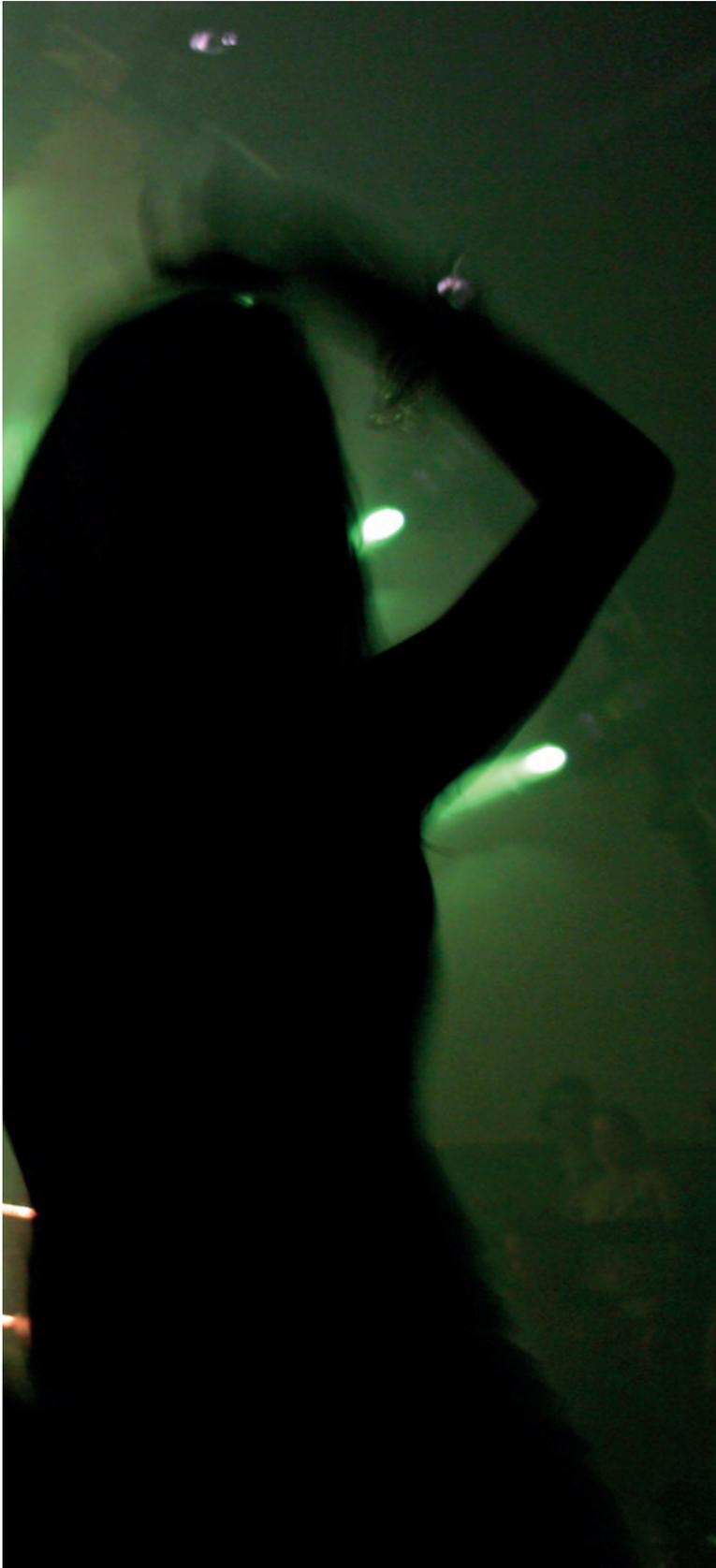


A photograph of a person dancing in a club. The scene is dimly lit with vibrant green stage lights. The person is in the foreground, their body in motion, creating a slight blur. In the background, other people are visible, some with their arms raised, suggesting a lively dance floor. The overall atmosphere is energetic and modern.

