



Patterns of nitrous oxide use among samples of people who regularly use ecstasy and/or other illicit stimulants in Australia

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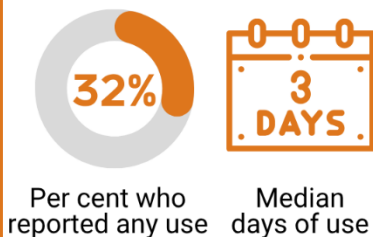
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Data was collected as part of the Ecstasy and Related Drugs Reporting System (EDRS). Annual interviews were conducted with people residing in Australia who used ecstasy and/or other illicit stimulants monthly or more frequently and were aged 18 or older.

Key Findings

2026 Past six-month use



Nitrous oxide use remained stable and infrequent in 2026.

Among those who had recently used nitrous oxide, use of larger bottles/cylinders/tanks exceeded use of traditional small bulbs for the first time.



55%
Small bulbs



61%
Bottles/cylinders/tanks

Both forms were most commonly purchased from a corner/convenience store.



66%
Small bulbs

40%
Bottles/cylinders/tanks



13%

In 2026, approximately one in ten participants who reported recent nitrous oxide use also reported experiencing persistent neurological symptoms.



4%

4% of the overall EDRS sample reported that they had been denied sale and/or experienced difficulty accessing nitrous oxide in the six months preceding interview.

Introduction



Recreational nitrous oxide use is of increasing concern in Australia, with rising reports of neurological, psychiatric and acute harms (1-6). In response, the Therapeutic Goods Administration (TGA) classified non-therapeutic nitrous oxide as a Schedule 6 poison, requiring warnings about permanent nerve damage on product labels (7), and is currently undertaking public consultation on two proposals to further amend its scheduling (8). Many jurisdictions have also introduced complementary regulatory measures, including bans on sales to minors, out-of-sight storage requirements and restrictions on sales hours (e.g. 9).

Against this evolving policy backdrop, this bulletin examines:

- The per cent of EDRS participants who reported using nitrous oxide in the six months preceding interview, since the commencement of monitoring (2003-2026);
- Forms of nitrous oxide used in the six months preceding interview (small bulbs and/or bottle/cylinder/tanks $\leq 1000\text{g}$ and/or $> 1000\text{g}$);
- Location and time of purchase, and reported difficulties accessing products; and
- Associated harms experienced in relation to use of nitrous oxide.

Methods

Data was collected as part of the Ecstasy and Related Drugs Reporting System (EDRS). Annual interviews were conducted with people residing in capital city areas of Australia who used ecstasy and/or other illicit stimulants on a monthly or more frequent basis and were aged 18 or older.



Each year approximately 100 participants are recruited from each Australian capital city. In 2026, 698 participants were recruited during March-July, primarily through social media (e.g., Facebook and Instagram) and via word-of-mouth. Please refer to the [EDRS Background and Methods](#) document for further details.

Since 2003, data on past six month nitrous oxide use has been collected. From 2021, participants reporting nitrous oxide use were asked additional questions about forms of nitrous oxide used, access, and symptoms following use.

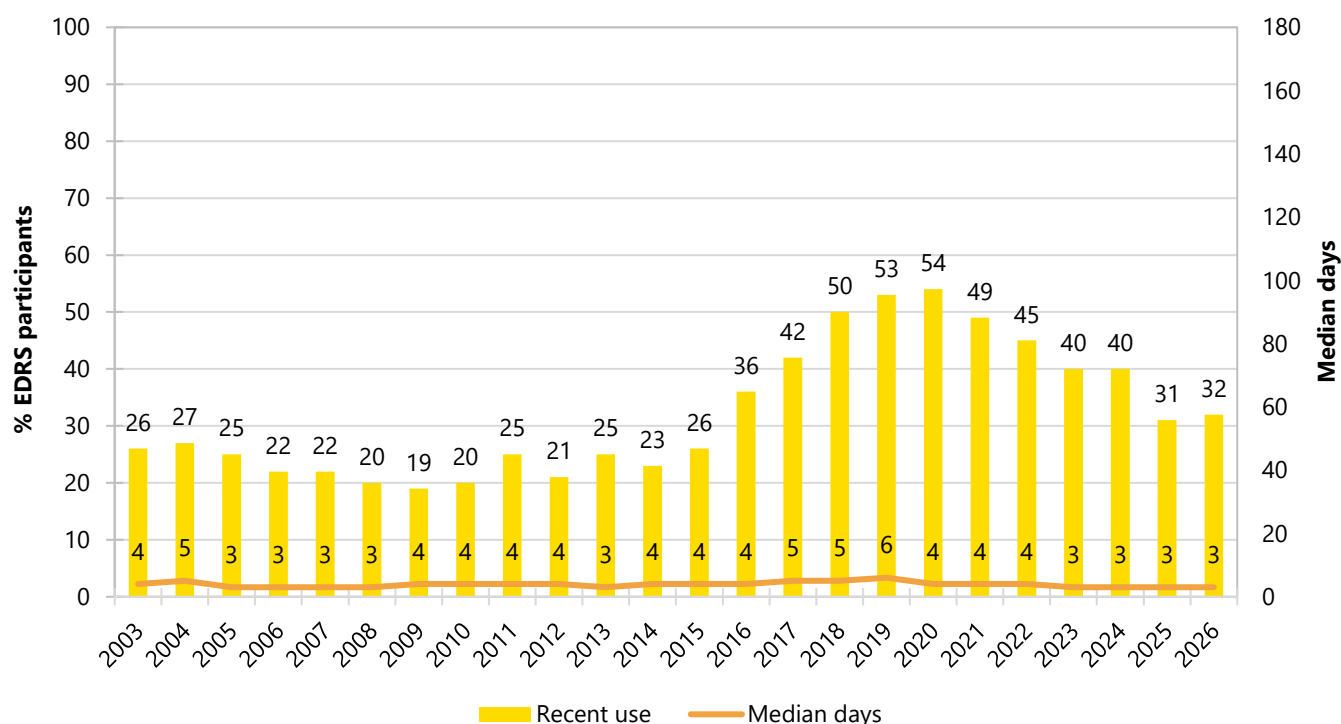
Descriptive statistics were used to analyse the data over time. This bulletin presents national data; however, jurisdictional data can be provided upon request.

