Estimating drug harms:
a risky business?

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Eve Saville Lecture 2009

What is a drug, and who says what a drug is? This is a tricky area. For this talk I use the concept that a drug is an exogenous substance, something that comes from outside a person, goes into them and produces physiological changes.

Regulation and control

In the last 40 years we in the UK have developed a way of regulating drugs using a complex legislative framework. There are two major acts of parliament regulating drugs. First, there is the Medicines Act 1968, which is essentially monitored and acted upon by the Medicines and Healthcare Regulatory Agency (MHRA), and second, there is the Misuse of Drugs Act 1971, which comes under the remit of the Home Office (see Figure 1). Thus, recreational psychoactive substances are controlled by Home Office legislation.

There are a number of other substances that are popularly used and cause harm whose risks fall outside these two control mechanisms. For example, alcohol and tobacco are essentially regulated foods or commodities, while solvents, which kill about ten people a year in the UK through inhaling, are regulated at the point of sale according to the age of the person buying the solvent. Other drugs are also used. Coffee is one of the most popular drugs in the UK and throughout the world. Khat, another plant-based stimulant (akin to strong coffee) that is chewed rather than pre-processed as a drink, is used particularly in the Horn of Africa but also by migrants from that region in the UK. Coffee and khat have relatively unregulated sales.

Different drugs come under different areas of control and some are under no control at all. As shown in Figure 1, there is overlap between how some drugs

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FIGURE 1. THE CURRENT LEGISLATIVE FRAMEWORK
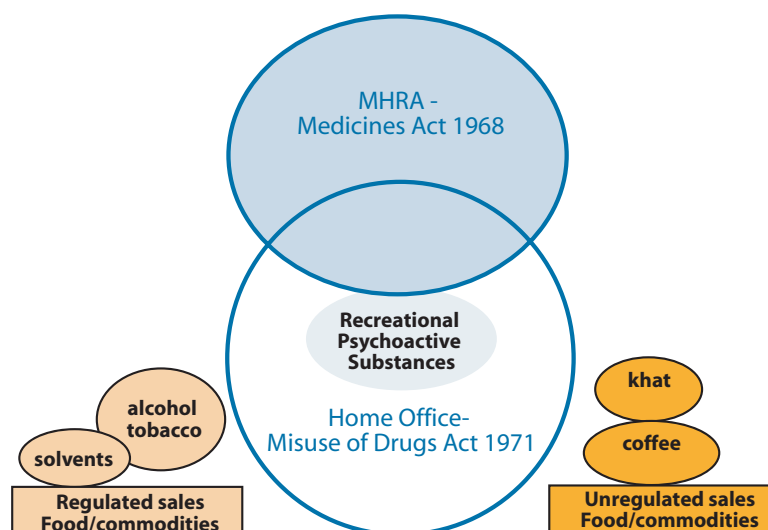
are controlled – many of those controlled under the Misuse of Drugs Act are also controlled under the Medicines Act. In fact, most of the drugs controlled by the Misuse of Drugs Act are also used clinically.

The Misuse of Drugs Act essentially divides drugs into three classes: A, B and C. The thinking behind this Act was to try to produce a system of relative-based harm, so that drugs could be scaled against each other and then put into one of the three classes that controlled penalties. The idea was that this would be a flexible system: as evidence of greater or lesser harm emerged, drugs could be moved up and down the scale. That was the original intention, but the Act has become rather ossified since then, and there has been very little movement, and especially very little downward movement.

Table 1 illustrates drug classes (A–C) and schedules (1–4) under the Misuse of Drugs Act. The majority of drugs specified under this Act are used clinically, and the schedules tell you which drugs can be used for clinical purposes. If they are not used clinically, they are treated as illegal but can be used clinically. Schedules 2, 3 and 4 include drugs which have a clinical use. Some in schedule 1 are not currently used medically but they have been in the past. For example, cocaine was commonly used to treat terminal cancer; MDMA (ecstasy) has had some utility and is being resurrected as a treatment to augment psychotherapy in severe forms of post-traumatic stress disorder. Cannabis was once a medicinal product, then was made illegal, and now seems likely to return as a medicinal product in the UK as in many other countries. Then there are drugs that have never been used medically and have no medical use. These are in schedule 1: crack cocaine, LSD and psilocybin (the active component of mushrooms).

A more recent drug which is in the process of being made illegal is BZP (benzylpiperazine); although BZP was designed as a medicine, it was deemed not safe enough to be used in this way.

