Novel Psychoactive Substances

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Overview

• How did it come to this?

• The four ‘great classes’

• Philosophical debates to pragmatics
**Practice Pointer**

### Novel psychoactive substances: acute and chronic use

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**Exploring NPS use**

A sensitive, non-judgemental approach is essential. Boxes 1 and 2 cover specific issues relevant to emergency and longer term presentations. Patients may be concerned about being criticised for using drugs, and they might be uncertain of, but worried about, the potential harms and available services for those using NPS. Individuals can also be fearful of legal consequences of disclosure, and the principle and limits of confidentiality should be discussed.

**Clinical Update**

### Novel psychoactive substances: types, mechanisms of action, and effects

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**thebmj.com**

1. Read more about drug policy, including The BMJ’s stance at thebmj.com/war-on-drugs

**In 2016 the Psychoactive Substances Bill banned trading but not possession of all current and future novel psychoactive substances (NPS), sometimes incorrectly called “legal highs,” in an attempt to overcome rapid proliferation of these compounds. Over 560 substances are currently monitored by the European Monitoring Centre for Drugs and Drug Addiction, with 100 new agents identified in 2015 alone. Stimulants and synthetic cannabinoids account for the vast majority and are the types most commonly clinically encountered.**

**Online purchases are increasing according to the 2016 Global Drug Survey, potentially in response to legislative changes, as is overall NPS use; lifetime consumption was reported by 8% of younger individuals in 2013, up from 5% in 2011, with figures relatively similar between sexes and different countries.**

**Professionals report feeling less confident about managing NPS compared with established recreational drugs.**
How did it come to this?

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Number of new psychoactive substances notified for the first time to the EU Early Warning System by category (2005–15)

Cannabis
- Last year: 22.1 million
- Lifetime: 83.2 million
- Adults (15–64): 6.6%
  - Lowest: 3.2%
  - Highest: 9.6%
- Young adults (15–34): 16.6 million
  - Lowest: 13.3%
  - Highest: 20.9%

Cocaine
- Last year: 3.6 million
- Lifetime: 17.1 million
- Adults (15–64): 1.1%
  - Lowest: 0.9%
  - Highest: 1.7%
- Young adults (15–34): 2.4 million
  - Lowest: 0.7%
  - Highest: 3.2%

MDMA
- Last year: 2.5 million
- Lifetime: 13.0 million
- Adults (15–64): 0.8%
  - Lowest: 0.2%
  - Highest: 2.0%
- Young adults (15–34): 2.1 million
  - Lowest: 0.3%
  - Highest: 1.3%

Amphetamines
- Last year: 1.0 million
- Lifetime: 12.0 million
- Adults (15–64): 0.3%
  - Lowest: 0.2%
  - Highest: 0.7%
- Young adults (15–34): 1.3 million
  - Lowest: 0.1%
  - Highest: 0.4%

Opioids
- High-risk opioid users: 1.3 million
- Fatal overdoses: 82%

New psychoactive substances
- Drug treatment requests: 644,000
- Opioids are found in 40% of all treatment

NB: For the complete set of data and information on the methodology see the accompanying online Statistical Bulletin.
• Most people who consume drugs don’t have a particular ‘problem’ with them
• Some people do, and the range of harms is variable
• And for some, certain illicit drugs may have therapeutic use

• It depends on the drug; it depends on how it’s consumed; it depends on the person
Psychoactive Substances Act 2016

Type of Bill: Government Bill

Sponsors:
- Lord Bates
  Home Office
- Theresa May
  Home Office

Progress of the Bill

Last events
1. Royal Assent (Hansard) 28 January, 2016 (28.01.2016)
1-24 of 64 results for Home & Kitchen: "nitrous oxide"

Mosa N2O Nitrous Oxide Whipper Chargers for Whipped Cream Dispensers, Silver, Pack of 10
by Mosa
£6.39 Prime
Exclusively for Prime Members
Get it by Friday, May 5

Impeccable Culinary Objects Cream Chargers, Silver, 10-Piece
by Impeccable Culinary Objects (ICO)
£8.99 Prime
Exclusively for Prime Members

ICO Mousse Whipper for Hot and Cold Sauces, 500 ml
by Impeccable Culinary Objects (ICO)
£19.99 Prime

Nitric Oxide Sensitivity Test Strips by Berkeley Test (50 strips)
by Berkeley Test
£7.64

