Drug Facts

Newer Unregulated Drugs

ABOUT THIS BRIEFING: This briefing provides an overview of "Novel Psychoactive Compounds"or "Research Chemicals," in the UK. It is not intended to provide detailed information on each compound or a list of all such compounds. Where substances have become sufficiently popular or enough is known about them separate briefings will be available on the KFx site and elsewhere. Look up charts of key drugs are also available on the KFx site. This is version 1.6 (updated 27.4.15; updated to reflect new drugs and legal changes.)

AKA: Generic terms: Legal Highs,Herbal Highs, party pills, Novel Psychoactive Compounds, NPCs, NPS, RCs, Designer Drugs,

Generic Slang terms: *Monkey dust, Bubble, BubbleLuv, Pulse, Plant food, Bath Salts, Incense, Legals, and many others*

Chemicals include: MDAI, MPA, 5-FMP, AKB-48 and many others

Chemical Brands and Slang Includes: Benzo-Fury, Mephedrone *Meow Meow, Drone), Sparkle, Ivory Wave, Black Mamba, Annihilation, Doob and many others*

Terms and Frame of Reference: The naming of things is a big issue when it comes to Research Chemicals and there's no easy way to approach the subject.

This report and most drugs professionals eschew the term "Legal Highs." Many of the compounds that are of interest are not legal. Some never were; others have been made illegal recently.

The term "legal" also has connotations of the substances being licensed or regulated which of course is not the case. They are unregulated – and therefore legal by omission rather than being permitted.

As the remaining ones gain popularity and media attention they too are likely to be prohibited. Not all the compounds are euphoriants or stimulants; they may be depressant drugs or anaesthetics. As such the term "legal high" may be doubly erroneous.

Novel Psychoactive Compounds: The preferred generic term amongst some drugs workers and academics is "***Novel Psychoactive Substances*** (or compounds)" – which may get shortened to NPCs. It's a bit of a mouthful, and the term hasn't really caught on with those who actually use the compounds. It may not be wholly accurate either. Not all the substances of interest are truly "novel." MMCAT for example was probably first synthesized in around 1929. Nitrous Oxide has been used for almost 200 years.

Research Chemicals: On a lot of user-led discussion forums, the term mostly used is "***Research Chemicals***." This partly emerges from the idea that they were chemicals that were being used in research settings and have been co-opted by recreational users for their own use. It also reflects that they are being sold, allegedly for "research" only rather than human consumption so as to avoid possible legal problems. A lot of early users would rather view their use as being an intellectual "research" pursuit rather than a hedonistic quest to get intoxicated and so like the term too. Whatever the reason the term "Research Chemicals" is more familiar to some users than NPCs.

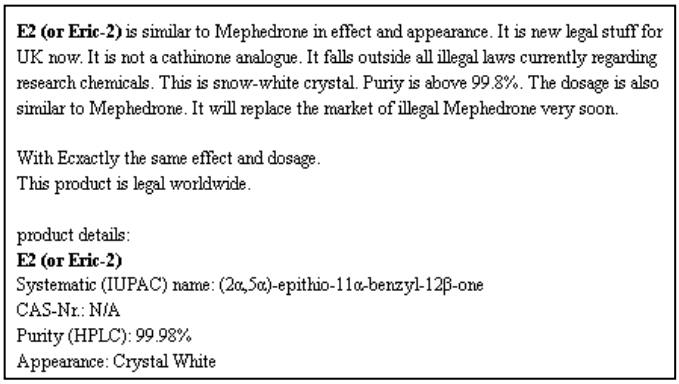
Newer Unregulated Drugs: The terms RCs, NPCs and Legal Highs all side-step the word "drugs." "Drugs" and "drug user" are to an extent value-laden and stigmatizing terms. Avoiding this term means people can consciously and sub-consciously distance themselves from being involved in "drug use." So the term **newer unregulated drugs** is useful as it reinforces the concept that these substances are being used as drugs and the "unregulated" term reinforces the sense that they are legal because they are unregulated, not because they are approved. However, some of the compounds are now regulated so, like other terms, it is not perfect.

Chemical Names: The drugs in question will have a long chemical name. Some will have more than one as there may not yet be an agreed chemical name. The long chemical name may well be shortened to a short chemical name – often based on the initials.

So for example 'mephedrone' had at least three different long chemical names: early ones were: 4-methyl-*N*-methylcathinone and 2-methylamino-1-*p*-tolylpropan-1-one. Later the name (RS)-2-methylamino-1-(4-methylphenyl)propan-1-one became the standard name.

The abbreviation 4-MMC was an abbreviation of the long chemical name: **4**-**m**ethyl-*N*-**m**ethyl**cat**hinone. As it came to market, and started to get used and sold more, a more user-friendly name was required and it was dubbed "**mephedrone.**" Again this wasn't a standardized name. It's just some people involved in the drug thought the name was a fair summary of the drugs structure and name and it stuck. Others thought it was a lousy name, and argued, unheeded for more "accurate" names, such as 4-MMC.

Some retailers will now attach long chemical names to make a bogus product sound like a real thing- by dazzling people with a very small amount of science, such as the product E2 illustrated here:



E2 (or Eric-2) is similar to Mephedrone in effect and appearance. It is new legal stuff for UK now. It is not a cathinone analogue. It falls outside all illegal laws currently regarding research chemicals. This is snow-white crystal. Puriy is above 99.8%. The dosage is also similar to Mephedrone. It will replace the market of illegal Mephedrone very soon.

With Ecxactly the same effect and dosage.
This product is legal worldwide.

product details:
E2 (or Eric-2)
Systematic (IUPAC) name: (2α,5α)-epithio-11α-benzyl-12β-one
CAS-Nr.: N/A
Purity (HPLC): 99.98%
Appearance: Crystal White

Brand Names: As new drugs come to market "brand names" have become more widespread. These may or may not be a good reflection of the chemical structure. So the name **Mephedrone** stuck, and more recently **BenzoFury** became a common brand name for the compound 6-APB.

Now the situation has become more chaotic, where numerous retailers offer their own "branded" product. This may well be a "professionally" presented product in a printed, sealed packet, e.g. the

package of Ching illustrated to the right. But this is just a brand name, and not indicative of the contents at all. The packet of Ching stated on the rear that the contents were ethylphenidate. Samples analysed showed that, in fact it did actually contain Ethylphenidate.

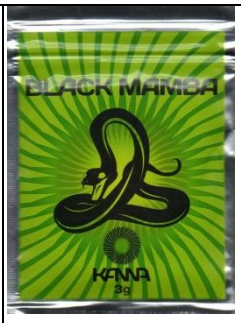
However such descriptions, statements of purity or weight should not be taken as gospel. The actual contents could be something completely different.

Unfortunately we've now reached the point where products are being marketed where neither the name nor packaging gives any indication of the contents. So for example the WTF product illustrated gives no indication of what is in the sachet and without analysis no-one can be sure.

A few brand names have become sufficiently widespread that they have become generic slang. So for example there was once a synthetic cannabinoids mix sold as **Spice.** It contained the chemical JWH-018. This form of Spice is long gone but the term "***spice***" has persisted and is now a generic term for synthetic cannabinoids, especially in the prison system.

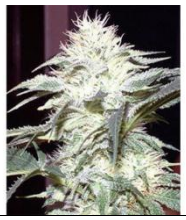
Same name, different mix: In a small number of cases a name clearly achieved such a high level of recognition that the names got reused even though the drug inside the package had changed. So pre 2013 there was brand of synthetic cannabinoids sold under the name Black Mamba. This version, which contained the chemical AM2201 went out of production in 2013.

The name, however, had clearly stuck and so a new Black Mamba is currently on sale: very similar packaging but different active ingredients. The risk is that people will use and dose in the same way, even though the newer product may be more potent and have a different risk profile. The extra complicating factor is that rival companies will use the same product name, and similar packaging but contents may contain different compounds or be of different strengths.

			
Black Mamba (2011) active ingredient: AM-2201	**Black Mamba** (2014) 5F-PB-22, 5F-AKB48 [?]	Psyclone – one brand	Psyclone – different brand

Confusion with older drugs:
In order to piggyback on the cachet (or notoriety) of "traditional" drugs, some of the newer drugs have names that draw on drug slang or had been previously used in relation to older drugs. This creates significant confusion: if someone says that they have been smoking "squidgy black," anyone over the age

of 40 would assume it refers to old cannabis resin. Now it is more likely to refer to a synthetic cannabninoid.

Older Drug	Synthetic newcomer	Older Drug	Synthetic newcomer
China White		**Snow**	
a high grade of white heroin 	Synthetic stimulant blend 	Slang for cocaine 	**Synthetic stimulant mix** 
White Widow		**Squidgy Black**	
A strain of strong skunk 	Synthetic cannabinoids receptor agonist 	Form of cannabis resin 	Synthetic cannabinoids, in resin form 

Plant Foods: As some of the compounds were originally sold under the "cover" of being ***plant foods*** or ***bath salts***, these terms have retained some currency as a generic term. As newer products came to market, more cover terms have been employed including ***pond cleaner, incense*** and ***pot-pourri.*** In much U.S. coverage of NPCs, the term Bath Salts has been used a huge amount in the media and by commentators. The snag with all such terms is that they create a level of confusion, leading some naïve users to believe that specific plant foods or bath salts may contain psychoactive compounds. This is especially confusing when some genuine products (e.g. certain nail varnish removers, and female hygiene products) do contain psychoactive components.

User and Media Slang: The term *Mephedrone* was shortened to '*drone,* and some, especially the media, adopted the term *Miaow Miaow*.

More recently, regional slang terms such as *Monkey Dust* or *Bubble* have emerged. Rather than referring to a specific drug, they are used as a more generic reference to white stimulant powder drugs. In the same way that "E" was initially a specific reference to the drug MDMA, so "*bubble*" was originally slang for a preparation on sale in the north of England believed to contain 4-MMC and MDPV. As time went on, just as E became a more generic term for "*a pill that I necked in a club, not sure what's in it but hopefully it will be a bit speedy and trippy*," so *bubble* has become a generic term for "*a white powder that I bought and I'm not sure what's in it but hopefully it will be a bit like 'drone but here goes…*"

It's the real thing!Mephedrone (to use one example) was made a Controlled Drug in 2010. It's not clear how much "new" mephedrone has been manufactured or imported since then, and how much pre-ban mephedrone was already in the system. What is left is almost certainly being bulked out or mixed with other white powders. We don't really know how much mephedrone is around. So when newer users (who started use post-ban) say that they are using "*mephedrone,*" it may well be that they are using any one of a range of substances. It could be mephedrone, another unregulated compound, or

something else. In one area young people were being sold speed as 'mephedrone.' It's probably better, if people say they are using mephedrone, to mentally interpret this as being an "unknown white powder." It certainly won't be pure mephedrone.

Other "Legal Highs," and "Ethnobotanicals:"

There are a collection of substances that are not that new, but are not currently regulated. They may not be considered as Research Chemicals or Novel Psychoactives. But they still need to be considered.

Some of these are plant or plant extracts that contain psychoactive material. Some of these have been used in other cultures for ritual purposes. Some of these are referred to as "ethnobotanicals" suggesting that they are plants associated with ethnic cultural practices. It is more likely to get dubbed "ethnobotanical" if it has elements of spirituality or new-age mysticism attached to it. So for example **peyote cactus** may end up being called an ethnobotanical. **Khat** despite being botanic and associated with distinct ethnic groups doesn't usually get called an ethnobotanical. Presumably because it's not mystical enough.

Other plants have no such rituals attached to them, but may also end up being called ethnobotanicals. Some of the ethnobotanicals contain substances which, if extracted, would constitute a controlled drug.

As an example the plant Chacruna (*Psychotria Viridis)* contains the hallucinogenic compound **DMT**. The plant is used in the South American hallucinogenic brew **Ayahuasca.** The plant is legal to supply and a small number of on-line suppliers do offer it for sale. However, DMT is a Class A controlled drug, and people have been prosecuted for making brews containing Chacruna as it is can be considered production of a Controlled Drug.

Other plants, such as **Salvia Divinorum** don't contain any substances which are currently controlled drugs.

Some plant-based legal substances can have unpleasant and possible dangerous effects. There's a small and less-commonly used collection of plant-based compounds which are notorious for being risky and having unpleasant side effects. These include plants such as **Henbane** and **Datura** which contain the psychoactive and toxic chemicals Hyoscyamine and Atropine.

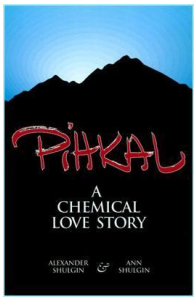
Most plant-based legal compounds are sold on-line or via 'Headshops.' The plants are generally grown abroad and imported in to the UK. Excessive cropping for the international drug market has increased cost and reduced availability. There is no quality control to 'guarantee' the identity or potency of substances being sold, and so the plant-based products being sold could contain a different substance, or no psychoactive compounds at all.

Medicines: a small number of Pharmacy Medicines (e.g. those containing **codeine**) or substances with legitimate non-medical use (e.g. **nitrous oxide**) are also used for their psychoactive properties.

2: Overview: The world of recreational drug use has never been static. New substances come along from time to time. Once, coca leaf was the Research Chemical of its day. Later, cocaine was extracted and refined from the leaf, it became a new Research Chemical in turn. Rather than today's psychonauts and web discussion forums being at the cutting edge of drug experimentation, people like Sigmund Freud and the upper echelons of society were pushing the drug boundaries.

In truth, wholly new substances had been thin the ground for a while. Prior to the early Eighties, outside of those with good connections to post-graduate chemists with well equipped labs, drug users in the UK had the tried and tested opiates, LSD, magic mushrooms, cannabis, benzos, amphetamines, and for the well off, cocaine. Plus solvents, if you had to. There were other products being promoted. A stroll around the less salubrious ends of Camden Market in North London would reveal a wide range interesting blends of smoking mixture. Most of these were blends of herbs with reputedly cannabis-like effects but would generally have all the intoxicating properties of a small bonfire and a similar aroma.

So when Ecstasy (MDMA) arrived in the UK in the mid-eighties in a big way, it was the first really new drug to hit the recreational scene in a fair while. MDMA was (if we are being pedantic) not that new – having been discovered way back in 1912 it would take another 65 years before it was "rediscovered" by Alexander Shulgin and another ten years before it started to become a popular club drug.

