



Report of the Emerging Drug Trends and Drug Checking Working Group 2021

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by the HSE National Social Inclusion Office*



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Glossary of terms and abbreviations used in this report

Amnesty bins:

Safe disposal bins where people can discard drugs without consequence.

An Garda Síochána:

The national police service of the Republic of Ireland.

'Back of house' drug checking:

Analysing substances that are not directly obtained from people who use drugs such as through 'amnesty bins' or law enforcement seizures.

Chemsex:

When two or more people use specific drugs before or during sex. The term is mostly used to describe gay and bisexual men or other men who have sex with men.

Club drugs:

A term used to describe stimulant, hallucinogenic, dissociative and depressant type drugs used in nightlife settings. For the purpose of this report, the term will be used to discuss a range of substances used across the night-time economy.

DIMS:

The Dutch Drug Information Monitoring System.

EMCDDA:

The European Monitoring Centre for Drugs and Drug Addiction.

'Front of house' drug checking:

A service that analyses substances obtained directly from the person who uses drugs with results delivered in real time while the person waits.

'Fixed site' drug checking:

A service that is not mobile and operates from a permanent location such as an office or laboratory.

Harm reduction:

A combination of interventions, programmes and policies that aim to reduce the health, social and economic harms of drug use to individuals, communities and societies.

GC-MS:

Gas chromatography-mass spectrometry, two methods combined to analyse drugs and provide quantitative and qualitative results.

HNT:

Healthy Nightlife Toolbox

HRB:

Health Research Board

HSE:

Health Service Executive Ireland

IPEDs:

Image and performance enhancing drugs.

MDMA:

An abbreviation for the substance 'methylenedioxy-methylamphetamine'. Also known as ecstasy.

NDRDI:

National Drug-Related Deaths Index

NPS:

New Psychoactive Substances

NTE:

Night-time economy. For the purpose of this report the term will be used to discuss settings where drugs are used for social purposes such as pubs, night clubs, music festivals, dance events as well as gatherings such as afterhours events and raves.

'Onsite' drug checking:

Mobile laboratories that operate at events such as festivals and in night clubs.

Poly drug use:

Using substances in combination including, controlled drugs, medicines or NPS either at the same time intentionally or one after the other.

SAOR:

'Support, Ask and assess, Offer assistance and Refer' a brief intervention for problem alcohol and substance use.

TCD:

Trinity College Dublin

Foreword

The Emerging Drug Trends and Drug Checking Working Group convened in September 2019 to address Strategic Action 1.3.11 of the National Drug and Alcohol Strategy: 'Reducing Harm, Supporting Recovery: A health-led response to drug and alcohol use in Ireland 2017–25'.

The role of the group was to review evidence in relation to drug trends and health responses applicable to the night-time economy and drug checking provision to help inform recommendations and to develop implementation plans to address these areas. The group was led by the HSE, with the Department of Health identified in the National Drug Strategy as the main partner for the delivery of this action. A cross-sectoral group was formed to consult and inform deliberations on this area. The membership of the group was intentionally broad to reflect the reality that this issue impacts on a number of departments, agencies and drug user groups in Ireland. An Garda Síochána were represented on the group as an associate member in order to provide observation and advice regarding recommendations. The Working Group Membership details and Terms of Reference are located in Appendix 1 and Appendix 2 of this report.

A number of high profile issues arising at festivals in 2019 meant that it would have been desirable to have a set of recommendations prepared to inform a response in time for the 2020 festival season and therefore the group was established in September 2019 with the aim of producing a report before summer 2020. However, this proved unrealistic due to the COVID-19 pandemic that disrupted all aspects of society from March 2020.

Despite the closure of nightlife settings during the COVID-19 pandemic, drug use continued across all user groups and media reports illustrated large seizures of drugs including club drugs throughout 2020. During this period in Ireland, we were concerned regarding the emergence of new and more potent substances in counterfeit benzodiazepine tablets and in cannabis products. We were also concerned

regarding the purity and potency of MDMA products, the use of drugs in isolated locations and tolerance changes among those who ceased use during times of restrictions.

