The World-First Steroid Checking Trial:

A Technical Report of the Findings from a Multi-Wave Mixed-Methods Program

WAVE THREE REPORT

ACKNOWLEDGEMENT OF COUNTRY

We acknowledge the Traditional Owners and First Nations people's lands of where we work and live, in Meeanjin (Turrbal name for Brisbane CBD), Yugambeh Country (Gold Coast), and Gubbi Gubbi/Kabi Kabi Country (Sunshine Coast). We also acknowledge the First Nations people's lands of our site visitors.

We recognise that these have always been places of continued culture, teaching, and learning. We wish to pay respect to their Elders, past, present and emerging, and acknowledge the important role Aboriginal and Torres Strait Islander people continue to play within health services and the harm reduction community, by providing services that are culturally appropriate and safe.

We acknowledge the profound harm and enduring consequences wrought by colonisation on Aboriginal and Torres Strait Islander peoples. We honour their strength, resilience, and ongoing cultural and spiritual connections to Country. In the implementation of our work, we affirm our commitment to fostering inclusivity, unity, and respect among all communities.

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Table of Contents

Executive Summary

This report documents and critically evaluates how enhanced reporting and improved feedback mechanisms can facilitate behaviour change among people who consume AAS in the World's First 'Steroid Checking Trial' conducted in Queensland, Australia. The findings indicate that participants considered the testing results valuable, leading many to reconsider their compound selection, dosage, or source, and to feel more confident in their ability to adjust their AAS intake accordingly. The trial also illustrates the challenges this cohort faces when engaging with health services, particularly general practitioners. Overall, the results demonstrate the potential of AAS-specific testing to inform decision-making and support behaviour change, while underscoring the need for tailored harm reduction frameworks to ensure equitable access to health care. In particular, we emphasise the importance of providing individualised AAS testing in alignment with testing services currently available for other illicit substances.

Introduction

People who use image and performance enhancing drugs (IPEDs), including anabolic-androgenic steroids (AAS), peptides, insulin, and other diverted pharmaceuticals, represent a growing and under-recognised public health population (1) (2) (3). These substances are often used to enhance appearance, performance, or wellbeing, with over 70% administered via injection, though oral and subcutaneous routes are also common. In Australia, IPED-related customs seizures rose by 1,372% between 2011 and 2021 (4), reflecting expanding demand and unregulated supply chains. Global evidence suggests more than two-thirds of IPED products are adulterated or mislabeled (5), exposing consumers to potentially serious health risks, including bacterial infections, endocrine disruption, cardiovascular complications, and toxic effects from unknown ingredients (6) (7). Among people who inject IPEDs, one-third report injection site symptoms such as redness, swelling, and tenderness, yet fewer than one in five seek medical care (8). Delayed care can escalate into serious complications, with average hospitalisation cost per person for injection-related infections costing over AUD $16,500 (9).

Despite the scale of use, estimated at 6.4% of men (10) and 4% of women (11) globally, people who use IPEDs remain underserved by mainstream harm reduction and healthcare systems. Existing strategies are largely adapted from models designed for people who use opioids or stimulants, and often fail to reflect the distinct motivations, patterns of use, and risks associated with IPEDs (12-14). For example, while blood born virus (BBV) prevention remains important, consumers are equally concerned with optimising injection technique, enhancing drug absorption, and avoiding counterfeit substances. Stigma, misinformation, and a lack of tailored services contribute to disengagement from mainstream healthcare services, particularly among women and regional populations. In this context, peer networks play a vital role in harm reduction, providing informal education, distributing injecting equipment, and supporting decision-making (15). However, these networks often operate without access to verified or evidence-based information, leaving people vulnerable to harm despite their proactive efforts (19, 20, 21, 22, 23, 24).

One promising harm reduction intervention is drug checking, which provides analytical feedback on the content and composition of unregulated substances (16). While drug checking is increasingly available for substances such as MDMA and methamphetamine, AAS have rarely been included in such programs (17, 18). In response, a pilot steroid checking initiative was launched in Queensland, offering the first formal AAS-specific drug checking program in Australia. The initial phase (Wave 1) provided grouped chemical analysis of consumer-submitted AAS samples. Though well-received, it had limitations: consumers were unable to link results to brand names or interpret variability across batches, reducing the usefulness of findings for individual risk management. Wave 2 addressed some of these concerns, introducing more precise reporting and exploring how purity data influenced behaviour.

This Wave 3 report builds on previous phases by critically evaluating how enhanced reporting, and improved feedback mechanisms can influence behaviour change among a larger cohort of people who use AAS. In doing so, this report aims to inform a more responsive, evidence-based harm reduction response for AAS use in Australia.

