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The UNODC Early Warning Advisory on NPS

Under the umbrella of its Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme and pursuant to resolutions of the Commission on Narcotic Drugs, UNODC developed the first international monitoring system on new psychoactive substances (NPS). The UNODC Early Warning Advisory (EWA) on NPS provides access to basic information on NPS for the general public. Specific information on NPS including trend data, chemical details on individual substances, supporting documentation on laboratory analysis and legislative responses can be accessed by registered users only.

To access the UNODC EWA on NPS, visit: https://www.unodc.org/NPS

The Global SMART Programme is managed by the Laboratory and Scientific Section of the Research and Trend Analysis Branch. Information on the Global SMART Programme can be found via the internet at www.unodc.org or by contacting UNODC at the Vienna International Centre, PO Box 500, 1400 Vienna, Austria.
Please contact the Global SMART Programme at globalsmart@unodc.org.

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Photos: University Medical Center Freiburg, Germany; Central Narcotics Bureau, Singapore; United States Drug Enforcement Administration (DEA); UNODC.
Please note that some of the products shown in the photos are simulated.

NEW PSYCHOACTIVE SUBSTANCES

Marketed as 'legal highs', new psychoactive substances (NPS) are proliferating at an unprecedented rate, posing a significant risk to public health and a challenge to drug policy. Often, little is known about the adverse health effects and social harms of NPS, which pose a considerable challenge for prevention and treatment. Monitoring, information sharing and risk awareness are needed to counter this new drug problem.

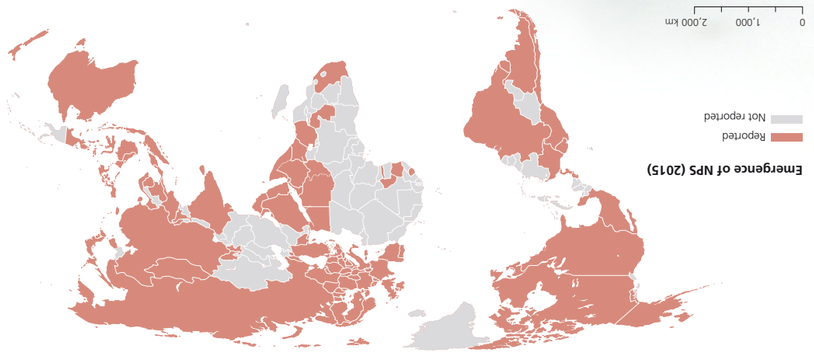
What are NPS?

NPS have been known in the market by terms such as "legal highs", "bath salts" and "research chemicals". To promote clear terminology on this issue, UNODC uses the term "new psychoactive substances (NPS)" 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 1971 Convention on Psychotropic Substances, but which may pose a public health threat". The term "new" does not necessarily refer to new inventions – several NPS were first synthesized 40 years ago – but to substances that have recently become available on the market.

What are the risks of NPS?

The use of NPS is often linked to health problems. In general, side effects of NPS range from seizures to agitation, aggression, acute psychosis as well as potential development of dependence. NPS users have frequently been hospitalized with severe intoxications. Safety data on toxicity and carcinogenic potential of many NPS are not available or very limited, and information on long-term adverse effects or risks are still largely unknown. Purity and composition of products containing NPS are often not known, which places users at high risk as evidenced by hospital emergency admissions and deaths, sometimes as a result of poly-substance abuse.

Global emergence of new psychoactive substances up to December 2015:

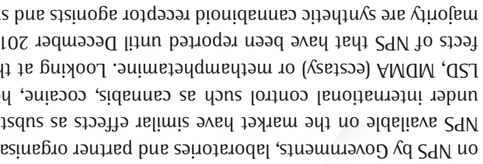


Source: United Nations Office on Drugs and Crime, Early Warning Advisory on NPS, 2015.

How widespread are NPS?

NPS have become a global phenomenon with over 100 countries and territories from all regions of the world having reported one or more NPS. Up to December 2015, more than 600 substances have been reported to the UNODC Early Warning Advisory (EWA) on NPS by Governments, laboratories and partner organisations. NPS available on the market have similar effects as substances under international control such as cannabis, cocaine, heroin, LSD, MDMA (ecstasy) or methamphetamine. Looking at the effects of NPS that have been reported until December 2015 the majority are synthetic cannabinoid receptor agonists and stimulants followed by classic hallucinogens.

