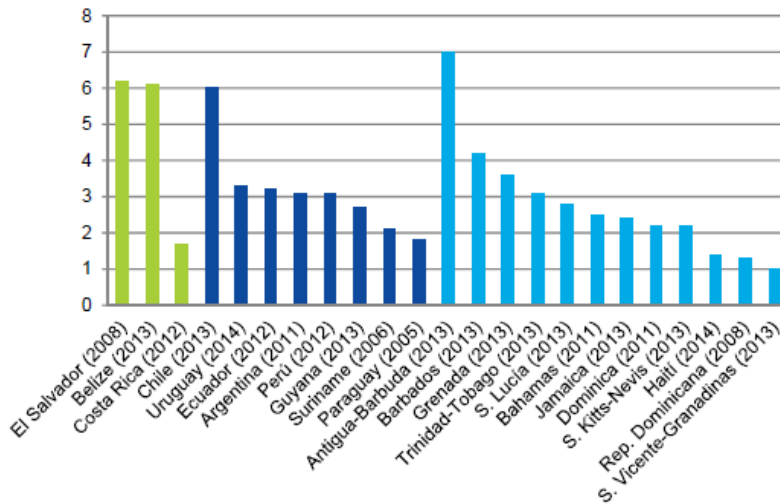
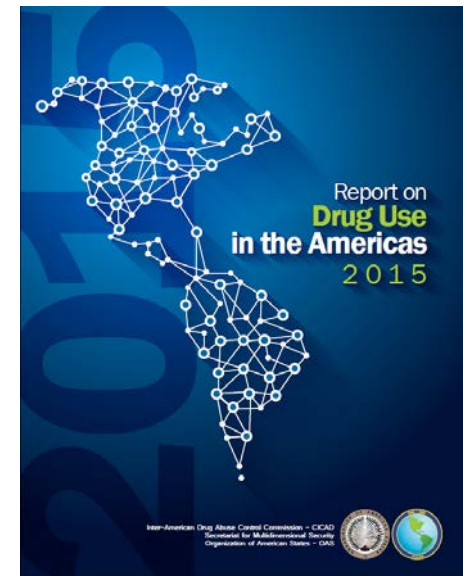
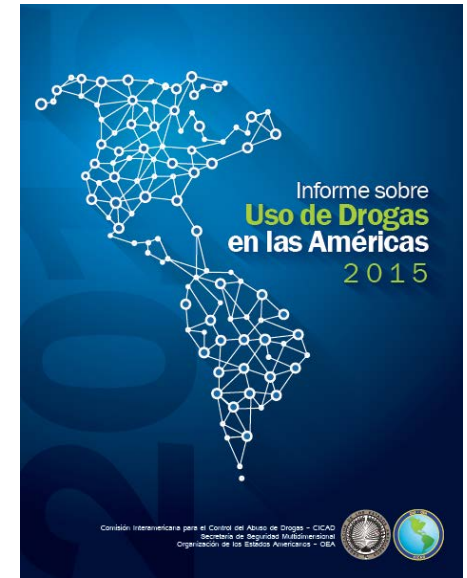


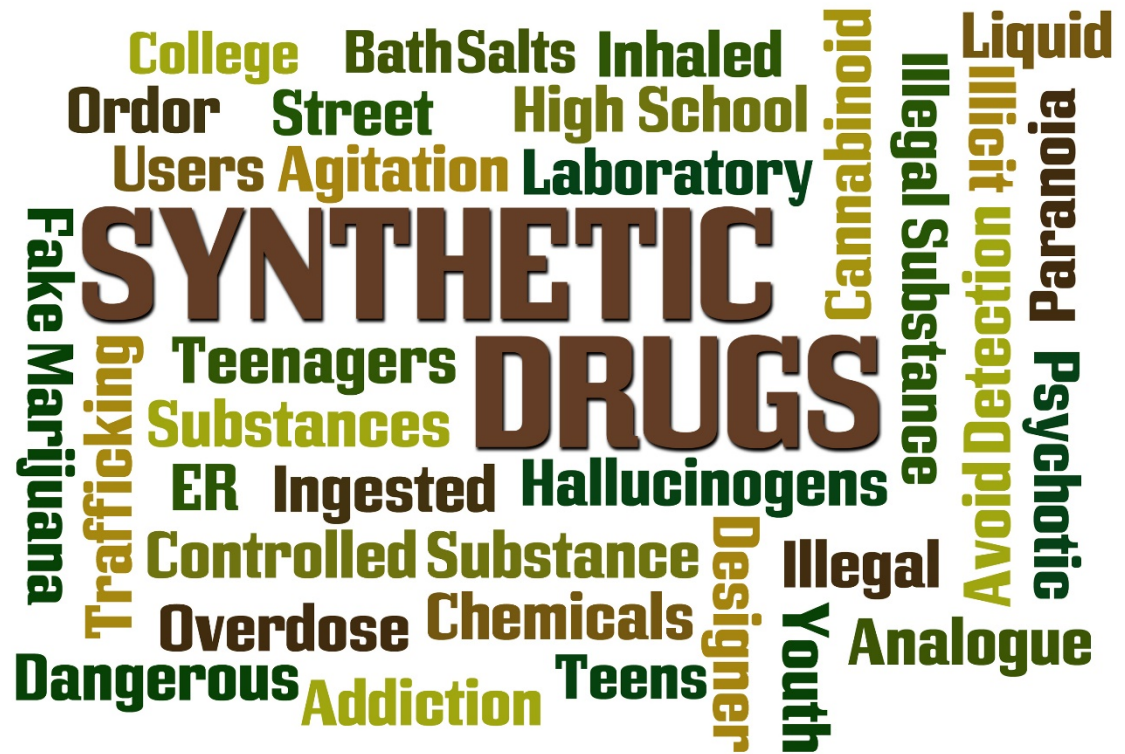
Gráfico 6-15: Oferta de “éxtasis” en el último año a estudiantes secundarios





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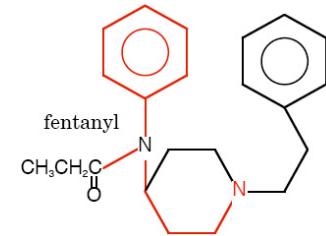
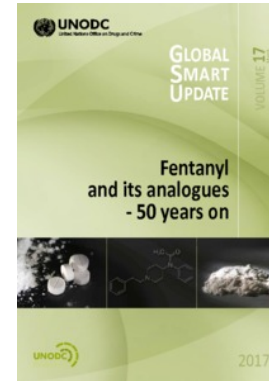
# Other synthetic drugs



# FENTANYL

*A controlled substance, added to Schedule I of the 1961 Convention*

- Fentanyl is a synthetic opioid recently involved in an increasing number of deaths in different countries.
  - Several countries have raised their concern on the matter, especially Estonia, which shows one of the highest rates of deaths in Europe related to drugs and overdoses mainly associated to the use of fentanyl.
- In Canada, at least 655 deaths were linked to fentanyl as a direct cause or as a contribution to those deaths during the 2009-2014 period.
  - Notably increasing the number of deaths in the four major provinces.
- In the United States, more than 700 deaths were linked to the use of fentanyl between late 2013 and late 2014.
  - A concerning issue is heroin being frequently combined with fentanyl before its sale, leading to heroin users being unaware of their use of fentanyl. This situation may be exacerbated by the recent increase of heroin use in the United States.



## FENTANILO

**Más potente que la heroína**

Organizaciones de lucha contra las drogas en Estados Unidos y Canadá están en alarma debido al fentanilo, el opiáceo más potente de uso médico. Su elaboración clandestina y venta ilegal han ocasionado una "epidemia" en su consumo.

**QUÉ ES**

Opióide sintético que se utiliza como analgésico y anestésico para tratar dolores asociados al cáncer y otras enfermedades.

**CÓMO SE APLICA**



Inyecciones



Pastillas



Parches

### Fentanyl Nicknames

Apache

China Girl

China Town

China White

Dance Fever

Friend

Goodfellas



Great Bear

He-Man

Jackpot

King Ivory

Murder 8

TNT

Tango & Cash

(Source: Imperial College London Chemistry Wiki)

# LSD

- Lysergide is a semi-synthetic hallucinogen and one of the most powerful drugs ever known.
  - Its recreational use became popular between 1960 and 1980, is currently less common than in the past.
- LSD is under international control, although some phenethylamines -most of them under no control- are being sold as LSD in different Latin American countries.
- The international common denomination is (+) – lysergide. The acronym LSD derives from the German name Lysergsäurediethylamid (Lysergic acid diethylamide).
  - Lysergide belongs to the family of the indolealkylamines, which includes numerous substituted tryptamines like psilocin (found in “magic” mushrooms) and N,N-dimethyltryptamine

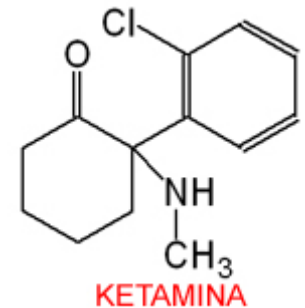


- Common presentations of doses of LSD on the street are “blotters”
  - Absorbent paper sheet printed with distinctive designs and pre-cut edges for easy tear-up in small squares (typically 7 mm), each one containing a single dose .
  - Each sheet typically contains 100 or more doses.
  - These units usually show colourful designs of cartoons, geometric and abstract motives.
- LSD is less commonly seen as small tablets (‘microdots’) 2-3 mm in diameter, as thin gel squares (‘window pane’) or as capsules.
- Some solutions of LSD in water or alcohol may be found occasionally.
- LSD in solution is sensitive to light, but more stable in units of dosage.



# KETAMINE

- Ketamine is tightly related to the internationally controlled drug named phencyclidine (known as PCP or “angel dust”) included in Schedule II of the 1971 Convention.
  - Phencyclidine was researched as an intravenous anaesthetic in the 1950’s, and later recalled due to unwanted effects, like hallucinations and delusions.
- After the recall of phencyclidine, ketamine was synthesized as anaesthetic in 1962, patented in Belgium in 1963 and in the United States three years later .
  - In the early ‘70s, ketamine was traded as a medical alternative to phencyclidine.
- **The use of ketamine as a NPS stems from the ‘80s and ‘90s.**
- After several considerations, a WHO Expert Committee on Drug Dependence has concluded that it is not recommended to list ketamine as an international controlled substance.
  - Internationally, ketamine was subject to a series of risk evaluations. The WHO Expert Committee on Drug Dependence pre-checked ketamine in 2003 and made a critical review in 2006.
  - After examining the available information, the Committee reached the conclusion that the information was insufficient to justify its incorporation as a controlled substance. It requested as well an updated version of the critical examination that would be presented at the Commission meeting in 2012. In that meeting, the Committee concluded not being appropriate to put ketamine under international control.