Since 1971 there has been some movement of drugs between classifications and schedules. Drugs such as ketamine and GHB have recently come under control of the Act and new drugs introduced under the Act. Methylamphetamine has moved from class B to class A. Psilocybin (as psychedelic mushrooms) was outside the Act but has come into class A in the last couple of years, and Benzylpiperazine will become class C shortly. Cannabis has had an interesting rotation; over the past six years it has gone from B (with some forms as A) to C, and then recently back to B.

Why does it matter where drugs are covered by the Act? The key point about classification is that the class determines the penalties. Essentially you can divide the penalties into two kinds: those for possession (the penalty applying to the individual who has the drug for personal use), and penalties for those who have the drug for selling on to others, importation, supply, etc. The maximum penalties for possession are seven years in prison for a class A drug, five years for class B, and two years for class C. For supply, the penalties are, respectively, life, 14 years and 14 years.

I want to make two observations about this. The first is that taking a drug is not currently illegal in this country. There have been attempts to make it so, but the most reasoned arguments suggest that this is not a particularly useful way of reducing harm. You can impose civil or employment penalties for detecting drugs, particularly if you

TABLE 1. HOW THE MISUSE OF DRUGS ACT WORKS

Schedules	Class A	Class B	Class C
2-3-4. Medicines	Opioids Metamphetamine i.v. amphetamine	Amphetamines / Barbiturates	Benzodiazepines Ketamine GHB Buprenorphine Steroids Growth Hormone
1. Not currently medically recognised	Cocaine / MDMA	Cannabis	Clenbuterol
1. Never medical	Crack cocaine LSD Psilocybin (mushrooms)		Benzylpiperazine

work in areas where drugs may cause impairment to performance. This is currently a huge issue in the military, where use of drugs outside what you might call 'active' employment is causing great tension and leading to the potential loss of very highly trained personnel. My second observation is that it has not always been the case that the maximum penalty for supplying a class C drug has been 14 years; at one point it was seven years. In a kind of tit-for-tat, when cannabis was downgraded from class B to C, the government decided to bolster the potential penalties for possession to try to minimise what it considered might be harms from downgrading, and thus changed the penalty from seven years to 14 years for supply.

Drug policy

Formulating policy in relation to drugs is obviously quite a difficult thing to do. I comment on it, as I always have, from the perspective of a psychiatrist who is interested in drugs and drugs and the brain. In many ways, that's how the Advisory Council on the Misuse of Drugs (ACMD) covers it. We have a range of expertise on the Council; we're very strong in terms of chemistry and pharmacology, and psychology; and we have a definite knowledge, interest and responsibility to look at social harms as well. We provide one arm of the policy formulating perspective. In addition, there are a number of

other agencies, organisations and individuals who contribute to policy formation.

There are also what might be described as formal inputs through public consultation, not so much with the general public, but with interested public organisations such as the British Chemical Industry. There are also international partners – we have signed up to international treaties – which determine that, in essence, the UK follows United Nations policy on drugs. This can be quite a tough constraining influence on how countries regulate drugs (although some countries, such as the Netherlands, have managed to be more flexible in the way they deal with drugs, even though they still sign up to the international conventions).

Then, of course, there are other factors feeding into political decisions about drugs: what the general public thinks (or is thought to think); and then there's the media. Figure 2 shows the range of influences that impact on the policy formation process with regard to drugs and their misuse.

In recent years the whole process of determining drug classification has become quite complex and highly politicised.

FIGURE 2. POLICY FORMATION
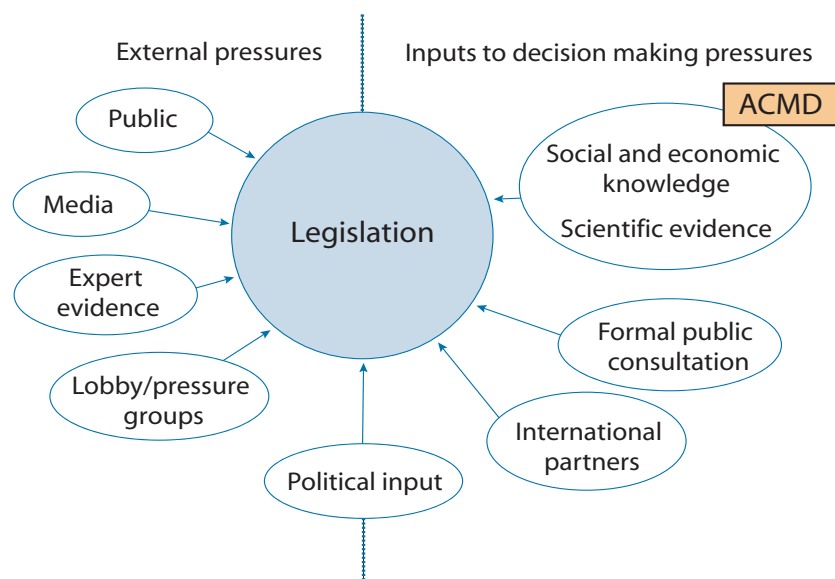
Cannabis – a potent problem

