

## Use of GHB amongst sentinel samples of people who regularly use illicit drugs in Adelaide, South Australia, 2020

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### Key Findings

- In 2020, 12% of the South Australia (SA) EDRS sample reported recent (i.e., in the past six months) use of GHB (including metabolites GBL/1,4-BD), whereas 23% of the South Australian IDRS sample had recently used GHB.
- In the SA IDRS sample, participants who had recently used GHB were typically younger and were more likely to report methamphetamine as the drug most injected in the past month than those who had not recently used GHB. SA participants who had recently used GHB were less likely to be in treatment than those who had not recently used GHB, and thus may be less engaged with services.
- Of those who had used GHB in the past six months, 35% (n=8) reported a past 12-month non-fatal drug overdose following GHB use.

### Background

Gamma-hydroxybutyrate (GHB) is a depressant drug that has a sedative-hypnotic effect (1). GHB has gained popularity in recent years, commonly used within the dance party scene or nightlife settings (2). Most commonly available as a bitter or salty clear, odourless liquid, GHB is usually sold in small bottles and consumed orally (3). Gamma-butyrolactone (GBL) and 1,4-butanediol (1,4-BD) are precursors of GHB that are also often sold and rapidly convert to GHB on consumption (4). Whilst GHB is known to produce feelings of euphoria, relaxation and sociability at small doses (5), at high doses, it can cause sedation and memory impairment (6). Acute toxicity may manifest as agitation, excitation, respiratory depression, coma, vomiting and seizures, and risk can be exacerbated by use of other depressants. There is also a risk of GHB dependence and withdrawal (3).

There is significant concern about increasing GHB use and harms in Australia (6). Indeed, a recent national case series identified 74 deaths in Australia arising from GHB use from 2001-2019, with the highest number of deaths occurring between 2016-2019 (n=26; 7). Other work has shown a 147% increase in the prevalence of GHB-related ambulance attendances in Victoria, Australia (8). In both studies, methamphetamine was commonly identified as being co-ingested with GHB. There is particular concern about GHB use and harms in South Australia, escalated by a series of six GHB-related drug overdoses recorded in a 24-hour period in South Australia in October 2020 (9).

Consequently, the aims of this bulletin are to examine i) past six-month use of GHB (including GBL and 1,4-BD)<sup>1</sup>, ii) demographic, drug use and drug-related behavioural characteristics of those who report GHB use, and iii) GHB overdose, among two sentinel samples of people who regularly use illicit drugs in Adelaide, South Australia, with a specific focus on data collected in 2020. The latter two aims concentrate on data collected from one sentinel sample of people who regularly inject drugs.

<sup>1</sup> Participants were asked about GHB, GBL and 1,4-BD but GHB has been used throughout bulletin, for brevity.

## Method

The Illicit Drug Reporting System (IDRS) and the Ecstasy and Related Drugs Reporting System (EDRS) are illicit drug surveillance systems which include annual cross-sectional interviews with people who regularly consume illicit drugs, recruited from capital cities in all states and territories of Australia. The IDRS commenced nationally in 2000 and focuses on people who regularly (i.e., at least six times in the past six months) inject drugs, recruited from Clean Needle Programs and via snowballing. The EDRS commenced nationally in 2003, and focuses on people who regularly use ecstasy and other illicit stimulants, recruited via social media, primarily Facebook, as well as via snowballing. Participants are administered a one-hour face-to-face interview and reimbursed \$40 cash for their time. In 2020, due to COVID-19 and associated restrictions, participants completed a one-hour interview via telephone/video-conference and were reimbursed \$40 via bank transfer, PayID or gift voucher. In each year, approximately 100 participants are recruited in Adelaide, SA, for EDRS and 100 participants for IDRS (see methods document for the [EDRS](#) and [IDRS](#) for exact sample size each year and full details of the methods). In 2020, 101 participants were interviewed for the EDRS in Adelaide, SA, and 100 participants were interviewed for the IDRS in Adelaide, SA.

Questions regarding recent (past six-month) GHB use have been present in the EDRS interview since 2003. Questions regarding recent GHB use were included in the IDRS interview for the first time in 2020. Given the number of participants who had recently used GHB were substantially lower in the EDRS sample, analyses of the demographic, substance use and other behavioural characteristics associated with past six-month GHB use were limited to the IDRS 2020 sample.