# KETAMINE

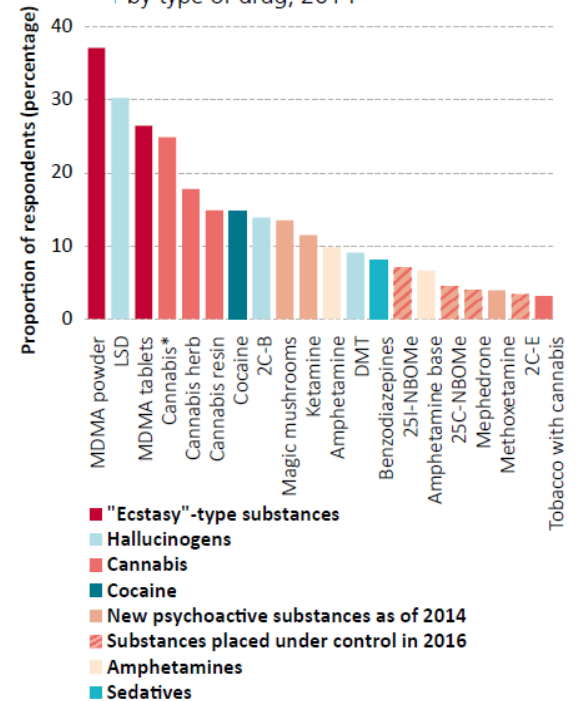
- With regard to the European Union, the increasing concern on the use of ketamine as NPS led to a risk assessment in 2000 within the framework of joint action on new synthetic drugs.
- The European Commission concluded that it was not appropriate to introduce control measures and recommended an increased monitoring of ketamine use.
- Ketamine is a dissociative anaesthetic agent, mainly used in veterinary practice.
- Aside its pharmaceutical use, ketamine is frequently sold as “ecstasy” in the illicit ATS’s markets.
- Streets names include “K”, Special K, cat Valium, among others.
- In high doses, ketamine may cause states similar to dreaming and hallucinations; in even higher doses, ketamine may lead to delirium and amnesia.



# Buying DRUGS over the “dark web”

- The dark web includes content that is circulating over encrypted nets or darknets; it makes use of the World Wide Web, but requires special programs or access authorization.
- The purchase of drugs over the Internet, in particular over the “dark web”, may have increased during the last years.
  - This trend poses concerns about the potential of the “dark web” to attract new populations of users, easing the access to drugs in an environment
  - -although illegal- that prevents users from the direct contact with criminals and police authorities.
- As the “dark web” cannot be accessed through the typical search on the web, buyers and sellers get access through The Onion Router (TOR), for securely hidden identities.
- Products are usually paid with bitcoins or other crypto-currency, and often delivered via postal services.

**FIG. 26** Drugs purchased on the “dark net”, by type of drug, 2014



\* Hydroponically grown cannabis.

Source: Global Drug Survey 2015 ([www.globaldrugsurvey.com](http://www.globaldrugsurvey.com)).

Note: Proportion of survey respondents who bought each drug on the “dark net” among participants in the Global Drug Survey between November and December 2014.



# Buying DRUGS over the “dark web”

- Different operations leading by EUROPOL have achieved the complete or partial closure of some important nets. Nevertheless, when one market closes, the most trusted next one tends to absorb the most part of the displaced business.
  - According to an online survey of 2015, purchasing via this net presents certain “advantages” to the buyers, so that it is used even by people who bought or used drugs never before.
  - The survey showed that about 4% of dark web users had never used any drugs before their access via the “dark net”.
- In the same way, 30% of people who acquired drugs via the “dark web” reported the use of a wider range of drugs than before starting to purchase over this net.

## THE EUROPEAN COUNTRIES MOST LIKELY TO BUY DRUGS ONLINE

The below scale represents the percentage of respondents who answered positively to buying drugs online during the last 12 months for the Global Drug Survey 2014.

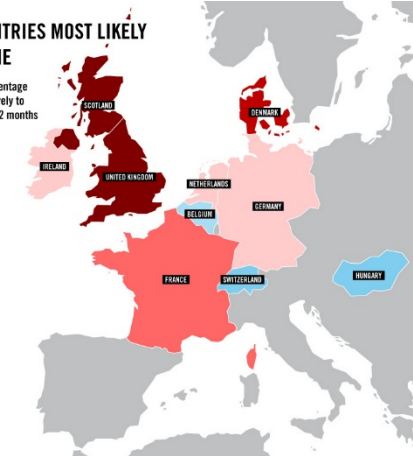
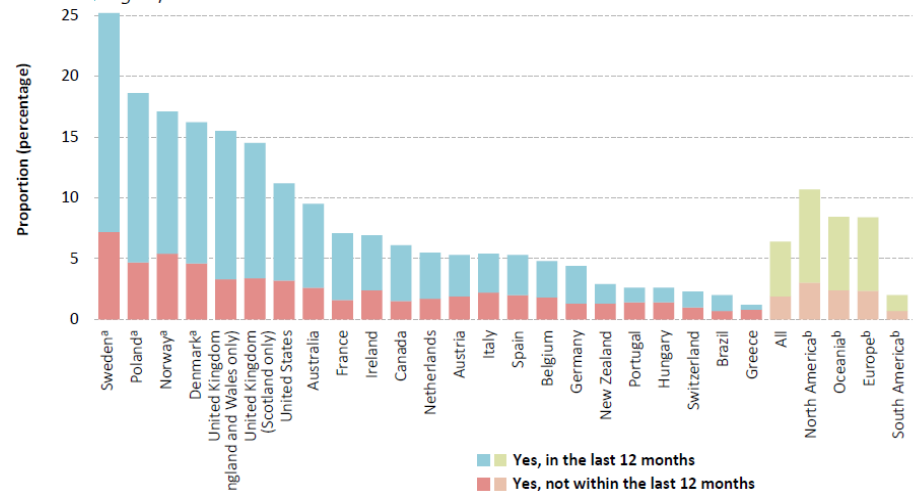


FIG. 25 Proportion of survey respondents who had purchased drugs on the “dark net”, by country and region, 2014



Source: Global Drug Survey 2015 ([www.globaldrugsurvey.com](http://www.globaldrugsurvey.com)).


Note: The figure shows the proportion of people participating in the Global Drug Survey who bought drugs via the “dark net” between November and December 2014. <sup>a</sup> Based on the replies of fewer than 600 respondents. <sup>b</sup> Regional results show the national (and subnational) results weighted by population.



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# NEW PSYCHOACTIVE SUBSTANCES-NPS


- *General aspects and  
the scope of the  
problem*



**PUBLIC HEARING**  
Proposal for a regulation of the European Parliament and of the Council

## New Psychoactive Substances

**27 November 2013 | JDE 51 | 9.30 a.m. - 1 p.m.**  
EESC | Jacques Delors Building | 99, rue Belliard | 1040 Brussels



European Economic and Social Committee



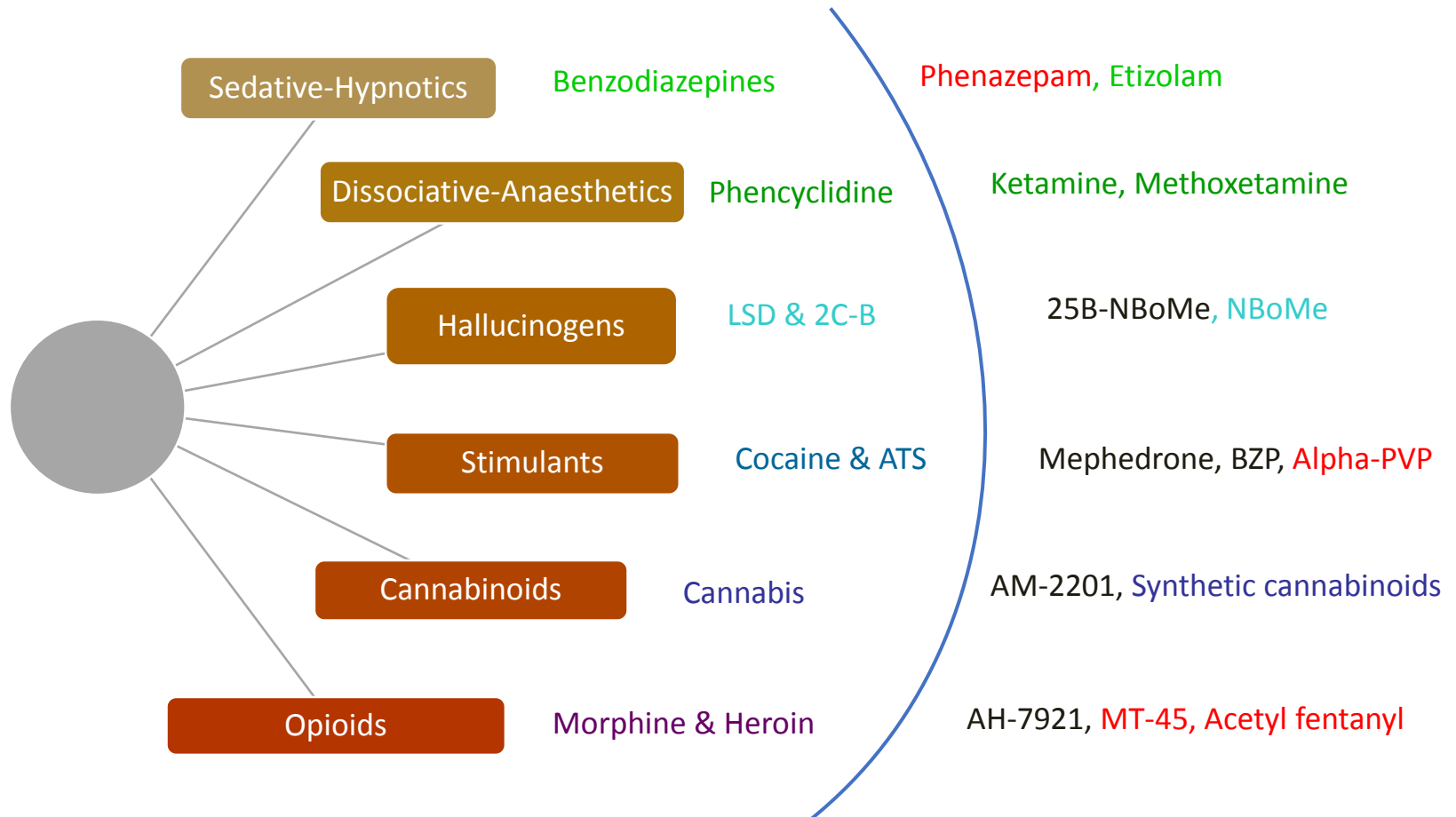
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# What are New Psychoactive Substances?