I am going to focus on cannabis because it is the only drug that has been downgraded in the whole history of the Act, an interesting point in itself. The issues relating to cannabis pose a challenge to whether the Act is working as it was originally intended.

The ACMD was requested by the Home Secretary in 2007 to review the status of cannabis because: *'Though statistics show that cannabis use has fallen significantly, there is real public concern about the potential mental health effects of cannabis use, in particular the use of stronger forms of the drug, commonly known as skunk.'*

So there was a skunk scare. Cannabis had gone from class B to C, but, supposedly, skunk use had been increasing and it was getting stronger, so we were asked to review whether the decision to go from B to C was still appropriate. The ACMD had produced two reports on cannabis in the previous five years (ACMD, 2002; Rawlins et al., 2005). These reports are very accessible and written in language that allows a lay person to understand the science as well as the policy implications.

In our third cannabis report (Rawlins et al., 2008) we came to several conclusions:

- Cannabis is a **harmful drug** and there are **concerns about the widespread** use of cannabis amongst young people.
- A **concerted public health response** is required to drastically reduce its use.
- Current evidence suggests a probable, but **weak, causal link between psychotic illness and cannabis use.**
- The harms caused by cannabis are not considered to be as serious as drugs in class B and therefore it should remain a **class C drug.**

Let me just guide you through some of the reasoning behind that final point. There has been a lot of commentary and some research as to whether cannabis is associated with schizophrenia, and the results are really quite difficult to interpret. What we can say is that cannabis use is associated with an increased experience of psychotic disorders. That is quite a complicated thing to disentangle because, of course, the reason people take cannabis is that it produces a change in their mental state. These changes are a bit akin to being

psychotic – they include distortions of perception, especially in visual and auditory perception, as well as in the way one thinks. So it can be quite hard to know whether, when you analyse the incidence of psychotic disorders with cannabis, you are simply looking at the acute effects of cannabis, as opposed to some consequence of cannabis use.

If we look on the generous side, there is a likelihood that taking cannabis, particularly if you use a lot of it, will make you more prone to having psychotic experiences. That includes schizophrenia, but schizophrenia is a relatively rare condition so it's very hard to be sure about its causation. The analysis we came up with was that smokers of cannabis are about 2.6 times more likely to have a psychotic-like experience than non-smokers. To put that figure in proportion, you are 20 times more likely to get lung cancer if you smoke tobacco than if you don't. That's the sort of scaling of harms that I want people to understand. There is a relatively small risk for smoking cannabis and psychotic illness compared with quite a substantial risk for smoking tobacco and lung cancer.

The other paradox is that schizophrenia seems to be disappearing (from the general population) even though cannabis use has increased markedly in the last 30 years. When we were reviewing the general practice research database in the UK from the University of Keele, research consistently and clearly showed that psychosis and schizophrenia are still on the decline. So, even though skunk has been around now for ten years, there has been no upswing in schizophrenia. In fact, where people have looked, they haven't found any evidence linking cannabis use in a population and schizophrenia.

Another interesting finding came from our analysis of what it would take to reduce the number of people being diagnosed with schizophrenia by targeting cannabis use. Our research estimates that, to prevent one episode of schizophrenia, we would need to stop about 5,000 men aged 20 to 25 years from ever using the drug. This is obviously a major public health challenge and one that raises questions about whether it is a viable way of intervening with schizophrenia. So, overall, cannabis use does not lead to major health problems.

We were also interested in the public perceptions of drugs. The public are often seen as major players in this debate, but we rarely find out exactly what the

public thinks. In fact, the tendency is to assume that what the media produce is what the public think.