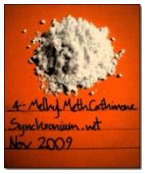


The rediscovery of MDMA was part of the story. Another key aspect was Shulgin's decision to produce his *magnum opus* **Pikhal** which described the synthesis and effects of a large number of experimental compounds in the ***phenethylamine*** family of drugs. The next key development was the explosive growth of the World Wide Web. This first allowed those with a knowledge and interest in creating new compounds to pool and share knowledge. Secondly it allowed people who were experimenting with taking new compounds to share their experiences. Lastly, and most recently, it has allowed people to sell and buy new (and old) compounds with relative impunity.

Over the past twenty-five years then, a greater number of people have gained more knowledge about how to make a greater number of compounds and how to publicize and sell them to a greater number of people. The stage was set for the sale of Research Chemicals.

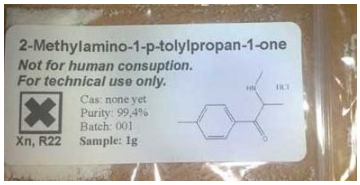
With Ecstasy dropping in quality fast in the UK, people interested in drugs for going clubbing looked around for the next big thing. A compound called **BZP**, one of the piperazine family, did the job for a fair few people. After MDMA it was probably the next proper "Research Chemical," although most people thought of it much more as a "party pill" or similar. It was made a Controlled Drug in 2009. Others tried out, with varying degrees of success, GHB (not a great clubbing experience) ketamine (ditto) and a range of other less familiar and relatively new compounds.

Then in the MMCAT arrived, reaching high levels of popularity in the UK which reached a peak around 2010 when the drug was added to the list of Controlled Drugs. The pieces of the jigsaw had come together: underground chemists with the knowledge to make new compounds, bolstered by the collective mind of some drugs forums, with the technological might of Chinese and other labs not adverse to making the new compounds, and a ready market of net-savvy end users all too willing to research, order and pay for the new compounds on-line.



The natural history of a Research Chemical: Older RCs had an interesting life-cycle, which seems to have changed recently. The usual order of things was that a chemical had been identified by scientists at some point in the last century. Typically they then languished, unused, in old journal articles for a number of decades. A small number of keen post-grads might synthesize these for personal use, but they wouldn't reach a wider audience.

Eventually, a particularly popular compound might start to reach a wider audience. Initially this was typically wholly underground, maybe not being discussed on bulletin boards yet, and certainly not being marketed on-line at this stage.

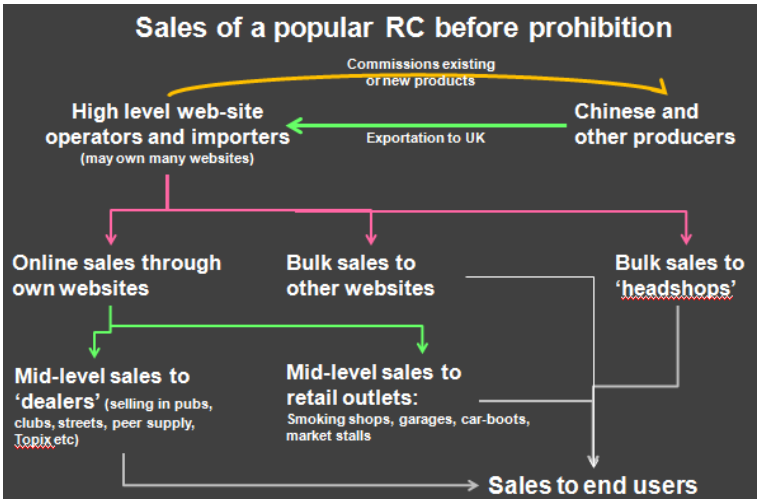


After a while, through discussion boards and underground drug markets, some of these chemicals start to get produced in larger quantities. Labs may be commissioned to produce the drug in bulk.

Some of the drugs then "break-through" from discussion forums and the drugs underground and achieve wider popularity. At this stage use becomes more extensive, the media and wider world becomes aware of the substance.

Finally after the drug comes to wider media and Government attention, it is likely to be added to the list of Controlled Drugs. There may be a "tail" of use as residual drugs in the system are used up. But if the substance was especially popular or effective, it may continue to be made and distributed but through more traditional street markets rather than on-line selling.

Newer products coming to market: Since the heady days of mephedrone, the market has changed a great deal. New products are still coming out quickly. Some of these are following the classic route of "older" substances that had been used in research settings being co-opted for the recreational market. But increasingly true "designer drugs" are emerging where underground chemists are setting out specifically to design a molecule to bypass legislation or for a specific effect. A fine example of this is methoxetamine (MXE).



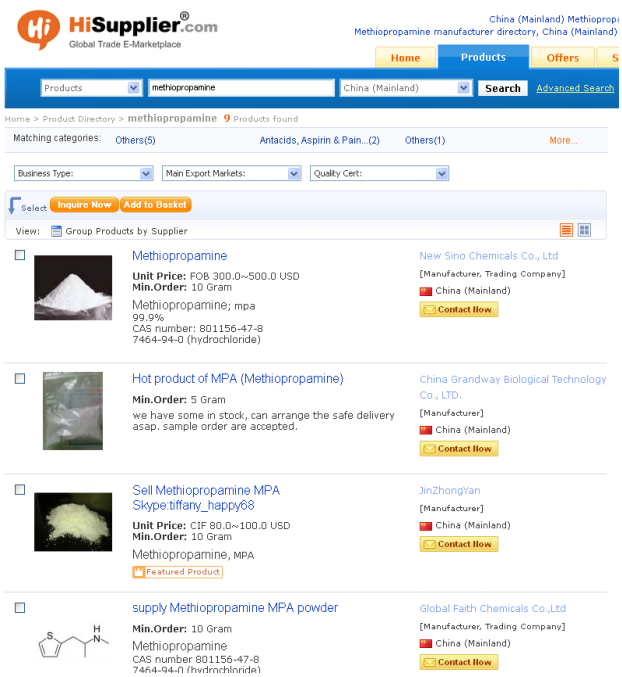
While some of the compounds coming to market are older research chemicals, and others are brand new, designed drugs, a fair few are neither. They are the fakes and cocktails that are flogged on numerous websites and in a fair few pubs and clubs. Some of these contain little or no psychoactive material at all. They may contain caffeine and lidocaine which will give a mildly stimulating effect plus some nasal numbness, and thus can be passed off as a cocaine-esque research chemical. It may be a mix of old, now banned research chemicals or there may simply be inert material pressed in to a pill. Without lab analysis we don't know. For example a study published in 2011 analysed seven compounds bought from online retailers in the UK. Six out of the seven samples didn't contain the advertised compound, and five of the seven contained banned controlled drugs.

As this market has accelerated, a growing number of compounds, simply sold as "proprietary blends" or under a brand name don't even state their active constituents.

Production: The market for Research Chemicals in part follows traditional drug markets but is also intrinsically linked to web-driven global markets. It is simultaneously as old-fashioned as possible but at the cutting edge of technology.

There are different stages to any drugs market. So for example when 4-MMC was widely available and legal the model looked something like this:

We don't know where all the new RCs are being produced. It may well be that some are being produced within the UK or mainland Europe. But a significant number of them are produced in China. In some instances Chinese labs may be developing new products themselves (or at least claiming to). In most cases Chinese labs offer to produce new products for international vendors. Purchasers arrange to buy product, may visit a lab to sample product or inspect the process and then drugs are shipped internationally to the purchasers.



A development that eased this process was the emergence of international trade websites such as AliBaba. This made it easier for purchasers in the UK with little or know knowledge or experience of dealing with Chinese laboratories to find producers willing to produce knew research chemicals.

Markets and Marketing:

Classic markets include peer-to-peer supply and low level dealers buying bulk on-line and then redistributing at a street level and via pubs and clubs.

Novel markets include a large number of on-line retailers selling a range of compounds over the internet. While there are a high number of apparently different sites, many of these will be owned or controlled by the same people.

It must be stressed that a professional-looking website and ability to pay on-line with a credit card does not mean that the products are legitimate, or of guaranteed quality or that credit card details won't be misused.

Retail outlets have been a key sales point for RCs. Initially this was primarily "head-shops" and similar but as the market expanded, more and more outlets have been selling RCs. This has included tattoo parlours, sex shops, market stalls, car boot sales, and, according to a couple of correspondents, even petrol stations.

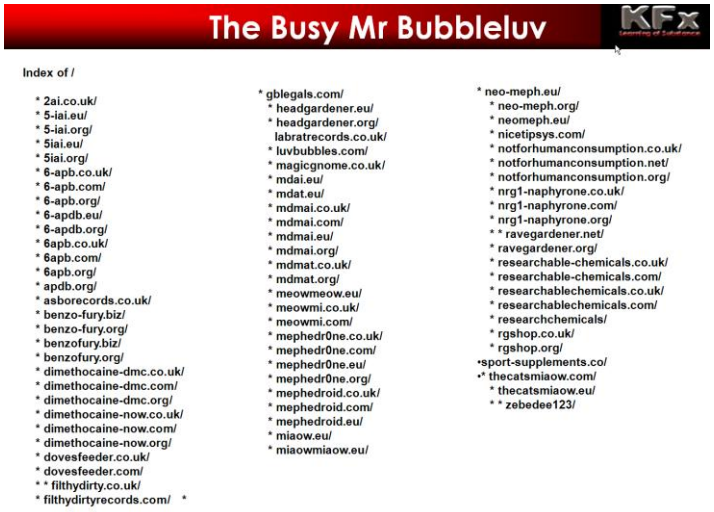
Other markets include an increase in selling via other websites, including **Topix** and other discussion forums. Some drugs trade has shifted here but has a high level of scammers. The evolution of

'deep web' selling like the **Silk Road** website has seen increased interest recently but does not yet represent a significant aspect of the UK drugs trade as far as we know.

Forums: When 4-mmc and some of the newer drugs first appeared the distribution was relatively clandestine. Discussion took place in forums and supply took place via personal message. As the identity of the products became more widely known and laboratories were commissioned to produce larger quantities, the marketplace changed.

On-line shops: Given that, as this stage key products were still legal products were being openly sold via on-line stores. At first there were a small number of them, but by late 2009-early 2010 there was a huge growth in the number of these sites.

Most of these appeared quite professional, with capacity to take payment by credit card, shopping-cart technology and claims made for the purity of the drugs. For anyone with start-up capital, the ability to source product from China and the knowledge to set up a website, this was an unparalleled chance to make money quickly.



We don't know how many different people were involved in this. Some individuals undoubtedly controlled numerous websites selling the same products through different sites. One individual controlled in excess of sixty different web domains ready to sell compounds.

As this process escalated, some people set up on-line but with no product at all – and so ended up bagging and selling other things – caffeine, inert powders and so on. Given a big enough audience, even a thousand people "chancing" it to buy a white powder at £10 a bag would generate £10,000 for minimal start up costs. Control five domains doing this, and the earnings could be £50,000 – for probably internet costs of less than £500 and no need to source drugs from China.

New Products? Selling Mephedrone on-line like this really broke the mould for drugs markets and key websites were quick to expand their range. MDPV and other drugs were added to the roster of products on sale, whether or not they were yet available. Lots of websites highlighted that products would be "coming soon," and encouraging people to register or offering samples.

The extent to which these compounds were genuinely available or going to be available is hard to judge. By the time Naphyrone (NRG-1) had started to emerge and been made illegal, the next generation of compounds like NRG-2 and NRG-3 were being touted – and all the evidence indicates that these were wholly fictitious compounds.

Google, Sock Puppets and Forums: In 2009, the easiest way to find websites selling new drugs was to use Google. At this point, not seeing anything wrong with this, Google Adwords programme would promote vendor websites in response to search terms such as Plant Food, or Mephedrone. At

some point a decision was made to end this advertising. However a search for currently legal substances will still lead to links via Google searches in the normal way.

As new drugs emerged, the would typically get discussed on key drug-discussion forums. The main two forums Drugs Forum and Bluelight both prohibit publicizing specific websites and on-line vendors. Whilst on the one hand this reduced the extent to which these websites promoted any on-line retailers, it also meant they weren't in a good position to highlight websites that were known to sell rogue products or to scam purchasers.

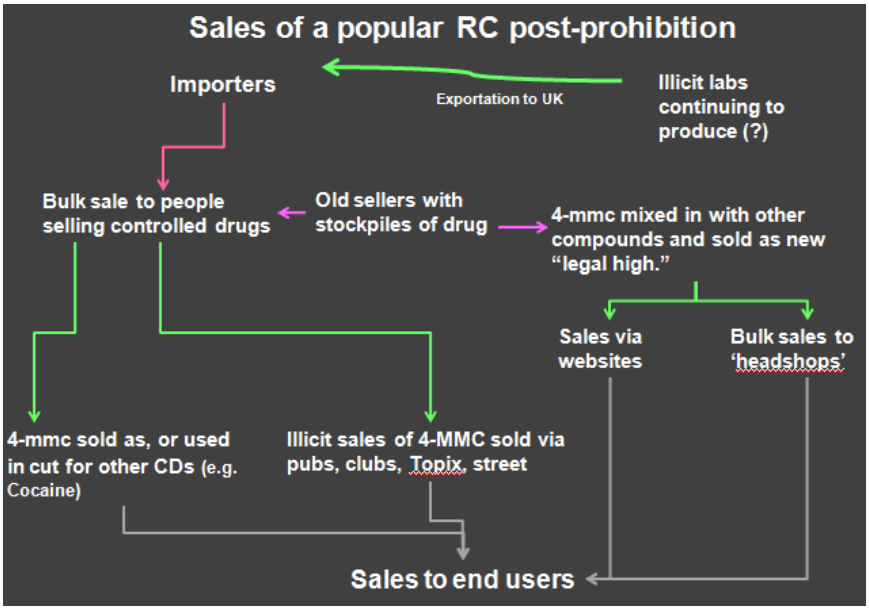
Because of the self-censorship on these websites, and the efforts made by these sites to ban people trying to promote their own products, discussion moved to one of a number of less-well-moderated websites and forums.

A key promotional tool on such sites was the "sock-puppet," where a retailer creates several alternative identities who can then converse, extol the benefits of a new product, say how reliable they find specific vendors and so on. Whilst such Sock Puppets are generally removed from the Drugs Forum and Bluelight, it seems likely that on other sites the vast majority of commentators are in fact Puppets. Trying to assess any facts about new compounds from forums dominated by Sock Puppets is not possible.

Leftovers: As drugs are prohibited, residual drugs are left in the system. We don't know the scale of this. Unfortunately, in the case of Mephedrone, no attempt was made by Government to buy up residual stocks so these remain in circulation.