Method

Procedure

Participants over the age of 18 who have used AAS in their lifetime were invited to participate in an online survey assessing their response to the data released to the community from the World's First Steroid Checking Trial (22) (23). Participants were presented with the study information and were notified of relevant support services should they experience distress throughout completion of the survey, and informed that confidentiality would be safeguarded, unless the research team were legally required to present specific information under subpoena. Participants were informed that should they agree to participate they were free to withdraw consent at any time without penalty. Demographic questions were presented first and were followed by a block of questions that aimed to understand participants responses to the wave data presented to the community, estimated to take 10 minutes to complete. The survey was released to the community between February and May 2025, and advertised through community events, conferences, in addition to the study population being hard to reach, members of the research team with lived and living experience, advertised the program on social media.

Materials and Measures

Wave 3 Data Sample

Three waves of data collection were conducted between April 2024 and May 2025, with samples submitted to CheQpoint, Queensland's first fixed-site testing service (see Figure 1). Wave 1 (Phase 1) ran from 19 April–7 June 2024, with 32 samples submitted. Of these, nine could not be analysed due to scope, resource, or equipment limitations. The remaining 23 samples were tested qualitatively (n = 23) and quantitatively (n = 1). Quantitative testing was employed to assess purity of the samples, and qualitative testing was used to identify the compounds that were detected. Findings were disseminated to the community in June 2024, initiating Phase 2, during which interviews (n = 25) were carried out from July to August 2024. Community feedback informed the subsequent integration and reanalysis of Wave 1 samples quantitatively (n = 23).

Wave 2 (14 June 2024–16 August 2024) involved 26 samples, three of which were not analysable. The 23 valid samples were tested qualitatively (n = 26) and quantitatively (n = 36). Results were shared with the community in October 2024, followed by interviews (n = 15) conducted from October to November 2024. Community feedback guided a combined integration and reanalysis of Waves 1 and 2.

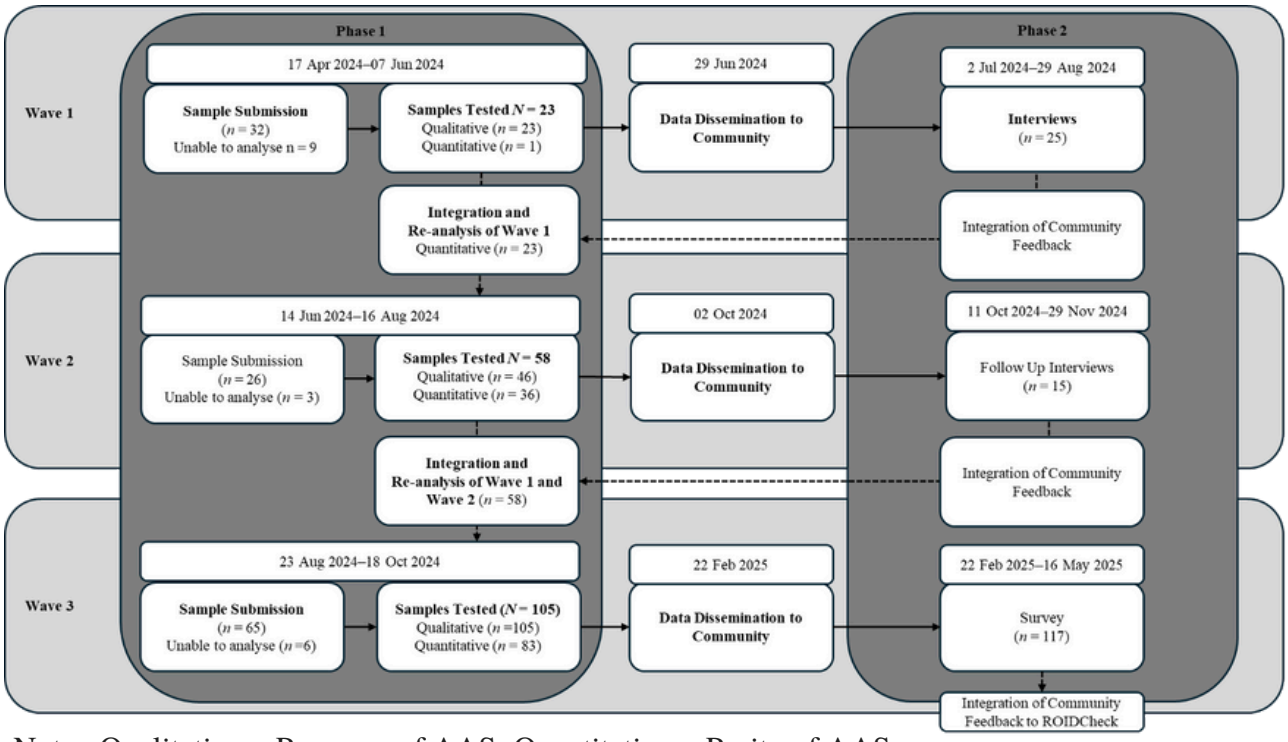
Wave 3 (23 August 2024–18 October 2025) involved 65 submissions, with six excluded from analysis. The remaining 59 were tested qualitatively (n = 59) and quantitatively (n = 47). The Wave 3 data was released to the public via the Hi-Ground website on the 22nd of February 2025, alongside a QR code to a survey which was open until the 16th of May. Findings were disseminated to the community in February 2025. A subsequent survey (n = 117) was also conducted, with results integrated into ROIDCheck.

