

# Drug checking among a sample of people who regularly use ecstasy and other illegal stimulants in Darwin, Northern Territory, 2019-2021

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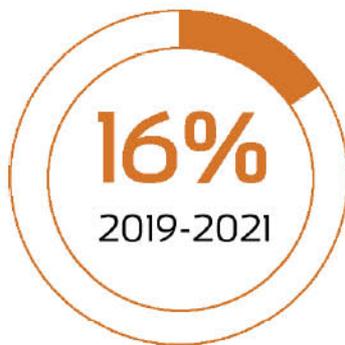
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## Key Findings

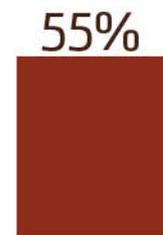
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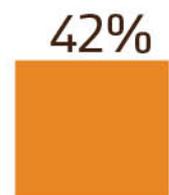
Among a sample of people who use ecstasy and/or other stimulants in Darwin, 16% reported past year drug checking in 2019-2021, predominantly using colorimetric reagent test kits.



Knowledge regarding the limitations of colorimetric reagent test kits was mixed.



Peers



Dealers

Of people who last used colorimetric reagent test kits, 55% reported results from last occasion of testing to friends and 42% to their dealer.

## Background

Drug checking, also known as ‘pill testing’, is a harm reduction method whereby the contents of an illicit substance are objectively assessed to inform behaviour at the point of consumption. Formal drug checking services where people can anonymously submit samples for professional forensic analysis and receive a tailored intervention are not commonly available in Australia, despite widespread public support for drug testing (1, 2). Indeed, the only services comprise two on-site trials held at a music festival in Canberra in 2018 and 2019 (2, 3), and a fixed-site service in Canberra soon to open. As a result, those who engage in drug checking are largely reliant on self-deployment of colorimetric reagent test kits.

Colorimetric reagent test kits are more widely available, affordable and easy to use than more sophisticated methods used by formal drug checking services, but their accuracy varies depending on correct method of use and subjective interpretation of results (4). Further, the presumptive nature of colorimetric reagent kits only allows identification of the presence or absence of particular substances, depending on

the test. Thus, those checking their drugs may need to use multiple tests to confirm expected contents and exclude other potentially hazardous adulterants (4).

The national EDRS survey of people who use ecstasy and/or other stimulants found that use of colorimetric reagent test kits was relatively high, suggesting that drug checking is underway regardless of a lack of formal services (5). Past year drug checking was found to be lowest among those in Darwin, although findings indicate that drug checking using colorimetric reagent test kits occurs in Darwin in some capacity. There have been repeated calls for the establishment of formal drug checking services in Darwin (6, 7). The aim of this bulletin is to explore drug checking behaviours, and specifically use of colorimetric reagent tests, among people who use ecstasy and other illicit stimulants in Darwin, NT. Specifically, we aim to describe:

- The proportion of the sample reporting past 12-month engagement in drug checking from 2019-2021, and methods of drug checking.
- Subsequent actions and changes in drug use behaviour following the last occasion of testing using colorimetric reagent kits, in 2019-2021.
- Perceptions of accuracy and the range of capabilities of colorimetric reagent kits, in 2021.

## Methods

### Study design and participants

Data for the current paper was taken from the Ecstasy and Related Drugs Reporting System (EDRS), a program of work which includes an annual sentinel cross-sectional survey of people who use ecstasy/MDMA and/or other illegal stimulants recruited from Australian capital cities.

### Analysis

All (n=100) participants responded to drug checking items in 2019, 2020, and 2021, respectively. Repeat participants were removed where samples were combined across 2019-2021. Participants in 2020 and 2021 were identified as repeating if they responded yes to previous participation in 2019 or 2020. This identified 11 repeat participants in 2020 and 22 repeat participants in 2021. Descriptive statistics were calculated as valid percent.

### Measures

#### *Past 12-month drug checking, 2019-2021*

From 2019 onwards, participants reported whether they or someone else had ever tested the content and/or purity of their illicit drugs in Australia, and if yes, specified whether this was during the last 12 months or more than 12 months ago. Participants who reported their drugs being checked in the last 12 months were asked to report on the method used for testing for the most recent test, with available responses including colorimetric or reagent test kit, testing strips (e.g., BTNX fentanyl strips or other immunoassay testing strips), Fourier Transform Infrared Spectroscopy or other method of spectroscopy/ chromatography (e.g., Gas Chromatography Mass Spectrometry), other, and don't know.