So, post-prohibition, surplus drugs remained in the market. Knowing that prohibition was on the horizon some people stockpiled drugs. After prohibition, the drugs still end up getting on to the market through a number of different routes, in a number of different products.

Some of these drugs continue to be sold by name. So sales of mephedrone have continued after prohibition. The evidence suggests a gradual reduction in purity and quality as residual stocks are bulked out.

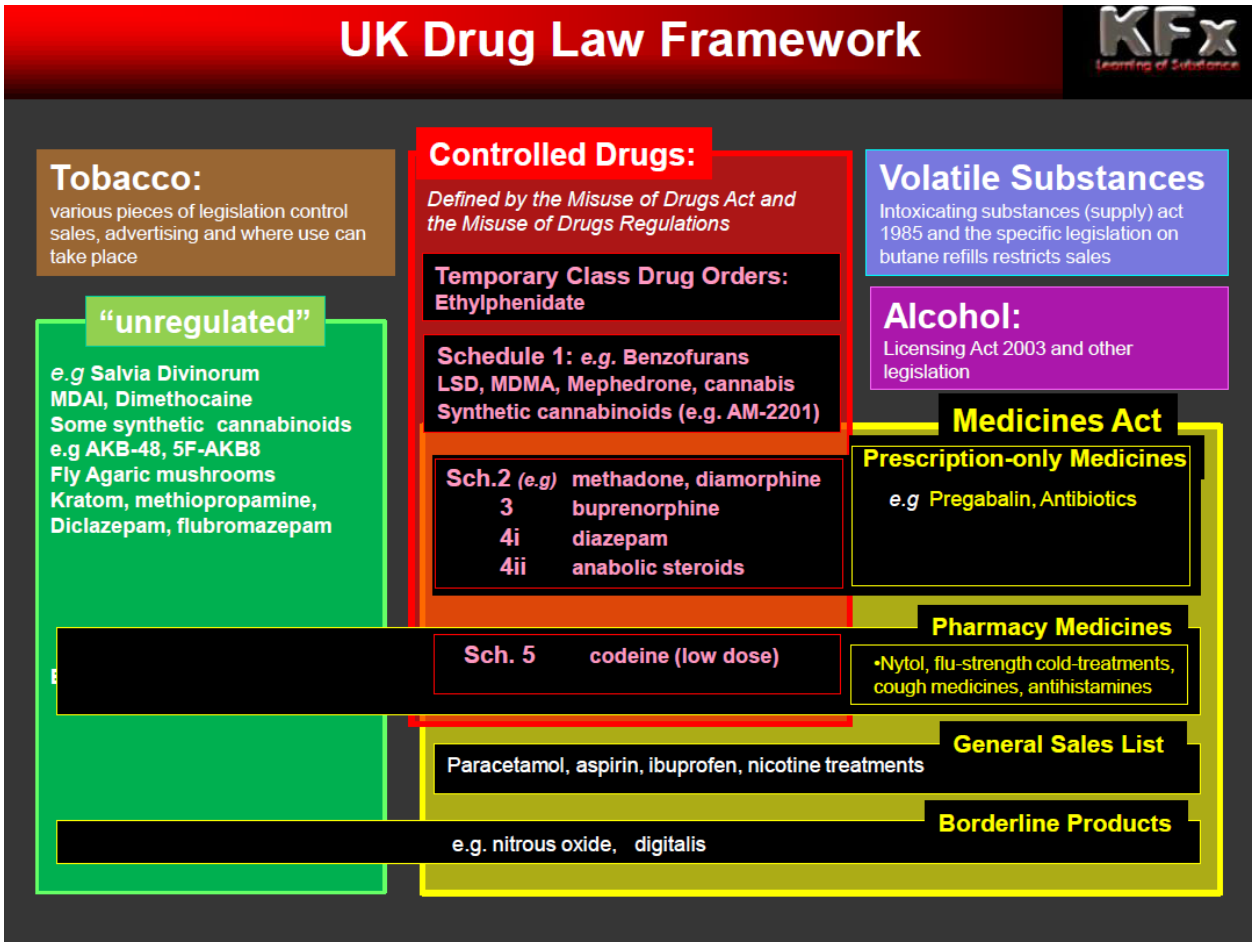


Other drugs probably got combined with currently legal, or inert compounds, were repackaged and relabeled and then sold through existing "legal high" channels as a new "legal" high. So the evidence is that lots of recently-banned MDPV ended up being sold as the then-legal drug Naphyrone (NRG-1). So a fair few people who were buying things they believed to be legal were in fact buying controlled drugs.

Some of the remaining stock was sold on to existing suppliers of controlled drugs and started to appear in place of, or as a cut in existing CDs. So mephedrone turning up in place of MDMA, mdpv and

mephedrone as cuts in speed or cocaine and methoxetamine being sold as ketamine have become more commonplace.

LAW: As with everything else to do with Research Chemicals the law is another confusing area. Substances could be covered by a number of different pieces of legislation.



The legality of substances will vary on a drug-by-drug basis. Some are very clearly controlled drugs **e.g. 4-mmc**. Others are not currently Controlled Drugs and so are not covered by the Misuse of Drugs Act 1971.

The complexity of the legal framework is not helped by an agreement as to what we mean by "*legal highs*." This could be taken to mean substances that are not currently subject to any legal restrictions (e.g. ***Salvia Divinorum.***) Alternatively it may mean that they are the subject to some restrictions under pieces of legislation, but are not subject to all the restrictions of the Misuse of Drugs act or Prescription Only Medicines.

Schedule 1 controlled drugs: these are not currently held to have any medical use and so outside of possession by law enforcement or Home Office-licensed researchers, possession will generally be illegal. This includes drugs like LSD and MDMA.

Schedules 2, 3 and 4i: these are controlled drugs but also Prescription Only Medicines. Outside of professionals authorized to possess them, it will be lawful to possess them if they are prescribed to you, and some other specific circumstances. Methadone, buprenorphine and diazepam are in schedules 2, 3 and 4i respectively.

Schedule 4ii Controlled Drugs: Anabolic steroids and other performance enhancing drugs fit in to this Schedule. Possession without a prescription is not an offence, although supply is.

Schedule 5 Controlled drugs: A small number of Controlled Drugs (including codeine and morphine) will be legal to possess in certain formulations (e.g. codeine-paracetamol tablets containing 8mg codeine) and so these are lawful to possess even though they are controlled drugs.

Temporary Class Drug Orders: There was concern that the time-lag between new products coming to market, the ACMD being able to research it and a decision to add it to the list of Controlled Drugs was too great. New legislation was passed to allow drugs to be temporarily added to the list of Controlled Drugs, pending final review and decision by the ACMD.

Temporary Class Drug Orders (TCDO) came in to force in 2011. On the recommendation of the ACMD, the Home Secretary can place a drug under a TCDO. This makes it an offence to produce, import or supply the drug, and offences carry a maximum of 14 years imprisonment and/or unlimited fine. However possession of drugs subject to a TCDO is not a criminal offence.

The Home Office states that if law enforcement officers suspect that they think the person is in possession of a TCDO they can:

- search and detain a person (or vehicle etc) where there are reasonable grounds to suspect that the person is in possession of a temporary class drug;
- seize, detain and dispose of a suspected temporary class drug, and
- arrest or charge a person who commits the offence of intentionally obstructing an enforcement officer in the exercise of their powers here.

In practice a drug under a TCDO will be indistinguishable from either a wholly illegal drug or a completely legal substance. If Police find someone in possession of a substance, they may well still be arrested on suspicion of possession of a Controlled Drug until the actual nature of the drug can be determined.

Methoxetamine, 6-APB and 25i-NBOMe were substances that emerged as new substances, were made TCDOs and, after 12 months, became Controlled Drugs.

Analogue clauses: once upon a time, drug legislation specified specific compounds as being controlled drugs. However as science has advanced, such legislation becomes out of date quickly. An analogue clause is intended to cover a range of compounds by describing the likely chemical variants that could be produced based around the same core structure. So for example in relation to some tryptamines, the legislation prohibits:

> any compound (not being a compound for the time being specified in sub-paragraph (a) above) structurally derived from tryptamine or from a ring-hydroxy tryptamine

by substitution at the nitrogen atom of the sidechain with one or more alkyl substituents but no other substituent;

Analogue clauses prohibit whole families of drugs and potential future drugs. However, it does mean that we don't always know if a new drug is illegal or not. The wordings can be so complex and technical that few people with sufficient knowledge of chemistry will understand what they do and don't prohibit. Further legal arguments would need to determine what the phrase "structurally derived from tryptamine" means on a case by case basis.

Recently new compounds have emerged which produced drugs which radically departed from the expected structures making it possible to produce new legal compounds which hadn't been covered by existing legislation and analogue clauses.

Pharmacy Medicines: Similarly there are a few pharmacy-only medicines which are not controlled drugs, but also may be used outside of medical settings. So for example the antihistamine **diphenhydramine** is used for its psychoactive properties.

Volatile Substances: Although there are age restrictions on the sale of butane, and sanctions who sell other inhalable products to under 18s where it is known the products will be used, the possession of these products is lawful, so these could also be considered legal highs.

Borderline Products: A number of products may contain psychoactive compounds or those that have a medical value. Depending on how the products are processed, packaged, labeled and promoted they may or may not be considered Medicines. The Borderline Products Team within the Medicines and Healthcare Products Regulatory Authority (MHRA) will consider such products to determine if they should be considered medicines or not. Those that are considered medicines will then be subject to all the relevant regulations, and risk of prosecution for those who sell them outside of these regulations.

Products which the MHRA hasn't ruled on, or has determined are not Medicines are not subject to these regulations and so can be bought and sold without these restrictions. So for example, Nitrous Oxide may be packaged and sold as an anaesthetic. In such situations it would constitute a medical preparation and would be regulated as such. But the same compound sold (for example) as a propellant for whipped cream would not be regulated in this way.

If new Research Chemicals sold for the purpose of ingestion for their psychoactive properties, then they could be considered medicines under the Medicines Act. By marketing them as "not for human consumption" and selling them as "research chemicals," "plant food" or "bath salt" it makes it possible to sidestep these medical regulations.

Other legislation: In theory it could be possible to act against people selling Research Chemicals as "plant food" or "bath salts" using Trading Standards legislation. However, there haven't been any significant moves in this direction. Those buying the substances as drugs know that they are not "plant foods" and so have no interest in taking action through this route.

The other potential course of action is via civil litigation if use of a compound caused harm. Retailers protect themselves to an extent by stating on websites and packaging that the substances are "not for human consumption." Hence any harm stemming from use would be hard to action and I am not aware of any attempts to sue retailers for harm arising from use.

The Intoxicating Substances (Supply) Act 1985 could be used to prosecute retailers who sold certain products to under 18s. While the Act was intended to be used to control the sales of Volatile Substances, its drafting means that any inhalable non-controlled drug is effectively covered by the Act, and so could cover smoked substances such as synthetic cannabinoids. Market-stall holders in Yorkshire were prosecuted for selling synthetic cannabinoids using this legislation

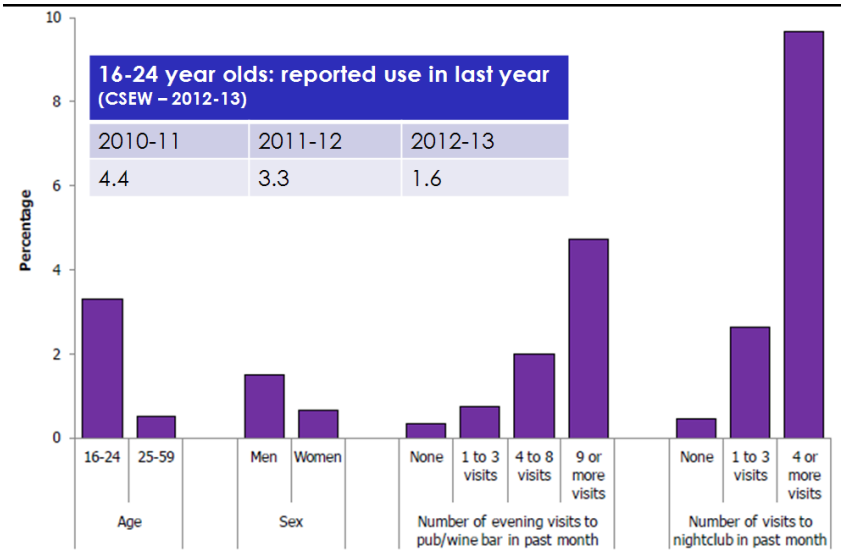
Police and Trading standards have taken some action by making it explicit to Headshops that the products that they are selling (a) may contain illicit controlled drugs and/or (b) are being used by people as intoxicating substances and/or (c) that the substances may be harmful. Such an approach may see the voluntary removal of substances or the seizure of illicit compounds.

TRENDS: It is not easy to get an accurate picture as to how prevalent use of RCs is. There are a number of complications that make research in this area especially difficult. Drug Misuse Declared (part of the Crime Survey for England and Wales – CSEW, formerly the British Crime Survey – BCS) track trends in drug use but with a moderate time-lag. So the results for the period ending March 2012 are published a few months later, and the key study of young people's drug use amongst young people is released six months after the year end.

With most drugs, this time-lag isn't so significant. But with some novel psychoactives, which may enter and leave the market within a matter of months, the timing and duration of research could have a significant bearing on response rates.

Drug Misuse Declared is specifically concerned with Controlled Drugs and so until a drug becomes a CD the CSEW doesn't tend to look at it. So newer uncontrolled compounds don't feature in the CSEW. The 2014 edition did include two "emerging" drugs, Nitrous Oxide and Salvia. Other substances may be concealed within other data. A moderate increase in LSD use, for example, may reflect people who were sourcing 25i-NBoMe.