Survey

A survey was released from the 22nd of February 2025 to the 16th of May 2025, and looked to understand the impact of Wave 3 Data release to the community. The survey consisted of eight demographic questions, which looked to understand the AAS usage strategies of the participants. In addition, 13 questions looked to understand the effect of the Wave 3 Data on participants AAS use, and health related experiences.

Figure 1

Timeline of ROIDCheck Reports of AAS Sample Submissions, AAS Tests, Community Dissemination and Feedback.



Note. Qualitative = Presence of AAS; Quantitative = Purity of AAS.

Participants

Participants (n = 117), aged 18 and over (n = 101, M_{age} = 32, SD = 8) completed an online survey if they had used AAS in their lifetime. Most participants were males (n = 114, 97.4%; female n = 3, 2.6%), and 59% resided outside of Australia (n = 69; USA = 34, Europe = 23), and of those in Australia, 20.5% were from Queensland (n = 24), 7.7% were from Victoria (n = 9), 3.4% were from Western Australia (n = 4), and 1.7% each from South Australia (n = 2) or Australian Capital Territory (n = 2), as depicted in Table 1. Participants were either currently using AAS (n = 104) or had used in the past 12 months but were on an extended break (n = 13), see Table 2. Table 3 depicts AAS usage strategies, most participants (n = 62) had a combination of 3 types of usage strategy (i.e., associated with dose, cycle/cruise, compound/s). Participants used 2-3 compounds most frequently (n = 83), followed by 4-5 (n =18), then 0-1 (n = 15), and only 1 participant reported using more than 6 compounds. In terms of dosage, most individuals used between 251-500mg (n = 29) and 501-750mg (n = 29), followed by 1000+ (n = 20), then 741-1000mg (n = 19), 156-250mg (n = 13), and 0-125mg (n = 7). Which is reflected in the usage strategies, where most individuals would use a "blast-cruise" method (n = 67) or cycle (n = 21) which is typically done at higher doses, compared to those who permanently cruise (n = 19).

Table 1

Residence Demographic Information (N = 117)

Residence	*n*	%
Australia	48	41
Queensland	24	20.5
New South Wales	7	6
Victoria	9	7.7
Western Australia	4	3.4
South Australia	2	1.7
Australian Capital Territory	2	1.7
Outside of Australia	69	59
Americas	36	30.8
Europe	23	19.7
Other or Missing	10	8.5

Table 2

Participant History of AAS Use (N = *84)*

AAS History	*n*	%
Currently Use AAS	68	58.1
Have used AAS in past 12 months	12	38.5
Have used AAS in past 3 years	0	0
Have used AAS in lifetime	4	3.4

Table 3

Participant Reports of AAS Usage Strategy (N = *117)*

Usage Strategy	*n*	%
Overall Usage Strategy	107	91.5
Cycle	21	17.9
Blast Cruise	67	57.3
Perma-Cruise	19	16.2
Number of Compounds	68	58.1
0-1	15	12.8
2-3	83	70.9
4-5	18	15.4
6+	1	1
Amount of Compounds (i.e., Dosage)	72	61.5
0-125	7	6
126-250	13	11.1
251-500	29	24.8
501-750	29	24.8
751-1000	19	16.2
1001+	20	17.1
No Strategy	1	0.9