## Actions and changes in drug use behaviour following colorimetric reagent kit use, 2019-2021

Participants were asked about their actions following their most recent occasion of testing their drugs using a colorimetric reagent kit, and whether their behaviour changed from what was initially intended once results were obtained. Participants were also asked about whether, and to whom they reported results of the test.

### Perceived accuracy and capability of colorimetric reagent test kits, 2021

In 2021, participants were asked about their level of agreement with four statements concerning the required level of expertise, ability to detect particular substances, scope of detection of colorimetric reagent test kits, and reliability of purity test kits. Exact phrasing of statements is given in Table 1.

## Results

### Testing in last 12 months

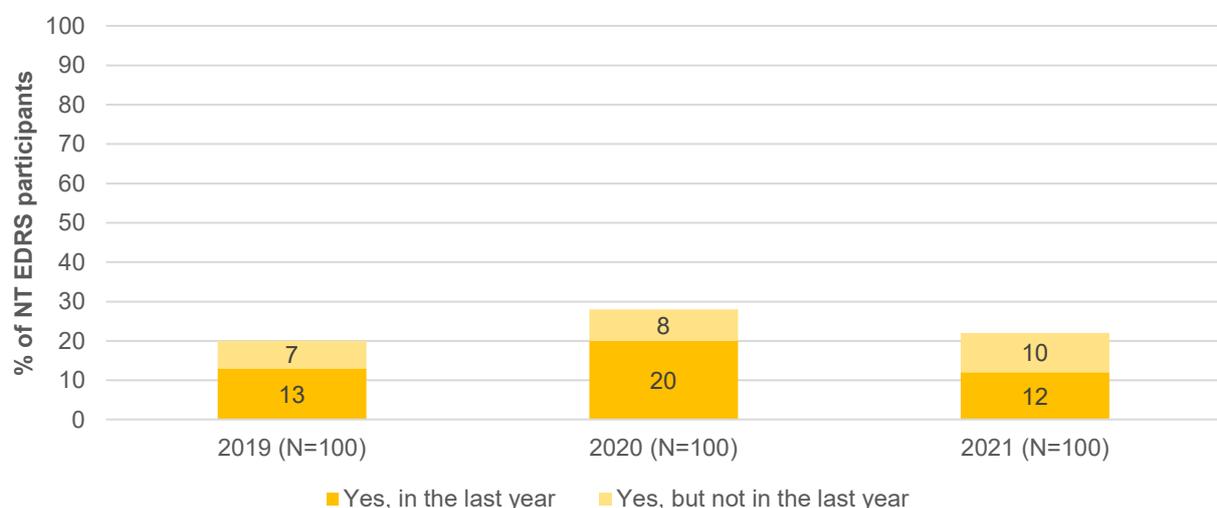
All participants responded to the drug checking module from 2019-2021 (n=300). Thirty-three repeat respondents were excluded when combining responses across 2019-2021.

One-eighth of all respondents reported having tested their drugs in the past 12 months in 2021 (13%, n=13). This was around one-fifth of participants in 2020 (20%, n=20), and around one-eighth of participants in 2019 (12%, n=12). Over 2019-2021, 16% of non-repeat respondents reported engagement in drug checking in the past 12 months.

### Most recent occasion of drug checking

Of those who reported testing their drugs in the past year and commented on testing method (2021 N=11, 2020 N=20, 2019 N=11), most reported using a colorimetric reagent test kit at the time of their last test (2021: 73% (n=8); 2020: 75% (n=15); 2019: 80% (n=8)).

**Figure 1: Drug checking in the past year among all respondents, NT EDRS, 2019-2021**



## Actions and changes in drug use behaviour following colorimetric reagent kit use, 2019-2021

Due to small numbers of people who had checked their drugs in the previous 12 months, changes in behaviour following drug checking were combined across 2019-2021, with repeat participants excluded. Of the 31 participants who had tested their drugs using a colorimetric reagent testing kit at the last time of drug checking, most (77%, n=24) reported using their drugs after testing them. On the most recent occasion of testing, two-thirds (67%) of those who tested their drugs received the expected result from their test without detecting any other unexpected substances (noting that this may be because they did not test for any other substances). Of those whose results were unexpected (n=10), half used the tested drug (50%) (Table 1).