In 2007, the government launched a consultation on a new drug strategy that included questions on cannabis to find out what the public thought. Two questions were asked: 'Do you think cannabis should be reclassified?' and 'What are your views on tougher penalties?' Responses from 639 people were obtained. Some responded on behalf of organisations and others responded individually.

The responses are shown in Table 2, broken down into professional groups and personal responses. In the personal responses, the vast majority wanted cannabis to stay as class C, a significant number wanted it legalised, smaller numbers wanted it to go back up the classification scale and a reasonable number were undecided. Health professionals were more undecided. Statutory partnerships were equally balanced between B and C, with the police strongly in favour of B. I should emphasise here that there is no direct benefit to the police in having cannabis classified as class B in terms of sentencing as both classes incur the same penalties. The majority of local authorities, drug service providers and charities wanted it to remain class C. Most respondents did not want to reclassify it to B.

The ACMD did not find the questions posed by the government consultation particularly helpful.

We therefore carried out our own MORI survey of a representative general population sample as we were putting together this third report (Rawlins et al., 2008), and asked a couple of questions about cannabis. The first was what class should cannabis be? Interestingly, what we found here was that just over half wanted it to be in a higher class (so a rather different response from that of the responders to the free question that the government put out) and about half wanted it to stay a C (see Table 3). This surprised us, as did the fact that 32 per cent wanted cannabis classified as class A. But the second question was the really interesting one: what should the penalties for possession be? Over two-thirds wanted them to either remain at current levels (class C) or to be lower (Table 4)! So, although a lot of people wanted cannabis class A, they didn't want class A penalties.

What you see here is an interesting ambivalence in the public mind: they want cannabis to be illegal (presumably because they think it is harmful, they want it class A or B) but they don't want the penalties to be increased. If anything, many of them want the penalties abolished. It seemed to us that what the public appear to want is deterrence – they don't want punishment; they want to scare people off cannabis use but they don't want to punish them for using it. You may think that it is quite obvious that this is what the public wants but this is the first time we have had systematic data supporting this.

TABLE 2. PUBLIC OPINION ON CANNABIS- GOVERNMENT POLL

Q39a. Do you think cannabis should be reclassified?

Q7. The Government is consulting on whether to make cannabis a Class B drug (it is currently Class C) which could mean tougher penalties. What are your views?

Category of respondent	Nos. Responding	Yes-Reclassify to 'B'	No-Leave as 'C'	Legalise	Undecided
Health professionals	19	3	7	0	9
Statutory Partnerships	77	25	27	0	25
Policing Agencies	27	19	4	0	4
Local Authorities	50	13	22	0	15
Drug Service Providers	29	7	14	2	6
Charity & Voluntary Groups	23	4	9	1	9
Lobby/Activist/Pressure groups	15	2	7	3	3
Personal Responses	399	48	188	118	45
Total	**639**	**121**	**278**	**124**	**116**

Media bias

I want to move on now to look at how people gather information about drugs and the challenges of communicating the best evidence relating to drug harms to the public. This is difficult in the face of what you might call a peculiar media imbalance in relation to drugs. The data in Table 5 illustrate a remarkable finding. It derives from the PhD of a Scottish graduate, Alasdair J M Forsyth, who looked at every single newspaper report of drug deaths in Scotland from 1990 to 1999 and compared them with the coroners' data.

Over the decade, there were 2,255 drug deaths, of which the Scottish newspapers reported 546. For aspirin, only one in every 265 deaths were reported – clearly aspirin was of no interest. For paracetamol, there was one newspaper report per 50 deaths, and for benzodiazepines (diazepam and temazepam) one in 15 to one in 50. For morphine, one in 72 deaths were reported, indicating that editors were not interested in this opiate. They were more interested in heroin, where one in five deaths were reported, and methadone where one in 16 deaths were reported. They were also more interested in stimulants. With

amphetamines, deaths are relatively rare at 36, but one in three were reported; for cocaine it was one in eight. Amazingly, almost every single ecstasy death – that is, 26 out of 28 of those where ecstasy was named as a possible contributory factor – was reported. So there's a peculiar imbalance in terms of reporting that is clearly inappropriate in relation to the relative harms of ecstasy compared with other drugs (Nutt et al., 2009). The reporting gives the impression that ecstasy is a much more dangerous drug than it is. This is one of the reasons I wrote the article about horse riding that caused such extreme media reactions earlier this year (Nutt, 2009). The other thing you'll notice is that there is a drug missing, and that's cannabis. Also missing is alcohol, which will have killed a similar number, 2,000 to 3,000 people, in Scotland over that time, maybe more. Of course, cannabis wouldn't have killed anyone because it doesn't kill. And that's one of the reasons why we thought cannabis should be class C because you cannot die of cannabis overdose.