Results

Data Cleaning

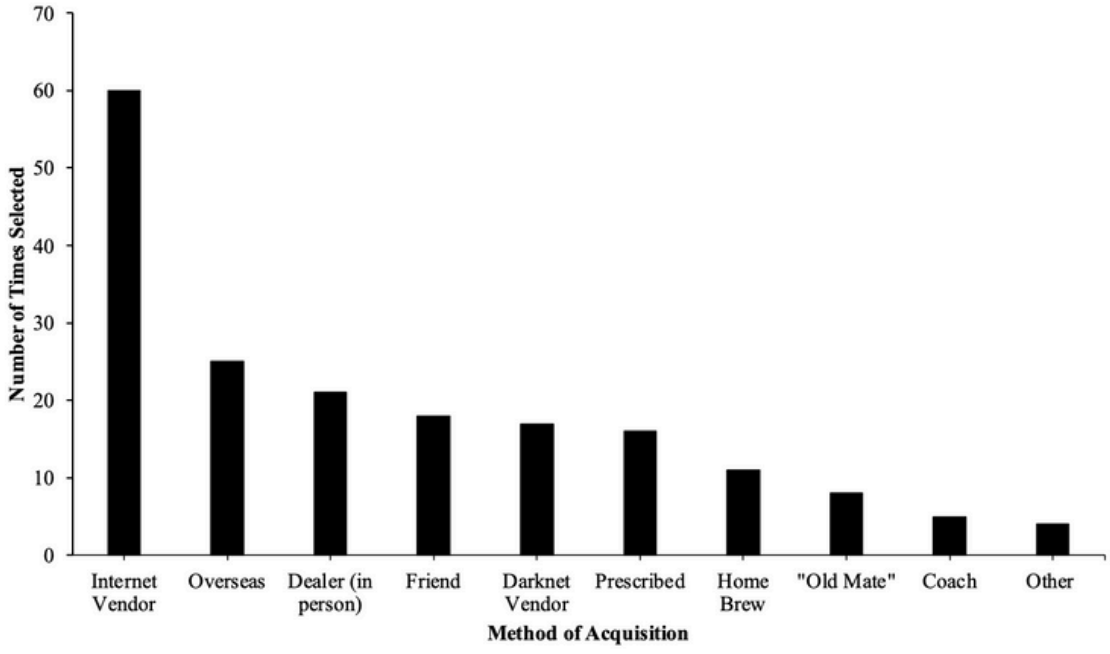
Data were imported into SPSS v30. Data demonstrated that 473 cases of the survey were commenced. Data were removed for three participants that did not consent, and the survey subsequently ended, and 238 surveys were commenced but had nil response, response information for 107 participants who only completed demographic information and/or Question 1 were removed. Of those remaining, additional responses were removed based on not over 18 years of age (5), and five people who had never used AAS. A total of 117 participants remained and are used in analysis. Expectedly, missing data is present, owing to the nature of the research, and sensitivity of the questions, with individual items showing between 0 and 16 missing responses. Frequencies were ran based upon the survey questions. Results show responses for methods of acquisition, impacts of the ROIDCheck Report, confidence to change, additional information required for change, and health care service experiences.

Acquisition Methods

In terms of acquisition, most participants used a single method (*n* = 72), or two (*n* = 25) or three (*n* = 14) different methods, and were least likely to report four acquisition methods (*n* = 4), five (*n* = 1) different methods of acquisition, and one participant reported no method. Four participants reported other methods or that they preferred not to say. Figure 2 demonstrates the selection of responses that participants reported.

Figure 2

*Bar Graph of Methods of Acquisition (*N = *116)*

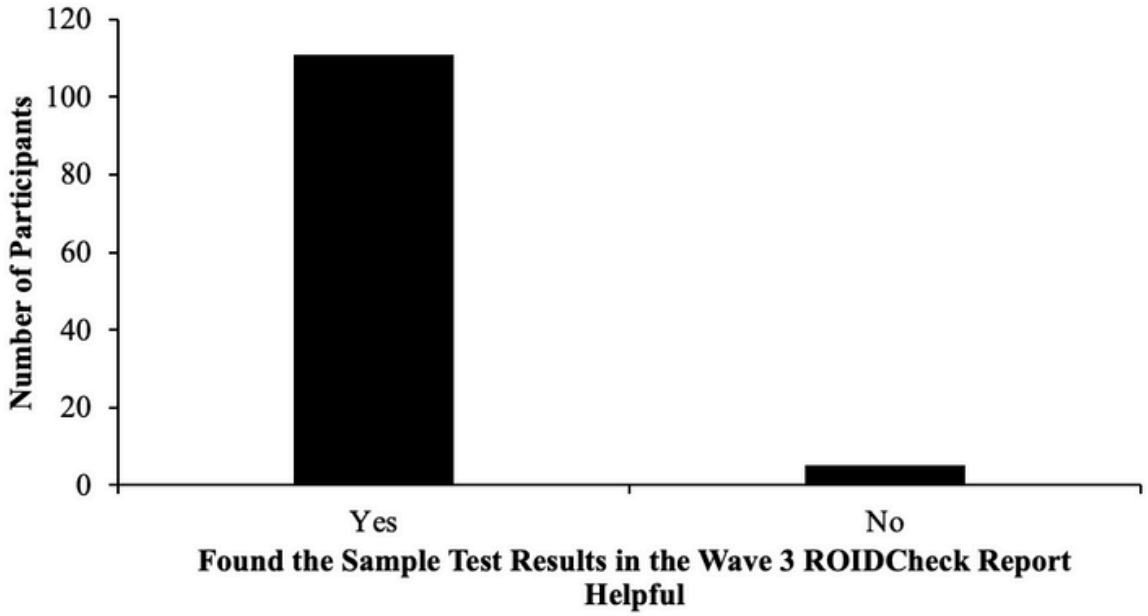


Note. Participants could select multiple answers.