- They are not controlled under any international Conventions on drugs
- Available just recently
- Linked to serious health risks
- Mirror the effects of traditional drugs

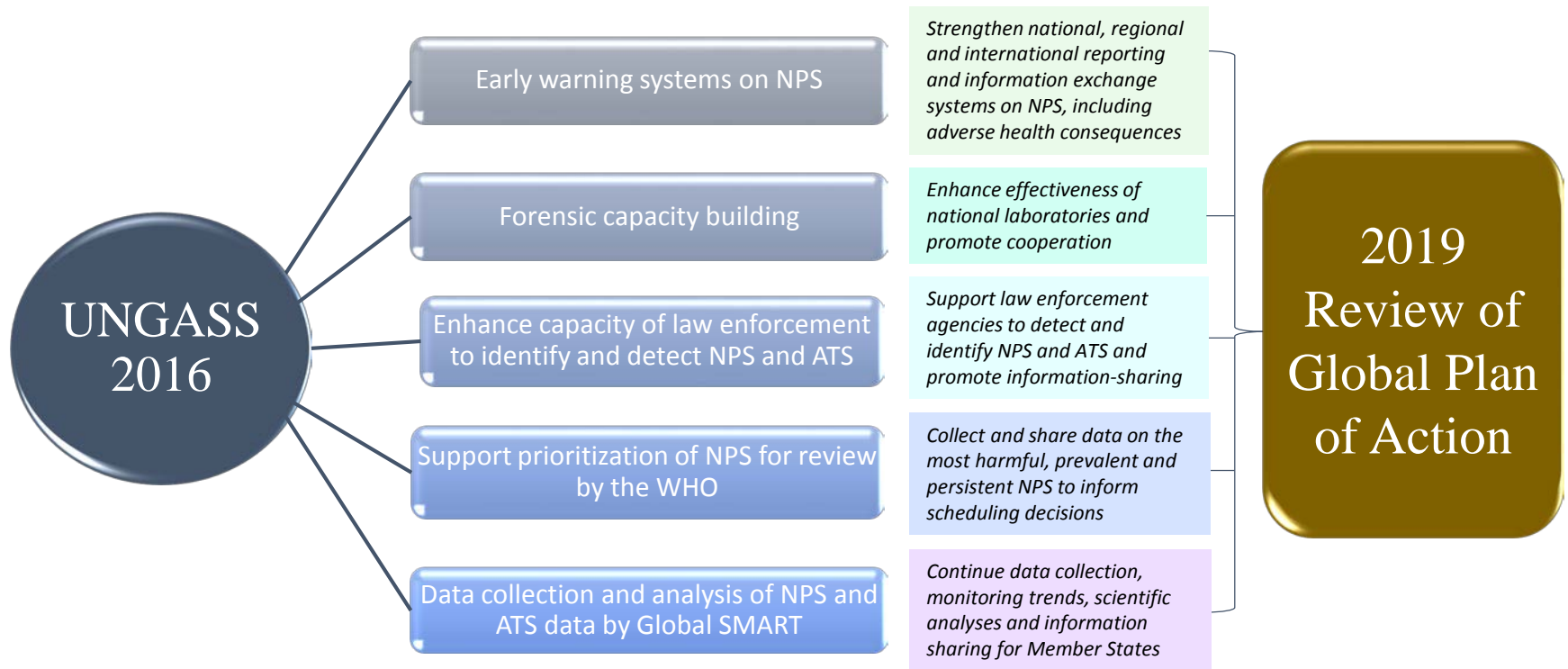


# What are New Psychoactive Substances?



\*Substances in **black** are already under control, and substances in **red** have been recommended to international control by the WHO Expert Committee on Drug Dependence

# Operational recommendations from 2016 UNGASS for NPS and ATS





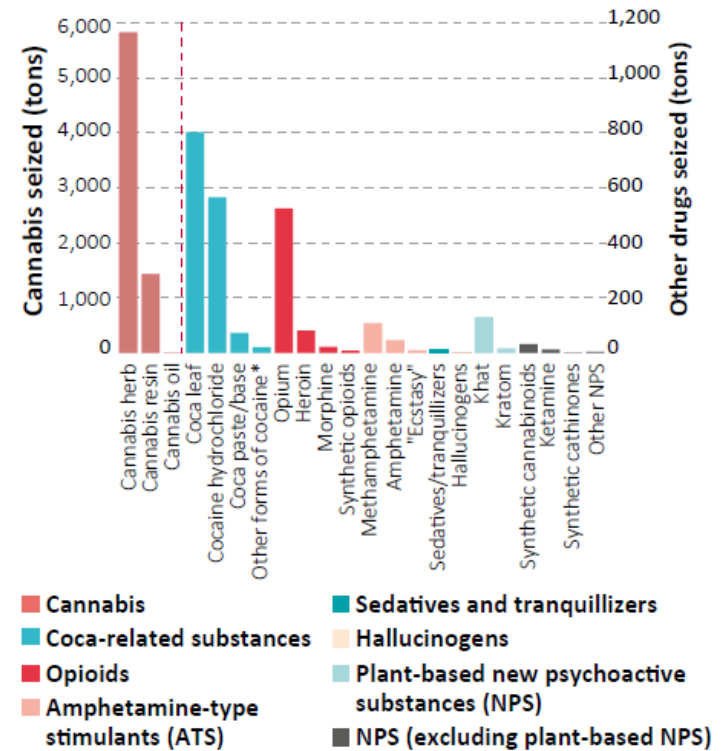
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# DRUG TRAFFICKING

## New psychoactive substances

- The increase in trafficking has extended even more in the NPS group in recent years.
- Seizures of NPS represented:
  - ✓ 0.1% in 1998
  - ✓ 1% in 2009
  - ✓ 3% in 2014 (surpassing seizures of ecstasy: 2%).
- Seizures of NPS increased fifteen times between 1998 and 2014 (excluding plant-based NPS like khat –*Catha edulis*- and kratom –*Mitragyna speciosa*-).
- Globally, ketamine and synthetic cannabinoids became the most seized NPS.
  - ✓ Ketamine seizures 1998-2008: Annual average of 3 tons.
  - ✓ Ketamine seizures 2009-2014: Annual average of 10 tons.

**FIG. 22** Quantities of drugs seized worldwide, by type of drug, 2014



\* Including "crack".

Source: Responses to the annual report questionnaire.

Note: Based on information from 120 countries.

# NEW PSYCHOACTIVE SUBSTANCES - NPS

- *Regional and national situation*

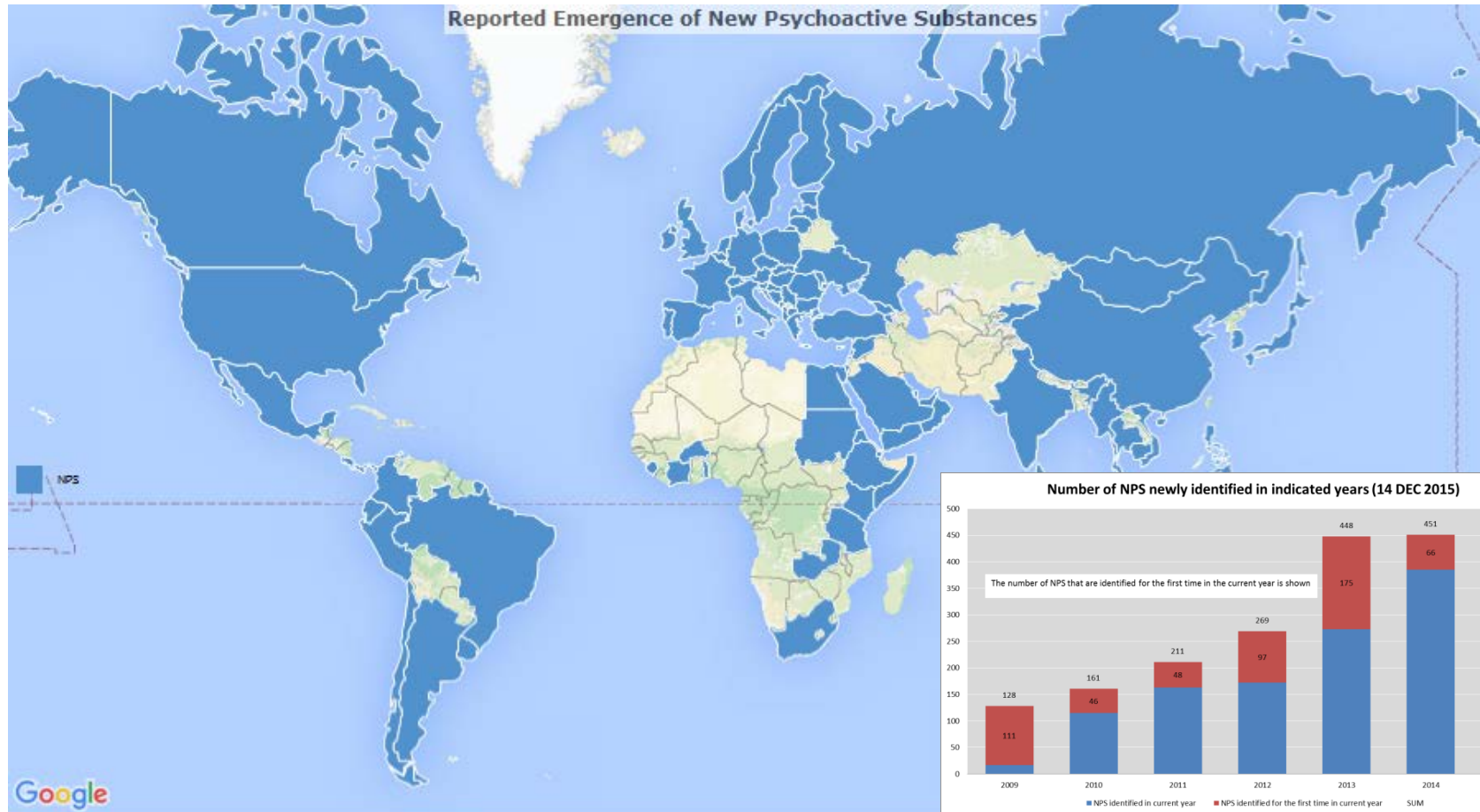


New Psychoactive  
Substances in Europe



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# Prioritization of NPS: Monitoring emergence, prevalence, and persistence





# Monitoring the new psychoactive substances in the European Union

## Multisectoral Cooperation

- In recent years, the EMCDDA has become more active in the monitoring of new substances not included in any United Nations conventions, but still pose health and social risks to communities.
- A specific legal instrument adopted by the Council of the European Union in 2005 allows institutions and EU member states to take action on the new and potentially dangerous narcotic and psychotropic drugs (plant-based and synthetic) that emerge at the European drug scene.
- It has gained an enhanced capacity to detect and to put the new trends under control.
- Under the Council Decision, the EMCDDA and EUROPOL, with the cooperation of their own networks, and the European Medicines Agency (EMA) play a central roll in the detection of new psychoactive substances by assessing their features and preparing the potential control measures.