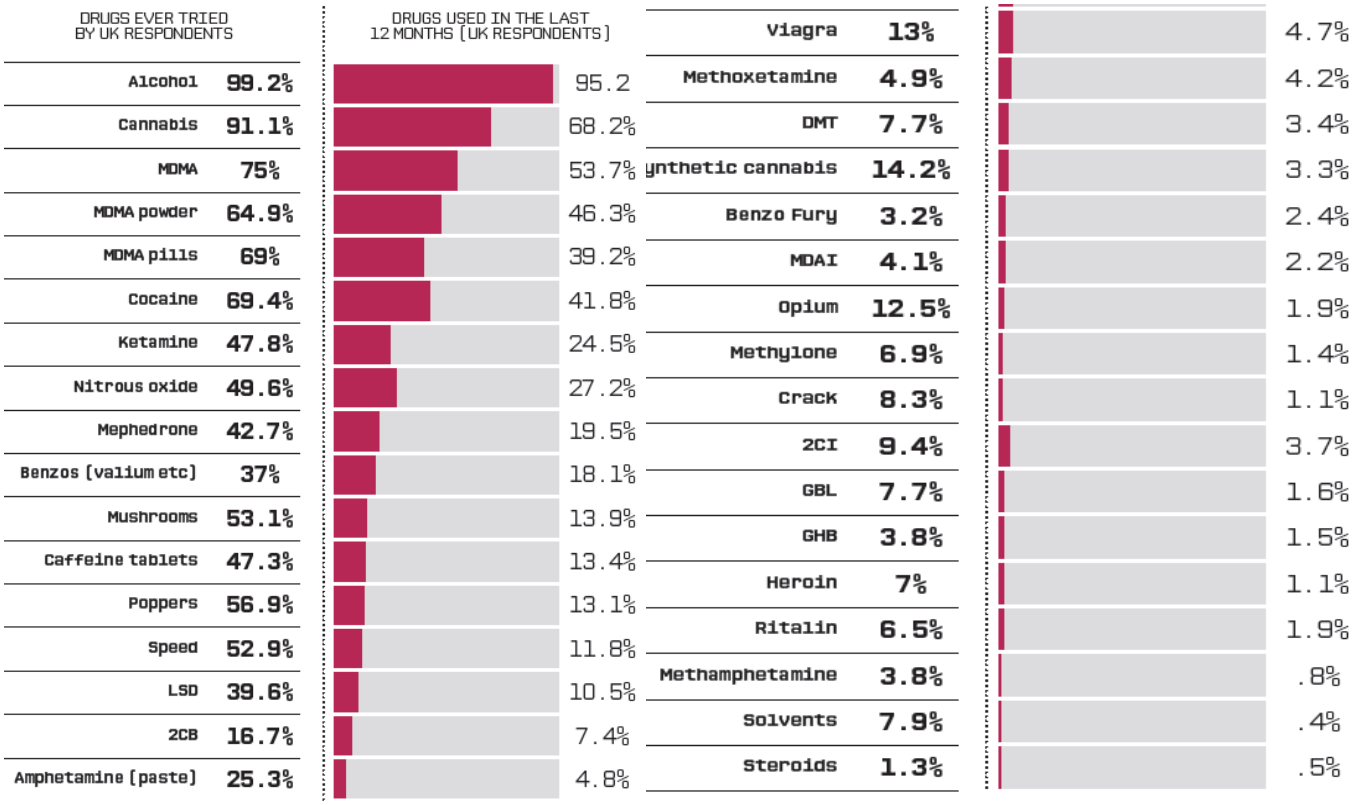
To make matters worse, the speed with which new drugs are identified and then added to the survey is relatively slow so effectively drugs that come to market in one year and have been prohibited the next year won't end up accurately reflected in the CSEW.



Finally, with some new compounds, terminology and geography may be very variable. Where drugs are concentrated in specific regional pockets or where some drugs are only know by specific names, this may not be well picked up by a broad piece of research such as the CSEW.

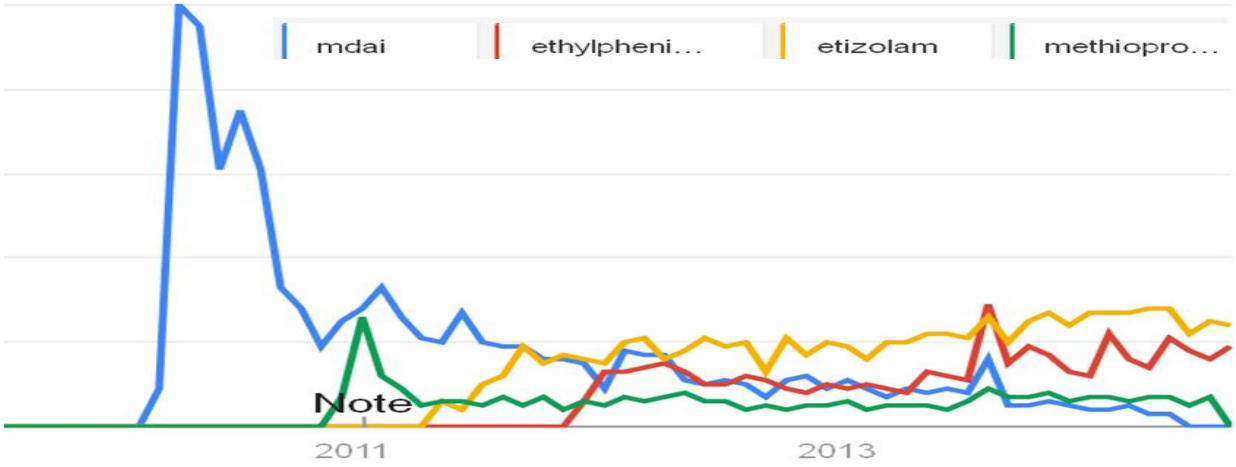
So based on the CSEW, the proportion of young people aged 16-24 who reported mephedrone use in the last year was 3.3%, down from 4.4% in the previous year. The levels of use amongst regular clubbers was higher.

In a self-selecting, self reporting survey conducted by Mixmag, levels of mephedrone use were reportedly much higher. However, these surveys are very highly selective and probably significantly over represent levels of drug use just as the CSEW is liable to under-report use.
The **Mixmag** survey above reported 19.5% of UK respondents had used mephedrone in the past twelve months, compared to 3.3% of 16-24 year olds in the CSEW survey.

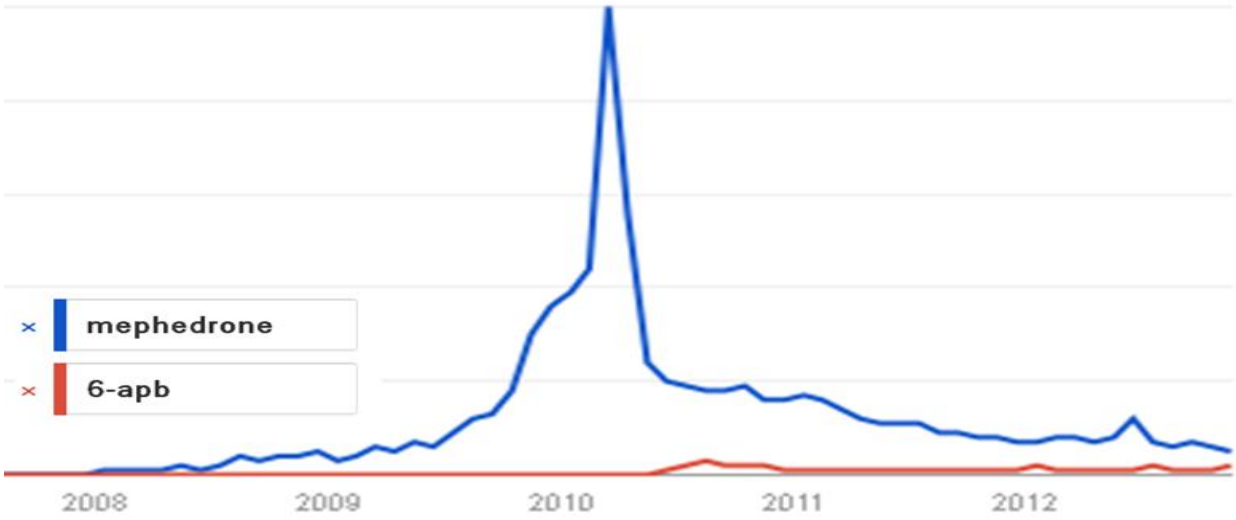


An interesting way of looking at trends in novel drugs is to use a proxy indicator such as Google Trends. This can help to indicate shifts in levels of interest in a drug. It seems reasonable to assume that these shifts in interest trends will correlate with usage trends. This doesn't mean that interest equals use, but that ups and downs in interest may well correlate with ups and downs in use.

When we look at interest in key novel psychoactives, interest in MDAI started high and, although still legal has tailed off significantly. Interest in Ethylphenidate has increased but the most researched of the current NPS here is the depressant drug, Etizolam.



What is more striking is comparing relative interest in 6-APB with mephedrone. What is evident from this is that interest in 6-APB, even at its peak, is relatively low compared to interest in mephedrone. The very tip of the 2010 mephedrone spike represents the furore of media interest up to the point where mephedrone was made a controlled drug. But even disregarding this spike, the peak in interest in mephedrone was far greater than in terms of other new drugs. It appears that nothing since then has generated the same level of interest.

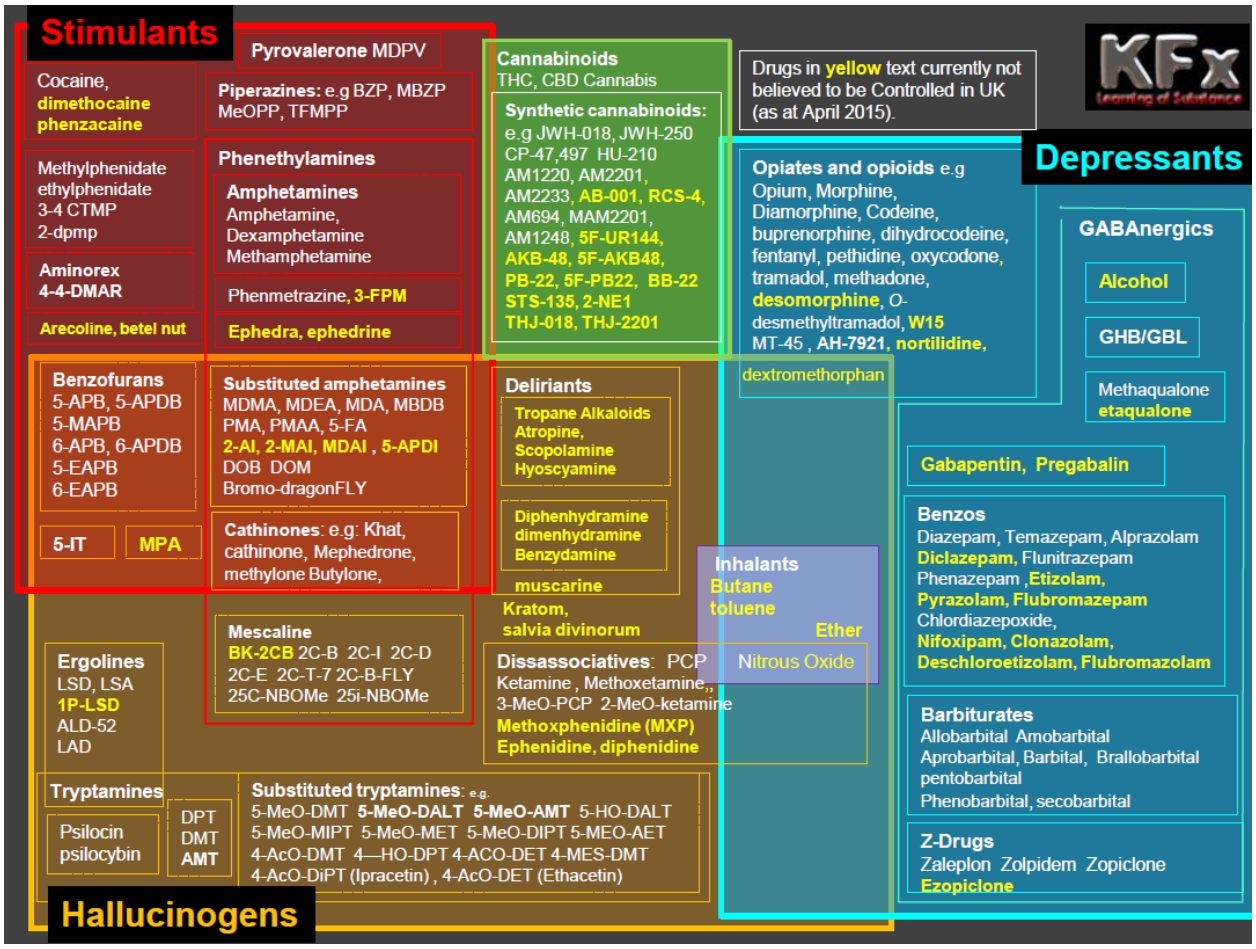


DRUG FAMILIES: There are several ways of trying to classify drugs, and it makes for a confusing and complex picture. We could split our drugs up by:

- Chemical structure: this means that families of drugs with similar chemical structures will be grouped together. Some will have similar properties but there may be others which don't. These could be very broad families (e.g. the **phenethylamines** would be a very large family, or smaller groups within the larger family – e.g. the **beta-ketones** of which mephedrone would be an example.
- User-perceived effects: here drugs will be grouped by how they are meant to make people feel. But even this system of grouping is fraught with difficulties. Are drugs "hallucinogenic" or "psychedelic" or "empathogens?"

- Pharmacological effect: this would look at how the drugs are working at a brain-chemistry level. This can be especially useful as it can highlight potential risks of a compound. But, especially when a drug is new we may not know a huge amount about how it actually works.
- The context in which they are used: for example to induce sleep, as a club drug or for profound hallucinatory experience.

For most people a model which draws on a bit of each model is useful. Having a little bit of a grounding on the behind-the-scenes brain chemistry is very helpful too. The schematic below locates some of the key compounds in terms of effects and legal status.



Stimulant Drugs elevate key neurotransmitters, including nor-adrenalin, dopamine and serotonin. They could do this through a number of mechanisms including increasing release of and/or inhibiting reuptake of these chemicals. The extent to which levels of a specific compound is elevated will determine the effect. Drugs with elevate dopamine significantly will induce greater reward and euphoria, but are more likely to increase a desire to redose. Those that have elevate nor-adrenalin will be less euphoric, but may increase alertness and cause anxiety. They also increase strain on heart and circulatory system.

Hallucinogens are drugs that have little or no stimulant activity but significantly alter perception. Many of these work on serotonin receptors in the brain. Some have a similar action to stimulant drugs, elevating serotonin levels by increasing release and inhibiting reuptake.

Drugs which elevate levels of serotonin can be more hallucinogenic, and can also increase feelings of empathy. The emotional closeness engendered by these drugs sometimes earns them the name "empathogens." Drugs such as MDMA fit in to this category.

Other important hallucinogens act as serotonin agonists, mimicking the effects of serotonin at receptors. Drugs like psilocybin are believed to work in this way.

Other hallucinogenic drugs have different mechanism of action and can feel profoundly different to serotoninergic drugs. So for example the deliriants atropine and hyoscamine, found in certain plants, induce hallucinations through a wholly different mechanism, and this is associated with profound disorientation, disordered thinking and confusion.