New psychoactive substances by effect group, up to 2015



Source: United Nations Office on Drugs and Crime, Early Warning Advisory on NPS, 2015.

What is the legal situation of NPS?

Since NPS are not controlled under the International Drug Control Conventions, their legal status can differ widely from country to country. Up to mid-2015, over 50 countries have implemented legal responses to control NPS, with many countries having used or amended existing legislation and others having used innovative legal instruments. Several countries where a large number of different NPS has rapidly emerged, have adopted controls on entire substance groups of NPS using a so-called generic approach, or have introduced analogue legislation that invokes the principal of "chemical similarity" to an already controlled substance to control substances not explicitly mentioned in the legislation. At the international level, in March 2015, the Commission on Narcotic Drugs decided to place 10 NPS under international control. These control measures have to be implemented into the national legal framework of each country.

How is UNODC assisting Governments in this area?

To assist Member States in the identification and reporting of NPS, UNODC established the Early Warning Advisory (EWA) on NPS which serves as a monitoring tool and knowledge hub - offering information on NPS trends, national legislative responses as well as technical information - to policy-makers, laboratories and law enforcement officers. To enhance the forensic capacity of national drug laboratories, UNODC prepared a number of manuals on the identification of synthetic cathinones, synthetic cannabinoids and piperazines in seized materials. Selected chemical reference standards are distributed to laboratories as part of the UNODC International Quality Assurance Program. In addition, training and awareness raising workshops for law enforcement and laboratories are provided.

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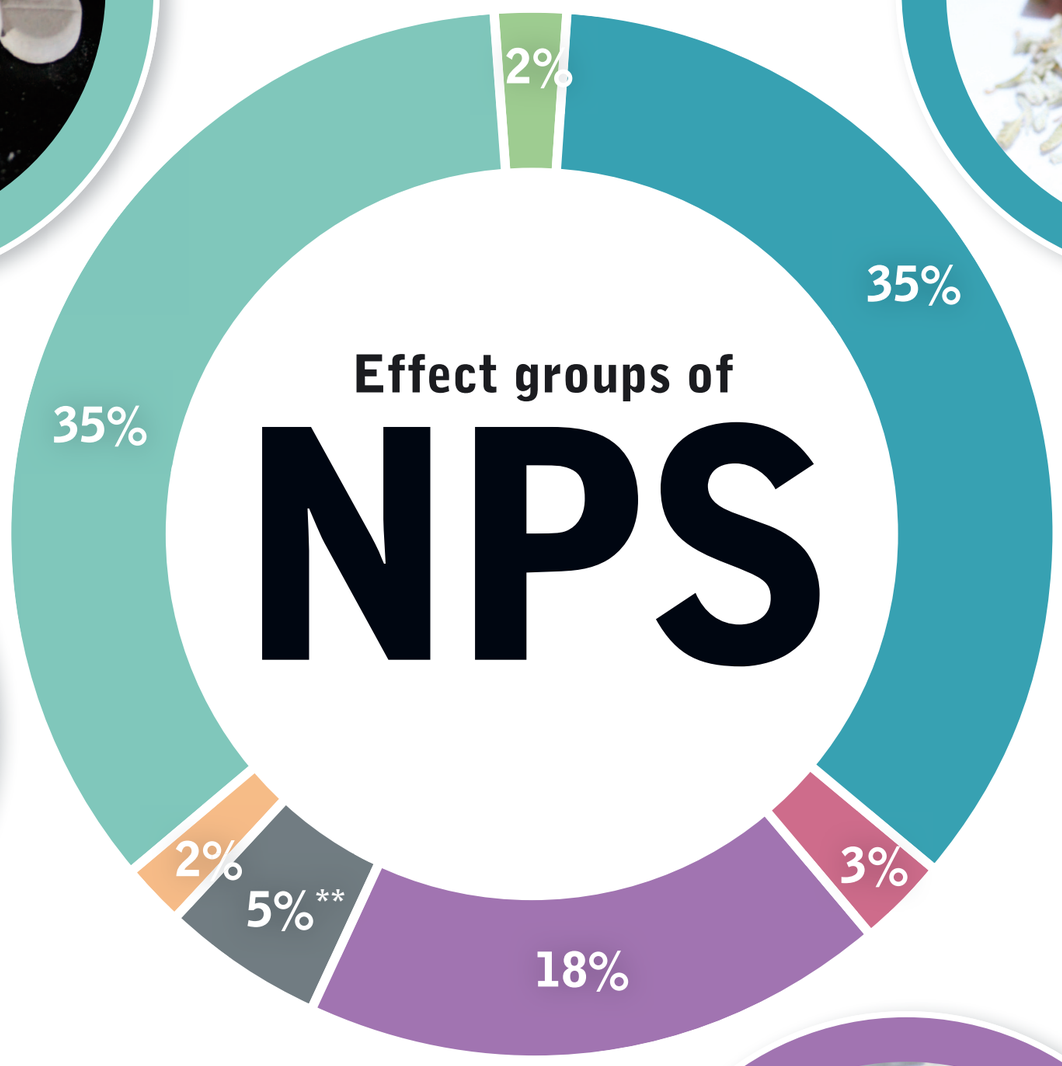
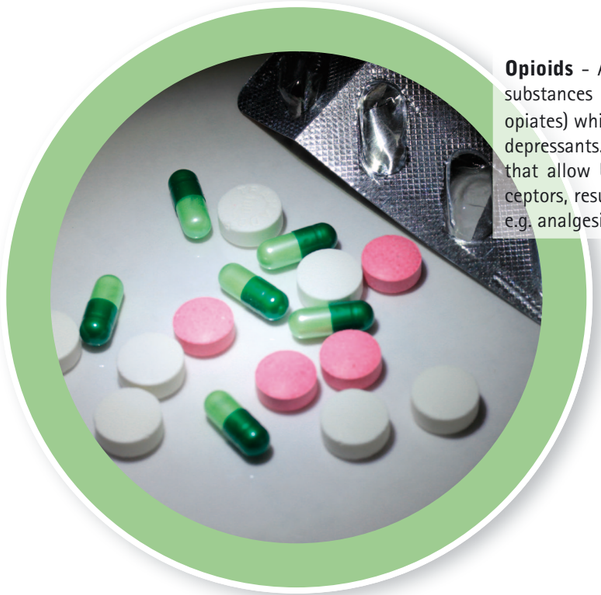
Effect groups of NPS





