

This Parliamentary briefing has been prepared by DrugScienceⁱ, The Global Drug Surveyⁱⁱ, Releaseⁱⁱⁱ and Transform Drug Policy Foundation^{iv}.

Recreational use of nitrous oxide

- 1) Nitrous oxide is a gas that was discovered in the late 1800s by UK scientists Priestley and Davy, the latter being President of the Royal Society. At the time nitrous oxide was used by them along with leading scientists, writers and philosophers to explore the boundaries of the consciousness especially the sense of self. In that way, nitrous oxide was the foundation of an important branch of science called chemical philosophy, that underpins much modern thinking on the nature of the mind.
- 2) Nitrous oxide became known as “laughing gas” because of its transient mood-elevating effects and has since been used for several centuries as a harmless way of having a short-lived funny experience.
- 3) For the past 150 years, nitrous oxide has been inhaled as a gas by hundreds of millions of people in medical settings for pain control. In this circumstance, it is breathed, usually in a fixed combination mixture with oxygen to produce pain control. Its use is very common and popular indications are for minor surgical operations, bone fracture re-setting and for the pains of childbirth. During this period there have been few reported adverse effects and nitrous oxide is globally recognised as a safe and effective medicine. In higher doses, nitrous oxide can be used in medical practice to produce a state of anaesthesia with reduced pain and reductions of consciousness like other gases such as halothane. When used for these purposes nitrous oxide is a medicine and so exempted from the Psychoactive Substances Act 2016.
- 4) Currently in addition to its medical use nitrous oxide is also used in catering as an inert propellant to froth up cream in food servings.
- 5) Over the past two hundred years, the recreational use of nitrous oxide as “laughing gas” has not been associated with significant harms. For this reason, the ACMD did not recommend control in their 2015 report on nitrous oxide.^v For example, in the ten years from 1993-2015 there were 22 nitrous oxide related deaths reported in the UK, about one per year. For comparison over the same decade deaths from **alcohol** were of the order of 50,000 i.e. about 5,000 per year.^{vi}
- 6) Recently young people have taken to using nitrous oxide for recreational or self-exploration purposes. They see it as one of the safest recreational drugs, and one that is to be preferred to alcohol for these reasons:
 - a) Much shorter duration of effects – minutes rather than hours. This markedly reduces their risk of harms whilst under the effects of the drug as compared question the much more enduring effects of alcohol. They are therefore much less vulnerable to assault [both physical and sexual]
 - b) They don’t have a hangover the next day – so their work productivity is not impaired
 - c) After a few minutes of using nitrous oxide, their driving is unimpaired. This is in marked contrast to alcohol where those needed to give a similar level of intoxication will impair driving for many hours and so put the user and others at significant risk.



- 7) Taken together the evidence of harms from nitrous oxide is extremely limited. It appears to be used as a rational harm reduction approach by young people wishing to avoid more harmful substances such as alcohol and synthetic cannabinoids (“spice”). For the vast majority of users who take nitrous oxide 4 to 5 times a year, inhaling 3-4 balloons, it’s remarkably safe. Recent research on > 16,000 users shows that the risk of nerve damage (dose-related and due to B12 inactivation) seen in a minority of users^{vii} should be responded with credible information to help people limit their use, raise awareness of early symptoms (persistent numbness and tingling in feet mouth tongue fingers) and seek help.
- 8) The attack on nitrous oxide users is a media-driven phenomenon compounded by misinformation in harms and the misleading attempts to rename laughing gas as “hippy crack” with the implication that it is like crack cocaine. The recent reports in the media about increased use under lockdown is un-evidenced, there is no data to suggest an increase in use, rather it is likely that there is a perceived perception of increased consumption due to more canisters being seen discarded in public places. This could be for a number of reasons: less (no) indoor space for young people to gather during lockdown; more people in parks and other public places than previously; and reduced cleaning undertaken by local authorities under lockdown. This is a littering issue, rather than one of health.

Policy responses should not be focused on tighter regulations or criminalisation of users as this has the potential to create greater harms for young people

- 9) Criminalisation of people, in particular, young people who use nitrous will not deter use but rather will cause a deleterious impact on their life opportunities, including negatively impacting on employment and educational aspirations, and stigmatising those who end up with a criminal record.^{viii} Furthermore, criminalisation does not deter use, a Home Office report comparing drug policies of different countries concluded that they “did not in our fact-finding observe any obvious relationship between the toughness of a country’s enforcement against drug possession, and levels of drug use in that country”.^{ix} Countries that have ended criminal sanctions for drug possession have not experienced any statistically significant increases in prevalence^x, and jurisdictions that have ‘liberalised’ cannabis laws have not experienced an increase in drug use amongst adolescents^{xi}.
- 10) Whatever one’s view on the morality or risks of people consuming NO₂, or the problems of amenity caused by excessive litter, the goal of policy must be to reduce – not increase – potential harm. Currently, people using NO₂ know what it contains and are very unlikely to find it has been adulterated or spiked with other substances. Adulteration is far more likely when a substance is made illegal, leading to unnecessary and increased injury and death. Taking NO₂ out of legal circulation will only lead to the market being controlled by unregulated illicit suppliers, many of whom will be selling other drugs as well, therefore putting young people at risk of exposure to a myriad of controlled drugs. Even if tighter regulation does succeed in reducing the supply of nitrous oxide this could have the unintended consequence of young people shifting to more harmful substances with greater health risks. A more repressive approach to nitrous oxide control will almost certainly backfire and displace use to more dangerous but more readily concealed drugs such as cocaine and spice as well as more alcohol consumption.