Depressant drugs, as a term is something of a misnomer, as they can also be significant euphoriants. They act as depressants on the central nervous system, slowing down breathing and heart rate, and inducing relaxation and drowsiness. Several drugs in this family act on the regulatory neurotransmitter GABA, elevating or mimicking it. Opiates work differently, by reducing levels of nor-adrenalin and so having a calming effect. Combinations of depressant drugs are a key cause of fatal overdose. They also tend to cause significant physical dependency with extended use.

Synthetic cannabinoids are also referred to as synthetic cannabinoid receptor agonists. They bind to CB1 or CB2 cannabinoid receptors in the brain and body. The chemicals THC and CBD in cannabis activate these receptors and synthetic cannabinoids can do the same. Some are much more powerful than THC and others have greater specificity to different receptors.

COSTS: This varies between websites, products and quantity. Prices of around £10-20/g are typical.

QUALITY CONTROL: As Research Chemicals are supplied outside of any regulatory framework, they can vary massively in quality. This has of course always been the case with illicit compounds. However, a fair few users labour under the misapprehension that if a website offers to sell product X and the package is labeled as Product X then what they have bought is Product X.

In fact what they have bought may be Product X. But it is more likely to be Product Y, or Product Z. These products could be completely inert, with no psychoactive properties. Alternatively it could have a different legal psychoactive compound in it. Or it could contain one or more illicit compound in it. The end user generally won't know what is in the product that they have bought.

WSa	Label	Comment
1	NRG-1	Butylone + MDPV
2	NRG-1	Flephedrone (4-fluoromethcathinone)
3	NRG-1	Flephedrone + MDPV
3	NRG-2	4-Methyl-N-ethylcathinone
4	NRG-1	Flephedrone + MDPV
5	NRG-1	Caffeine + traces of mephedrone
6	NRG-1	Naphyrone
7	NRG-1	Butylone + MDPV
8	MDAI	Inorganic composition
9	NRG-1	Mephedrone
10	NRG-1	Inorganic composition
10	NRG-2	Mephedrone + benzocaine
11	NRG-1	Mephedrone
11	NRG-2	Mephedrone
11	DMC	Caffeine + lidocaine
11	MDAI	Mephedrone
12	NRG-2	4-Methyl-N-ethylcathinone

Some compounds on sale have been tested and analysed by independent Laboratories. Unfortunately the results of these tests aren't widely available to those working in the drugs field, let alone end users.

Even if they were more widely available, results need to be treated with caution. A test conducted on Product X in 2011 doesn't mean that the same product contains the same compound at the same doses a year later.

There have been several studies of purchased legal highs, comparing stated contents with the results of Laboratory analysis. Each of them has highlighted that, rather than containing the stated legal compound, the majority of compounds contained either no psychoactive substances or contained illicit drugs. The study above, from the BMJ (June 2012) tested 12 batches of drugs. Of compounds sold a NRG-1 (Naphyrone) only one of ten products tested actually contained Naphyrone. Several of them contained compounds that had been made illegal earlier that year.

The key message has to be that, regardless of the quality of the website and the drug packaging, each purchased drug should be considered of unknown quality.

DRUG TESTING: Most of the NPCs produce different metabolites to those that are routinely tested for by urine test kits. As such they won't show up in most urine tests. Even when people are having more detailed testing done, new drugs won't be detected by most immunoassay tests as the drugs haven't been around long enough for such tests to become available. So for example a new urine testing kit to test for synthetic cannabinoids came out in July 2012 in the UK – but won't test for all the new synthetics.

Even if actual drugs are found, testing them using GC/MS testing to ascertain their identity is complex as any testing needs to be compared against reference samples. So typically a new substance emerges, a reference sample is analysed and this forms the benchmark against which later testing is compared. For some new drugs, where this hasn't yet happened, compounds may not be correctly identified or identified at all.

A small number of compounds produce sufficiently similar metabolites so may trigger false positives on a urine test. High levels of 4-MMC use can result in a false positive for methamphetamine use.

As many drugs are blends of different compounds, positive testing may show up where drug (a) e.g. phenazepam has been found in drug (b) e.g. synthetic cannabis meaning the person tests positive for benzos.

End users, unable to access any such testing, may end up using chemical testing kits using reagents available on-line. These change colour in the presence of different drugs and allow people to partially identify some drugs to an extent. However this is somewhat hit and miss – may allow people to say product x is definitely not such and such a drug, but not to say what else may be in it.

DOSES: We know very little about most Research Chemicals and so reliable guidance about dose ranges is hard to come by. This problem is made much worse by the huge variation in quality and purity. Some very potent drugs are being sold in very pure forms which require minute doses to avoid unpleasant effects. Other less potent drugs are being sold which requires significant doses for any effect.

Dose ranges will also vary according to the users body weight and their familiarity with psychoactive compounds.

With all novel compounds, users can't tell if they are going to have an aversive or allergic response to the drugs, so it can reduce risk if the person takes a very small tester dose – below the level of an

effective dose, to ensure that this doesn't cause a bad reaction. If this doesn't cause an unpleasant reaction, the person could then, after a reasonable time has elapsed, consider taking a dose at the low end of the range for an effective dose.

As some RCs are very potent even at low doses, high quality sensitive scales are advised. However, good quality scales are expensive, and need to be correctly calibrated. Given an entry-level set of laboratory scales will cost in excess of £150, one must be wary of sites offering scales being sold by legal high sellers for £20-30.

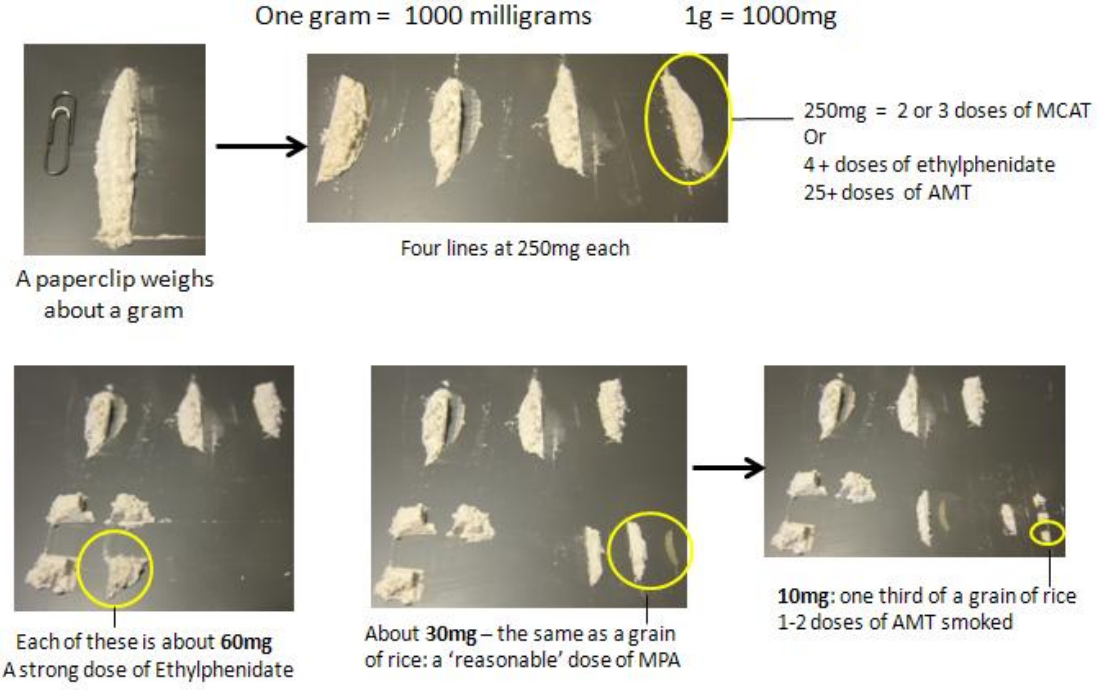
The lack of good scales or, for that matter any scales means a lot of people will try and judge their dose-sizes by eye – or "eyeballing" the drugs. So many people will gauge doses by comparing to "a grain of rice" or divisions thereof. Such an approach is of course highly risky, especially where people are using drugs where the difference between a weak dose and a strong dose could be very small.

When discussing or reading about doses, it's worth double checking what units are being used. The abbreviation **mg** will be used a lot – short for milligram. It is important not to get milligrams mixed up with micrograms (mcg). So:

1 gram = 1000 milligrams	1 milligram = 0.001g	1mg = 1000 mcg (micrograms)
100mg = 0.1g	100mcg = 0.1mg	

The drug MDPV, as an example, is active from 1mg so sub-threshold doses would require scales accurate to 1mg as a minimum.

For comparison, on average a grain of rice weighs 20-30mg so a low dose of MDPV of 2-3mg would be the equivalent of a **tenth of a single grain of rice.**



Unfortunately some of the compounds on the market (e.g. some preparations of 6-APB are being sold in a pellet form. This increases the risk that a person won't take a "tester" dose and will instead use all the tablet in one go. It would be a sensible precaution for people to break up a pellet and try smaller doses first.

METHODS OF USE: Routes of administration will vary from research chemical to research chemical, and person to person.

Synthetic cannabinoids: these are almost invariably smoked. This may involve pipes, bongs or vapourisers. More commonly the herbal smoking mixture is smoked with tobacco or another substance in a spliff.

Powder drugs (*e.g. mephedrone)**:*** As with other powder stimulants such as cocaine, snorting the drugs has been widespread. However, a fair few people found that some of the drugs caused significant pain when snorted and some people experienced a lot of nasal damage. In order to avoid these problems, swallowing (bombing) powder stimulants has become much more common.

A relatively small number of people take their powder stimulants rectally and for some people seriously experimenting with new compounds it is a preferred route.

Some of the powder stimulants (e.g. MDPV) are smokeable and there have been a few reports of smoking becoming more popular.

As the powder stimulants are water soluble, there have been reports of injecting, and this is discussed separately below.

Injecting RCs: Injecting is an inherently risky activity. Given that we know so little about what is actually in most RCs the risks of injecting these compounds is greater still.

As with most drugs used recreationally, the number of people injecting these compounds is relatively low. However reports from the UK and further afield indicate an increase the injection of these compounds, and some significant complications as a result.

Key compounds being injected include 4-mmc (mephedrone) but other compounds are also reported. We can't be wholly confident that the substances being injected were actually 4-mmc without laboratory analysis.

Some of the people injecting 4-mmc or other research chemicals are experimental or recreational users. Others are people who have been using the compound, whose use has escalated and have migrated towards injecting. This population are typically not experienced injectors and the complications they have experienced may be a result of inexperience, poor technique and hygiene as much as the drug itself.

The other key population is existing injectors, especially heroin injectors who have started injecting 4-mmc or other compounds instead of, or along with heroin. These injectors have typically been more experienced but have still presented with infections suggesting that this may be related to the drugs themselves rather than injecting technique.

As the main products are short-acting stimulants, injectors may end up injecting more frequently and in turn expose themselves to greater risk.

Heavy use of stimulants may impact on diet and general health, and in turn slow down healing and increase risk of infections.

If working with people injecting RCs:

- Explore other routes and options rather than injecting
- For all injectors, especially less experienced ones, a discussion about injecting technique and hygiene
- Ensure that injectors have enough equipment given frequency of injecting
- Discuss drug preparation – most RCs are water soluble and won't require addition of an acid
- Rotation of sites will be important for frequent injectors
- Get wounds treated promptly and professionally

DEATHS: As with the difficulty in establishing trends in usage in relation to new drugs it is hard to establish rapidly and accurately the number of deaths related to these drugs. Whilst the media and initial reports are quick to report links to specific drugs when deaths occur, it is hard to establish categorically which drugs were involved and the extent to which they were a significant factor in any fatality. Especially with new drugs, they may not have been tested for, or shown up in testing.

The National Programme on Substance Abuse Deaths (np-SAD) collates and analyses information on drug deaths. However, the inevitable time lag between deaths, inquests, collation and publication by np-SAD means that we obtain detailed, clear information with a considerable time-lag. The report just published in November 2012 looks at deaths in 2009-2010.

In the latest report, Mephedrone was present in 46 fatalities and attributed as cause of death in 29 cases in 2010. This was an increase on the previous year. As mephedrone was made a controlled drug in 2010 and saw a subsequent decline in interest (and possibly use) there may be a resultant downturn in deaths in the next study.

Table 8.1: Deaths involving Novel Psychoactive Substances, np-SAD data, 2009-10

Substance	PM toxicology		Cause of death	
	2009	2010	2009	2010
ATS				
Fluoroamphetamine	1	0	1	0
PMA	0	1	0	0
Tryptamines				
5-MeO-DALT	0	1	0	1
Methcathinones				
Flephedrone	0	2	0	2
MDPV	0	9	0	6
Mephedrone	8	46	5	29
Methedrone	0	2	0	1
Methylone	0	2	0	2
N-desakyl-4-methylmethcathinone	0	1	0	0
Naphyrone	0	2	0	2
Pyrovalerone	0	1	0	1

Key Messages and Harm Reduction regarding RCs:

As we (a) don't know a huge amount about some of the newer RCs and (b) can't be confident about what specific compounds people are actually taking, it is not easy to offer highly detailed and specific harm reduction advice.

We should really be very cautious about offering highly detailed information about risk or risk-reduction as we don't know enough to do so from a position of robust evidence. We don't know which compounds will turn out, for example, to be highly liver toxic or which ones at low doses with cannabis could trigger convulsions.

Given these significant unknowns, harm reduction information needs to be couched in relatively general terms until we can be confident that more specific and detailed information is supported by some evidence.