# Monitoring the new psychoactive substances in the European Union



## ***A 3-step approach***

***The Council Decision states the need of a «quick action from the EU member States» in view of the particular dangers the new psychoactive substances pose.***

***In order to ease this process, an approach in three stages is established, which involves :***

- 1. Information exchange/early warning***
- 2. Risks assessment***
- 3. Decision making***

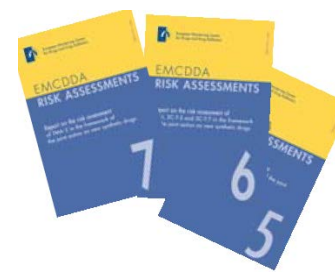
### **Step 1 – Information exchange / early warning:**

- Once a new psychoactive substance has been detected in the European drug scene, the member States ensure that any data on production, trafficking, and use of the drug is delivered to the EMCDDA and EUROPOL through the Reitox national focal points and the EUROPOL national units (ENU). The information is shared with the European Commission and the EMA as well. Finally, if EMCDDA and EUROPOL consider the gathered information on a new psychoactive worth active monitoring, a joint report is presented to the EU Council, the Commission and EMA. Based on it, a further decision is made regarding the start of a risk assessment procedure.

### **Step 2 – Risk assessment:**

- Following the request of at least the fourth of the members or that of the European Commission, the Council by simple majority may choose to start a risk assessment procedure. The EMCDDA'S Scientific Committee –including additional experts from the member States, the European Commission, EUROPOL, and EMA- assess the potential health and social risks of the newly identified drug and the consequences of its control. It follows a report with the risk assessment for review of the Commission and the Council.

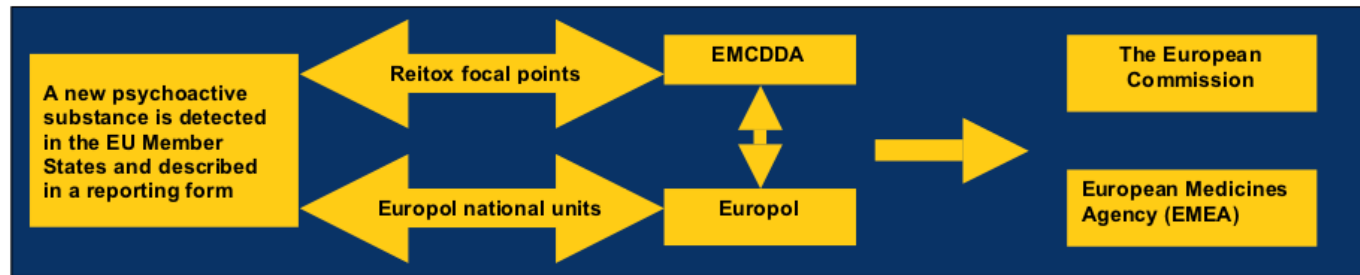
**Step 3 – Decisions making:** At the initiative of the European Commission or a member State, following the report of the risks assessment, the Council may make the decision by qualified majority voting and adopt a position about a drug and the control measures. Measures of control and legal sanctions in UE's member states are taken according to the national legislations, in complying at the same time with the United Nations Conventions. The Council Decision do not impede member States to unilaterally introduce national control measures they deemed appropriate once a new substance has been detected.



# A three step approach

## Council Decision 2005/387/JHA: a three-step process

### Information exchange/Early-warning



### Risk assessment



### Decision-making



# Monitoring the new psychoactive substances in the Americas

- There is no specific legal instrument from agencies the likes of the Organization of American States, enabling organizations and member States their action on potentially dangerous NPS.
- Nevertheless, official recommendations do exist, adopted within the framework of the Group of Experts on Chemical Substances and Pharmaceutical Products of CICAD/OAS.
- Additionally, the countries meet the decisions of the United Nations Commission on Narcotic Drugs regarding NPS.
- Overall, CELAC countries are in a different stage regarding NPS, if compared with the advances of the United States and Canada in that matter.
- Nonetheless, certain countries from CELAC have moved forward with enhanced monitoring systems that include NPS, the implementation of early warning systems and changes to legislation on drugs in order to add NPS.



# Monitoring the new psychoactive substances in the Americas



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## CHAPTER 6: AMPHETAMINE-TYPE STIMULANTS

### Introduction

Amphetamine-type stimulants (ATS) are a group of substances that include synthetic stimulants such as amphetamine, methamphetamine, ecstasy-type substances<sup>33</sup> (such as MDMA, MDA, MDE/MDEA and their analogues), illicitly obtained or falsified prescription medications that contain these substances, and other stimulants such as methcathinone and 2C-B.<sup>34</sup>

According to the World Drug Report (UNODC, 2014), ATS are the psychoactive substances most used worldwide after marijuana. It was estimated in 2012 that the number of ATS users was 34.4 million for the amphetamine class alone, and 18.7 million users of ecstasy-type substances, while there were 177.6 million users of marijuana, 33 million users of opiates, 16 million users of opiates, and 17 million users of cocaine.

### Amphetamines group

The amphetamines group includes both amphetamine and methamphetamine. Although some amphetamine are produced for medical purposes, most are distributed illegally and produces illicitly in clandestine laboratories.

Methamphetamine are the ATS most widely produced and used. They are a central nervous system stimulant commonly known as "speed", "meth" and "rhab". These terms generally refer to the crystalline form of the drug, which can be smoked as "ice", "crystal", "crank" or "glass". It is a white, bitter-tasting, odorless powder or crystal that is easily soluble in water and alcohol.

The substances in the amphetamines group were originally compounded at the end of the nineteenth century, and sold without medical prescription as nasal decongestants beginning in 1932. When used in similar doses to amphetamine, methamphetamine reach the brain in larger amounts than amphetamine, which makes them a more powerful central nervous system stimulant, whose effect is of longer duration.

Both amphetamine and methamphetamine are under international control, and both are on Schedule II of the Convention on Psychotropic Substances of 1971.

North America has had a large and growing market for ATS for a number of years. Manufacture of methamphetamine in particular in Mexico and the United States appears to have grown significantly and, according to the United States, large volumes of the drug are brought into the country as contraband from Mexico. However, the use of methamphetamine has remained at relatively low and stable levels thus far throughout the subregion.

<sup>33</sup> Given the wide variety of drugs sold on the market as "ecstasy" but after chemical analysis are shown to contain little or no MDMA, this report will use the word "ecstasy" or "ecstasy-type substances" interchangeably to refer to these drugs.

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## CHAPTER 7: NEW PSYCHOACTIVE SUBSTANCES AND OTHER EMERGING DRUGS IN THE REGION

### NEW PSYCHOACTIVE SUBSTANCES

In recent years, the illicit drug market has seen the appearance of a number of new substances that often have chemical and/or pharmacological properties similar to internationally controlled substances. Their variety has never been greater than it is now.

These new psychoactive substances (NPS) have been termed "designer drugs", "legal highs", "herbal highs", "bath salts", "research chemicals" and "laboratory reagents". In an effort to clarify the language, UNODC uses only the term new psychoactive substances, which are defined as: "substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic Drugs or the Convention on Psychotropic Substances of 1971, but which may pose a threat to public health". The word "new" does not necessarily refer to new inventions, a number of NPS were first synthesized forty years ago, but rather means that they are substances that have appeared recently on the market and that have not been scheduled in the UN Convention.

### NPS mimic the effects of controlled substances<sup>34</sup>

Many new psychoactive substances on the market contain chemical products that have structural and/or pharmacological properties similar to the substances under international control and are designed to mimic them.

For example, synthetic cannabinoids, which include the JWH series (such as JWH-018), are compounds that mimic THC (delta-9-tetrahydrocannabinol), which is the principal psychoactive compound in marijuana.

Synthetic cathinones, which include substances like mephedrone, methylene and MDPV, may produce stimulant and empathogenic effects similar to amphetamine, including MDMA.

Phenethylamines include substances such as the 2C series (such as 2C-I) and NBOME compounds (such as 23I-NBOME), which produce effects that range from stimulant to hallucinogenic. Some substances in this group are already under international control through the Convention on Psychotropic Substances of 1971, but many of them are still not scheduled.

Tryptamines and their derivatives that have been reported as NPS are indolealkylamine molecules. While some tryptamines of natural origin are neurotransmitters (for example, serotonin, melatonin and bufotenin), most are found as psychoactive hallucinogens in plants, mushrooms and animals (for example, N,N-dimethyltryptamin (DMT) psilocybin, and 5-methoxy-N,N-dimethyltryptamine (5-MeO-DMT) (L-3).