The following literature review was prepared by the HSE National Social Inclusion Office to summarise the topics discussed by the Emerging Drug Trends and Drug Checking Working Group and includes a series of recommendations to inform health and policy responses in Ireland.

This report covers a range of issues relevant to the area of nightlife drug use, health and social responses and the provision of drug checking and monitoring services. Having reviewed this area, it is clear that drug checking needs to be part of a holistic process, embedded within a tailored structure so that analysis is not in isolation and is coupled with brief interventions, counselling, onward referral, data gathering exercises and on-going drug market monitoring for health services to fulfil multiple aims. As Chair of this Working Group, I would like to thank all members for their active contribution to this area of work.

For some time, the topic of substance use in the context of nightlife settings has received little attention in Ireland when compared with countries that have been researching this area and providing tailored prevention and harm reduction services since the early 1990s.

This report will, I hope, make an important contribution towards improvements in this area and will help inform new areas of work to reduce drug harms and protect the health of people who use drugs in Ireland.



Dr Eamon Keenan

*Chairperson Emerging Drug Trend and Drug Checking Working Group,
HSE National Clinical Lead, Addiction Services*

Executive Summary

An emerging stimulant and poly drug culture among new user groups are currently major issues of concern. Compared with European counterparts, there are limited localised studies on the area of drug use in nightlife settings. As well as this, a gap in service provision has been identified and there are currently no tailored services to meet the needs of young people who use drugs.

MDMA use is significant in terms of this report due to its association with the dance music scene and use throughout the night-time economy (NTE). MDMA use is no longer considered a niche or subcultural trend and is represented as a mainstream drug of choice in the latest Irish general population data, while upward trends in a range of other club drugs are also emerging. The proliferation of stimulant drug use in Ireland is occurring at a time when the purity and potency of substances such as MDMA and cocaine are at an all-time high. There has been concern for some time regarding drug market changes and the potential health risks associated with high potency drugs, contaminants and new psychoactive substances (NPS), which could appear in products without the consumer's knowledge. At present, we don't have an accurate and up to date representation of the contents of drugs to inform public health responses such as warning mechanisms in Ireland.

Drug use is now recognised across a range of nightlife environments and risks are not limited to one setting or one style of event in the NTE. Frequent drug use occurring in nightlife settings is a trend often associated with certain youth cultures which differentiates these populations from other drug user groups. In response to emerging youth drug patterns, health and social responses have been implemented in nightlife settings across Europe since the early 1990s. These services range from education, prevention and harm reduction activities as well as crisis intervention supports. Services that incorporate both nightlife outreach and drug analysis have potential to gain the most interest from young populations

who are currently considered hard to reach by healthcare services.

Drug checking services operate in a number of countries internationally, many of which were developed to engage with young populations of club drug users affiliated with the dance music scene. Drug analysis services have many functions including the provision of tailored health interventions for people who use drugs, conducting research on the latest trends and market monitoring to inform public health responses and public health alert mechanisms. Evidence shows that drug checking provision through a 'front of house approach' can engage hard to reach populations with health services, including those who otherwise would have received no previous intervention for their substance use. One of the main aims of drug checking services is to support people to adjust their drug taking behaviour to minimise harms and in some cases, drug checking interventions can prevent the use of substances.

Drug market monitoring and public health alert systems also have potential to prevent the use of extra risky substances in circulation and can possibly lead to the removal of these substances from the local drug market. A better understanding of the contents and composition of drugs available on the Irish drug market is necessary to protect the health of people who use drugs.

The Working Group concludes that drug checking is a beneficial prevention and harm reduction measure that should be considered as an extension of current health structures. A pilot project is recommended in a festival setting initially through a 'back of house' approach. Although there is increased demand for health interventions and drug analysis in the NTE, the Working Group agreed that frequent analysis in the form of drug market monitoring is necessary to inform early warning and alert systems for all populations who use drugs in Ireland. While it was agreed that drug checking has many benefits, further cross-Departmental discussion is required to identify the mechanisms which can be applied in an Irish context moving forward.