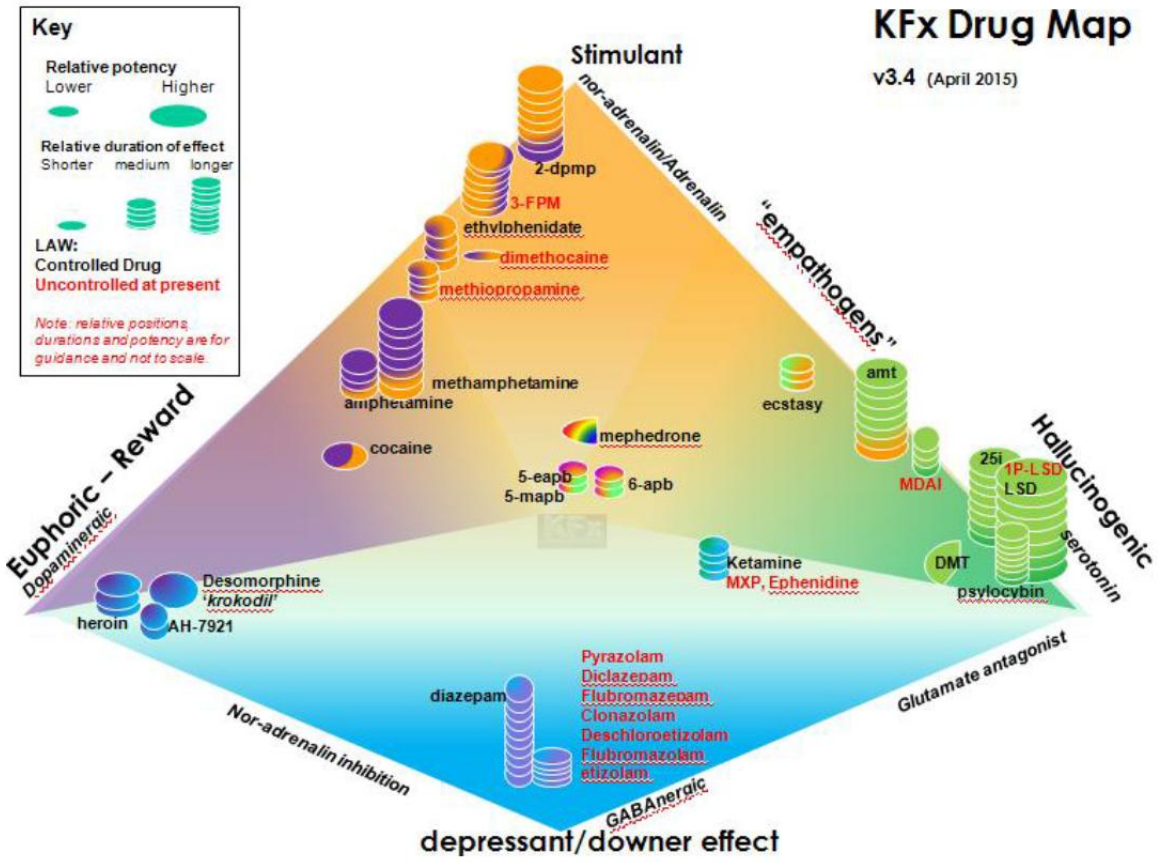
Key messages: There are some general messages that are applicable to all new compounds, irrespective of drug family.

- Legal doesn't mean safe
- The Government hasn't left them lawful because they have been adjudged as safe – more that they haven't got round to policing them yet
- "Legal high" may not be legal...And may not be a "high" – it could be a powerful depressant or a strong hallucinogen
- The manufacturers, the wholesalers and the retailers don't know what they are selling all the time or what the risks are...and neither do most health professionals.
- You can't be certain what you have bought on a website, even if the website looks legit, the product is in a shiny package, and there's a picture of a molecule on the bag. It means nothing.
- The internet is as much an unregulated market as a dark alley at 3am, you are as likely to get ripped off though less likely to be stabbed.

Key Harm Reduction:

1: Research: do research first. Read up online. Read a variety of user reports. Use the better websites which weed out shills and trolls and suppliers.
2: Think: do you <u>really</u> want to be a guinea pig with an unknown substance?
3: Start with a very small quantity. Don't try and gauge quantities by eye, it's too inaccurate. If you can't access or afford highly sensitive, correctly calibrated scales, don't play with unknown drugs. Where possible base initial dose at the low end of the active dose range, allowing for your body weight where possible.
4: Don't mix drugs: if you are trying an unknown compound, don't mix it with other drugs (including alcohol) or medicine.
5: Don't do unknown chemicals unless you are in good physical and mental health.
6: Have a friend with you who knows what you are taking, will not use anything themselves, and will call an ambulance without any hesitation.
7: Don't over do it: Give yourself a good chance to recover before redosing.
8: If you like the experience only increase quantities very slowly and carefully.
9: Know the related drugs: Assume at the least that these compounds will have similar risks to related compounds in the same family
10: Don't supply compounds or bulk buy large amounts

The KFx Drugs Map:



The KFX Drug Map is a way of understanding the key effects of key substances both old and new. It is a scalar model so, rather than pigeon-holing drugs they are located along scales: stimulant-hallucinogenic, stimulant-euphoriant and so on. The height of each stack is a relative representation of effect, and the diameter of the stack indicative of the relative potency of the drug.

EFFECTS and RISKS:

As we are covering a very large number of different drugs this briefing will not list and detail the effects of each. By grouping key drugs it's possible to provide a summary of key effects and risks. More detailed information about some specific compounds is on the KFx website.

Synthetic Cannabinoids	
aka Synthetic Cannabinoid Agonist Receptors**,** *Incense, Pot Pourri, Synth Canna*	
Examples:	AKB48, 5F-AKB48, PB-22, 5F-PB22 *Exodus Damnation, Pandoras Box, Clockwork Orange, Sensate, Psyclone.* Now-banned compounds include JWH-018 and AM-2201
Description:	these compounds appear to mimic the effect of THC at cannabinoid receptors. Some are more potent than THC. Some are sprayed on to inert smoking mixture and a small number may be sold as powder for adding to tobacco. Liquid preparations for use in E-Cigs also on sale.
Route:	Generally smoked either with or without tobacco; also in E-Cigs

Effects:	generally, as for very strong cannabis including euphoria, disorientation, stoned feeling
Risks:	Generally as for strong cannabis, including panic, anxiety, dysphoria and confusion. More severe symptoms include numbness of limbs, loss of consciousness, respiratory distress, severe panic attacks, palpitations, acute mental illness, nausea, vomiting, convulsions and rapid heart rate. A small number of fatalities have been linked to use of these compounds. Some users report long-lasting comedown and feeling depressed for several days afterwards. They can cause tolerance and withdrawal symptoms, including severe stomach cramps.
Harm reduction:	Use at very low doses, if at all. Dose sizes should start no bigger than the size of a match-head. Don't use in conjunction with cannabis or other drugs. Avoid if prone to panic, anxiety or mental health problems.

Stimulants	
Examples:	3-FMP**, Ethylphenidate**, MPA, camfetamine, ephedrine, **khat**, **amphetamines, cocaine**
Appearance	White or off white powders; may be sold in wraps, small self-seal bags, or printed foil bags. Substances may also be sold in capsules or pressed in to tablets. Khat comes as fresh or freeze-dried leaves.
Description:	Central Nervous System (CNS) stimulants with little or no hallucinogenic activity. Some primarily elevate levels of adrenaline and nor-adrenaline; others also elevate levels of dopamine. Those with less dopaminergic activity will be less euphoric & rewarding. One may be left with a more functional stimulant, which keeps you awake without feeling especially pleasant. If the drug also has a marked impact on serotonin levels, there is likely to be more change in perception and emotion. These drugs are considered separately below.
Route:	Swallowed or snorted; rarely injected
Effects:	As for amphetamine or cocaine – increased alertness, reduced fatigue. Possible euphoria depending on drug. Increased heart-rate and blood pressure. Reduced appetite.
Risks:	As for other stimulants: damage to mucous membranes through snorting. Risk of cardiac or circulatory problems. Weight loss, insomnia. Risks of panic and anxiety, possible paranoia. Excessive or extended use could trigger acute mental health problems. Strongly dopaminergic drugs increase risk of compulsive redosing. Post-use users may experience intense craving and low mood.
Harm reduction:	Use only at low doses. Avoid frequent redosing or extended binges. Don't use if any history or cardiac, circulatory or mental health problems. Research in to new drugs prior to use to understand effects, doses and risks.

Hallucinogenic Stimulants	
aka Empathogens, enactogens, psychedelic amphetamines;	
Examples:	**MDMA mephedrone (4-mmc), 5-apb, 6-apb,** MDAI, MDAT
Appearance	White or off white powders, and also pellet, capsules and tablet forms.
Description:	Substances which have a mixed action including some stimulant/euphoriant properties but also significantly alter perception. This is usually because the drug elevates levels of serotonin by increasing release and/or blocking reuptake of this brain chemical. Altered senses could include some level of auditory or visual hallucination. Drugs which create an increased sense of closeness and sociability are sometimes described as empathogens or enactogens.

Route:	Mucous membranes (e.g. snorted), swallowed, rarely smoked and injected.
Effects:	Will vary widely from substance to substance, with dose, user and context. Could include physical symptoms similar to other stimulants (elevated heart rate and blood pressure, reduced appetite). Altered perception, auditory and visual hallucinations, enhanced sense of touch. Feelings of sociability and closeness to other people, sexual arousal. May also include side effects such as reduced urine output, clenched jaws, perspiration and restlessness
Risks:	In addition to all the risks of stimulant use (e.g. panic, anxiety, heart problems, insomnia, weight loss) other risks include powerful changes to perception, intense feelings of panic and paranoia. Drugs could elevate serotonin, leading to serotonin syndrome. This could have a big impact on body temperature leading to overheating. Risk of loss of circulation at the extremities. Risk of convulsions. Heavy use could trigger episodes of psychosis. Drugs which are also strongly dopaminergic (e.g. mephedrone) tend to encourage bingeing and redosing. Heavy use can lead to or worsen depression after use.
Harm reduction:	Use only at low doses. Avoid frequent redosing or extended binges. Don't use if any history or cardiac, circulatory or mental health problems. Don't use in conjunction with other drugs or medicines. Undertake research to understand specific risks related to each drug being used.

Hallucinogens	
aka Psychedelics, tryptamines	
Examples:	**LSD** 2-ci, **2-cb**, **dmt, 5-meo-dipt**, **5-meo-dalt**, 2-ai, **amt,** chacruna, morning glory, psilocybin, p-lsd, **25I-NBoMe**
Appearance	White or off white powder, white or clear crystals, capsules containing the drug, LSD – blotting paper squares, plant seeds (morning glory and Hawaiian baby woodrose), dried leaves (chacruna) , magic mushrooms (psilocybin)
Description:	Substances which primarily alter cognition and/or perception but do not have such a marked stimulant activity (like MDMA). Many of the drugs of interest here are acting as agonists at serotonin receptors, mimicking the effects of the naturally occurring brain chemical serotonin. Some drugs such as ketamine are powerfully hallucinogenic, but have a very different mechanism of action and are considered in a different category in this briefing.
Route:	Varies with drug; swallowed or mucous membranes, some are swallowed, DMT is smoked.
Effects:	Will vary massively with drug, dose, setting and user. Could include significant hallucinatory activity, feelings of profound enlightenment or conversely intense paranoia. May enhance senses of sight, sound and touch. Some can cause feelings of sexual arousal and increased sensuality
Risks:	Short term risk of significant panic, anxiety and disorientation. Risk of accidents while intoxicated. Longer terms risks of triggering or exacerbating mental health problems. Strongly serotoninergic drugs can cause convulsions, circulatory problems including reduction in blood flow to extremities. Can also cause convulsions and increased body temperature.
Harm reduction:	Undertake research before using any such drugs to establish risks, effects and dose ranges. Use only if in good physical and mental health. Have a non-using friend on hand to help guide and manage experiences.

Dissociatives	
aka dissociative anaesthetics	
Examples:	**Ketamine, PCP, methoxetamine,** methoxphenidine, ether, nitrous oxide, ether, salvia divinorum, ibogaine, tiletamine
Appearance	Ketamine, PCP and Methoxetamine take the form of white, crystalline powders. Ether is a volatile liquid. Nitrous oxide comes as a gas under pressure in small canisters or cylinders or as a propellant in some foods (e.g. whipped cream). Salvia divinorum comes as dried leaves, or powdered plant extracts.
Description:	Dissociatives fit in to the wider family of hallucinogenic or psychedelics. They have distinctive characteristics partly related to how they work, and how they are experienced. Unlike other hallucinogens they are not working primarily on the serotonin system like tryptamines. Instead they are believed to work in some cases by blocking NMDA receptors in the brain or by acting as agonists at the k-opioid receptor. They can cause very vivid hallucinogens. They are termed Dissociatives as they can cause a sense of separation from the body, where the user may feel a sense of disconnectedness. This can include out-of-body sensations, loss of control of body, feeling emotionally and physically separate from the body. Some can cause euphoria.
Route:	White powder drugs like ketamine are snorted, swallowed or less commonly injected. Volatile compounds such as ether or Nitrous oxide are inhaled. Salvia is smoked, typically through bongs.
Effects:	Reduced muscular control, paralysis, euphoria, profoundly altered state, reduced sensitivity to pain, hallucinations, hilarity, confusion and disorientation. Nitrous Oxide – enhanced effects of psychedelic drugs
Risks:	Risk of falls and accidents when intoxicated; nausea and vomiting Anoxia related to Nitrous Oxide use Bladder problems related to ketamine use mental health problems
Harm reduction:	Use in safe environment with sitter; Use low doses and avoid injecting Nitrous Oxide – ensure adequate oxygen supply – don't inhale more than one breath of Nitrous per minute; avoid using through masks – always use an intermediate device such as a balloon

Deliriants	
aka Tropane Alkaloids, Antihistamines	
Examples:	Diphenhydramine, muscarine, atropine, scopolamine, hyoscamine
Appearance	Plants such as Deadly Nightshade, Jimson Weed, Datura, Thornapple Medical products including Nytol, Valoids, Benadryl
Description:	Deliriants are the most unpopular end of the hallucinogen spectrum. They are unpredictable, can cause a lot of nausea and are not especially pleasant. Some antihistamines at high doses also work as Deliriants. Deliriants are sometimes considered as a distinct group within the wider family of hallucinogens because they can cause a markedly different type of hallucination – rather than distorting existing perception causing fantastical auditory and visual hallucinations, conversations with fantastical beings. The plant-based compounds used formed the basis of "witch's brew."
Route:	Plant based products usually swallowed or taken rectally. The powder based compounds such as benadryl can be swallowed or snorted.

Effects:	Significant hallucinations, confusion, disorientation, drowsiness
Risks:	Headaches, convulsions, shakes, tremors, breathing problems, heart failure
Harm reduction:	Don't use any of the plant-based tropane alkaloids – the level of risk is very high.