# NEW PSYCHOACTIVE SUBSTANCES IN NORTH AMERICA

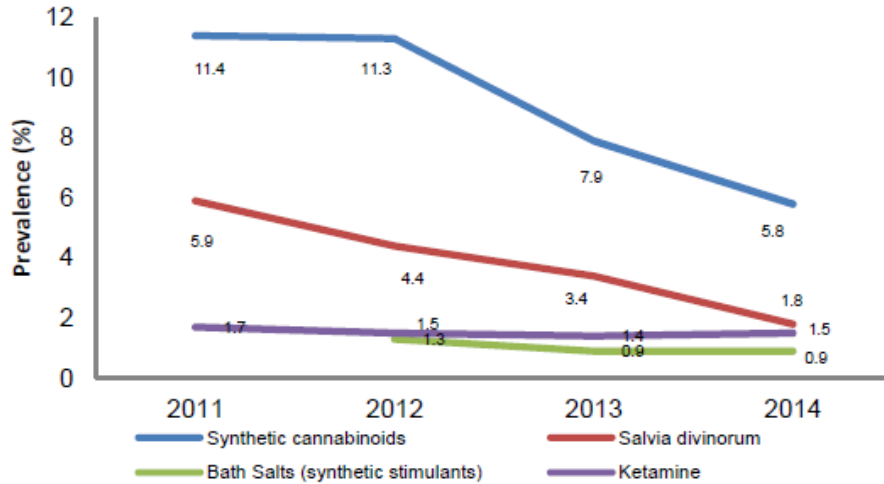
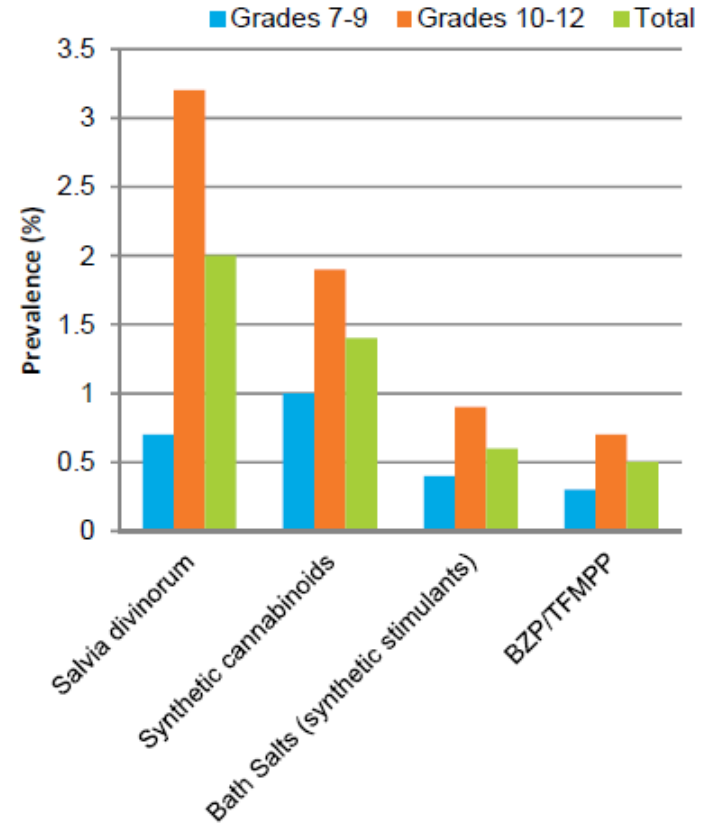
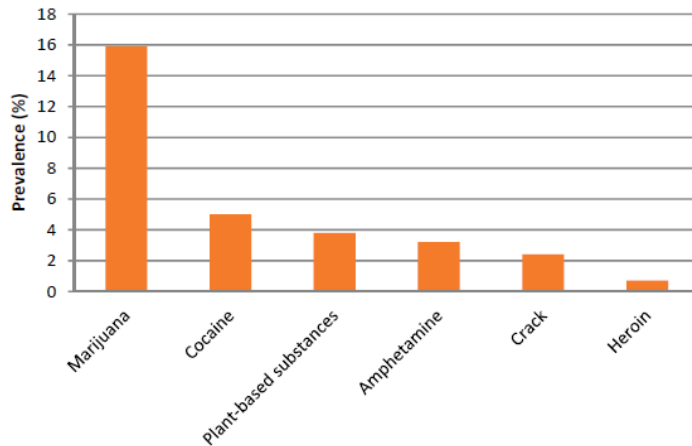


Figure 7-1: Past year prevalence of NPS use in United States 12th grade students, 2011-2014



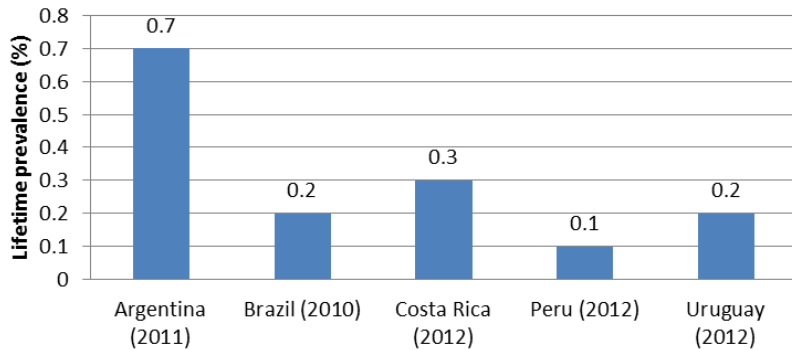
Graph 7-2: Past month prevalence of New Psychoactive Substances by grouped grades, grades 7-12, Canada, 2012-2013<sup>xxxvi</sup>



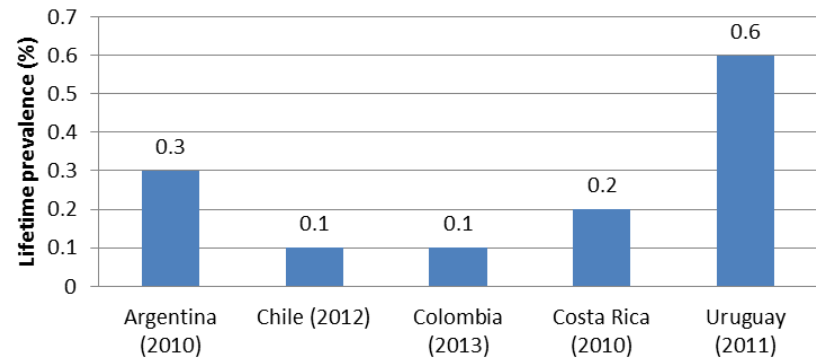
Graph 7-4: Lifetime prevalence of drug use among secondary students, Mexico City, 2012

# New psychoactive substances in Central and South America

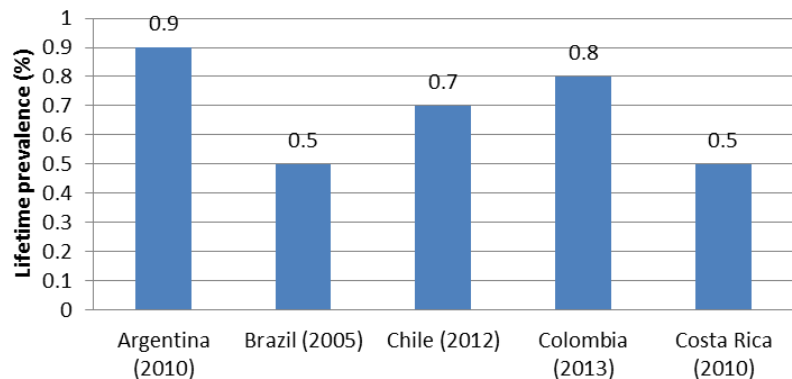
**Lifetime prevalence of ketamine use in secondary school surveys**



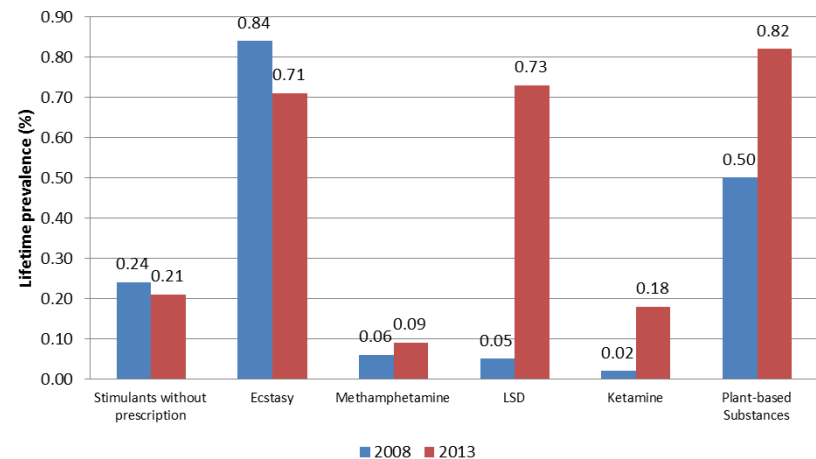
**Lifetime prevalence of ketamine use in general population surveys**



**Lifetime prevalence of plant-based substances use in general population surveys**



**Lifetime prevalence of drug use, comparative data, 2008-2013**



# The most reported new psychoactive substances in Latin America

## Phenethylamine and synthetic cannabinoids

	Nº cases	Substance Groups	Period
<b>Argentina</b>	30	7	2012-2013
<b>Brazil</b>	22	7	2008-2014
<b>Chile</b>	24	6	2009-2014
<b>Colombia</b>	30	2	2008-2014
<b>Costa Rica</b>	17	4	2009-2013
<b>Ecuador</b>	1	1	2011
<b>México</b>	28	8	2008-2014
<b>Panama</b>	2	2	2011-2013
<b>Peru</b>	2	1	2014
<b>Uruguay</b>	1	1	2009
<b>Total reports</b>	<b>157</b>		

- From 2008 to 2014: 157 reports of NPS
- 54 phenethylamines, 26 synthetic cannabinoids, 24 piperazines, 18 synthetic cathinones, 16 hallucinogenic drugs, 11 plant-based substances, 2 tryptamines, 2 aminoindanes, and 4 other substances.
- Mexico reported NPS of each category, while Argentina and Brazil in seven.

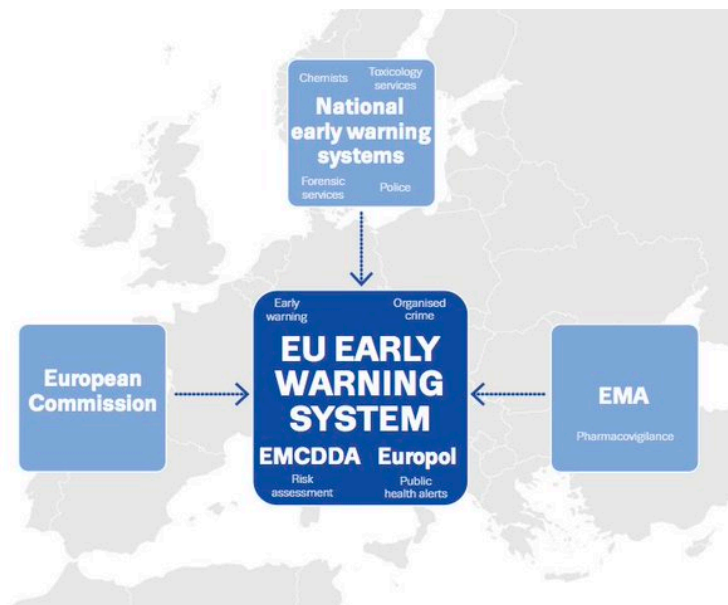
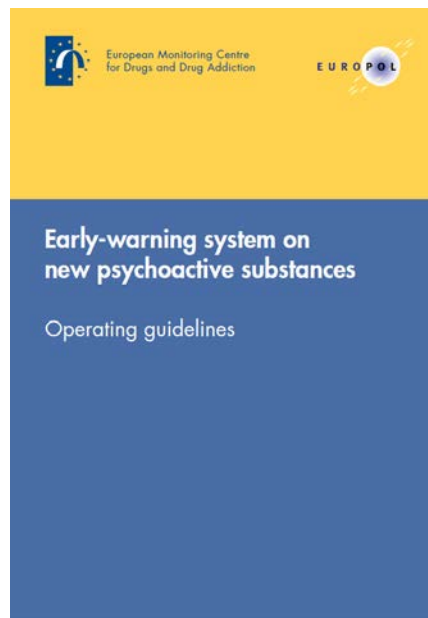