Summary of Conclusions and Recommendations

Evaluate and improve current emerging drug trend reporting structures

Real time information on emerging drug trends and cases of concern is not currently available in Ireland. In order to improve health responses, existing emerging drug trend reporting structures require review. Insight is needed on changing patterns of use, non-fatal overdose and hospital presentations as well as the contents and composition of substances available on the Irish drug market. There is limited information about substances available in Ireland, with identification mainly for law enforcement purposes and not to inform health communications, interventions and warnings.

Drug checking enables health professionals to engage with hard to reach populations

There is currently no tailored service for young people who use drugs in nightlife settings as in other countries. Health and social responses in nightlife settings and drug checking provision provide an opportunity for professionals to engage with populations of young people that don't currently present to traditional service structures, including those who may have never received previous health care interventions for their substance use.

The benefits of drug checking services outweigh concerns

There are many benefits associated with drug checking initiatives that could help improve public health and harm minimisation responses. The Working Group concludes that the known health advantages outweighed the documented concerns in relation to drug checking provision. It is recommended that drug checking and market surveillance are considered as an extension of existing harm reduction strategies in Ireland.

Pilot and evaluate analysis in the night-time economy

There is increased demand for drug checking services within the night-time economy (NTE), particularly at festivals. However, there are barriers to piloting an onsite 'front of house' service at this time in Ireland.

The Working Group reviewed a 'back of house' approach with consideration for placing an amnesty bin within a drug service at a festival which could inform attendees of the contents of drugs through communication structures onsite. While not directly engaging with people who use drugs, a 'back of house' approach can provide valuable insight on drug contents to inform drug alert mechanisms. Should the pilot evaluation of a 'back of house' system prove positive, this may then support the development of a full 'front of house' approach for festival settings.

Establish drug checking services in permanent fixed site locations

Services at events in nightlife settings offer new opportunities to engage with hard to reach populations and initial data indicates that this setting is preferred by festival attendees. However, long term permanent locations should also be considered for populations who don't attend nominated nightlife events.

Should the pilot evaluation of a 'back of house' system prove positive, this may then support the development of a full 'front of house' approach for festival settings.

Introduction

Establishment of the Working Group

The National Drug and Alcohol Strategy: ‘Reducing harm, Supporting Recovery: A health-led response to drug and alcohol use in Ireland 2017-25’ was launched in July 2017 and represents a framework for responding to drug and alcohol use in Ireland until 2025. This strategy is the third National Drug Strategy since 2001 and represents a whole government approach that emphasises a health-led response to drug and alcohol use. The strategy highlights the need to reduce the harms associated with substance use along with combating underlying reasons for the demand for drugs. The vision for the strategy is for a “healthier and safer Ireland, where public health and safety is protected and the harms caused to individuals, families and communities by substance misuse are reduced and every person affected by substance misuse is empowered to improve their health and wellbeing and quality of life” (Department of Health, 2017).

There are five strategic goals which underpin the strategy:

- **Promote and protect health and wellbeing**
- **Minimise the harms caused by the use and misuse of substances and promote rehabilitation and recovery**
- **Address the harms of drug markets and reduce access to drugs for harmful use**
- **Support participation of individuals, families and communities**
- **Develop sound and comprehensive evidence-informed policies and actions**

The strategy highlights that drug use and binge drinking prevalence rates are generally higher among certain groups such as LGBTI+ community and third-level students when compared to the general population. The strategy also notes the emergence of new trends of concern such as new psychoactive substances (NPS) and the use of image and performance enhancing drugs (IPEDs). It is recognised that tailored health services are becoming a mainstream part of many nightlife settings in Europe. Strategic Action 1.3.11 aims to strengthen harm reduction responses to current and emerging trends such as NPS, IPEDs, nightlife drug use and subcultural practices such as ‘chemsex’.