Figure 3 illustrates the positive uptake of the Wave 3 ROIDCheck report within the community; 94.9% of participants found the test results helpful (n = 111) compared to 4.3% of participants who did not (n = 5).

Figure 3

*Participant Reports of Helpfulness of the AAS Sample Test Results included in the Wave 3 ROIDCheck Report (*N = *116)*



Note. Participants could select multiple answers.

As shown in Figure 4, just over half of participants (53.8%, n = 63) indicated that the results of the AAS testing program would not prompt them to reduce their AAS use, while 45.3% (n = 53) reported that they would reconsider their use. Among these, 19.7% (n = 23) reported they would reconsider the number of compounds they used, 22.2% (n = 26) indicated they would now test their compounds prior to use, 14.5% of participants (n = 17) reported they would reconsider their dosages, and 12.0% (n = 14) would consider changing the source of their AAS. One participant did not respond.

Figure 4

*AAS Sample Test Results in the Wave 3 ROIDCheck Report Prompting Participants to Reconsider AAS Use (*N = *116)*

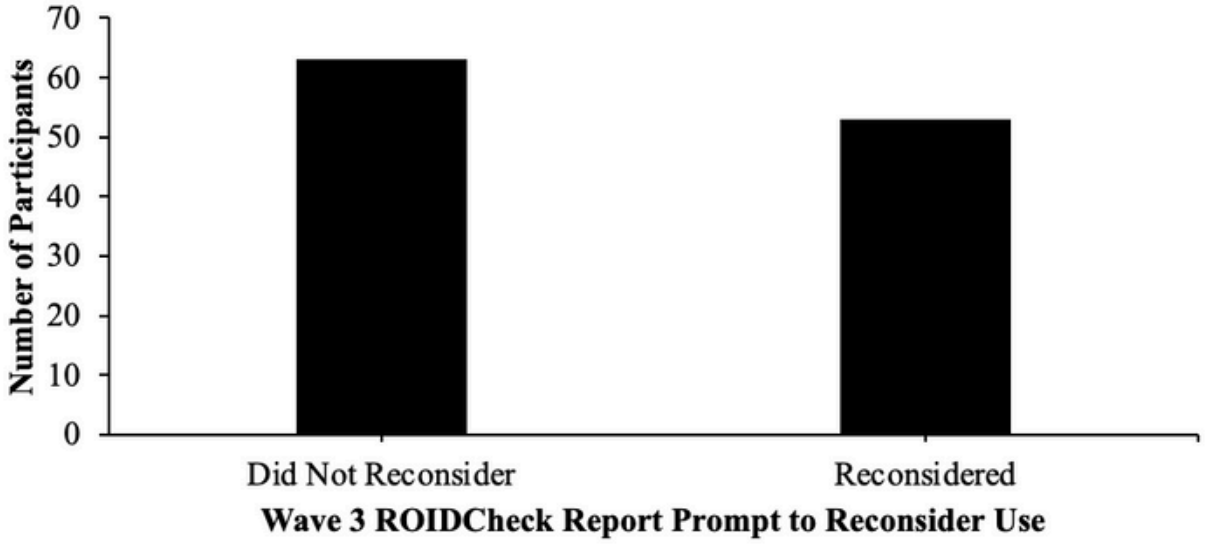


Figure 5 expands on the responses of reconsidered use and demonstrates that 17.1% (*n* = 20) of participants considered using fewer compounds, while 2.6% (*n* = 3) considered using more compounds. Further, Figure 6 highlights that 9.4% of participants (*n* = 11) indicated they would consider reducing their dosage, and 4.3% (*n* = 5) considered increasing their dosage.