This project is funded by the European Union

# NEW PSYCHOACTIVE SUBSTANCES - NPS

- **Early Warning Systems - EWS**

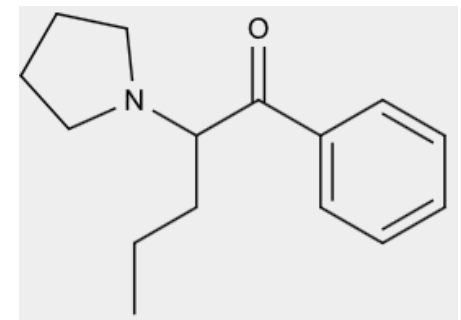




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# Early Warning System: Users and needs

- International organizations the likes of EMCDDA, CND, the WHO Expert Committee on Drug Dependence, INCB, are all the reference and background for discussion and decision making on trends, maps, terminology, effects, dangers of NPS.
- National experts, politicians, and decision-makers: Data on trends analysis, legal aspects, etc.
- Laboratories: Identification of different types of NPS, analysis methodologies, scientific names, etc.



# Review of NPS for international planning

- The UNODC's early warning system contributes to the identification of NPS towards a short listing for international review, taking into account such criteria as geographical prevalence and persistence of NPS.
- Impact: The discussion on international NPS control is centred on a manageable number of substances (higher prevalence, persistence and danger).

# IMPROVEMENTS IN THE EARLY WARNING SYSTEMS OF Latin American countries



## MESA NACIONAL DE NUEVAS SUSTANCIAS PSICOACTIVAS

"Coordinación, recopilación y análisis interinstitucional de la  
información disponible para la actualización  
de los listados de drogas"

Informe N° 1, septiembre 2015

# NPS

## Sistema de Alerta Temprana



Junta  
Nacional  
de Drogas  
Presidencia de la República  
URUGUAY

OD  
Observatorio  
Uruguayo de  
Drogas

RYCO

ENERO DE 2017

## SISTEMA DE ALERTAS TEMPRANAS



APARICIÓN DE  
NUEVAS SUSTANCIAS  
PSICOACTIVAS EN  
COLOMBIA

MINISTERIO DE  
JUSTICIA

TODOS POR UN  
NUEVO PAÍS  
POR LA PAZ, LA JUSTICIA Y LA EDUCACIÓN

OBSERVATORIO DE DROGAS  
O.D.C. DE COLOMBIA

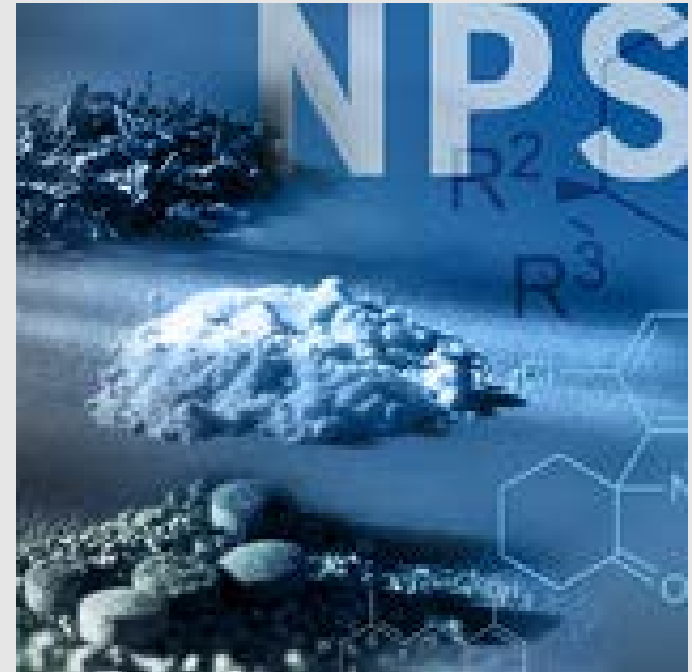
# Future challenges for the *Early Warning Systems on NPS*

- Guarantee a constant flow of data on NPS from a broad range of sources (links to national and regional agencies).
- Gather information in a more systematic manner on risks and dangers (pharmacological and toxicological information).
- Support the inclusion of the scheduled NPS (under control) within the different international mechanisms of data gathering, such as ARQ.
- Satisfy demand coming from laboratories and law enforcement towards an improvement in their capacities for detection and identification of NPS.



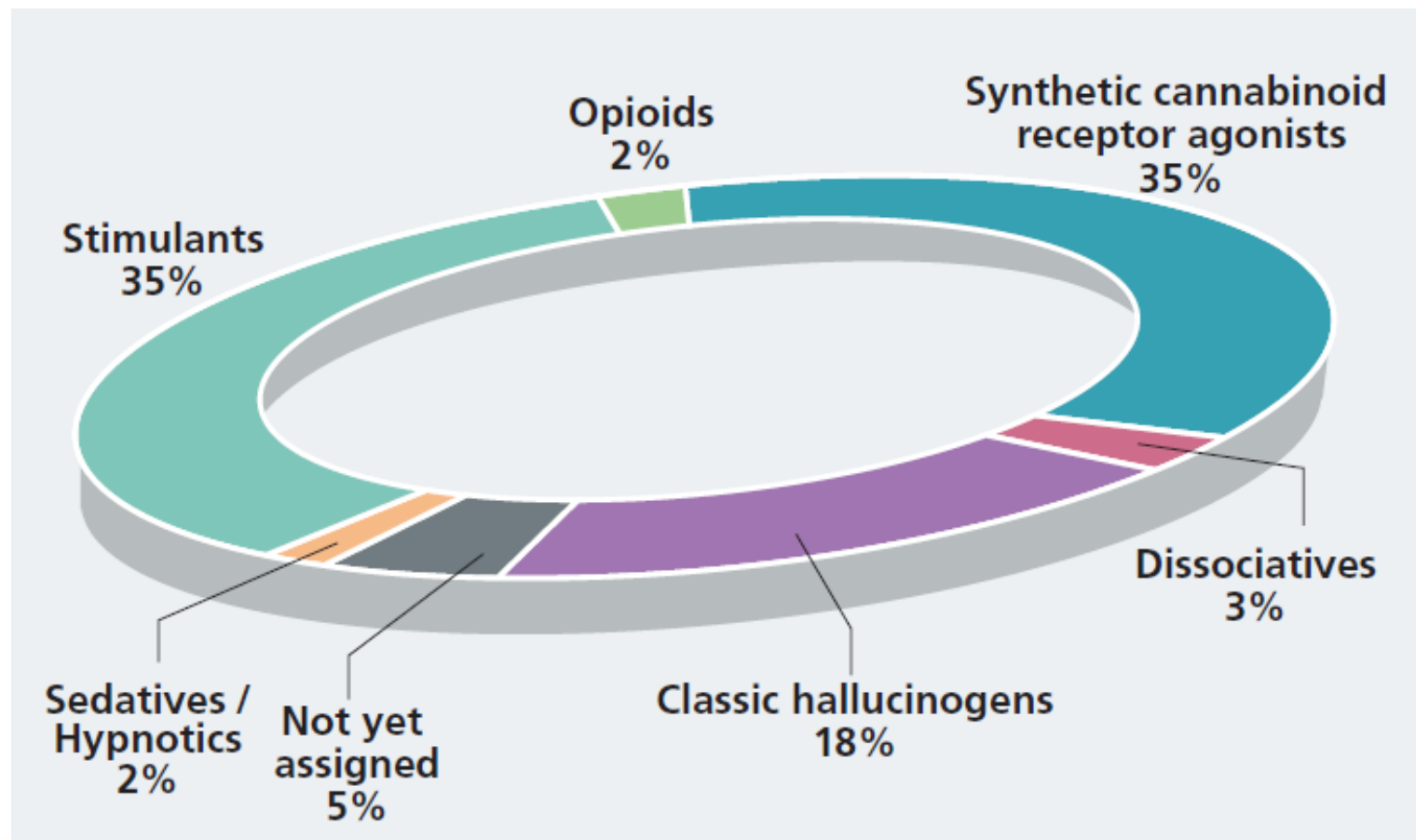
# NEW PSYCHOACTIVE SUBSTANCES - NPS

- *Risks and  
challenges*



# Understanding effects as a step towards understanding markets, trends, and health risks

Classification of over 600 NPS by pharmacological effect



# NPS: The public health dimension

## Seized products containing mixed new psychoactive substances

What is in the blotters, tablets,...?

### Synthetic cannabinoids

- AM-2201
- XLR-11
- Cannabis

### Phenethylamines

- 25B-NBOMe
- 25C-NBOMe
- 2C-C
- 2C-B

### Phenethylamines

- 4-MA
- Amphetamine

### Synthetic cathinones

- Pentedrone
- Cocaine

### Synthetic cannabinoids

- AKB48
- JWH-122
- JWH-210
- JWH-250
- MDPV

### Synthetic cannabinoids

- AM2201
- 5-MeO-DALT

### Piperazines

- TFMPP
- pPPP
- Lidocaine

### Synthetic cathinones

- 3-MMC
- 3,4-DMMC
- alpha-PVP
- AMT
- MPA
- Caffeine

Under international control at time of seizure  
 Different chemical NPS substance group  
 Pharmaceutical product  
 Adulterants



### UNODC Early Warning Advisory on New Psychoactive Substances

March 2016 - Poland: "Mocarz" intoxications now linked to synthetic cannabinoid MDMB-CHMICA

**Poland - March 2016.** In July 2015, Poland registered a large outbreak of intoxications (including at least 3 fatal cases) caused by the use of a NPS product branded as "Mocarz". The product, a herbal mixture containing frequently changing synthetic cannabinoids, has been sold on the Polish market since at least 2010. Samples seized after the outbreak of intoxications revealed to contain various synthetic cannabinoids including [UR-144](#), [XLR-11](#), [BB-22](#), [SE-PB-22](#), and [MDMB-CHMICA](#). However, no substance had been analytically confirmed so far as the cause of the intoxications/deaths.