Scope of the Working Group

Initial discussions between the HSE and the Department of Health identified the very broad nature of the emerging trend Strategic Action and the diversity of cohorts considered ‘at risk’. Each main drug trend area is unique (NPS, chemsex, IPEDs and young people in nightlife settings) and requires separate discussions. It was recognised that significant progress had already been made on the area of chemsex through the Irish ‘Chemsex Working Group’, including publication of a number of research and conference presentations on this area (Joyce et al., 2013, Glynn et al., 2017, Killeen, Osborn & Keenan, 2017; Santlall, 2019). Therefore, it was decided that the topics of chemsex and IPEDs would not be included as part of this review. As a result, the Emerging Drug Trends and Drug Checking Working Group was established to examine the evidence in relation drug use in nightlife settings and the implementation of novel responses within these environments.

The main focus of the Emerging Drug Trend and Drug Checking Working Group was as follows:

1. Examine emerging drug trends with a focus on young populations who use drugs in the NTE
2. Review of health and social responses that are delivered in the NTE
3. Review drug checking as a harm reduction strategy with applicability to the NTE
4. Recommendations and implementation: Develop recommendations and create an implementation plan for novel approaches with consideration of drug trends within the Irish NTE

The vision for the strategy is for a “healthier and safer Ireland, where public health and safety is protected”

SECTION 2:

The current drug landscape

European Drug Trends

Information on drug patterns and trends across Europe are provided in the annual European Drug Report compiled by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). The most recent report focuses on the situation for 2020 and recognises a number of significant changes in the European drug landscape since the agency initiated work 25 years ago, with a wider variety of people now using drugs and experiencing drug-related problems. The European drug market now encompasses a more diverse range of substances with some increasing in purity and potency (EMCDDA, 2021).

While the European drug problem was once defined by injecting heroin use, it has been recognised that new heroin treatment demands are now considered low by historical standards and are associated with an ageing cohort of opioid users. Despite reports of declining use, opioids continue to make a major contribution to drug-related deaths and health and social costs. Drug-related death rates among this population continue to be a cause of concern and this aging cohort demonstrates a range of morbidities (EMCDDA, 2017, 2021; Mayock & Butler 2021). Although synthetic opioids such as fentanyl derivatives have not presented at the same rate by comparison to North America (Wallace et al, 2020) this trend has been an on-going worry for the opioid using community due to the potential threats to health. With rates of heroin use in decline, the overall prevalence of injecting drug use has also fallen, as has the number of new cases of HIV attributed with this form of administration. While this trend is in decline, local outbreaks among injectors have occurred in Europe associated with stimulant use (EMCDDA, 2021).

Cannabis remains the most commonly used controlled drug throughout Europe with the prevalence of use considered to be around five times higher than that of other substances. An estimated 47.6 million males and 30.9 million females are reported to have tried cannabis while general population studies suggest that 1.8% of adults in Europe are daily or almost daily cannabis users (EMCDDA, 2021). The cannabis market has been changing for a number of years with higher potency products increasingly available (EMCDDA, 2019). Higher potency cannabis has resulted in increased harms from a psychological point of view, with concern raised regarding psychosis (Murray et al., 2016). In contrast, newer markets have recently emerged for low-THC products throughout Europe as well as for new cannabis edible products such as branded sweets, cakes and drinks. Of more recent concern, in 2020 and throughout 2021, there were a number of reports relating to synthetic cannabinoids appearing in cannabis products throughout Europe (Schori, 2020; EMCDDA, 2021) with these substances also identified in Ireland (FSI, 2021).