Figure 5

*AAS Sample Test Results in the Wave 3 ROIDCheck Report Prompting Participants to Reconsider Compound Amounts (*N = *25)*

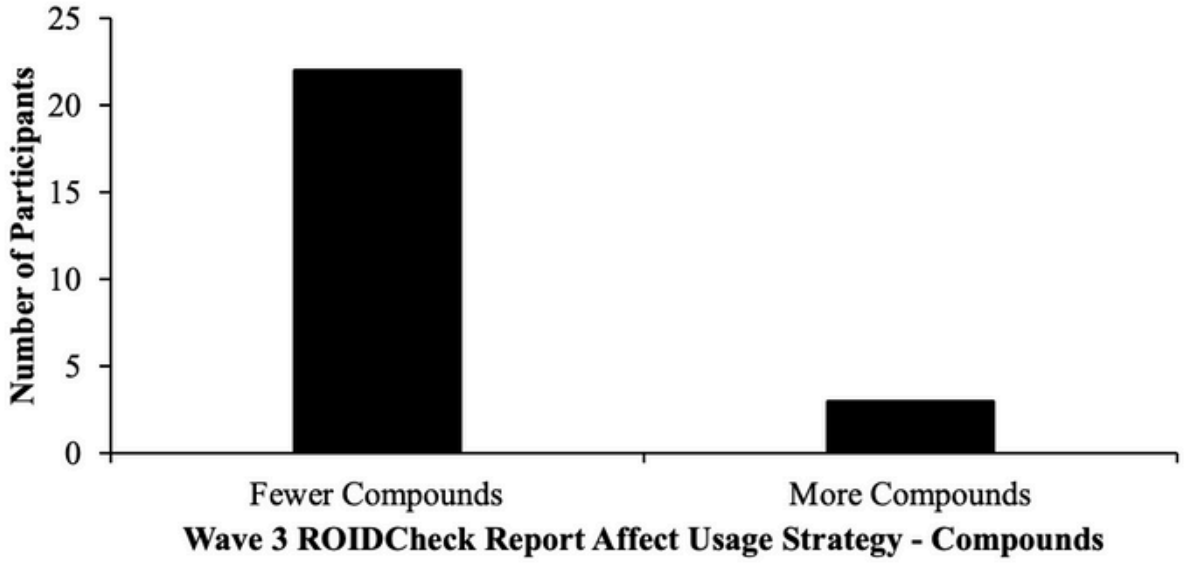
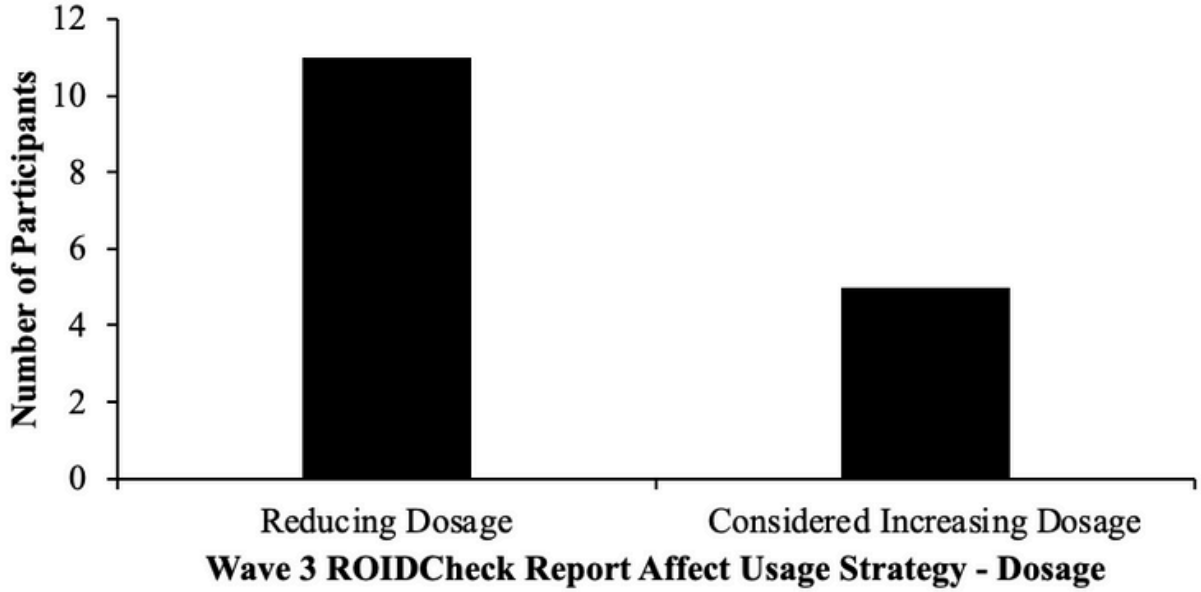


Figure 6

*AAS Sample Test Results in the Wave 3 ROIDCheck Report Prompting Participants to Reconsider Compound Dosage (*N = *16)*



More than half (53.8%) of participants reported feeling very confident to make change (*n* = 63), followed by 33.3% (*n* = 39) who felt moderately confident, 12% who felt slightly confident (*n* = 14), and only one participant (0.9%) who reported not feeling confident to make any changes based on the results (see Figure 7).