The media are not alone in getting things wrong. It is very easy to get research money to show that drugs are harmful but it's very hard to get research funds to show that they may not be so. A lot of

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TABLE 3. PUBLIC OPINION ON CANNABIS ACMD

Ipsos- MORI poll conducted on befalf of the ACMD for the 2008 review of cannabis- 1003 respondents from the general public

Q. What class should cannabis be?

Class A	32%
Class B	26%
Class C	18%
Legal	11%
Don't know	13%

TABLE 4. PUBLIC OPINION ON CANNABIS ACMD

Ipsos- MORI poll conducted on befalf of the ACMD for the 2008 review of cannabis- 1003 respondents from the general public

Q. What should the penalty for possession be?

Class A	7yrs -11%
Class B	5yrs -13%
Class C	2yrs - 41%
No penalty	27%
Don't know	8%

the scientific reporting about drugs is biased. It's a big challenge for scientists to make sure that their colleagues are producing data that are accurate. There have been some horrific examples where some of the so-called 'top' scientific journals have published poor quality research about the harms of drugs such as cannabis or ecstasy, sometimes having to retract the articles. The problem is, you never see the retractions, you just see the front page of newspapers saying 'ecstasy fries your brain'. The retraction explaining that methamphetamine rather than ecstasy was given by mistake is much less visible, if published at all!

Drugs and politics

In 2008 the ACMD presented its third cannabis report in recent years to government and recommended that cannabis should remain a class C drug. The Home Secretary went on to discuss the report in parliament:

> 'In reaching my decision, I have also taken into account the views of others, particularly those responsible for enforcing the law, and the public … I have given the council's report careful consideration. Of its 21 recommendations, I accept all bar those relating to classification …'

So why was that? The former Home Secretary continued:

> 'My decision takes into account issues such as **public perception** and the needs and consequences for policing priorities. There is a compelling case for us to act now rather than risk the future health of young people. Where there is a clear and serious problem, but doubt about the potential harm that will be caused, we must **err on the side of caution** and protect the public. I make no apology for that. I am not prepared to wait and see.'

This issue of public perception is very important – and how best to have a sensible public debate and discussion about drug harms. As discussed above – and in our report – some members of the public might have wanted cannabis to move up a class but more wanted the penalties reduced, not even stay the same. We are producing reports based on detailed, extensive research, and the 2008 ACMD cannabis report (Rawlins et al., 2008) was one of the most detailed assessments of cannabis harms every done. We therefore really have a great deal of confidence in our analysis, as should the public and the government.

TABLE 5. MEDIA BIAS

Distorted? a quantitative exploration of drug fatality reports in the popular press
Alasdair J.M. Forsyth International Journal of Drug Policy 12 (2001) 435-453

...comparing 'official' toxicological statistics for a single country (Scotland) with the reporting of drug deaths in that country's most popular newspapers over a given time period (the 1990s)

Drug	Toxicological statistics (n)	Newspaper reports (n)	Toxicology to newspaper ratio
All cases	2255	546	4:1
Asprin/Salicylate	12	0	-
Paracetamol	265	1	265:1
Diazepam	481	10	48:1
Temazepam	369	25	15:1
Morphine	431	6	72:1
Amphetamines	36	13	3:1
Cocaine	30	4	8:1
Heroin/ Diamorphine	342	75	5:1
Methadone	460	29	16:1
Ecstasy/MDMA[a]	28	26	1:1

The precautionary principle

So, one of the key arguments in moving cannabis from class C to B was the concern that skunk would cause more psychosis. What is very regularly invoked in this debate is the precautionary principle, which is that, if you're not sure about a drug harm, rank it high, make all drugs class A and get rid of the problem. To repeat what the former Home Secretary said, *'We must **err on the side of caution** and protect the public.'* As this is protection from the known unknowns, at first sight it might seem the obvious decision – why wouldn't you take the precautionary principle? We know that drugs are harmful and that you can never evaluate a drug over the lifetime of a whole population, so we can never know whether, at some point in the future, a drug might lead to or cause more harm than it did early in its use.