# High as a Kiwi

What happens if you just say no to drug prohibition? New Zealand is about to find out - and the rest of the world is watching. Michael Slezak reports

HISHAM IBRAHIM/GETTY



Around 30 million people take ecstasy-like drugs every year

“I’ve tried probably 150 different psychoactive chemicals,” the man with the Israeli accent tells me over the phone. “So I have a very, er, refined palate.”

Known to me simply as Dr Z, the man is a mathematician who used to design sleeping pills for a major pharmaceutical company. The drugs he designs these days are more likely to keep you awake. His most famous creation is mephedrone, or “meow meow”, which was briefly the world’s most famous legal high.

Drugs like mephedrone usually slip onto the market via shadowy underground networks. Dr Z first tries his creations himself before recruiting willing human guinea pigs from the online “psychonaut” community.

But this clandestine system may soon be a thing of the past. *New Scientist* understands that Dr Z is now testing a number of drugs in rigorous scientific studies, conducted by mainstream pharmaceutical labs and costing hundreds of thousands of dollars.

The trials are the result of a radical shake-up in drug policy in New Zealand. Last year its government passed a law that will allow new recreational drugs to be sold openly as long as they meet certain safety standards. Before long, Dr Z hopes his drugs will be on sale there, alongside alcohol and tobacco – taxed, regulated and entirely legal.

This doesn’t mean that New Zealand is legalising drugs: far from it. Existing illegal drugs won’t change their status. Nevertheless, the law is a decisive break with prohibition, a policy that has had a stranglehold on international drug enforcement for more than 50 years.

## Breaking ranks

Other countries, too, are breaking ranks on prohibition, leading some to claim that the entire edifice is crumbling. At the very least, New Zealand’s radical experiment could provide some answers to the long-running and bitter arguments about whether banning drugs prevents or causes terrible harm.

If prohibition’s aim is to prevent people from taking drugs, it isn’t very successful. In 2011, an estimated 300 million people worldwide took illegal drugs, up 18 per cent on 2008. Even the world’s top drug enforcers struggle to put a positive spin on this number. “We have to admit that, globally, the demand for drugs has not been substantially reduced,” wrote Yury Fedotov, executive director of the UN Office on Drugs and Crime, in last year’s World Drug Report.

Other figures are equally damning. According to some estimates, the US has ➤

spent \$1 trillion on domestic drug law enforcement over the past 40 years, only to see a rise in drug use. Since 2006, 50,000 people have died in Mexico's drug wars.

To some, these failures simply demonstrate that prohibition hasn't been pursued vigorously enough. Others, though, say that the entire philosophy is flawed. Like it or not, the demand for drugs cannot be stamped out, and there will always be people willing to supply. Where drugs are illegal, the suppliers will be criminals and the quality of their wares highly suspect. It is surely better, say the reformers, to set up a system that separates drugs from criminality and allows controlled access to compounds that are known to be relatively harmless. New Zealand's radical new law will be the closest thing yet to a test of that claim.

That's not to say the country is deliberately setting up an experiment to answer the question. Its motive is largely pragmatic.

Possibly because it is so far from major drug trafficking routes, New Zealand has a long-standing problem with new psychoactive substances – commonly called “designer drugs” or “legal highs”.

One of the first to take off there was BZP (benzylpiperazine) in the late 1990s. Marketed as a safe and legal alternative to amphetamines, by 2008 over 5 per cent of adults reported taking it in the past year – more than twice as many as had used amphetamines.

The New Zealand government initially turned a blind eye, but banned BZP in 2008 after reports of serious side effects. Other

**New Zealand's reforms will legalise an already competitive market for alternative highs**



DAVID BEARSON/REX



ALEXEY STODPALARNY

legal highs, however, quickly filled the gap, including mephedrone. It, too, was eventually banned – only to be replaced by a plethora of other still-legal drugs.