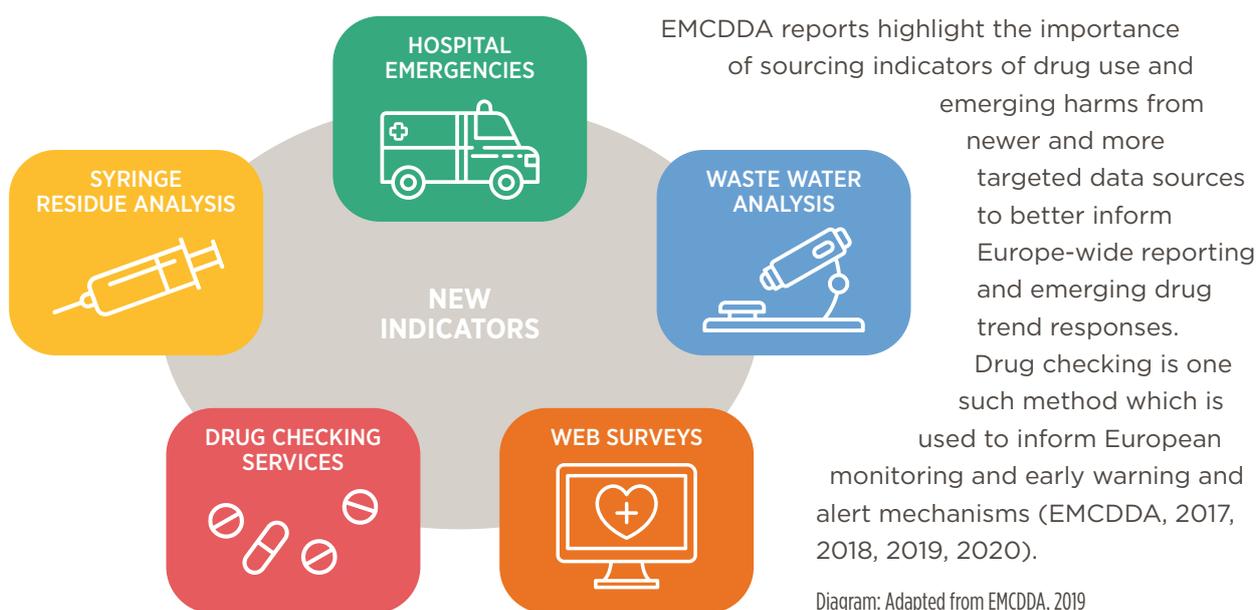
Novel markets are not uncommon and since the mid-2000s the European drug market has recorded the occurrence of new psychoactive substances (NPS). At the end of 2020, the EMCDDA was monitoring around 830 NPS, 46 of which were reported in the year 2020 (EMCDDA, 2021). Despite an ever expanding market, traditional substances such as cocaine and MDMA continue to increase in popularity among diverse user groups. Both the number of cocaine seizures and the volumes seized are at an all-time high with no decreases noted during the COVID-19 pandemic. Estimates suggest that cocaine purity is increasingly high with the average purity of cocaine at point of sale to consumers varying from 31% to 91% across Europe in 2019 (EMCDDA, 2021).

In addition, drug checking networks and seizure data indicate that the purity level of MDMA is also at an all-time high. In 2019, the average content of MDMA pills seized in Europe ranged from 118 – 210 milligrams of MDMA per tablet, which shows a 149% increase in the average quantity of MDMA

present in pills since 2009. Similar to pills, the purity of MDMA powder also varies with levels ranging from 34% to 94% (EMCDDA, 2021).

The changing nature of the MDMA market and possible health risks for new MDMA user groups has been a cause of concern for health officials for the past number of years.

New media has facilitated increased online dialogue regarding drugs and has made drugs more accessible for new user groups with smartphone applications offering a means of supply (EMCDDA, 2019; Moyle et al., 2019). Generally, since the emergence of the COVID-19 pandemic, surface web and darknet markets, social media and secure encrypted communication applications may be playing a more prominent role in the sourcing of drugs at the user level (EMCDDA, 2020a).



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Drug use in an Irish context

The Irish drug landscape has been changing for some time. Many new user groups now exist from a range of social demographics. General Population Surveys are conducted to identify the epidemiological indicators of use among nations over periods of time. A number of surveys have been conducted in Ireland since 2002, with the latest report representative of the years 2019 and 2020.