**Table 1. Actions following most recent occasion of colorimetric reagent test kit use, NT, EDRS, 2021**

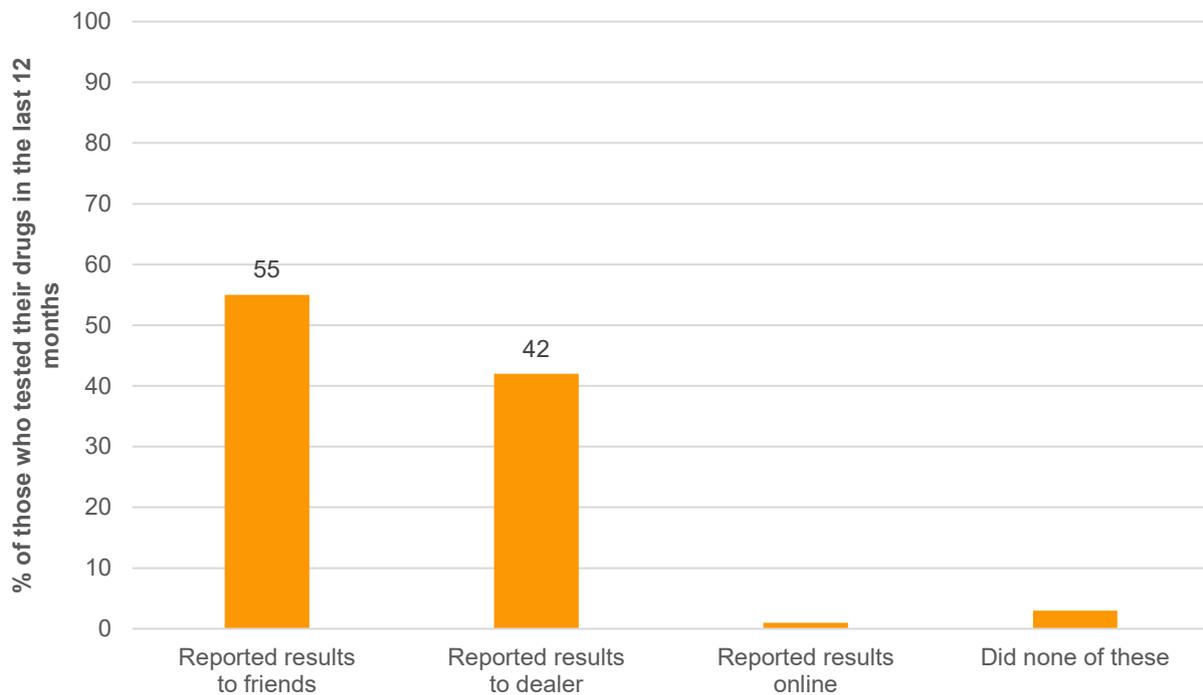
Action	Results were as expected (n=21) % (n)	Results were unexpected (n=10) % (n)
Did not use the tested drug	-	50% (≤5)
Used the tested drug	90% (19)	50% (≤5)
Still have the drugs and plan to use them	0% (0)	0% (0)
Still have the drugs and do not plan to use them	0% (0)	0% (0)
Still have the drugs and don't know	0% (0)	0% (0)
Gave/sold to someone else	-	-
<b>Of those who chose to use the tested drugs:</b>	<b>n=19</b>	<b>n≤5</b>
Had not made plans for use	-	0% (0)
Did not use any differently than intended	74% (14)	-
Used more of the drug than initially intended	-	0% (0)
Used less of the drug than initially intended	-	-
Left more time between dosing than initially intended	0% (0)	0% (0)
Used other drugs/alcohol	0% (0)	-

Note: multiple responses endorsed. -Numbers suppressed where n≤5.