That sequence is now routine: a new drug appears; it is sold legally until the authorities spot it and ban it; then another drug takes its place and the cycle starts over again.

The game of cat-and-mouse is spiralling out of control. In 2009, European authorities reported 24 new synthetic drugs. In 2010 there were 41; in 2012, 73 (see graph, page 45). Similar figures are reported from around the world.

These drugs cater to all sorts of tastes. Many are synthetic versions of cannabis. Others are amphetamine-like stimulants, ecstasy

substitutes or hallucinogens. Some are herbal, others synthetic. A few are experimental pharmaceuticals that never made the grade. Some jurisdictions, including the UK, have tried to break the cycle by introducing “emergency scheduling”, which means that new drugs can be temporarily banned without recourse to the normal parliamentary rigmarole. Others, including Australia, have banned all “analogues” – any chemical that is structurally similar to an existing illegal drug.

New Zealand tried both those approaches with little success, says James Dunne, a drug-law reform expert at New Zealand law firm Chen Palmer who has worked for legal high manufacturers.

Emergency scheduling just accelerates the cat-and-mouse game, he says. The result is the sale of drugs that have barely been tested. “It sends the wrong incentives to manufacturers – develop something that's hard to identify and sell as much of it as you can as fast as you can,” he says.

Analogue laws, meanwhile, are “an invitation to chemists”, says Dunne. “When

## Altered states

Latin America is leading the charge against prohibition, both through the **Organization of American States** and actions of individual countries



## “Scores of drugs with unknown risk profiles have slipped through”

you say that these chemicals are structurally similar, you're also saying that others aren't – and pointing the way for future drugs.”

Prohibition was hard enough in a world where governments knew what drugs to ban. Now, in a world where new drugs appear every week, it seems altogether impossible.

While the rest of the world is cranking up the treadmill, New Zealand has decided



to get off. Last year, The Psychoactive Substances Bill passed both houses of parliament with only a single dissenting voice.

Reading the bill to parliament, associate health minister Peter Dunne explained that prohibition simply couldn't keep up with the turnover of new drugs. "Scores of products with unknown effects and unknown risk profiles – indeed, some barely known to science at all – have slipped through this regulatory void," he said. "This proliferation of poorly understood chemicals and their widespread use should concern us all. So we need an enduring solution."

The details of his proposed solution are still a little hazy, though some basic rules have been set out. The most important is that drugs won't be allowed on the market unless they have a proven "low risk of harm" – though exactly what that means and how it will be decided are still a work in progress.

Drugs also won't be sold to under-18s, at convenience stores, or anywhere alcohol is also on sale. Labels with ingredients and health warnings will be mandatory. Existing illegal drugs won't be legalised, but Peter Dunne says this could be done later.

A new authority charged with implementing the regime is still working out the other details. The law is expected to come into full effect very soon.

In the meantime, New Zealand is in a halfway house. When the law was enacted in July, legal highs that had been on sale for at least three months could apply for temporary licences; 46 were approved and six refused, based on an assessment of risk. Retailers also had to apply for licences to continue selling those drugs. From an estimated 3000 outlets, the authority granted 110 licences.

Until the new regime goes live, there are many unanswered questions about how it will operate. The biggest is how to decide which drugs are suitable for sale. Exactly what constitutes "low risk"?

For the past 15 years, David Nutt, a neuropsychopharmacologist at Imperial College London, has been trying to answer that question. His approach takes into account harm to individuals, the risk of addiction and harms to society. "You come to a sensible balance," says Nutt. "You look at the bigger picture." By this reckoning, the most harmful drug is alcohol, followed by heroin and crack cocaine (*The Lancet*, vol 376, p 1558).

But finding a way to assess and compare drug harms is only half the problem. The next step is deciding where to draw the line.

Nutt liaised with the New Zealand regulators on this question. "I told them they should set the threshold as 'less harmful than alcohol' but they laughed and said that's too harmful," Nutt says. He now suggests "half as harmful as alcohol" would make sense.

