

ACMD

Advisory Council on the Misuse of Drugs

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Rt Hon. Jeremy Hunt, MP
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Dear Home Secretary and Secretary of State for Health,

Re: Nitrous oxide abuse

The Advisory Council on the Misuse of Drugs' (ACMD) Technical Committee has considered the emerging issue of nitrous oxide abuse after the British Compressed Gases Association (BCGA) raised its concerns on this abuse to the ACMD.

Whilst the harmfulness of nitrous oxide does not seem to warrant control under the Misuse of Drugs Act 1971, the ACMD has been compelled to offer this public health safety advice as a part of its remit. The sale of nitrous oxide to under-18 year olds is already illegal through the Intoxicating Substances (Supply) Act 1985.

Properties

Nitrous Oxide (N₂O) is a colourless, sweet-tasting gas, often referred to as 'laughing gas' because of the sense of hilarity it may induce in users. It is also known as

“Hippy Crack.” Nitrous oxide was discovered by Joseph Priestly in 1772, and its use was popularised by Sir Humphrey Davy, who inhaled the gas and reported its pain relieving and euphoric effects in 1784. Later, the gas came into medical use as a useful anaesthetic for dental operations and other uses, such as in childbirth, where its short duration of action was an advantage. ‘Laughing gas parties’ became popular in Victorian times, both in the UK and in the USA.

Legitimate uses

Nitrous oxide has widespread legitimate medical, dental and veterinary uses. It is commonly used as a fuel additive and as a component of rocket fuel and is also legitimately sold as an aerosol spray propellant within aerosol whipped cream canisters.

Recreational use of nitrous oxide

Current trends

Evidence indicates that the recreational misuse of nitrous oxide has increased rapidly. Home Office Drugs Misuse data for 2013-2014 indicated that 7.6% of 16-24 year olds in England and Wales reported nitrous oxide use in the past year, making it the second most popular recreational drug after cannabis. This is an increase from 6% from the 2012-2013 misuse data.

David M. Wood, Fiona Measham and Paul I. Dargan reported the following pattern of use of nitrous oxide in the population sample surveyed: life-time self-reported use (28.1%) of nitrous oxide was lower than that reported in the 2011/2012 Global Drug Survey (49.6%). Similarly, last year use (11.9%) was much lower than UK respondents (27.2%) and UK regular clubbers (43%) in the 2011/12 Global Drug Survey, but appeared to be comparable to last year use in the US Global Drug Survey 2011/12 respondents (10%).¹

In April 2014, as part of its UK findings, the Global Drug Survey reported that 38.4% of survey respondents reported ever using nitrous oxide, and 20.4% of respondents reported nitrous oxide use in the last year. (It should be noted that the Global Drug Survey is a self-selected sample).

Among last year users, the most common method of inhalation was from a balloon (94.2%), followed by whipped cream dispensers (4.8%). The most common source last year users got nitrous oxide from were friends (60.2%), followed by the Internet (50.7%), festivals (48.3%), dealers (14.1%), head shops (12.1%) and supermarkets (6%). The most common place of use was at house parties (82.5%), festivals (73.7%), at home (49.7%), at clubs (42.5%) and at work (2.2%).²

There has been increasing media coverage of this phenomenon (The Telegraph, 25th July 2013; The Guardian, 25th July 2013, 13th August 2014) and including a Channel 4 TV documentary.³

Activity by Government and from organisations

The ACMD acknowledges that the FRANK website has already been updated to include the dangers of nitrous oxide.⁴

On 30 October 2014, the Home Office published guidance on restricting the supply of nitrous oxide for recreational use.⁵ In its letter to festivals organisers in 2013 and 2014, the Minister for Crime Prevention also highlighted the risks around the recreational use of gases, including nitrous oxide.⁶

On 9 August 2014, the Local Government Association (LGA) issued a national public health warning about nitrous oxide in a press release.⁷ The LGA noted its concerns that Internet clips, self-filmed by children inhaling the gas and uploaded on to YouTube, are glamorising the use of nitrous oxide. The LGA has called for 'the web giants' to introduce health warnings and links to drug awareness charities.

In 2011, the BCGA published a leaflet on the dangers of industrial gas abuse, including that of nitrous oxide and have since been raising awareness of gas abuse through meeting stakeholders.

Abuse at festivals

There has been a recent upsurge in the recreational use of nitrous oxide and it is now commonly available in certain clubs and increasingly at music festivals, where it is often purchased in the form of gas-filled balloons. A number of festivals have a "no legal highs" policy, though there appears to be a tolerance to the sale and availability to nitrous oxide.