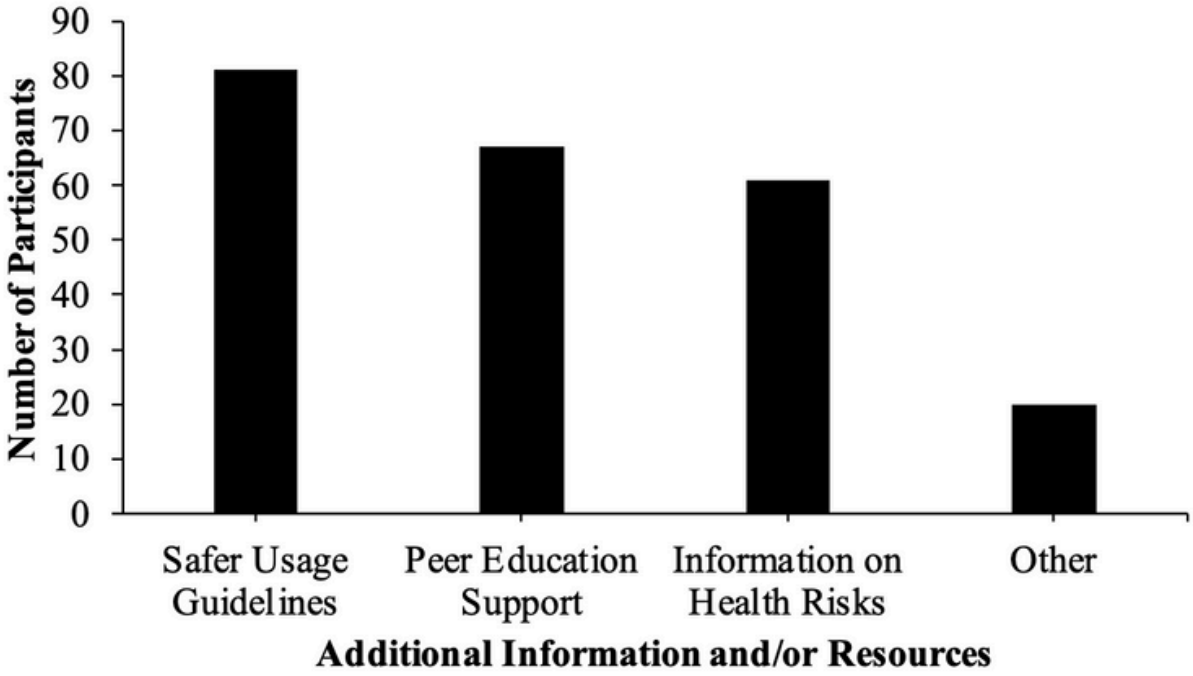
Figure 7

*Participant Reports of Confidence to Change (*N = *117)*

Figure 8 illustrates that 52.1% (*n* = 61) of participants reported wishing for additional information on health risks of AAS. 69.2% (*n* = 81) of participants responded desiring safer usage guidelines, 57.3% (*n* = 67) requested additional peer education support, and 17.1% (*n* = 20) reported wanting additional resources for support such as, decriminalisation, advancement to testing services, safer acquisition sources, support from medical professionals and services, as well as multiple calls for additional resources from Vigorous Steve, a well-known lived-living experience peer educator. 36.8 % (*n* = 43) of participants reported requesting one type of additional information or resource, 22.2% (*n* = 26) reported wanting additional information or resources from two methods or sources. Finally, 32.5% (*n* = 38) reported wanting three methods for resources or information.

Figure 8

*Participant Reports of Additional Information and/or Resources to Support Informed Decision Making (*N = *112)*