Wherever the line is set, the next challenge is how to prove a drug is on the right side of it. Stewart Jessamine, head of Medsafe, New Zealand's version of the US Food and Drug Administration, says the initial requirement will be similar to the "phase 1" safety data pharmaceutical companies must provide before they can do large-scale clinical trials.

## Poisons hotline

After that, the key to safety will be surveillance. If a drug starts to cause more harm than expected, Medsafe will be able to further restrict its sale or ban it completely.

An interim version of this system has already been introduced. Any negative effect reported to a hospital or poisons hotline is ranked in one of three categories. Mild reactions such as restlessness, mild pain or vomiting are given a score of 1. Cramp, unconsciousness or hallucinations score 2; coma, paralysis or deafness score 3. Any product that accumulates a score of more than 2 per 20,000 units sold is taken off the market.

By building science into drug laws in this way, Jessamine says the risks can be studied, controlled and communicated to users. There will be no need for manufacturers to constantly dream up new drugs. Consumers who want to stay on the right side of the law won't be forced to give up a legal high they know works for them and try a new, possibly more dangerous one.

Not everybody sees this approach as a panacea. Forensic toxicologist Keith

## Drug controls

1868

First modern drug control law: **UK Pharmacy Act** restricts sale of opium

1912

First international drug convention: **International Opium Convention**, signed by 13 nations, aims to stamp out opium trade

1919

Finland **prohibits alcohol**

1920

US **prohibits alcohol**

1932

Finland **repeals alcohol prohibition**

1933

US **repeals alcohol prohibition**

1961

**UN Single Convention on Narcotic Drugs** prohibits cultivation and trade of cannabis and other plant-based drugs

1971

**UN Convention on Psychotropic Substances** bans the manufacture and trade of synthetic drugs such as amphetamines

**US president Richard Nixon**

declares "war on drugs"

1988

**UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances** requires states to criminalise possession of illegal drugs

2013

New Zealand **breaks ranks with prohibition**

2016

**UN will hold a special assembly** to review its approach to drug control



IESUS ALCAZAR/AFP/GETTY

**“People are recognising that prohibition is getting harder and harder to defend”**

**The international war on drugs has hit Latin America - especially Mexico - very hard**

Bedford, who sat on the committee that classified drugs under New Zealand’s old system, points out that it fails to take into account people’s tendency to mix drugs with alcohol or other recreational substances.

That’s something New Zealand has seen before. Many of the people who had serious reactions to BZP had also taken something else – often several drugs, says Bedford. He works for ESR, the company that does all the New Zealand government’s forensic toxicology work, and has seen a lot of the toxicology data.

Published studies back up Bedford’s claim. A 2010 study by Chris Wilkins from Massey University in Auckland, New Zealand, found that 86 per cent of BZP users combined the pills with other drugs – usually alcohol, but also cannabis and ecstasy. “I think unfortunately they’ll get some nasty surprises that their low-risk product is used in combinations. That’s something that’s hard to model in advance,” Wilkins says.

Similar adverse drug reactions have been spotted elsewhere. In 2012, for example, the European Monitoring Centre for Drugs and Addiction reported that 21 people had died after taking an amphetamine called 4-MA. But if you look at the reports, in each case 4-MA was combined with other drugs.

Bedford suggests the safety testing ought to include combinations, at least with alcohol. But Jessamine says that’s not likely to happen: “It’s much more likely that they’ll be required to include advice about not engaging in those behaviours on the packet.”

Dr Z supports the new law but he also worries about people mixing drugs. On behalf of a group of legal high manufacturers, he is coordinating studies of an MDMA analogue

called 5-MAPB. “It’s a good drug, it’s fun,” he says. “So people will start drinking on it.” But he warns that the structure of the chemical suggests that mixing it with alcohol would be very risky. “People could start dropping like flies. What’s the next thing that happens? The newspapers will react. The whole thing will be called a ‘terrible flop’ and ‘dangerous’ and it will never be heard of again.”