See more
The four great classes

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I’ve got friends in low places

Two major NPS differences: i) 00’s/class – wide range of effects; ii) *method* of consumption – all bets are off
1. Stimulants

- ‘Traditional’ drugs: amphetamines, cocaine, MDMA (ecstasy); all increase 5HT, DA +/- NA
- ↑ DA: reward & addictive behaviour\(^1\), mania-like syndrome with euphoria, talkativeness, disinhibition, agitation, ↑ psychomotor activity (, psychosis)
- ↑ serotonin: entactogenic\(^2\), elated mood, ↑ self-confidence, extroversion, psychedelic experiences
- The higher the 5HT ratio, the more like MDMA; ↑ DA more like amphetamines
- More dopaminergic have greater addictive potential & risk of psychosis
- ↑ impulsivity and risk taking behaviour
- NPS names often end in “one”, e.g. mephedrone
- Wide variation in form of availability

\(^1\)Koob and Volkow, 2010
\(^2\)Nichols, 1986
2. Cannabinoids/SCRAs (synthetic cannabis receptor agonists)

• Modulate G-protein coupled receptors of the endocannabinoid system
• Δ-tetrahydrocannabinol (THC) major psychoactive component of cannabis; a partial agonist

• SCRAs have some significant & important differences
  • Entirely synthetic, nothing to do with the plant; dissolvable crystals
  • Full agonists at the CB₁R; affinity, efficacy varies but often very potent
  • Produce a different picture; often agitated, aggressive, can have a hangover
  • Don’t smell like cannabis, can be consumed in various ways (though typically smoked)
• Acute patterns of psychosis looking worryingly different for many; long-term harms?
3. Depressants

- Two subcategories: benzodiazepines and opioids

- **Benzos**: currently don’t seem to be many; some have long T½...

- **Opioids**: not here. Yet.
4. Hallucinogens

- Two subcategories: dissociatives and psychedelics

  - **Dissociatives**: similar to ketamine and PCP (note range)
  - Can cause neurocognitive issues, but primarily a physical health concern: cardiovascular, GI, GU

  - **Psychedelics**: similar to LSD, mescaline, psilocybin
  - Not a problem?
Philosophical debates to pragmatics

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Figure 3: Drugs shown for their harm to users and harm to others
LSD=lysergic acid diethylamide. GHB=γ hydroxybutyric acid.
When will you see them, what should you do?

- The only certainty is that you will see them, and more and more of them
  - Anecdotal reportage
  - As part of a substance misuse profile
  - Acute intoxication (more A&E)
  - As a precipitant/perpetuating factor for mental ill-health

- Currently limited but sobering data; consider via parent-class but many NPS more potent
- Direct substance misuse work through drugs’ services, though they’re being cut
- This is your problem
Assessment

- Non-judgemental sympathetic approach
  - Drug class(es): stimulant, cannabinoid, hallucinogen, depressant
  - Method(s) of use: oral ingestion (“bombing”), nasal insufflation, i.v., p.r.
  - Consumption pattern: quantity, frequency, concomitant prescribed/OTC meds, alcohol
  - Acute & chronic harms: physical/psychological sequelae, impulsive behaviour (incl sexual health), mental health & social functioning, vulnerability/exploitation self/others

- FRAMES motivational interviewing model
  - Feedback: potential adverse outcomes, individualised to your patient; listen to responses
  - Responsibility: emphasise it’s up to them to decide if they wish to change
  - Advice: straight-forward advice on how use can be changed
  - Menu: list of therapeutic options; facilitate decision making
  - Empathy: a non-judgemental and warm clinical approach
  - Self-efficacy: project optimism that they can change their life if they wish
• **Acute intoxication** generally just requires reassurance, but acute medical admission might be necessary where physically compromised, esp if uncertain what has been taken/polysubstance use

• **Serotonin syndrome** is a possibility
  - *Cognitive*: agitation, confusion, delirium
  - *Neuromuscular*: akathisia, ataxia, myoclonus, hyperreflexia
  - *Autonomic*: dizziness, N/V, tachycardia, sweating

• The limited data on the topic support antipsychotics for **acute psychoses**

• Currently **UDS** of limited use due to lack of sensitivity and specificity, with high rates of both false positives and false negatives; but likely to improve

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1. Boyer & Shannon, 2005  
2. Papanti, 2013  
Thanks to my fellow psychotherapeutonauts

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