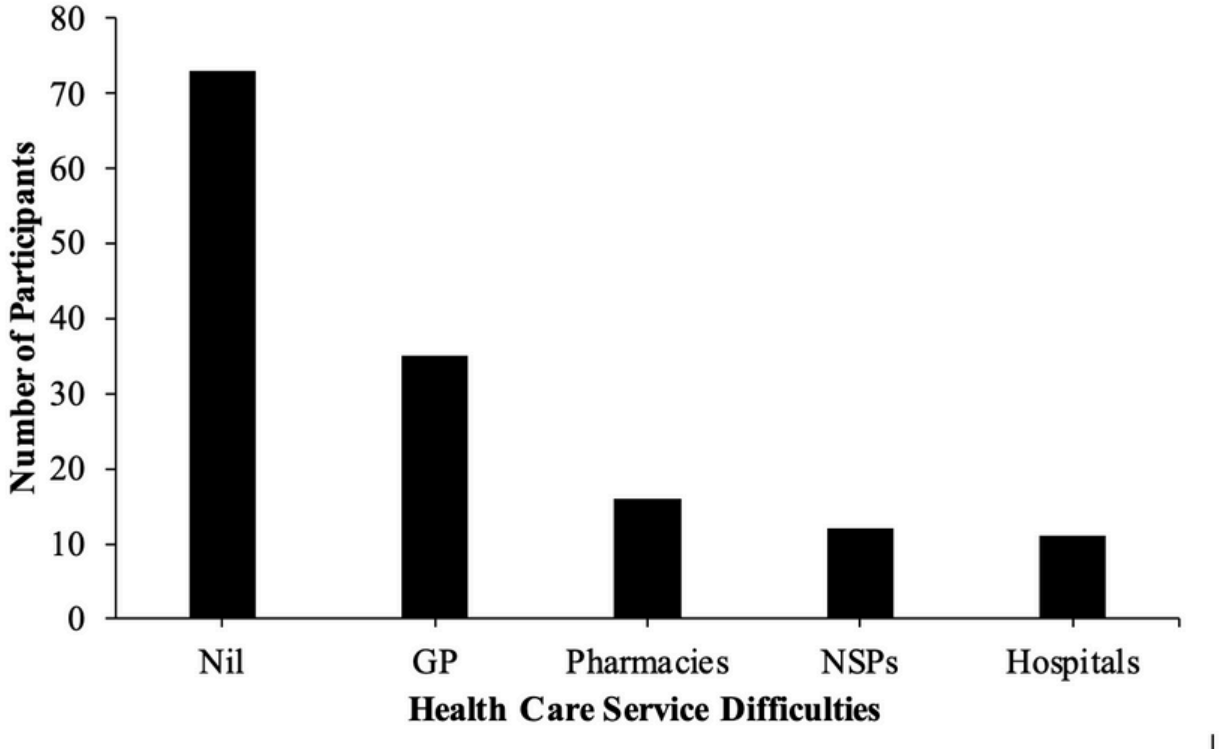


Note. Participants could select multiple options.

Figure 9 demonstrates that 62.4% (*n* = 73) of participants did not report difficulties accessing health services. Of the 35% who did report difficulties accessing health services, most had difficulties accessing one type of health services (17.9%, *n* = 21), 8.5% (*n* = 10) had difficulties accessing two types of health services, 6% (*n* = 7) experienced difficulties accessing three health services, and 2.6% (*n* = 3) had difficulties accessing four health services. 29% (*n* = 35) reported they experienced the most difficulty accessing GPs. This was followed by pharmacies (13.7%, *n* = 16), then interestingly NSPs (10.3%, *n* = 12); and lastly 9.4% (*n* = 11) had difficulty accessing hospitals.

Figure 9

*Participant Reports of Health Care Service Difficulties (*N = *114)*



Note. Nil = No Difficulties Accessing Health Services; NSPs = Needle Service Providers/Exchanges; GP = General Practitioners. Participants could select multiple options.

Conclusion

This report demonstrates how enhanced reporting and improved feedback from this AAS testing trial, influences people who use AAS's behaviour. These findings show that when people who use AAS receive collective information regarding the conditions of the market, it can impact their intentions regarding AAS use. Further, while group AAS testing results provide useful insights into the risks of unregulated AAS markets, individualised testing, alongside a health intervention, would likely deliver far greater benefits by supporting informed, personalised decision-making. For equitable health and harm reduction, AAS checking should be included in all drug testing alongside other substances.

Recommendations

Findings from this world first trial highlighted that active testing and surveillance gives people who use IPEDs valuable knowledge that impacts their behaviour. Several areas where people who use IPEDs desire support were identified, prompting the research team to formulate a series of recommendations for policymakers and practitioners. These recommendations are outlined below, in no ranked order.

1. **Individualised AAS checking:** Group results of AAS drug checking is valuable to people who use IPEDs for providing greater understanding of the substances they use in an unregulated market. However, it is limited in its ability to support personalised decision-making, individual testing results would carry greater utility for harm reduction, equipping people with precise knowledge to guide safer choices.
2. **Equitable harm reduction access:** Individual drug checking is standard for a range of illicit drugs, such as MDMA, where people receive detailed information about the specific contents of their sample. For genuine equity in health service provision, AAS should be incorporated into all drug checking services to ensure consumers have the same access to accurate, personalised information as those who use other substances.
3. **Addressing healthcare barriers:** People who use IPEDs report highest level of difficulties when accessing GPs. Addressing these barriers should be a priority in future harm reduction and healthcare strategies to ensure people who use AAS can access appropriate, non-judgemental support.
4. **Peer-led education:** Increasing the availability of resources on safer use guidelines and health risks co-created in partnership with peers with lived-living experience, to ensure the resources are relevant and meaningful.

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