- 11) It is still an open question as to whether nitrous oxide should have been banned in the first place as it was not mentioned in the legislation nor through parliamentary scrutiny of the Psychoactive Substances Bill, before the legislation was enacted.^{xii} The Home Office 2018 Review of the Psychoactive Substances Act showed, for example, that criminalisation of ‘New Psychoactive Substances’ has led to a concentration of use among vulnerable communities, especially the street homeless. As has been well documented (and confirmed in the review), criminalising Spice did nothing to tackle harms in homeless populations, prisons and elsewhere.^{xiii}
- 12) We also know that criminalising substances increases the risk of serious, acute harm should something go wrong. For example, a number of people have died after taking MDMA because friends were frightened to call the police or ambulance when they became unwell. You can hear stories of people directed impacted by these kinds of harms here <https://anyoneschild.org/videos/> Nadia’s story describes the impact of adulteration; Anne-Marie’s story describes what happens when young people are frightened off calling for help. In all cases, the illegal status of the drugs in question have led directly to tragedy. We would urge you to watch these short videos to get an insight into the risks.

Effective harm reduction information to reduce the potential risks to users is the answer

- 13) The best approach is to support local services in disseminating harm reduction materials, not to add another substance to the list of drugs that are supplied without any regulatory oversight at all. Smart education not blunt regulation that will fail to reduce access to nitrous is needed – that and possibly an anti-littering campaign.
- 14) In conclusion, at a time when the UK is experiencing record drug-related deaths^{xiv}, largely related to opioids, and significant cuts to drug treatment services we would ask MPs to focus on these issues which need urgent attention, rather than a matter that seems to be have been driven by media reporting rather than hard evidence.

This briefing has been compiled by:

Professor David Nutt DM FRCP FRCPsych FMedSci DLaws, DrugScience
Professor Adam R Winstock, MRCP MRCPsych FChAM MD, University College London and founder of the Global Drug Survey
Niamh Eastwood, Executive Director, Release
Dr James Nicholls, Chief Executive, Transform Drug Policy Foundation

ⁱ Drug Science is the leading independent scientific body on drugs in the UK. The organisation works to provide clear, evidence-based information without political or commercial interference.

ⁱⁱ GDS is an independent research company based in London. They produce reports for global media, public health and corporate organisations. GDS use its data and expertise to create digital health applications delivering screening and brief interventions for drugs and alcohol.

ⁱⁱⁱ Release is the UK's centre of expertise on drugs and drugs law.

^{iv} Transform Drug Policy Foundation is an independent charity that works to change the way drugs are controlled.

^v ACMD (2015), ACMD Advice on Nitrous Oxide Misuse, <https://www.gov.uk/government/publications/acmd-advice-on-nitrous-oxide-abuse>

^{vi} Office of National Statistics (2017), Drug related deaths involving Nitrous Oxide: 1993 - 2015, <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/adhocs/006818drugrelateddeathsinvolvingnitrousoxide1993to2015>

^{vii} Winstock, AR; Ferris, JA Nitrous oxide causes peripheral neuropathy in a dose dependent manner among recreational users. *J. Psychopharmacol.* (Oxford), 2020 vol. 34(2) pp. 229-236

^{viii} Global Commission on Drug Policy (2016), Advancing Drug Policy Reform: a new approach to decriminalization, <https://www.globalcommissionondrugs.org/wp-content/uploads/2016/11/GCDP-Report-2016-ENGLISH.pdf>

^{ix} Home Office (2014) Drugs: International Comparators, <https://www.gov.uk/government/publications/drugs-international-comparators>

^x Eastwood N. et al. (2016) A Quiet Revolution: Drug Decriminalisation Across the Globe, <https://www.release.org.uk/publications/drug-decriminalisation-2016>

^{xi} Stevens A. (2019) 'Is policy 'liberalization' associated with higher odds of adolescent cannabis use? A re-analysis of data from 38 countries', *International Journal of Drug Policy*, 66, 94-9.

^{xii} Nutt D. (2020) "Groundhog decade not brave new world", *Drug Science, Policy and Law*, Volume 6, <https://journals.sagepub.com/doi/full/10.1177/2050324519898963>

^{xiii} Home Office (2018) Review of the Psychoactive Substance Act 2016, <https://www.gov.uk/government/publications/review-of-the-psychoactive-substances-act-2016>

^{xiv} Office of National Statistics (2018) Deaths related to drug poisoning in England and Wales: 2018 registrations, <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/deaths-relatedtodrugpoisoninginenglandandwales/2018registrations>