For information regarding the characteristics of the 2026 EDRS sample, please refer to the [2026 EDRS report](#).

Results

Past six month (recent) use of nitrous oxide remained relatively stable between 2003 and 2015. From 2016, a steady increase was observed, with recent use peaking at 54% in 2020 before declining to 32% in 2026 (Figure 1). Median days of use was infrequent across the monitoring period, ranging from three days to six days in the six months preceding Interview (i.e., between once a month to once every two months).

Figure 1. Past six-month nitrous oxide use, national EDRS, 2003-2026



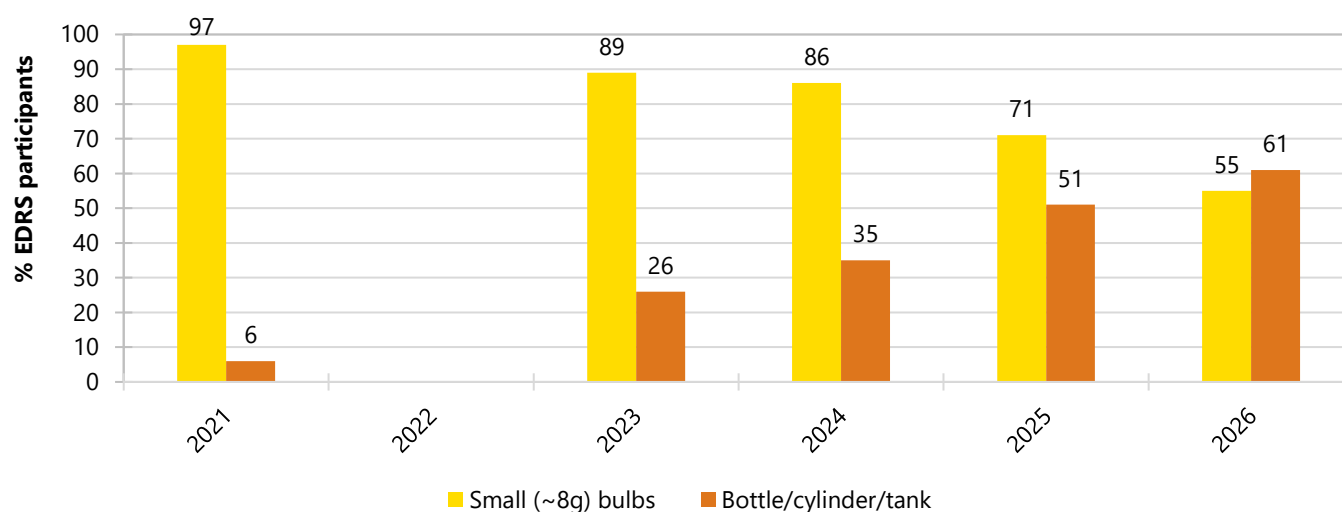
Use of larger cylinders, among those who had recently used nitrous oxide, increased from 6% in 2021 to 61% in 2026, exceeding use of traditional small (~8g) bulbs for the first time (Figure 2).

Among participants who had recently purchased small bulbs (~8g) of nitrous oxide and commented (n=93), two thirds (66%) reported purchasing these from a corner/convenience store, and one fifth (22%) from a friend/acquaintance.

Among participants who had recently purchased larger bottles/cylinders/tanks and commented, 40% reported purchasing them from a corner/convenience store, 28% from a friend/acquaintance, and 24% from a 24/7 delivery service: among those purchasing from a physical retail outlet, 52% reported purchasing between 10pm and 5am.

Access also appeared relatively unrestricted, with only 4% of the overall EDRS sample reporting that they had been denied sale and/or experienced difficulty accessing nitrous oxide.