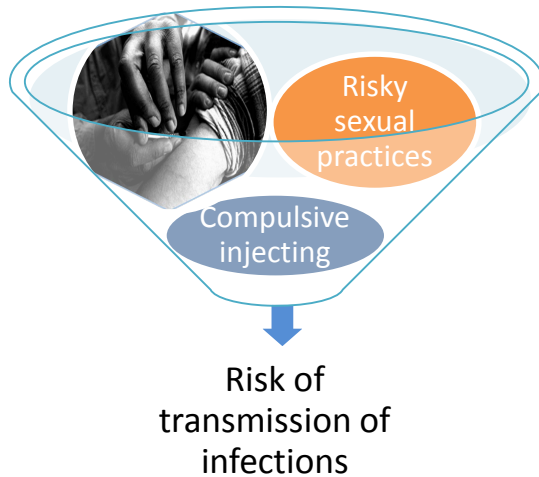
An article newly published in Forensic Science International describes the analysis of one of the fatal cases, whereby the victim died from multiple organ failure after four days of hospitalization. The provided evidence demonstrates the presence of MDMB-CHMICA in ante- and post-mortem blood and internal organs. The study clearly designates MDMB-CHMICA as the main cause of poisoning and concludes that even low doses of this substance might lead to fatal consequences.



Source: Police (Policja) Poland

Source: UNODC NPS questionnaire 2014





## Injecting drug use of synthetic cathinones



### UNODC Early Warning Advisory on New Psychoactive Substances

October 2015 - Ireland: Injection of alpha-PVP associated with recently acquired HIV infections among homeless people who inject drugs

**DUBLIN, Ireland – October 2015.** In February 2015, the Department of Public Health (DPH), Health Service Executive (HSE) in Dublin identified an unexpected increase in cases of acute HIV infection among people who inject drugs (PWID). This increase was associated with the injection of the synthetic cathinone alpha-PVP by so called *chaotic* PWID. Chaotic PWID were defined by clinicians as heroin injectors who were homeless, and if on opioid substitution treatment, required daily attendance at their treatment programme, due to continued use of a variety of other illicit substances in an intensive or chaotic way.

The National Drug Treatment Centre (Dublin) conducted a case-control study among *chaotic* PWID, residing in Dublin and diagnosed with HIV since July 2014, that had been injecting within the previous 12 months. From 38 confirmed and probable cases of HIV infection, 29 persons were homeless and 20 of them provided information on their drug use with 18 reporting to have injected alpha-PVP. The comparison of the case group and the control group showed that the likelihood of recent HIV infection was highest among those who were injecting alpha-PVP daily. As opposed to the control group, individuals in the case group were more likely to have used various drugs including amphetamines and benzodiazepines - in the past 12 months, reused needles and syringes and had sex with PWID partners.



Source: UNAIDS



### UNODC Early Warning Advisory on New Psychoactive Substances

November 2015 - United Kingdom: Rise of mephedrone and amphetamine injecting in the United Kingdom

**LONDON, United Kingdom – November 2015.** The findings of a recent update of the report *"Shooting Up Infections among people who inject drugs in the UK"* from Public Health England indicate an increase in the number of people injecting stimulants, particularly amphetamine-type stimulants, in the United Kingdom. In the report, concern is expressed about the fact that within five years of the first appearance of mephedrone, around one-in-ten people who inject drugs reported the injection of this substance. There are also concerns about the injection of mephedrone and other drugs among some sub-groups of MSM (men who have sex with men) during sex, with injecting equipment often shared and condoms not being used.

Among the population surveyed in England, Wales and Northern Ireland, the proportion of people who reported injecting amphetamine-type stimulants as their main drug tripled from 3.9 per cent (58/1,460) in 2004 to 12 per cent (159/1,354) in 2014. The number of people reporting injecting use of amphetamine during the preceding month increased from 18 per cent in 2010 to 24 per cent in 2014. Injecting use of mephedrone during the preceding month was reported by 5.9 per cent (92/1,554) in 2014. Those who had injected mephedrone were younger than those who had not. Mephedrone injecting is a more recent practice which occurs mainly among people who have previously injected other drugs, and among people who have switched from snorting mephedrone.

Increased health problems related to the injection of mephedrone were also reported. In England, Wales and Northern Ireland, those who reported that they had injected mephedrone during the preceding year were more likely to have HIV, to have antibodies to hepatitis C virus, and to report having had an injection site infection during the preceding year. These findings suggest that mephedrone injecting may have emerged among higher risk groups with already elevated levels of infection. Those who reported that they had injected amphetamine during the past year were also more likely to have antibodies to hepatitis C than those who had not. In Ireland, an unexpected increase in cases of acute HIV infection among people who inject drugs (PWID) associated with the injection of the synthetic cathinone alpha-PVP by so called *chaotic* PWID was reported earlier this year.





This project is funded by the European Union

# What are the risks and challenges of NPS?

- **Drug users:** May not be aware of their use of a NPS instead of previously known drugs, leading to a potential overdose, serious health effects, unknown physiological effects.
- **Health services:** May not be aware of the broad range of NPS currently in the market, their pharmacology and toxicology, how to identify them, how to bring the right help in emergency cases.
- **National laboratories of drugs:** May not be in condition to identify the broad range of NPS already available to users (inexistence of standard chemical analyses).
- **Law enforcement:** May lack the means to detect NPS with the traditional methods.
- **Legal systems:** May not be able to provide the necessary tools for legal interventions (the NPS are not controlled under international Conventions).

## March 2016 - Poland: "Mocarz" intoxications now linked to synthetic cannabinoids

**Poland - March 2016.** In July 2015, Poland registered a large outbreak of intoxications (including herbal mixture containing frequently changing synthetic cannabinoids, has been sold on the Polish market under various names including XLR-145, XLR-11, BB-22, SF-PB-22, and MDMB-CHMICA).

An article newly published in Forensic Science International describes the analysis of one of the provided evidence demonstrating the presence of MDMB-CHMICA in ante- and post-mortem blood samples. The study concludes that even low doses of this substance might lead to fatal consequences.



Source: Police (Policja) Poland

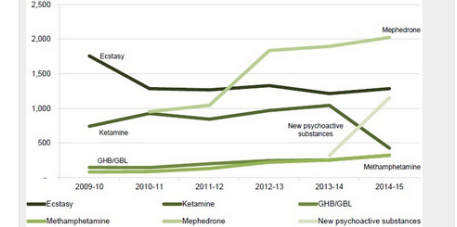
## December 2015 - United Kingdom: Treatment demand for NPS doubles

**LONDON, United Kingdom - December 2015.** Public Health England released its latest findings on drug treatment presentations in 2015. In addition to alcohol and drug treatment presentations, the number of individuals presenting for treatment for a club drug or NPS more than doubled in 2014-15. Conversely, the number of individuals citing 'ecstasy' has fallen by 20%.

The number of individuals presenting to treatment for a club drug or NPS more than doubled in 2014-15. Conversely, the number of individuals citing 'ecstasy' has fallen by 20%. The time it takes recording practice changes to embed having been fully implemented by all treatment providers at the beginning of the year.

The data was collected through the ND-TMS and is used by national and local government.

### Trends in number of new presentations to treatment citing club drug use





This project is funded by the European Union

# NPS in prisons



# Inexpensive, powerful, undetectable

**Public Health England**  
Protecting and improving the nation's health

## New Psychoactive Substances (NPS) in prisons: A toolkit for prison staff

### Who uses NPS?

- Fewer than 1 in 100 adults (0.7%) had used NPS in the last year (CSEW).
- 1.1% of men had used NPS in the last year compared to 0.4% of women (CSEW).
- 113,000 (3.6%) of men aged 16-24 had used NPS in the last year, almost half of all users (CSEW).
- There are different cohorts of NPS users, such as clubbers, people who use other drugs, homeless and vulnerable people, people who engage in chem-sex – in particular men who have sex with men.
- Prisoners form another group of NPS users that also includes a range of sub-cohorts.
- SG form the only category of illicit drugs whose use by prisoners is higher in prisons than in the community (10% compared to 6%) (Changing patterns of substance misuse in adult prisons and service responses A thematic review by HM Inspectorate of Prisons December 2015).
- There are shifting patterns of use due to variable purity and cost, along with changes in their legal status and their desired or adverse effects.
- NPS use is subject to regional variations and often linked to local sub-cultures.

**Acknowledgments**  
Developed by Dr George Ryan & Nino Maddalena.

**Contributions:**  
Kieran Lynch, Michael Wheatley, Martin Stephens

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### Prisoners hospitalised because drugs 'readily available' in G4S private jail

Chief inspector of prisons says inmates at Altcourse jail in Merseyside often need medical attention after bingeing on drugs, such as 'Black Mamba'



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News - UK News - Legal highs

### Legal highs inside prisons could lead to convicts killing a prison guard, bosses fear

Aug 30, 2014 20:37 By Justin Penrose, Andy Gardner

Jails are being flooded with the lethal substances - some as addictive as cocaine - the prison officers' association has warned



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25 March 2014 Last updated at 14:12



### Legal highs hospitalise Dartmoor prisoners



# Profile of NPS users in the United Kingdom

- 0,7% of adults used NPS during last year.
- 1.1% of males used NPS during last year by comparison to 0.4% of females.
- **113,000 (3.6% ) of 16-24 years old males used NPS during last year, nearly half the users of NPS.**
- There are different cohorts of NPS users, like those who frequent night clubs, users of other drugs, homeless and vulnerable population, people with same-sex practices, particularly males with same-sex sexual partners.
- **Inmates comprise another group of NPS users, which include a range of subcohorts as well.**
- **The synthetic cannabinoids are the only category of illicit drugs whose consumption among inmates is higher in prisons than that in the community (10% vs 6%).**
- Patterns of use are constantly evolving due to cost variables and drug purity, besides changes in its legal status and desired or adverse effects.
- The use of NPS is subject to regional variations and frequently associated to local subcultures.

## are being sold in the illicit drug markets

- Police authorities of different South American countries have reported on NPS being sold as “LSD” in the illicit drugs market.
  - ✓ May 2013, the National Police in Chile seized 800 “stamps” believed to contain the hallucinogen LSD, while actually consisting on 25I-NBOMe coming from a shipment trafficked from Spain.
  - ✓ June 2013, the Drug Observatory of Colombia reported via its early warning system (EWS) that substances sold as LSD actually contained two NBOMe compounds: 25B-NBOMe and 25C-NBOMe.
- In general, there is no certainty whether the new substances are replacing other substances under control, either in the long run or the short run, or they are just being used as a complement to the range of already existing drugs, under international regulation.
  - ✓ May 2015, the outcomes of a survey on drug use among university students in Uruguay showed “LSD” as the second most used drug exceeding cocaine.
  - ✓ June 2015, the Drug Observatory of Uruguay reported via its early warning system (EWS) that substances sold as “LSD” actually contained 4-Bromo-2,5-dimethoxyamphetamine (DOB).

