more resonance in the US than in the UK, but nonetheless Berwick offers us both a critique of the NHS and a programme of work to remedy its failings.

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DOI: https://doi.org/10.3399/bjgp17X691037

No laughing matter

The April issue of the *BJGP* discussed the ongoing issues of alcohol and opiate misuse in our society.[1,2] We wish to highlight a less well-recognised drug of abuse with potentially devastating consequences, namely nitrous oxide. This drug can have significant adverse effects on the nervous system by causing vitamin B12 deficiency.

Sliney argues that it should not be the doctor's role to distinguish between genuine and fraudulent claims of pain and that doing so *'welcomes prejudice'* against drug addicts.[3] He also says that Spence's approach[4] might result in under-treatment of valid pain.

We were recently reminded of this when a young adult presented with ataxic paraplegia, which had developed over a few weeks. The patient had been inhaling up to 24 nitrous oxide canisters per day and had a myelopathy as a result of severe vitamin B12 deficiency, with serum B12 measured at <100 ng/L.

Nitrous oxide irreversibly oxidises B12 to its inactive form.[5] Neurological manifestations of B12 deficiency include cognitive and visual impairment, neuropathy, and myelopathy, with the last being the most common.[6] Anaemia may or may not be present.[7]

Recreational use of nitrous oxide is surprisingly frequent. In the 2013/2014 Drug Misuse Survey for England and Wales, 7.6% of 16–24-year-olds reported using nitrous oxide in the preceding year.[8] Until recently, the drug was also legal. The Psychoactive Substances Act came into force in the UK in May 2016, although it remains to be seen how much of an impact this will have on its use.

In most cases of nitrous oxide-induced neurological dysfunction, the serum B12 concentration is low, although it may be normal.[8] Borderline levels in a potentially symptomatic patient should prompt testing of methylmalonic acid plus/minus homocysteine (both go up in B12 deficiency).[9] Treatment is with immediate commencement of parenteral vitamin B12 and, of course, cessation of the drug. With these measures, improvement of neurological deficits is the rule. However, most people will have some residual deficit.[7]

Due to its rapid on- and offset and its use in anaesthesia, one could conclude that this drug is relatively innocuous, but this is absolutely not the case. Young people in particular need to be warned about the potential for this gas to cause neurological impairments, which may not be completely reversible.

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DOI: https://doi.org/10.3399/bjgp17X691049

Smoking reduction during Ramadan

In Ramadan, Muslims choose to abstain from food and drink from dawn till dusk to learn virtues such as gratefulness and to improve in God-consciousness.[1] The observer must also refrain from smoking. Ramadan begins towards the end of May 2017 and for one month is an opportunity to promote smoking reduction and thus enhance smoking cessation.

Adhering to Ramadan fasting will reduce smoking in observers. The challenge is to maintain this after the fast breaks and post-Ramadan, and research suggests behavioural approaches are effective. A faith-based smoking cessation behavioural intervention during Ramadan in Malay observers found sustained smoking reduction post-Ramadan.[2]

Primary care staff can use encounters with fasting smokers to direct them to NHS Stop Smoking Services who can collaborate with local mosques and Muslim community centres to use Ramadan for education, promotion of reduction techniques, and securing patients for follow-up support post-Ramadan. The UK Centre for Tobacco and Alcohol Studies should look to develop religiously and culturally sensitive and acceptable faith-based behavioural interventions for Muslims in the UK for use in future Ramadan months.

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