Figure 2. Forms of nitrous oxide used, among participants who had recently used nitrous oxide, national EDRS, 2021-2026

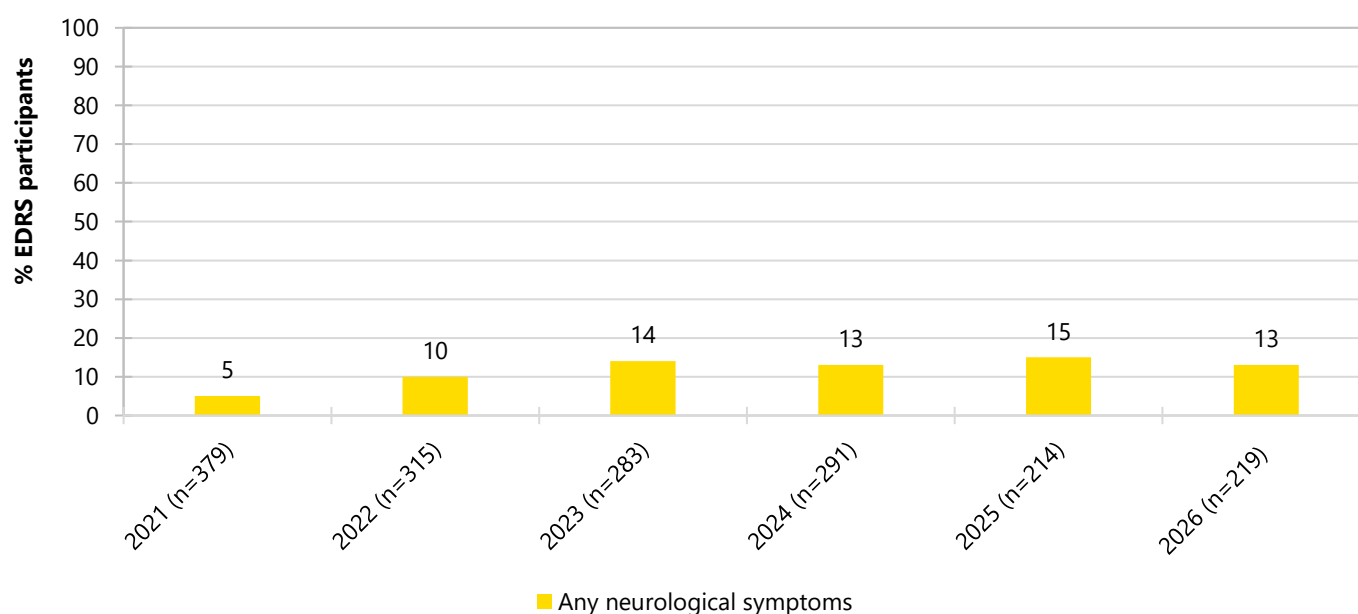


Note: This question was not asked in 2022.



Over the past five years, approximately one in ten participants who reported recent nitrous oxide use also reported experiencing persistent neurological symptoms following use (Figure 3). In 2026, this comprised numbness/tingling around the hands or feet (8%; n=18), difficulty walking or with balance (6%; n=14) and numbness/tingling around the face or mouth (6%; n=12).

Figure 3. Experienced persistent neurological symptoms[^] following past six-month use of nitrous oxide, among EDRS participants who had recently used nitrous oxide, nationally, 2021-2026.



[^]Exact wording of question: In the past 6 months, have you experienced any of the following symptoms following your use of nitrous oxide which have persisted for at least two weeks and that you had not experienced before you started using nitrous: numbness/tingling around your face or mouth; numbness/tingling in your hands or feet; difficulty walking or with your balance; difficulty with using your hands and fingers, e.g. operating your phone or writing; none of the above.

Discussion

Although nitrous oxide use has declined since its peak in 2020, the market appears to have shifted substantially from small 8g bulbs to larger cylinders. This change raises concerns about the potential for higher levels of exposure and an increased risk of neurotoxicity among people who use the drug. Notably, around one in ten participants reporting nitrous oxide use also reported persistent neurological symptoms, highlighting the potential for harm even in the context of declining use. Understanding whether the shift towards larger cylinders has contributed to increased levels of harm is therefore an important public health priority.

Targeted education and awareness campaigns are also needed to improve understanding of the risks associated with nitrous oxide use, particularly the potential for serious neurological harms. Improved education could help both people who use nitrous oxide and clinicians to recognise early signs and symptoms of toxicity, facilitating earlier presentation to health services and more timely treatment.

Convenience stores remained the most common source of both small bulbs and larger cylinders, with many participants reporting purchases between 10pm and 5am. This likely reflects differences in regulatory approaches across jurisdictions. Notably, despite restrictions being in place in some jurisdictions, few participants reported difficulties accessing nitrous oxide products. These findings highlight the importance of ongoing monitoring of supply and access patterns as further regulatory measures are introduced.

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