## Results

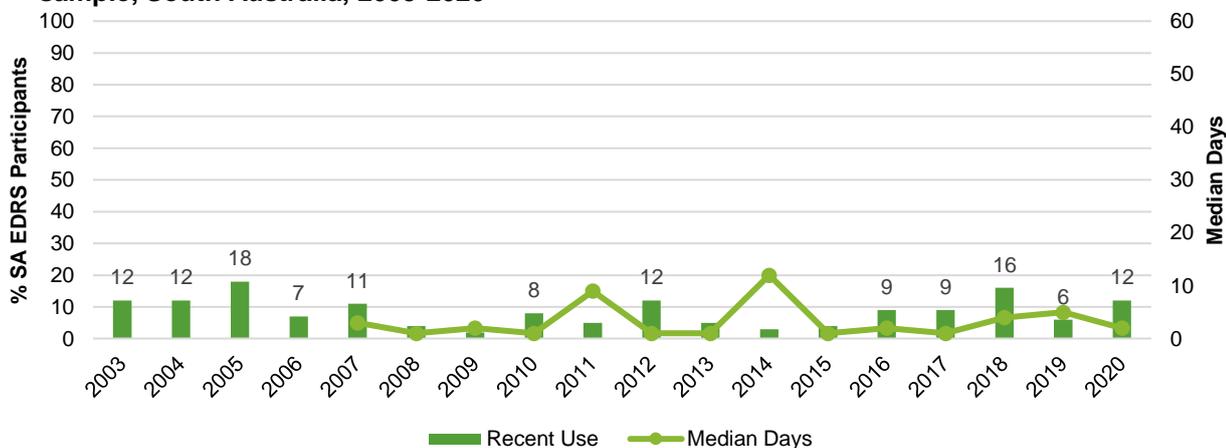
### Recent Use: EDRS 2003-2020

Historically, the proportion of participants reporting past six-month (recent) use of GHB among the SA EDRS sample has fluctuated, ranging from five or fewer participants in 2009, 2011 and 2014, to 18% in 2005.

In 2020, 12% of the SA EDRS 2020 sample reported recent use, with 6% reporting recent use, nationally. Use was typically infrequent among the 2020 sample, occurring on a median of two days (IQR=1-5) in the six months preceding interview. Of those who reported recent use in 2020, the majority (92%; n=11) reported swallowing GHB, with few participants (n≤5) reporting shelving/shafting, and no participants reporting injecting. Participants reported using a median of 5.5ml (IQR=4.0-8.5) in a 'typical' session in the last six months.

GHB non-fatal overdose among EDRS participants has not been reported due to small numbers (n≤5).

**Figure 1. Recent (past six-month) and median days of use of GHB amongst the EDRS sample, South Australia, 2003-2020**



Note. Y axis has been reduced to 60 days to improve visibility of trends (maximum 180 days of use in the past six months). Data labels have been removed from figures with small cell size (i.e. n≤5 but not 0). In 2003, questions related only to GHB/ 1,4-BD; between 2004-2006, questions related only to GHB/GBL; from the year 2007, questions related to 'GHB/GBL/1,4-BD'.

### Recent Use: IDRS 2020

Almost one-quarter (23%) of the SA IDRS 2020 sample reported recent use of GHB in the six months preceding interview, with 10% of the national sample reporting recent use. No participants reported that they had injected GHB in the preceding six months. Further questions regarding frequency of use, routes of administration other than injection and the typical amount used in the last six months were not asked of the IDRS 2020 sample.

### Demographic, drug use and other behavioural characteristics of those who report recent use of GHB: IDRS 2020

No statistically significant differences were identified in terms of gender for those who had recently used GHB versus those who had not in the SA IDRS 2020 sample, although the former group were typically younger in age and were less likely to report being heterosexual. Furthermore, participants who had recently used GHB were more likely to have completed a tertiary qualification, and less likely to report being unemployed. Whilst these comparisons were not statistically significant, this may be a function of statistical power, given the small number of participants who reported recent GHB use.