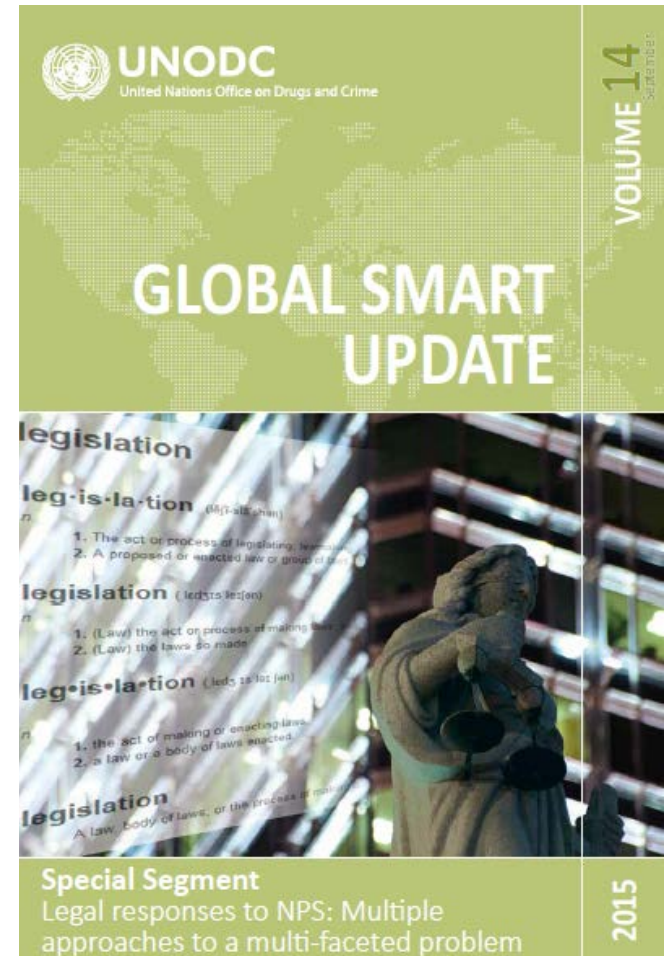


This project is funded by the European Union

# Legislation on NPS

The national legislations' answers to changes– since 2009

- Making use of (other) regulations (sometimes controversial) not related to drugs
  - ✓ Criminalization of supply
- Modifying drug legislation
  - ✓ Criminalization of supply and/or temporary possession or risk assessment mechanisms
- Introducing new legislation on NPS
  - ✓ Criminalization of supply
  - ✓ Or combinations
- Making use of pharmaceutical legislation
- Making use of legislation on consumer protection

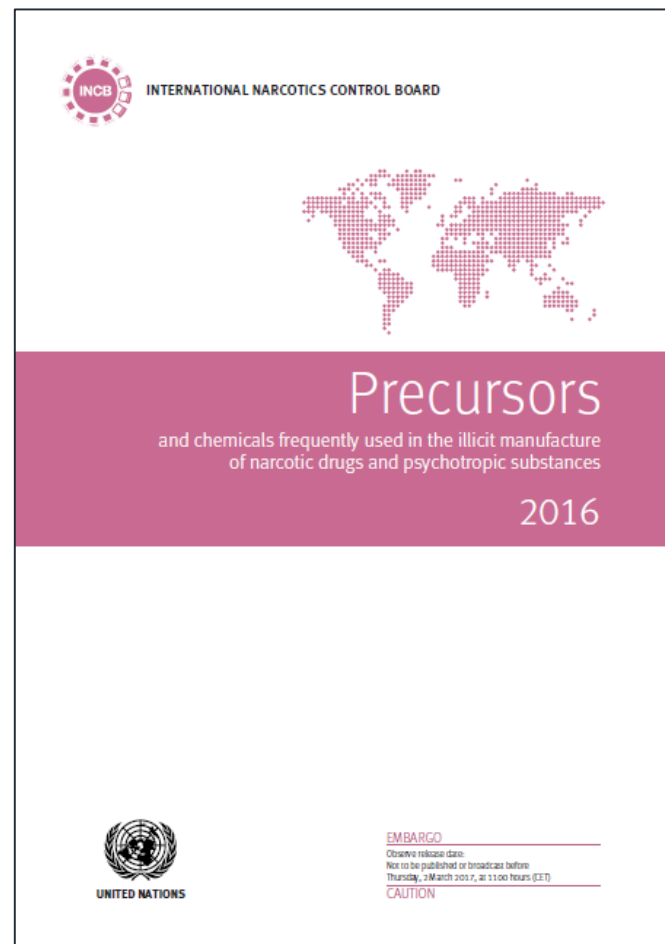




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# PRECURSORS FOR SYNTHETIC DRUGS PRODUCTION

- *Precursors control*
- *Roll of forensic laboratories*
- *Need of training and exchange of information in a rapid and timely manner*



# Precursors for synthetic drugs production

- Solvents and acids included in Schedule II of the 1988 Convention used to be seized in countries where, as a matter of fact, plant-based drugs were produced: cocaine and heroin.
- Currently, the number of countries reporting chemical substances included in Schedule II has increased.
  - Following the increased size of the tracing and seizure operations of synthetic drugs and the improvement of notification of seized chemical substances in illicit laboratories of certain regions .
- In 2015, a total number of 36 countries and territories informed to INCB the seizures of acids and solvents included in Schedule II, whereas 14 countries reported seizures of alternative chemical substances not included in the Schedule.
  - The majority of the countries reporting substances not included in Schedule II came from South America.
- In 2015 the Governments reported seizures of either different chemical substances not included both in Schedule I or II of the 1988 Convention, that may be used for the production of other narcotic drugs, psychotropic substances, precursors, or substances of illegal use under no international regulation, including some new psychoactive substances.





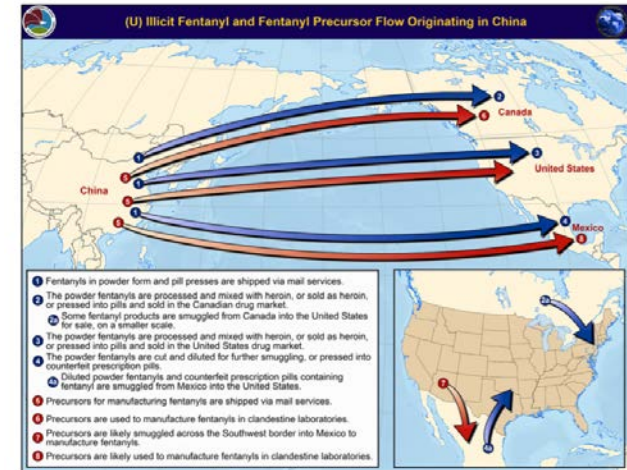


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# Precursors of fentanyl

- The seizures of precursors of fentanyl: 1.5 kg of NPP and 78 kg of ANPP in Canada and the United States, respectively, show signs of the illicit production of fentanyl in North America, as a potential source of supply of a drug responsible for the greatest increase of overdose deaths in both countries in recent years.
- Authorities in the United States have started their efforts towards including both chemical substances to Schedule I of the 1988 Convention
- Authorities in Canada and the United States have detected fentanyl's smuggling from illicit production as well as designer synthetic opioids into their territory.
- The amount of seized drugs and precursors should be assessed based on the power of synthetic opioids, since a number of million doses can be obtained for street sale from 1 kg.

- ❖ NPP: N-fenetil-4-piperidona - N-phenethyl-4-piperidone
- ❖ ANPP: 4-anilino-N-fenetil-4-piperidina - 4-anilino-N-phenethyl-4-piperidine



Source: DEA

\*Arrows do not represent specific transportation routes.

# Precursors of ketamine, mephedrone, and other NPS

- In its annual report on drug regulation, China informed of 118 cases of illicit production of ketamine in 2015, an increase of 12,4% compared to 2014.
- After the inclusion of mephedrone in Schedule II of the 1971 Convention, in effect from November 4, 2015, the INCB have received information about an increasing number of incidents related to precursors of that substance, under no international regulations.
- In 2016, the INCB remained receiving notifications via the PICS system on seizures related to precursors of other new psychoactive substances, like precursors of 2-fluoroamphetamine or 2-methamphetamine and those of 4-chloroamphetamine and 4-chloromethamphetamine.
- The United States informed about the disassembling of an illicit phencyclidine laboratory in California in 2015 as well as the seizure of different chemical substances -ethyl ether, sodium bisulphite, and sodium cyanide, among them.
- *Since a number of precursors' seizures have international ramifications beyond the country where it actually happened, any related detail counts. It might be the start point of an investigation aimed to the source of the chemical substance and the method of diversion.*
- *Therefore, the INCB encourages Governments the sharing of any information of relevance for the establishment of practical measures whether via the PICS system or bilaterally within the framework of the Projects Prism and Cohesion.*

# FUTURE CHALLENGES

- *Need of building or improving the monitoring and information exchange systems: Surveys, EWS, etc.*
- *Challenges for control agencies : Police and customs.*
- *Need of building new skills: Education and training.*
- *Challenges for health teams: Detection, reaction, and education.*
- *Challenges for forensic laboratories: Detection, experience exchanges, coordination.*
- *Potential alternatives for the existing legislation.*



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the European Union



*Cooperation Programme on Drug Policies  
between Latin America and the European Union*

# COPOLAD II - 2017

## More resources on ATS/NPS:

<http://www.emcdda.europa.eu/topics/pods/synthetic-drug-production>

<http://www.emcdda.europa.eu/publications/drug-profiles/amphetamine>

<http://www.emcdda.europa.eu/publications/drug-profiles/mdma>

<http://www.emcdda.europa.eu/publications/drug-profiles/methamphetamine>

<http://www.emcdda.europa.eu/activities/action-on-new-drugs>

<http://www.emcdda.europa.eu/html.cfm/index6006EN.html>

[http://www.cicad.oas.org/Main/Template.asp?File=/oid/smart/default\\_spa.asp](http://www.cicad.oas.org/Main/Template.asp?File=/oid/smart/default_spa.asp)

<http://www.unodc.org/unodc/en/scientists/science-and-policy.html>

<https://www.incb.org/incb/es/precursors/index.html>