The precautionary principle is also an act of faith in deterrence, and this is one of the key issues for lawyers. However, it may end up doing more harm than one might assume. Does deterrence impact on drug use? We don't know. In fact, the outcome may be the opposite of that predicted. It may be that if you move a drug up a class it has a greater cachet. People think, 'Oh, it's interesting, maybe we should be trying it because it's a class B or a class A rather than a class C.' We don't know. We also don't know what drives the use of drugs in relation to classification. More important, I think, the precautionary principle misleads. It starts to distort the value of evidence and therefore I think it could, and probably does, devalue evidence. This leads us to a position where people really don't know what the evidence is. They see the classification, they hear about evidence and they get mixed messages. There's quite a lot of anecdotal evidence that public confidence in the scientific probity of government has been undermined in this kind of way.

I will use MMR as an example of this process and the precautionary principle. People were concerned, on the basis of false science, that the triple vaccine might cause brain damage. This led to a reduction in vaccination uptake and now children are getting lung and brain damage from measles. In some circumstances, people accessed single vaccinations, which was more expensive, probably no safer, and in effect reduced the breadth of health protection across the community. The precautionary principle with MMR has been clearly shown to be wrong – it has harmed more people than it has helped. So we

need to be very cautious about simply invoking the precautionary principle in relation to drugs.

Another very sad example is that of a young woman from the Shetland Islands who died of a heroin overdose. Why was she taking heroin? The problem according to her friends was that she wanted, like her friends and other teenagers to try cannabis. In this isolated community it was, however, much easier to get heroin, presumably because it has a higher unit price and is easier and more profitable to import than cannabis. This is something we should bear in mind. We don't know how many deaths are caused by a failure of people to access drugs that are relatively less dangerous because more dangerous drugs are being made available. Making all drugs class A would be a logical conclusion of the precautionary principle, but would be a supreme mistake.

Assessing harm

We've tried very hard for at least the last ten years to put together a structure for assessing drug harms. This began with the Runciman report (2000) and evolved into a more detailed analysis, which eventually turned into a research paper, 'Development of a rational scale to assess the harms of drugs of potential misuse', published in *The Lancet* (Nutt et al., 2007). Despite – or perhaps because of – its novelty and remit, it was very hard to get the paper published because it challenged some of the current (mis)perceptions about drugs.

In principle, we broke down drug harms into nine different parameters (Table 6). This system was arbitrary but we thought it was a sensible way of categorising all the possible harms from drugs, covering physical harms, dependence and social harms.

We also looked at all the drugs in the MDA and added some others that weren't already covered by the Act (Table 7). For example, we included ketamine, which wasn't covered by the Act at the time, solvents, which are not included, and tobacco and alcohol, because we thought it was very important that harms of illicit drugs were assessed against the harms of drugs that people know and use, otherwise it is not possible to have a truly harm-based assessment. The scores of these other drugs also play an important part as anchor points against which others can be scaled. Without such reference points, the debate about relative drug harms becomes isolated and arbitrary, more akin to a 'religious'

TABLE 6. THE NINE PARAMETERS OF HARM

	Parameter	
Physical Harm	One	Acute
	Two	Chronic
	Three	Intravenous harm
Dependence	Four	Intensity of pleasure
	Five	Psychological dependence
	Six	Physical dependence
Social Harms	Seven	Intoxication
	Eight	Other social harms
	Nine	Health-care costs

From Nutt et al, 2007. *Table 1*: Assessment parameters

TABLE 7. THE DRUGS ASSESSED

	Class in Misuse of Drugs Act	Comments
Ecstasy	A	Essentially 3,4-methylenedioxy-N-methylamphetamine (MDMA
4-MTA	A	4-methylthioamphetamine
LSD	A	Lysergic acid diethylamid
Cocaine	A	Includes crack cocaine
Heroin	A	Crude diamorphine
Street methadone	A	Diverted prescribed methadone
Amphetamine	B	-
Methylphenidate	B	eg, Ritalin (methylphenidate)
Barbiturates	B	-
Buprenorphine	C	eg, Temgesic, Subutex
Benzodiazepines	C	eg, Valium (diazepam), Librium (chlordiazepoxide)
GHB	C	Gamma 4-hydroxybutyric acid
Anabolic steroids	C	-
Cannabis	C	-
Alcohol	-	Not controlled if over 18 years in UK
Alkylnitrites	-	Not controlled
Ketamine	-	Not controlled at the time of assessment; controlled as class C since
January, 2007		
Khat	-	Not controlled
Solvents	-	Not controlled; sales restricted
Tobacco	-	Not controlled if over 16 years in UK

From Nutt et al, 2007. *Table 2*: The 20 substances assessed, showing their current status under the Misuse of Drugs Act
Note: Alcohol and tobacco are included here to give "anchor points"

discussion. This analysis eventually established a ranking order presented in Figure 3.