As compared to those who had not recently used GHB, those who had used GHB in the past six months were more likely to report  $\geq$ weekly methamphetamine use, methamphetamine as the drug injected most often in the month preceding interview and any past 12-month non-fatal drug overdose. They were less likely to report current drug treatment.

**Table 1: Demographic, drug use and other behavioural characteristics of IDRS participants who had recently consumed GHB, 2020**

Demographic, drug use and other behavioural characteristics	Recent use of GHB (n=23)	No recent use of GHB (n=77)	p-value
% Male <sup>#</sup>	48	51	0.812
% Heterosexual	78	88	0.233
% Unemployed	78	92	0.061
Median age (IQR)	43 (34-51)	48 (40-54)	0.062
% Completed tertiary qualification, (including uni/college or trade/tafe)	74	65	0.422
Median grade of school completed (IQR)	10 (10-11)	11 (10-11)	0.298
% Methamphetamine as drug injected most often last month	91	56	<b>0.002</b>
% Weekly use of any methamphetamine in the past six months	90	59	<b>0.008</b>
% Any past 12-month drug overdose	57	16	<b>0.001</b>
% Current drug treatment	-	44	<b>0.020</b>
% Past month crime	45	40	0.632

Note. - Value suppressed due to small numbers (n $\leq$ 5 but not 0). <sup>#</sup>No participants reported 'different gender identity' or 'non-binary/gender fluid'.

### *Non-fatal overdose: IDRS 2020*

One-quarter (25%) of the SA IDRS 2020 sample reported experiencing a non-fatal overdose from any drug in the past 12 months. Of those who had used GHB in the past six months ( $n=23$ ), 35% reported overdosing after using GHB in the 12 months prior to interview (8% of the IDRS SA total sample). Of participants who had recently used GHB and who reported that their last overdose occurred after using GHB ( $n=7$ ), over half (57%) did not receive treatment for that overdose event involving GHB. Of this same group ( $n=7$ ),  $n\leq 5$  reported also using methamphetamine before their last overdose event involving GHB.

## Conclusion

Around one-in-ten people who regularly use illicit stimulants reported recent use of GHB, albeit infrequently, whilst almost one-quarter of people who regularly inject drugs reported recent use of GHB. The proportion of IDRS participants reporting recent GHB use in South Australia was the highest of all jurisdictions in Australia (with 10% of the national sample reporting recent use), however the reason for this is unclear. Whilst data were not available to assess changes over time in use amongst the South Australian IDRS sample, there was no indication of an increase in the percentage of people who had recently used GHB in the South Australian IDRS sample.

Our findings suggest that people who use GHB are more likely to use methamphetamine, and at a higher frequency, than those who had not recently used GHB, which corresponds with previous research (8) and is of concern given that methamphetamine has been found to be commonly present in non-fatal and fatal GHB overdoses in Australia (7, 8). Individuals who use GHB in combination with stimulants such as methamphetamine may engage in greater risk-taking behaviour and employ fewer harm reduction strategies (8), contributing to greater harms. Findings suggest that risk of GHB overdose is high, with 35% of people who had recently used GHB reporting that they had overdosed following use of the drug in the past year. This raises important implications for frontline health professionals, especially paramedics, who are responsible for attending to those who have experienced a GHB overdose and the resulting critical management of these patients within emergency department settings. Indeed, previous research (7) has highlighted the need for people to be trained in recognising signs of GHB overdose and in adopting harm reduction strategies when using GHB, particularly where using GHB with other stimulants such as methamphetamine.

Although our findings suggest that those who reported recent GHB use were less likely to currently be in treatment, this is potentially related to the higher rates of methamphetamine use observed previously. That is, most participants who are currently in treatment are receiving opioid agonist therapy (OAT), and although polysubstance use is high among IDRS participants, engagement in OAT is likely to be lower amongst participants who nominate methamphetamine (rather than heroin) as the drug injected most often in the past month. Most IDRS participants are recruited through Clean Needle Program sites in South Australia, suggesting that harm reduction messaging regarding the risk of GHB overdose through these sites would be opportune. It is important to note, however, that this recruitment strategy limits inferences to those individuals in contact with these services; research beyond this population is critical to understand the potential harm reduction needs of those not already engaged with these services.

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## Participating Researchers and Research Centres

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