



# Awareness of mandated labels on nitrous oxide products among a sample of people who regularly use illicit stimulants and recently purchased nitrous oxide in Australia, 2022-24

Jodie Grigg and Simon Lenton

National Drug Research Institute, Curtin University and enAble Institute, Perth, Australia

[j.grigg@curtin.edu.au](mailto:j.grigg@curtin.edu.au)

## Introduction

In response to increasing reports of severe neurological harms associated with nitrous oxide use (e.g., 1-2), the Australian Therapeutic Goods Administration (TGA) reclassified it as a Schedule 6 poison, announced October 2021 and effective October 2022 (3). This reclassification prohibits sales to individuals under 16 and mandates safety directions ("Do not intentionally inhale contents") and warning/standard statements ("May cause irreversible nerve damage if inhaled"; "For advice contact a Poisons Information Centre") on products. This bulletin examines awareness of these warnings/directions.

## Results

Among sentinel samples of people who regularly use ecstasy and/or other illicit stimulants in Australia (N=700; N=708; N=740), recruited in Apr-Jun from capital cities for the 2022-24 [Ecstasy and Related Drugs Reporting System \(EDRS\)](#) interviews, 45% (n=315), 40% (n=284), and 40% (n=293) reported past 6 month nitrous oxide use, respectively. Figure 1 presents the per cent who observed warnings among those who had purchased nitrous in the past 6 months, and Figure 2 shows specific warnings/safety directions that participants recalled from their most recent purchase.

Figure 1. Observed product warnings/directions last time purchased nitrous oxide in the past 6 months, EDRS, 2022-24

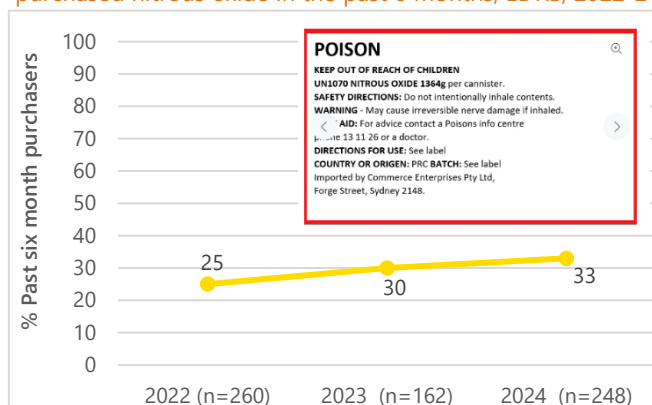
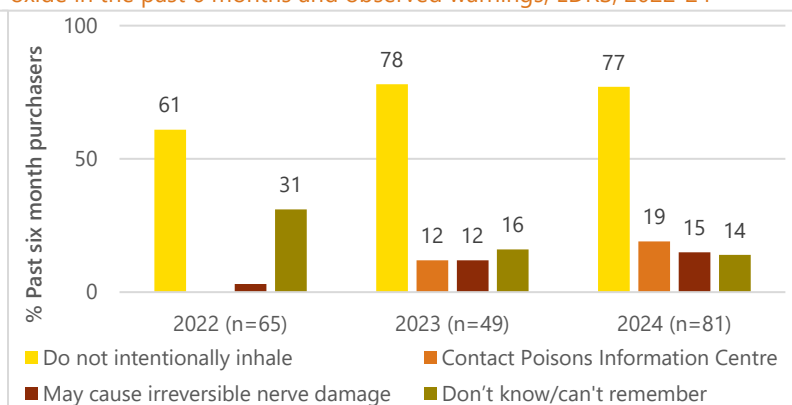


Figure 2. Recall of product warnings/directions last time purchased nitrous oxide in the past 6 months and observed warnings, EDRS, 2022-24



## Discussion

Approximately one third of participants who had recently purchased nitrous oxide in the 2023-24 samples (after the TGA mandate came into effect (3)) reported observing product warnings/safety directions. However, most could only recall a direction not to inhale, not the warning about the risk of irreversible nerve damage. Since nitrous oxide is often purchased for parties and events, sometimes with express delivery (4), low observation and recall might relate to intoxication/distraction at the time of purchase and/or use. Additionally, the appealing packaging (4), increasingly marketed with flavours, playful names and enticing messages (e.g. 'Baking Bad', 'Experience heaven on earth'), may further distract from the warnings. It's also possible unlabelled products are still being sold. In addition to TGA label compliance monitoring, plain packaging could reduce product appeal and enhance warning visibility. Finally, given ongoing reports (e.g., 5) of neurological harms across Australia, educational measures beyond product labelling, such as targeted health campaigns, are needed as part of a broader health response.

## References

1. Marsden P, Sharma AA, Rotella JA. Review article: Clinical manifestations and outcomes of chronic nitrous oxide misuse: A systematic review. *Emerg Med Australis*. 2022;34(4):492-503.
2. Soderstrom J, Grigg J, McWilliam O, Fatovich D. Brain and body disconnect: A retrospective case series of subacute combined degeneration of the spinal cord from chronic nitrous oxide use in Perth, Western Australia. *Drug Alcohol Rev*. 2024;43(6):1636-44.
3. Therapeutic Goods Administration. Notice of final decisions to amend (or not amend) the current Poisons Standard in relation to nitrous oxide. 2021. Available from: <https://www.tga.gov.au/resources/publication/scheduling-decisions-final/notice-final-decisions-amend-or-not-amend-current-poisons-standard-relation-nitrous-oxide>.
4. Gresham S, Raubenheimer JE. Current regulations in context: Scraping Australia's online nitrous oxide market. 2025;139.
5. Queensland Government. Metro South Health. Nitrous oxide misuse can cause paralysis and death. 2024. Available from: <https://www.metrosoth.health.qld.gov.au/about-us/news/pa-hospital/nitrous-oxide-misuse-can-cause-paralysis-and-death>

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