Opioids - A chemically diverse group of substances (e.g. fentanyls, derivatives of opiates) which are central nervous system* depressants. They bear structural features that allow binding to specific opioid receptors, resulting in morphine-like effects e.g. analgesia.

Stimulants – A chemically diverse group of substances (including phenethylamines, cathinones, aminoindanes and piperazines), which act as central nervous system* stimulants by mediating the actions of dopamine, norepinephrine and serotonin, resulting in a range of effects e.g. stimulant, entactogenic and hallucinogenic. Substances mimic the effects of traditional drugs such as cocaine, amphetamine, methamphetamine and ecstasy.

Synthetic cannabinoid receptor agonists (*SCRA, synthetic cannabinoids*) – These substances bear structural features that allow binding to one of the known cannabinoid receptors and produce effects similar to those of delta-9-tetrahydrocannabinol (THC), the only known psychoactive component in cannabis. These SCRAs are often laced onto herbal products and sold as *Spice, K2, Kronic*, etc.

Sedatives / Hypnotics - Substances in this group are central nervous system* depressants, with actions derived from their activation of receptors in the GABA receptor complex in the brain. They mimic the effects of substances under international control such as the benzodiazepines diazepam and alprazolam.

Dissociatives – These substances form a class of hallucinogens which modulate effects at the N-methyl-D-aspartate (NMDA) receptor in the brain and produce feelings of detachment and dissociation from self and the environment. Substances in this group include the controlled substance phencyclidine (PCP) and ketamine.

Classic hallucinogens (*psychedelics*) – A chemically diverse group of substances (e.g. ring-substituted phenethylamines, tryptamines and lysergamides) which mediate specific serotonin-receptor activities and produces hallucinations. Substances in these group mimic the effects of traditional drugs such as 2C-B, LSD and DMT but may also possess residual stimulant activity (e.g. 25C-NBOMe).

* The central nervous system (CNS) is a part of the nervous system, which comprises the brain and spinal cord, and is responsible for most functions of the body, including processes under voluntary and involuntary control. Functions range from breathing and blinking, which are involuntary processes, to speaking and walking, which are voluntary processes, and to emotions and perceptions.

** Not yet assigned

Note: The analysis of the pharmacological effects comprises of 621 synthetic NPS registered in the EWA until December 2015. Plant-based substances were excluded from the analysis as they usually contain a large number of different substances some of which may not even been known and whose effects and interactions are not fully understood.