As these issues are dealt with, international experts are watching, with some hoping the results will demonstrate that an alternative to prohibition can work.

**Broken taboo**

“This comes at a time when drug prohibition is collapsing,” says Alex Wodak, the recently retired director of the Alcohol and Drug Service at St Vincent’s Hospital in Sydney, Australia, and former head of Harm Reduction International. “The long debate is now over and the political phase has started. More and more people are realising that drug prohibition is getting harder and harder to defend and the taboo

**Uruguay is the first country in the world to legalise cannabis**

has been broken on discussing alternatives.” He says the outcome is a groundswell in countries looking for alternatives.

Uruguay has just become the first country to fully legalise cannabis. Pharmacies are allowed to sell 40 grams a month to individuals, people can grow up to six plants themselves and “cannabis clubs” can grow up to 99. Other Latin American countries are dissenting, too. In 2011, Bolivia withdrew from the 1961 Single Convention on Narcotic Drugs and rejoined last year with qualifications that allow the use of coca leaves. The presidents of Guatemala and Colombia are both calling for prohibition to end.

In 2012 a summit of the Organization of American States – an international organisation of 35 countries from across the Americas and the Caribbean, including the US – resisted US pressure to duck the issue, and discussed alternatives to the war on drugs. Last year it released an options paper that included legalisation as one possible way to go. Within the US itself, two states – Colorado and Washington – have legalised cannabis.



PABLO TORCUNICOLA/AFP/GETTY

The UK's deputy prime minister Nick Clegg has also come out in support of a debate about prohibition.

These efforts are likely to snowball, says Wodak. After cannabis was legalised in Colorado and Washington, public support for cannabis legalisation all over the US jumped to 58 per cent – the first time there has been a clear majority in favour. “Other US states will follow. All this is coming about because it is now inescapable that global drug prohibition has been ineffective, counter-productive and very expensive,” he says.

But it won't happen overnight, Wodak predicts. “Global drug prohibition took about 80 years to construct so I would not be surprised if the post-prohibition policy also takes a while to build.”

Wodak says the New Zealand approach will have obvious contradictions, with relatively unknown synthetic cannabis being legal while natural cannabis is still banned despite being well studied. But synthetic drugs are a good place to start since banning them is particularly problematic, he says.

New Zealand's laws might be giving us a glimpse of what a post-prohibition world will look like. “It's the first attempt to regulate the market and not just reduce the harm caused by prohibition,” Wodak says.

“It is a good example of the start of evidence-based policy,” adds Nutt.

In 2016, the UN will hold a special assembly to review its approach to drug control. Nutt is hoping international momentum against prohibition will lead to a change of heart, and he's pushing New Zealand to lead the meeting.