At the Glastonbury Festival in 2014, for example, it was reported that the ground was littered with discarded yellow balloons and canisters, which are used to carry the gas. There are reports that some users carried their own dispensers.⁸ The V Festival Observers Report (August 2012) by Cllr Linda Mascot & Cllr Mark Springett noted that around the site were piles of suspect small canisters which were later found to have contained nitrous oxide. The canisters were used to inflate balloons.⁹

Harms of nitrous oxide

When inhaled, the gas induces a brief period of euphoria, which may be accompanied by "tears of joy." This appears to be due to a brief activation of opiate systems in the brain.¹⁰ Users often wish to repeat their positive experiences with the

gas, although there is no firm evidence of physical dependence. Nitrous oxide is an asphyxiant at high concentrations. At lower concentrations, exposure may cause central nervous system, cardiovascular, hepatic, hematopoietic, and reproductive effects in humans.¹¹

It appears to have few, if any, short term adverse effects, other than mild headaches for some individuals. Long term abuse can cause peripheral sensory neuropathies. Long term abuse can also cause vitamin deficiency and related anaemia as a result of the inactivation of Vitamin B12 in the body by the gas.¹²

Deaths linked to nitrous oxide are rare (~15 deaths per year in USA; 1 in the UK in 2011 and 5 in the UK in 2010).¹³ These have been due to asphyxiation resulting from hypoxia (lack of oxygen). A number of the deaths involved the use of nitrous oxide in an enclosed space.

In 2012, the National Programme on Substance Abuse Deaths (npSAD) reported that there had been five deaths in 2009 and two in 2008 as a result of asphyxia associated with the inhalation of nitrous oxide.¹⁴

Availability and Diversion

Availability

Nitrous oxide is widely available for purchase via websites such as Amazon.co.uk and EBAY. Products available for purchase include small canisters in packs of 100, each sufficient for a recreational dose, and paraphernalia such as “Creamers” or “Crackers”, which are used to dispense the gas from canisters into balloons, from which users inhale the gas (e.g. www.nitrouscrackers.co.uk). Packs of 800 and 1200 cartridges have been found on EBAY.

Diversion

The ACMD’s ongoing inquiry on the diversion and illicit supply of medicines has so far noted the diversion of nitrous oxide from legitimate healthcare settings as an illicit source of the gas.

Many Healthcare Trusts have suffered theft of nitrous oxide and there is a widespread criminal interest in the gas:^{15, 16}

- The NHS South Coast Audit (Autumn/Winter 2013) reported that nitrous oxide is targeted by thieves and highlighted this gas is also very popular for its psychoactive, or mind-altering effects when breathed in through the mouth or nose, and it is used as a recreational drug at dance clubs and raves.

- In 2011, Lothian and Borders Police reported the theft of medical cylinders containing nitrous oxide from two Borders hospitals. They also issued a warning of inhaling gas, stressing that it can render someone unconscious very quickly.
- In June 2014, East Kilbride Police reported the theft of medical cylinders containing nitrous oxide from Hairmyres Hospital.
- Surrey and Sussex Healthcare Trust reported that the Gas Store is particularly vulnerable to criminal activity.

NHS Protect has undertaken work on the security of medical gas cylinders in response to a number of targeted thefts at NHS organisations. Details of this work entitled *Guidance on the security and storage of medical gas cylinders* is available on their website.¹⁷

Summary

Home Office Drugs Misuse Data has shown there has been an increase in the abuse of nitrous oxide over the last few years and this has the potential to cause harm to users, including death.

The legal status and ease of purchase may be important factors contributing to the recent increase. The use of nitrous oxide in combination with alcohol and/or other psychoactive drugs may increase the potential for harm.

Evidence supports the claim that the use of nitrous oxide other than in line with designated guidance and for the purposes other than for which it was manufactured can cause harm.

The ACMD further understands that there have been incidents where nitrous oxide supplies have been misappropriated from hospitals or other medical premises.

Recommendations

The ACMD recommends the Government to work with industry and retailers to better understand the supply chain, including areas of vulnerability, and to increase awareness with major retailers about the recreational market to identify key features of misuse, such as bulk purchases and the combined sale of “crackers.”

The ACMD recommends that local councils consider to address anti-social behaviour (litter) associated with use of nitrous oxide through local court orders.

We would encourage NHS PROTECT to ensure that NHS Trusts and associated medical facilities are fully informed to the issue of misappropriation of medical gas

cylinders using the recently published guidance. The guidance should be reviewed if misappropriation of medical gas cylinders continues to occur.

The ACMD also recommends the Department of Health to outline current audit processes in place that counter diversion and misuse in hospitals and other relevant medical settings.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Les Iversen". The signature is written in a cursive style with a large initial 'L'.

Professor Les Iversen
Chair of the ACMD

References

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