A number of important points emerged. The ranking suggested that there are clearly some very harmful drugs (you might say these would be class A drugs) and there are some drugs that aren't very harmful, such as khat or alkylnitrites, which aren't controlled by the Act at all. The dark bars are the class A drugs. Interestingly, some class A drugs scored much lower than other class A drugs, suggesting that there is some anomaly in terms of that part of the current statutory classification system.

The ranking also suggests that a tripartite classification system might make sense, with drugs ranking as more harmful than alcohol being class A and those ranking lower than tobacco as class C. The exercise also highlighted how dangerous alcohol is. I believe that the challenges of dealing with the harms of alcohol is probably the biggest challenge that we have in relation to drug harms today.

So, we used other drugs for a comparison of harms. But there are a lot of dangerous activities which

society doesn't necessarily discourage but does try to control. I believe that using analogies with other harmful activities helps us engage in appropriate debate about relative harms of drugs. One problem is that sometimes you get into what I think of as an illegality–logic loop. This is an example of a conversation that I've had many times with many people, some of them politicians:

> MP: 'You can't compare harms from a legal activity with an illegal one.'
>
> Professor Nutt: 'Why not?'
>
> MP: 'Because one's illegal.'
>
> Professor Nutt: 'Why is it illegal?'
>
> MP: 'Because it's harmful.'
>
> Professor Nutt: 'Don't we need to compare harms to determine if it should be illegal?'
>
> MP: 'You can't compare harms from a legal activity with an illegal one.'
>
> repeats …

I have been surprised how difficult this concept is to get across to some people, whether they are
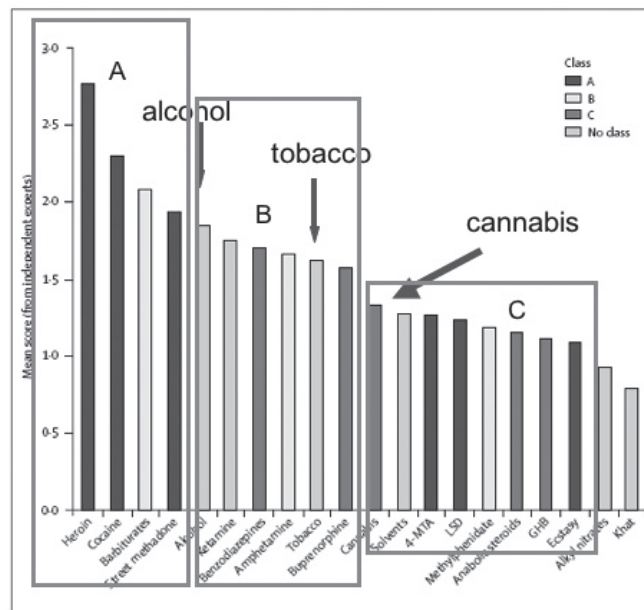
FIGURE 3. DRUG HARM RANKING

Figure 1: Mean harm scores for 20 substances
The respective classification under the Misuse of Drugs Act, where appropriate, is shown above each bar. Class A drugs are indicated by black bars, B by dark grey, and C by light grey. Unclassified substances are shown as unfilled bars.

Figure 1: Mean harm scores for 20 substances.
The respective classification under the misuse of Drugs Act, where appropriate, is shown above each bar. Class A drugs are indicated by black bars, B by dark grey, and C by light grey. Unclassified substances are shown as unfilled bars.

politicians, fellow scientists or members of the general public. The supposition that if something is illegal its harms can't be assessed in the same way as if it were legal is one that is quite difficult to break. A common corollary of this is that drug harms are seen as less acceptable than other harmful activities to non-users – though obviously a different attitude is taken by users. So who is right?

New drugs

Why is any of this important? Well we have other challenges. We have other drugs to review. I have mentioned GBL already, and you may know that there have been a couple of deaths recently from this strong sedative, which is chemically very similar to GHB but not currently controlled. Then there is 'spice' and related smoking mixtures. We didn't know what these were until about six months ago, when there were some case reports of marked hallucinatory reactions to these mixtures. German chemists were able to analyse some of the herbal mixtures that produced these effects and discovered that the bulk comprised a pretty inert herb. However, it had been sprayed with synthetic cannabis agonists. These agonists are often more powerful than cannabis itself, so spice can be like smoking a potent form of cannabis. But it's not controlled under the Act because, until now, the synthetic cannnabinoids have not been misused so they have never been controlled. This is something we are working on very hard at present to try to see if it's possible to regulate or control them in the same way we control cannabis.