Depressants (GABA-nergic)	
aka benzos, Z-drugs, GHB, Barbiturates, downers, sleepers	
Examples:	**Benzodiazepines:** diazepam, temazepam, etizolam, phenazepam, flubromazepam, Nifoxipam, deschloroetizolam **Z-Drugs:** Zopiclone ; GHB and GBL; Gabapentin and Pregabalin Alcohol
Appearance	GHB: liquid or white powder GBL: Liquid, either on its own or in commercial cleaning products Z-drugs/Gabapentin – pharmaceutical products Benzodiazepines: pharmaceutical products or non pharmaceutical pills, often blue in colour
Description:	These drugs act on GABA-receptors to reduce electrical stimulation of the brain. Different substances have different mechanisms of action. Some are legitimate pharmaceuticals either being used with or without prescription. There has been a huge increase in the amount of non-pharmaceutical diazepam and other benzodiazepines being used in the UK. The strength and quality of these products is highly variable.
Route:	Mostly used orally. Some benzos are soluble and can be snorted. Some are prepared for injection.
Effects:	Highly dependent on strength, dose and tolerance. Low doses produce euphoria and relaxation, reduced motor control and decrease in anxiety. Higher doses see further relaxation, possible amnesia, sleep and possibly unconsciousness.
Risks:	Combinations of these drugs, especially alcohol with one of the others here, is a significant cause of fatal overdose. Use of non-prescribed benzos increases risk of taking drugs of unknown strength. Risk of out-of-character behavior when intoxicated. Regular use will produce tolerance, dependence and risk of withdrawal symptoms which for several of these drugs can be dangerous.Vulnerability when intoxicated.
Harm reduction:	Don't use for sustained periods of time; don't mix drugs within this family or with opiates. Seek medical help in withdrawal. Be cautious of benzos or other net-sourced drugs.
Opioids and **Opiates**	
Examples:	Heroin, opium, codeine, morphine, dihydrocodeine, buprenorphine pethidine, oxycodone, fentanyl, desomorphine, methadone, AH-792, nortilidine
Appearance	White or brown powder (heroin) Dark brown/black resin (opium) Phamaceutical preparations (various)
Description:	Either drugs derived from the opium poppy (opiates) or synthetic chemicals based on the same structure (opioids). Medically used for analgesia, cough suppression and the treatment in some cases of opiate dependency.
Route:	Depending on the user and the drug includes oral administration, sublingual, smoked, snorted, injected and rectal.
Effects:	Reduction in pain, sense of euphoria, calm and well being

	Reduced bowel activity, shallow breathing, drowsiness, possible stupor
Risks:	Addiction, overdose through respiratory suppression, injecting complications, death
Harm reduction:	Avoid use in combination with other sedating drugs; use infrequently if not dependent; preferably use another route other than injecting and if injecting practice safer injecting techniques.

OTHER INFORMATION: The mainstream drugs education channels are way behind the curve when it comes to novel compounds. So anyone seeking to educate themselves about newer drugs will need to undertake a level of research themselves. However, many of the sources of information are very biased: anti-drugs, pro-drugs, run by manufacturers and so on.

Many sites will simply cut and paste information from the same sources so it is important to try and gain information from a variety of sites and critically assess it to gauge its validity.

The following sites have been useful in the preparation of this and other resources:

Resource	Description
Drugs Forum http://www.drugs-forum.com/ Drugs-Forum	Premier drugs discussion forum. High standards of moderation and ratings for user comments ensure that poor quality information and attempts to promote products are rapidly dealt with. If a drug isn't being discussed here it is probably not really available.
Bluelight http://www.bluelight.ru BLUELIGHT	Very active drugs discussion forum. Hampered by poor moderation and over-long threads which become unwieldy
Erowid www.erowid.org/	Long established drugs awareness website. Lots of information about newer compounds but a little slow to update.
Drugwatch	Collective group of drugs agencies and workers who produce briefings and collate information about new compounds. Website should be forthcoming.
Drugswheel http://thedrugswheel.com/index.htm	Tool for understanding drug families and up-to-date lists of legal status of newer compounds
Crew2000 www.crew2000.org.uk/ CREW	Edinburgh-based drugs service with a great track record of club and festival outreach. Lots of information and downloads on newer compounds
Neptune: http://neptune-clinical-guidance.co.uk/	Output from the CNWL NPS project including this guide on clinical management of NPS. The guidance doc is a 355 page tome! Essential reading – but very academic and a hard read.
Partyvibe http://www.partyvibe.com/ PartyVibe.com 1997 - 2012	Forum which grew out of dance and club scene. Has a lively drugs discussion section. Some very good contributions but lack of moderation means it's a bit of a field day for people promoting their wares. Plus now takes some dodgy adverts.
PsychonautWiki http://psychonautwiki.org/wiki/Main_Page	Styled after Wikipedia but focussed on NPS. Some good content but not clear how much scrutiny there is of content.
Strange Molecules http://www.strangemolecules.org.uk/	New website from CRI; still developing so limited content at the moment.

STRANGE MOLECULES	
Snopes www.snopes.com/	Not a drugs website, but helps debunk urban myths. When drug myths (e.g. strawberry meth) do the rounds, Snopes is a good place to check if it is an urban myth.
WEDINOS: www.wedinos.org	Welsh emergent drugs testing service
Wikipedia http://en.wikipedia.org/	On-line, user written encyclopaedia A good starting point for research in to any NPCs. The odds are that even if there is only a stub there should be some limited information here. Important to see if this has been (a) referenced and (b) cut and pasted elsewhere.
Why Not Find Out http://www.whynotfindout.org/	Wesbite set up by the Angelus Foundation and Amy Winehouse Foundation. Primarily interested in new compounds. Some good information.
What Martha Did Next http://www.whatmarthadidnext.org/	Blog and campaign site set up up by Anne-Marie Cockburn after her daughter Martha died following taking MDMA. Not much drugs info but lobbies for harm-reduction and drugs education.
Talk To Frank http://www.talktofrank.com/	Government-funded website. Had improved its NPC content lately but is not very detailed at this stage. Limited information about a large number of drugs is now included.
Microgram http://www.justice.gov/dea/pr/microgramsshtml	Journal of the DEA in the US. Highly detailed and technical articles including chemistry of new and emergent compounds.
EMCDDA http://www.emcdda.europa.eu/	The EMCDDA exists to provide the EU and its Member States with a factual overview of European drug problems and a solid evidence base to support the drugs debate. Produces regular reports about NPCs across the EU
RedNet https://www.rednetproject.eu/	The Recreational Drugs European Network (ReDNet) project is a multi-site research study with the aim of improving the level of information available to young people (16-24) and professionals on the effects of these new recreational drugs and the potential health risks associated with their use.
Psychonaut Project http://www.psychonautproject.eu/	The Psychonaut Web Mapping Project was a 2-year European Union funded project (January 2008 - December 2009) with the aim of developing a web scanning system to identify and categorise novel recreational drugs/psychoactive compounds, and new trends in drug use based on information available on the Internet. Project now closed but publications can be downloaded from this site

Newer Unregulated Drugs

Look-up Table

List Name	Chemical Name/AKA	Type of drug	Notes (Regulation under MDA / Currently not regulated under MDA)
1P-LSD	1-propionyl-lysergic acid diethylamide	Hallucinogen	Although the majority of LSD-analogues were mad CD by blanket ban recently, this one somehow avoids regulation and is currently on sale.
2-AI **2-MAI**	2-Aminoindane N-methyl-2-Aminoindane MMAI	Stimulant, amphetamine analogue	Reported in the UK in 2011 by the Forensic Early Warning System (FEWS). offered by several websites.
2-MeO-ketamine	Methoxyketamine Methoxieticyclidine	Related to methoxetamine so a relative of ketamine – i.e. a dissassociative anaesthetic hallucinogen	Believed to have been made a CD at the same time as Methoxetamine
2C-B-BZP	(1-(4-bromo-2,5-dimethoxybenzyl)piperazine)	Piperazine family	Stimulant; Class B
2-DPMP	Desoxypipadrol 2-diphenylmethylpiperidine	stimulate	Strong and long acting stimulant; had been on sale in the UK and cropped up in other compounds. Now a controlled drug in the UK.
2-NE1	APICA SDB-001 N-(1-adamantyl)-1-pentyl-1H-indole-3-carboxamide	Synthetic cannabinoid receptor agonist	One of the currently unregulated third generation cannabinoids
3-FPM	Phenzacaine PAL-593 2-(3-fluorophenyl)-3-methylmorpholine	Stimulant, euphoriants	Sibling of the controlled drug Phenmetrazine. Currently not regulated. Relatively new arrival to market.
3-MeO-PCE	(3-methoxyeticyclidine)	Related to methoxetamine so a relative of ketamine – i.e. a dissassociative anaesthetic hallucinogen	Probably regulated under the same clause that made MXE a controlled drug (February 2013)

3-4 CTMP	3,4-dichloromethylphenidate	Stimulant	Related to methylphenidate and ethylphenidate so likely to be a stimulant with some euphoric properties Became TCDO March 2015
3,4-Dimethylmethcathinone	(1-(3,4-dimethylphenyl)-2-(methylamino)propan-1-one)	Stimulant Substituted cathinone	Class B
4-AcO-DiPT	Ipracetin 4-Acetoxy-DiPT	Tryptamines, hallucinogen	Not yet common in UK but were picked up by the FEWS. Believed to be currently unregulated in UK
4-AcO-DET	Ethacetin		
4-FMA	(4-fluoromethamphetamine)	Substituted amphetamine Stimulant	Class A drug
4-MeO-PcP	4-Methoxyphencyclidine methoxydine	Dissassociative anaesthetic	Analogue of PCP (angeldust) Strong hallucinogen akin to ketamine. Showed up in the UK in 2011 Along with all MXE analogues became controlled drug February 2013
4-methylethcathinone	(2-Ethylamino-1-(4-methylphenyl)-1-propanone)	"substituted cathinone" Stimulant	Same family as MMCAT; Class B
4-MBC	(4-methyl-N-benzylcathinone)		
β -Me-PEA (2-phenylpropan-1-amine)	β-Methylphenethylamine	Stimulant; amphetamine type drug	Has cropped up in some sampled; probably Class A under UK law but not certain
5-MeO-DiPT	(5-methoxy-N,N-dipropyltryptamine) Foxy Methoxy	Hallucinogen Tryptamine	highly enactogenic hallucinogen. Less stimulant and more sensual Class A in UK;
5-MeO-MiPT	N-[2-(5-methoxy-1H-indol-3-yl)ethyl]-N-methylpropan-2-amine Moxy	Hallucinogen Tryptamine	Class A in UK
1-naphthalen-1-yl-2-pyrrolidin-1-yl-pentan-1-one		Related to Pyrovalerones	Stimulant; Class B

5-APB **5-APDB** **5-MAPB** **6-APB** **6-APDB**	5-(2-aminopropyl)benzofuran 5-(2-Aminopropyl)-2,3-dihydrobenzofuran 1-(benzofuran-5-yl)-N-methylpropan-2-amine 6-(2-aminopropyl)benzofuran 6-(2-Aminopropyl)-2,3-dihydrobenzofuran Benzo Fury	Stimulant/Hallucinogen Structurally similar to E	Pellet and powder forms around; 5-apb and 6-apb were sold online, often as BenzoFury. Stimulant, no relation to benzodiazepines at all. All benzofuran family made Class B controlled drugs in June 2014
5-APDI	5-(2-Aminopropyl)-2,3-dihydro-1H-indene indanylaminopropane	Stimulant/hallucinogen relatively low level of effect; may be used in combination with a stronger stimulant for a more "E" like effect	Uncertain regarding the legal status of this one; it is mentioned in the same ACMD briefing that saw BenzoFury made a TCDO but the powers may not have covered 5-APDI too. At least one website still offering to sell it
5/6-EAPB	(1-(benzofuran-5-yl)-N-ethylpropan-2-amine)	Stimulant/Hallucinogen Structurally similar to E	Relative of Benzo Fury; emerged after TCDO covering 5/6- APB and 5/6-MAPB; all benzofurans made Class B CDs in June 2014
5F-PB22	1-(5-fluoropentyl)-1H-indole-3-acid 8-quinolinyl ester	Synthetic cannabinoid Receptor Agonist	SCRA found it numerous "incense" type smoking blends, often in combination with 5f-akb8. Associated with unpleasant side effects. Not regulated in UK
5-IAI	5-Iodo-2-aminoindan		Appeared to offer many if not all the effects of an MDMA-type compound and was claimed to have a lower level of neurotoxicity. Little if any UK availability although offered on many sites for sale.
5-IT	5-(2-Aminopropyl)indole	Strong stimulant/hallucinogen	Indications 5-IT causes very significant circulatory restriction from serotoninergic effects, and this may have contributed to fatalities.
5-MeO-DALT	N,N-diallyl -5-methoxytryptamine	Tryptamine, hallucinogenic	Several sites claiming to offer this hallucinogen; may or may not be genuine 5-MeO-DALT. Has been around for around 7 years. Mixed reports as to how effective it is. Made controlled drug in January 2015.