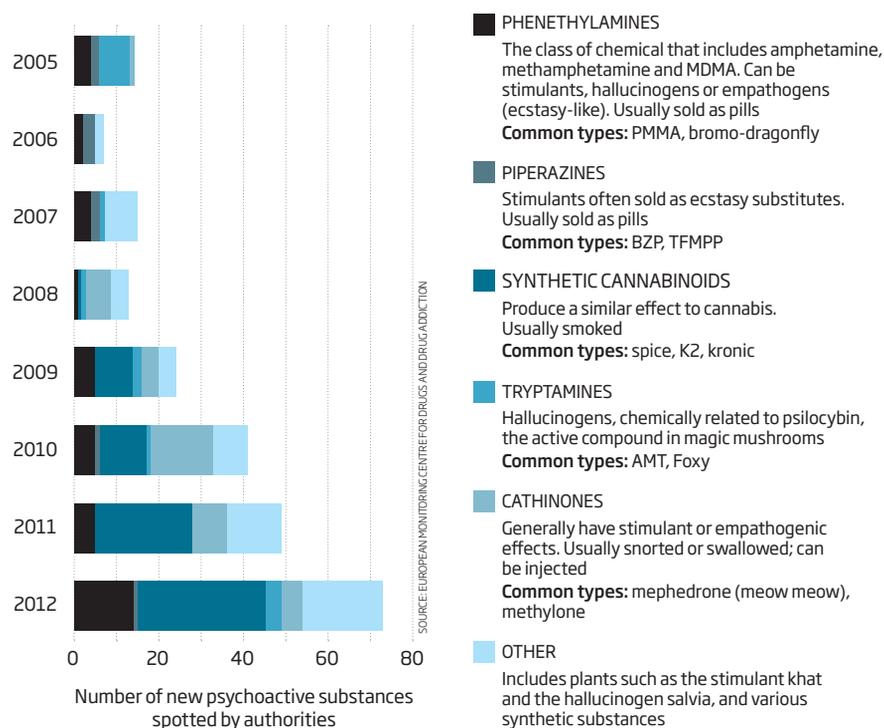
The US will undoubtedly exert pressure to maintain a hard line on drug prohibition, but won't find it easy, says James Dunne. “If the US decides it wants to push for maintenance of the current system, there would have to be some fancy footwork to explain how Colorado and Washington legalising the sale of marijuana is OK but Uruguay doing it is not.” He says the New Zealand approach attracted a lot of interest at the most recent UN Office of Drugs and Crime meeting. And together with South America, and to a lesser extent Europe, there will be a significant block pushing for change.

Ultimately, whether the rest of the world follows New Zealand's lead depends on the results of its experiment. And saying no to prohibition, even in a limited way, might not be risk-free.

Evidence suggests prohibition does sometimes reduce drug use. When Wilkins studied legal highs in New Zealand in 2006 while BZP was still legal, he found 15 per cent

## New drugs on the block

There has been a huge rise in the number of new recreational drugs since 2005



of people had tried a legal high in the past year. By 2009 – a year after it was banned – he found that figure had dropped to just 3.2 per cent.

The reasons aren't clear. Wilkins says it might just be that BZP was harder to find, and new legal highs hadn't yet gained popularity. But there was an indication that prohibition was also turning users off: 30 per cent of people who stopped using BZP gave the ban as a reason.

That raises the question of whether making drugs legal would encourage people who would otherwise abstain, or prompt current users to take more. If the BZP study is indicative of what might happen, New Zealand could be in trouble, says Wilkins. “If the prevalence of legal high use tripled, you might end up with more total problems even if the product was low harm.”

Whether that will happen isn't clear. When the Netherlands liberalised control of cannabis in the 1970s, there was no major rise in cannabis use. When Portugal decriminalised personal use of all drugs, drug use stayed about level, but the negative health effects of drug use decreased significantly.

What's more, looking around the world, there seems to be no correlation between stricter drug laws and decreased consumption,

at least according to a World Health Organization study from 2008.

Some researchers say New Zealand's law is already having positive effects. “Since the bill was enacted we have seen fewer hospital admissions and emergency presentations associated with use of synthetics,” says Paul Glue, head of psychological medicine at Dunedin School of Medicine.

Wilkins says New Zealand's experiment will “stand or fall” depending on whether people replace bad drugs – cocaine, heroin and maybe even alcohol – with the safer ones, or simply take more drugs. There is some evidence that legalising marijuana in the US correlates with a reduction in heavy drinking among 18 to 29-year-olds. Whether New Zealanders will swap booze for pills is still a huge unknown.

Wilkins has applied for funding to study this crucial question and has set up an international research group so the world can learn from New Zealand's experiment. “There is a possibility of a big public health gain on the one hand, or a really big public health disaster on the other,” he says. “But there will be no one more excited than me if we find it is successful.” ■

Michael Slezak is *New Scientist's* Australasia reporter