Then there is the whole question of cognition enhancing drugs – so called 'smart' drugs. These are drugs, like modafinil (Provigil) and methylphenidate (Ritalin), which are used by students to help them work harder, stay up later to work, and sometimes to keep them awake when they want to go out partying all night. Should they be controlled? Do they cause harm? Are they likely to cause harm in the long term? These are the questions we are looking at.

Classification of drugs in the Act

We also have to work on the classification conundrum: what are the boundaries between A, B and C? Can we come up with some absolute measures that would, in future, allow us to say this drug is A because of this or B because of this. One thing's for sure: at present, experts and politicians don't agree, which is why I think the public debate needs to begin. Who do the public trust more – the

experts or the politicians? When we look at the discussion that we had about ecstasy (where the ACMD recommended class B (Nutt et al., 2009) and the government maintained it as A), I think there's very little doubt that we, the scientists, won the intellectual argument, but we obviously didn't win the decision in terms of classification. Any agreement will be difficult if we're not talking in the same language about the same relative measures of harm; this is what I am trying to address in this talk.

A way forward?

I want to finish by making a few suggestions. I think we need to improve the general understanding of relative harms. I think we need to educate people about drug harms in relation to the harms of other activities in life, so that it is possible for them to make sensible decisions about relative harms. One of the ways we are thinking of doing this is through using a technique called multicriteria decision-making. This approach has really come of age in helping solve another seriously difficult problem: nuclear waste disposal. A two-year open public consultation on this issue was conducted using multicriteria decision-making. This not only takes into account the whole range of different criteria, but also formulates them in a way that gives specific and agreed weights to each one. We didn't do this in our drug harm assessments, or rather we haven't done so as yet.

In the case of nuclear waste, all the particular parameters of risk were worked through with the public as well as with experts so that the final weighting and ranking were truly a community decision. As a result of that massive consultation programme, it was decided that the future of nuclear waste was deep encasement underground. Thus, multicriteria decision-making is a proven technology, which I think could well be applied to something nearly as difficult as nuclear waste, drug harms.

Another suggestion is that we should gather evidence about the impact of change of classification – something we are not routinely doing at present. We do not know the effects of downgrading cannabis from B to C. There was a fall in use but we do not know whether this was related to reclassification. The government doesn't systematically carry out research on the consequences of changes in classification so we don't know much about how classification systems impact on individuals' desire to use or not to use a drug. This is a very important area of research for

social scientists and people interested in this aspect of legal science.

I think we have to accept young people like to experiment – with drugs and other potentially harmful activities – and what we should be doing in all of this is to protect them from harm at this stage of their lives. We therefore have to provide more accurate and credible information. If you think that scaring kids will stop them using, you're probably wrong. They are often quite knowledgeable about drugs and the internet has made access to information extremely simple. We have to tell them the truth, so that they use us as their preferred source of information. A fully scientifically-based Misuse of Drugs Act where drug classification accurately reflects harms would be a powerful educational tool. Using the Act in a political way to give messages other than those relating to relative harms undermines the Act and does great damage to the educational message.

We also have to fully endorse harm reduction approaches at all levels and especially stop the artificial separation of alcohol and tobacco as 'non-drugs'. In some parts of the UK this has already happened. In Wales the programme of intervention in relation to drug harms now incorporates smoking and drinking because those are seen as in some cases being bigger problems than other drugs. There are other merits in approaching them simultaneously: for example, many of these drugs are being used at the same time by the same people.

Another key question we have to address as a society is whether our attitude to drugs is driven because of their harms or are we engaging in a moral debate? One thing this government has done extremely well in the last ten years is to cut away much of the moral argument about drug treatments. They have moved in the direction of improving access to harm reduction treatments, an approach that, I think, is wholly endorsed by the scientific community and by the medical profession. For reasons that are not clear, the same evidence-based change has not happened in relation to the classification of drugs of misuse. I think it should happen because, while I'm not a moral philosopher, it seems to me difficult to defend a moral argument in relation to drugs if you don't apply it to other equally harmful activities.

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Eve Saville Lecture, July 2009

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