AB-FUBINACA	N-[(1S)-1-(Aminocarbonyl)-2-methylpropyl]-1-[(4-fluorophenyl)methyl]-1H-indazole-3-carboxamide	Synthetic Cannabinoid Receptor Agonist A SCRA which may be in some of the "herbal smoking mixes/incense blends currently on sale.	
AB-PINACA	N-[(1S)-1-(aminocarbonyl)-2-methylpropyl]-1-pentyl-1H-indazole-3-carboxamide		
acetildenafil	5-[2-Ethoxy-5-[2-(4-ethyl-piperazin-1-yl)-acetyl]-phenyl]-1-methyl-3-propyl-1,6-dihydro-pyrazolo[4,3-d]pyrimidin-7-one	'aphrodisiace' erectile function	Analogue of sildenafil (Viagra). Sold for similar purposes
APINACA AKB-48 5F-APINACA 5F-AKB48	N-(1-adamantyl)-1-pentyl-1H-indazole-3-carboxamide AKB-48	Synthetic cannabinoid receptor agonist	One of the most common SCRAs at the moment. It or its 5F- sibling 5F-AKB8 appears in many of the current legal smoking blends such as Exodus, Pandoras Box Potent, many side effects
AH-7921	3,4-dichloro-N-[(1-dimethylamino)cyclohexylmethyl]benzamide	opiate	Potent opiate, associated with 1 fatality in UK. Emerged out of research from 1970s Made controlled drug January 2015
AL-LAD	6-allyl-6-nor-LSD	Tryptamine, hallucinogen	Described by Shulgin in TIKHAL; made a CD in January 2015
AM-679 **AM-694**	1-(5-fluoropentyl)-3-(2-iodobenzoyl)indole		Potent synthetic cannabinoid. Added to list of Controlled Drugs in 2012
AM1241, AM 1221, AM-2233		Synthetic cannabinoid receptor agonist	
AM-2201	1-(5-fluoropentyl)-3-(1-naphthoyl)indole *Black Mamba* *Annhilation*		'Spice' type of synthetic drug mimics effects of THC; Has been identified in the legal smoking mixture "Black Mamba" Very potent; has been associated with panic, convulsions and breathing problems in a small number of cases Now the subject of a Temporary Control Drug Order
AMT	Alphamethyltryptamine	Tryptamine; hallucinogenic	Long acting hallucinogen. Became controlled drug in UK in January 2015

Arecoline	(methyl methyl-1,2,5,6-tetrahydropyridine-3-carboxylate)	Active compound in the Areca (betel) nut Mild stimulant	Legal
Ayahuasca	*Banisteriopsis* vine *Psychotria* shrubs DMT, MAOIs	Hallucinogens	Collective name for psychoactive brews typically from South America containing a mixture of plant material containing DMT and an MAOI. Not widely used in the UK. Recently, advocates of Ayahuasca use in UK have been prosecuted for "attempts to produce a class A drug" based on making brews containing DMT.
BB-22	QUCHIC 1-(cyclohexylmethyl)-1H-indole-3-carboxylic acid 8-quinolinyl ester	Synthetic cannabinoid receptor agonist	One of 3rd generation SCRAs; along with its 5F-PB22 and AKB-48 crops up in smoking mixtures.
benzydamine	Tatum Rosa	Antihistamine, anti-inflamatory, hallucinogen	Found in some female hygiene products, high doses can cause hallucinations
Bk-2CB	2-amino-1-(4-bromo-2,5-dimethoxyphenyl)ethan-1-one	Hallucinogen	While 2-CB and related compounds were made CDs a while ago, the beta-ketone analogue bk-2CB escaped prohibition and is still on sale. Though by most accounts not that popule
bk-MMBDB	(2-dimethylamino-1-(3,4-methylenedioxyphenyl)-butan-1-one)	Stimulant Substituted cathinone	Class B
BMDP	(2-benzylamino-1-(3,4-methylenedioxyphenyl)propan-1-one)		
BMDB	(2-benzylamino-1-(3,4-methylenedioxyphenyl)butan-1-one)		
Buphedrone	(2-(methylamino)-1-phenylbutan-1-one)	Stimulant	Reputedly 10x strength of MMCAT; limited availability; stimulant, not highly euphoric Class B
BZP	Benzylpiperazines	Stimulants	Were widely available as a legal alternative to E; now class C controlled drugs.

CP47,497 **CP50-5561** **CP55-940**	Cyclophenols	Synthetic cannabinoid receptor agonist	'Spice' type of synthetic drug mimics effects of THC; Can be very potent and long acting Class B
Clonazolam	Clonitrazolam	Benzo, GABAnergic	One of new rash of unregulated sedatives. Moderately long half-life
D2PM	**Diphenylprolinol** diphenyl(pyrrolidin-2-yl)methanol	Stimulant	Supposed to be a dopaminergic stimulant
Deschloroetizolam		Benzo, GABAnergic	Newer sedating drug. Recently emerged as a successor to Etizolam which is getting harder to find
Desoxy-D2PM	(2-(diphenylmethyl)pyrrolidine)	stimulant	some compounds sold as A3A, or A3A-Methano analysed and found to contain this substance; long acting and powerful stimulants
DMAA	(1,3-dimethylamylamine) Methylhexanamine	Stimulant	Relatively low potency on a par with ephedrine; some use by body builders as a cutter
Diclazepam	Chlorodiazepam 2'-chloro-diazepam	Depressant Benzodiazepine	A structural relative of Diazepam; wiki entry suggests 10x potency in animals. Not currently subject of MDA
Dimethocaine	((3-diethylamino-2,2-dimethylpropyl)-4-aminobenzoate) DMC Laracaine	Stimulant	Low potency local anaesthetic; Little stimulant or euphoric properties Being heavily flogged by a lot of websites
Diphenidine	1,2-DEP, DPD 1-(1,2-Diphenylethy)lpiperidine	Dissociative	Relative of methoxphenidine, a relative of Ketamine
Diphenhydramine	Benadryl, Nytol	Antihistamine hallucinogen, sedative	Older antihistamine allergy treatment; at high doses can have a hallucinogenic and sedating effect
Dextromethorphan	DXM	Opiate	One website offering this at £16/g Opiate found in some OTC cough treatments; at high doses can have more hallucinogenic effects. Definitely covered by UK medicines act,
ephenidine	N-Ethyl-1,2diphenylethylamine	Dissociative	Relative of methoxphenidine, a relative of Ketamine

Ethylphenidate	***Ching,*** ***Eth, Nopaine***	Stimulant	Typically ethylphenidate is produced when methylphenidate is swallowed at the same time as alcohol; ethylphenidate is the metabolite produced in the liver. Some User reports are mixed: some have found it a rewarding euphoriant. Others report little or no effect. Became a TCDO drug March 2015, along with sibling compounds.
ETH-LAD		Tryptamine, hallucinogen	Described by Shulgin in TIKHAL; made a CD in January 2015
Etizolam		Benzodiazepine analogue	Similar in structure and effect to benzodiazepines, though changes to its molecular structure means it is not a benzodiazepine. Currently not regulated in the UK. Being supplied by on line vendors and by Pharma companies in India and elsewhere. Probably around 10x strength of diazepam. Risks of overdose (espec when mixed with alcohol) and tolerance, dependency, withdrawal.
Flubromazepam		benzodiazepine	Long acting (100hr +) benzo 2-3x potency of diazepam
Flubromazolam		Benzodiazepine	Fast onset, long acting benzo, possibly 10x strength of Diazepam. Not regulated
FUB-PB22	quinolin-8-yl-1-(4-fluorobenzyl)-1H-indole-3-carboxylate	Synthetic Cannabis Receptor Agonist	Sibling of 5F-PB22; reputedly a **very** strong SCRA with a high risk of overdosing
GBL	Gamma Butyro Lactone	GABA agonist Sedative/depressant	Formerly sold on-line by name; now a Class C Controlled Drugs if supplied for ingestion, but crops up in products such as alloy cleaner
Hawaiian Baby Woodrose	Lysergic Acid Amide LSA	Hallucinogen	Seeds of the Hawaiian Baby Woodrose vine contain LSA. This is structurally similar to LSD, and works as a hallucinogen. Dose range of 5-10 seeds for mildly hallucinogenic experience. Currently legal in UK

HU210 HU-211 HU-243 HU-331	Spice	Synthetic cannabinoid receptor agonist	Spice' type of synthetic drug mimics effects of THC Class B
JWH-015	(1-propyl-2-methyl-3-(1-naphthoyl)indole))	Synthetic cannabinoid receptor agonist Spice JWH- prefixed drugs are sometimes called "Huffman Compounds" after their discoverer, John Huffman.	'Spice' type of synthetic drug mimics effects of THC Class B
JWH-018			
JWH-019	(1-hexyl-3-(1-naphthoyl)indole		
JWH-073 methyl derivative	(1-Butyl-3-(1-(4-methyl)naphthoyl)indole))		
JWH-081	(1-pentyl-3-(4-methoxy-1-naphthoyl)indole)		
JWH-122	(1-pentyl-3-(4-methyl-1-naphthoyl)indole))		
JWH-133 JWH-161			
JWH-200 JWH-203	(2-(2-chlorophenyl)-1-(1-pentylindol-3-yl)ethanone)		
JWH 250, JWH-251, JWH-307			
Kratom	Mitragyna speciosa mitragynine, mitraphylline, 7-hydroxymitragynine	Mild stimulant (low doses) Hallucinogen Sedative (high doses)	Sold in dry leaf form and as extracted resin Usually taken orally Currently legal in UK
LSZ	Lysergic acid 2,4-dimethylazetidide	Tryptamine, hallucinogen	Described by Shulgin in TIKHAL; made a CD in January 2015
Methiopropamine	MPA	Stimulant	Very widespread NPS; potent stimulant with some euphoriant action. Structural analogue of methamphetamine. Crops up on a lot of websites and in stimulant blends. Reports of injecting. Habituating.
Methoxetamine	(2-(3-methoxyphenyl)-2-(ethylamino)cyclohexanone) MXE ,MKET Mexxies, Roflcoptr, Rhino Ket	Ketamine analogue	Class C CD Effects broadly as for ketamine
Methoxphenidine	MXP, 2-MeO-Diphenidine	Dissociative Hallucinogen	After the ketamine-type family drugs were made CDs this is the latest offering of a loosely similar dissociative hallucinogenic type. Currently not regulated

MDPBP	(3',4'-methylenedioxy--pyrrolidinobutyrophenone)	Stimulant Related to Pyrovalerones	Class B
MPBP	(4'-methyl--pyrrolidinobutyrophenone)		
MPPP	(4'-Methyl--pyrrolidinopropiophenone)		
MDAI	(5,6-methylenedioxy-2-aminoindane) Sparkle	Empathogen	Enactogenic compounds with low level of stimulant activity. Not highly popular on its own; more often combined with a more euphoric stimulant
Mephedrone	Methylmethcathinone, 4-mmc, mcat, drone, meph Miaow Miaow,	Stimulants Substituted cathinone	Formerly a popular legal stimulant' Now a class B controlled drug Still cropping up either sold as MCAT or repackaged as a new "legal" high, or as a cut in other illicit drugs
Methylone	3,4-methylenedioxy-N-ethylcathinone, bk-MDMA	Stimulant	Sibling of MMCAT; in early days of MMCAT sometimes offered in capsules with MMCAT – e.g. as "Bubble" in N. of England. Controlled drug, Class B
MDPV	Methylenedioxypyrovalerone	Stimulant Pyrovalerone	Was widely touted at the same time as MMCAT; made illegal at same time. Cropped up in NRG1 and other compounds
MT-45	1-cyclohexyl-4-(1,2-diphenylethyl)piperazine	Opiate-effect but not structurally an opiate	One of a new generation of substances that emerged from genuine research and pops up now in the RC market. Opiate-like effects including analgesia
Naphyrone	Naphthylpyrovalerone NRG1	Stimulant Pyrovalerone	Class B Was touted to be the "next MMCAT" but was made illegal early in proceedings
Nifoxipam		Benzo, GABAnergic	10x strength of Diazepam [?]; 12-17 hr duration
Nitrous Oxide	Nitrous, N2O Laughing Gas, Whippets	Dissassociative anaesthetic Hallucinogen	Inhalable gas used in anaesthesia. Also used as a propellant for whipped cream. Inhalation can cause euphoria and hallucinations; enhances other psychedelics
nortilidine		opiate	Active metabolite of the opiate tilidine Not currently a CD in the UK but doesn't appear on any of the major supply websites

PB22	1H-indole-3-carboxylic acid, 1-pentyl-, 8-quinolinyl ester	Synthetic cannabinoid Receptor Agonist	SCRA found it numerous “incense” type smoking blends, often in combination with 5f-akb8. Associated with unpleasant side effects. Not regulated in UK
Pentylone	(2-Methylamino-1-(3,4-methylenedioxyphenyl)pentan-1-one)	Another cathinone-related beta-ketone Stimulant	Covered by cathinone analogue clause Class B
Phenazepam		Benzodiazepine	Long acting, potent benzo originally from Russia. Slow onset, long duration. Approx 20x potency of diazepam. Increased overdose risk, especially in combination with alcohol/opiates. For a couple of years, Phenazepam was coming in to the UK and increased in use and popularity. Made a controlled drug in 2012.
Phenzacaine	3-FMP PAL-593 2-(3-fluorophenyl)-3-methylmorpholine	Stimulant, euphoriants	Sibling of the controlled drug Phenmetrazine. Currently not regulated. Relatively new arrival to market.
PMA, PMAA	para-methoxyamphetamine	Stimulant, hallucinogen	Amphetamine family, crops up in tablets sold as MDMA but associated with dangerous increase in body temperature and fatalities.
PRO-LAD	6-propylnorlysergic acid	Tryptamine, hallucinogen	Described by Shulgin in TIKHAL; made a CD in January 2015
Pyrazolam		Benzodiazepine	6-7 hr duration of effect 12x (?) potency of diazepam
RCS-4	((4-methoxyphenyl)(1-pentyl-1H-indol-3-yl)methanone)	Synthetic cannabinoid receptor agonist	‘Spice’ type of synthetic drug mimics effects of THC Class B
SDB-001	N-(1-**a**damantyl)-1-**p**entyl-1H-**i**ndole-3-**ca**rboxamide; APICA	Synthetic cannabinoid receptor agonist (SCRA)	Work as an agonist on cannabinoid receptors. One of a number of SCRAs not currently regulated. may crop up in smoking mixtures including exodus, psyclone, etc; Not currently regulated. Associated with some unpleasant side effects at higher doses including vomiting, panic, fast heart rate and convulsions.
STS-135	N-(adamantan-1-yl)-1-(5-fluoropentyl)-1H-indole-3-carboxamide		

Salvia Divinorum	Salvinorin-A Sage, Salvia	Dissassociative Hallucinogen	Dried leaves of member of Sage family; usually smoked, typically through water pipe. Most products are concentrated rather than raw plant material, at different levels of potency. Currently legal in UK.
serotoni	4,4'-Dimethylaminorex 4,4'-DMAR	stimulant	Made controlled drug in 2015 Linked to deaths in Europe. Reported to be strong and long acting. Has cropped up in numerous tablet designs sold as Ecstasy
THJ-018 **THJ-2201**	1-naphthalenyl(1-pentyl-1H-indazol-3-yl)-methanone	Synthetic cannabinoid receptor agonist	Substituted molecule based on JWH-018 (one of the Huffman compounds.) Substitution gets around the legal prohibition on the Huffman compounds making these currently unregulated in the uK
UR-144	TMCP-018, KM-X1, YX-17	Synthetic cannabinoid receptor agonist	Found in some herbal smoking mixtures Appears to have a greater affinity for cb2 receptors than some other cannabinoid receptor agonists. Controlled drug in UK since April 2013
W15	1-Phenylethylpiperidylidene-2-(4-chlorophenyl)sulfonamide	Opiate	Synthetic opiate reputedly 5x strength of morphine
XLR-11	(1-(5-fluoropentyl)-1H-indol-3-yl)(2,2,3,3-tetramethylcyclopropyl)methanone	Synthetic cannabinoid receptor agonist	A tweaked version of UR-144. Has been associated in New Zealand with Kidney problems. Legal status in UK not clear.

[List revised April 2015 based on available information at the time. In a rapidly changing situation list will not remain up-to-date for long. No responsibility accepted for errors or omissions. Please notify KFx of changes/updates/errors. mail@kfx.org.uk]