## Reporting of test results following most recent occasion of colorimetric reagent test kit use, 2019-2021

Of participants who had tested their drugs using a colorimetric reagent testing kit at the last time of drug checking (n=31), around half reported the results of the tested drug to their friends (55%, n=17), and around two-fifths reported the results of the test to their dealer (42%, n=13) (Figure 2).

**Figure 2: Reporting of test results among those who tested their drugs using a colorimetric reagent testing kit at the last time of drug checking, 2019-2021**



*Note: numbers suppressed where n ≤ 5.*

### Perceived accuracy and capability of colorimetric reagent test kits, 2021

The following results should be treated with caution due to small numbers responding to these items. Of respondents who had tested their drugs using a colorimetric reagent kit at the last time of drug checking (n=9), 89% disagreed or strongly disagreed that expertise is required to interpret the results of a colorimetric reagent testing kit (n=8), 89% agreed that testing kits are generally accurate at detecting the presence of certain substances (n=8), and the same proportion agreed or strongly agreed that only certain adulterants or substances can be detected using colorimetric reagent kits. Over half (56%) agreed that purity testing kits provide reliable information on drug strength or dose (n ≤ 5), however few reported having tested their drugs for purity in the last 12 months (n ≤ 5).

## Discussion

Over 2019-2021, 16% of Darwin participants reported engagement with drug checking in the past year. This was lower than for other jurisdictions, with the national average being around one-third of participants in each year of 2019-2021 (35% in 2019; 32% in 2020; 33% in 2021), however reasons for this difference are unclear (5). Most of those who had engaged in drug checking in the past 12 months detected the substance that they expected to be present, and perhaps understandably, most reported not changing their behaviour after receiving test results.

Of those who had engaged in drug checking in the past year, most had tested their drugs using a colorimetric reagent kit, with use of this method remaining fairly constant over 2019-2021 (11). This indicates that participants are engaged in drug checking, but are doing so using less sophisticated methods than could be made available. This demonstrates that people are willing and are already engaged in drug checking to inform their behaviour, which suggests that there would be appetite for formal drug checking services which deploy sophisticated testing protocols to yield greater information on contents. These would also serve as an opportunity to provide harm reduction advice and connect people with other AOD services where needed.

This need is reinforced when assessing knowledge of capability of colorimetric tests. Participants demonstrated mixed knowledge of the limited scope and accuracy of colorimetric reagent kits. For example, almost all respondents disagreed with the statement that expertise is required to interpret colorimetric test results. While this is consistent with the required basic-intermediate level of expertise, it may raise concern for cases where testing and interpretation is more complex, such as when testing involves protocols for multiple drugs or when adulterants are present (4). The greatest knowledge disparity around colorimetric reagent kits appears to relate to their ability to provide reliable information on strength or dose. Of potential concern, just over half of those who reported past 12-month drug testing using a reagent kit agreed that purity testing kits provide reliable information on strength or dose, despite accuracy and subjectivity of interpretation of purity reagent kits being questionable (12). However, the proportion of those who actually reported testing for purity of drugs was low. Another limitation to these findings is the low number of those who reported using colorimetric reagent kits (n=9).

Peers are an important source of information about drug use, and results from drug testing were predominantly shared with participants' friends, highlighting the importance of equipping those engaging in drug checking with accurate and detailed information. This emphasises the need for drug checking services, which in addition to having more advanced testing technology, provide opportunities for conversations around drug use and harm reduction, providing information which may then be passed on to peers.

These results highlight the need to invest in more accurate drug checking methods. It is recommended that drug checking services, which use more accurate and reliable methods than colorimetric tests, be established. Introduction of permanent drug checking services also provides opportunities for a point-of-contact where those engaging in drug checking can access other harm reduction information and services, and if needed, intervention (13).

## Conclusion

People who use ecstasy and/or other illicit stimulants in Darwin are already engaged in drug checking in some capacity, using suboptimal methods and with mixed knowledge of limitations, with results predominantly shared with peers. These findings highlight the willingness of Darwin residents who regularly use ecstasy or other stimulants to engage with drug checking and to disseminate results. This represents an opportunity to decrease harm through the establishment of formal drug checking services, both directly through the use of more accurate testing methods, and indirectly by providing opportunities to link to other harm reduction information and services.

## Suggested Citation

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