Similar to previous studies, the latest National Drug and Alcohol Survey for 2019/20 identified that 23% of the general public had reported the lifetime use of any drug, while 7.4% reported recent or last year use and 4.1% stated more recent use occurring within the last month (Mongan, Miller & Galvin, 2021). The most common types of drugs were reported as cannabis (5.9%), ecstasy (2.2%) and cocaine (1.9%). A wider range of drugs are now being used compared to previous studies with reported increases in the use of poppers (1.4%), LSD (0.9%) and amphetamine (0.8%). Overall, a younger age cohort of 15-24 years old was more likely to use drugs while the use of cocaine increased across all age groups (Mongan, Miller & Galvin, 2021).

The latest findings suggest that males were more than twice as likely as females to report the use of any drug within the last year (10.2% compared to 4.7% of females). However, among the younger age group of 15 -24 years old, there was little difference reported between genders (20.6% males and 16.3% females) showing a diminishing gender gap among younger populations. Although male use still remains higher, the area of drug use is no longer strictly a male dominated arena, with the prevalence of drug use doubling since the 2002/03 survey among females aged 15-24 years and 25-34 years old (Mongan, Miller & Galvin, 2021).

While the rates of cannabis use remain high internationally (UNODC, 2021), the rates of use have somewhat stabilised in Ireland. The latest figures show that there has been a small decline in recent cannabis use as well as a decline in those identified as having a Cannabis Use Disorder with 19.6% of respondents who reported use within the past year meeting this criterion (Mongan, Miller & Galvin, 2021). Upward trends indicate a stimulant and poly substance culture is emerging in Ireland with overall increases in substances affiliated with nightlife activities and socialisation. Recent cocaine use among males aged 25-34 years has increased across each general population survey from 1.8% in 2002/03 to 9.4% in 2019/20. Similarly among the same age category, the recent use of ecstasy among males increased from 2.2% in 2002/03 to 9.7% in 2019/20 (Mongan, Miller & Galvin, 2021).

While there are notable differences in the prevalence of recent ecstasy use among those aged 25-34 years (9.7% of males compared to 1.9% females), a stimulant trend appears to be emerging among a younger age bracket. A large increase in recent ecstasy use was observed among young females aged 15-24 years from 1.0% in 2002/03 to 5.4% in 2019-20. Similarly, there are increases in cocaine trends among females with an increase in recent use from 0.5% in 2014/15 to 1.1% in 2019/20 (Mongan, Miller & Galvin, 2021).

The 2019/20 survey contained new questions on poly drug use, which was defined as the use of at least two drugs on the same occasion (simultaneously) in the last year. Those who reported recent use were more likely to report the use of at least two controlled drugs. More people reported the use of three substances compared to the 2014/15 data with a noted 9.4% increase. Alcohol was the most cited substance used in combination with cannabis, cocaine, and ecstasy. The figures show the significant association between alcohol and cocaine patterns with 93.4% reporting the use of this combination (Mongan, Miller & Galvin, 2021). Alongside these findings, drug treatment data and drug-related death data are often reviewed to assess the Irish drug landscape to inform policy and practice.

Drug treatment figures

For the purpose of this review, the 2019 drug treatment presentations were considered (HRB, 2020). While data may be available for presentations in 2020, this information may not be fully representative of treatment provision due to data collection limitations during the initial COVID-19 period. We are still learning about the full impact of COVID-19 on addiction services, the people who attend these services and their help seeking behaviour during 2020.

In reference to 2019 data, there were 67, 875 treatment cases reported to the HRB over a 7 year period, with an 18% increase in cases noted from 2013 (n= 9,006) to 2019 (n=10, 664). The three main problem drugs treated in 2019 were opioids (38.8%), cocaine (24%) and cannabis (23.5%) with the majority of cases reporting poly drug use (58.8%), which is a trend reflected across drug user groups. Social, economic and cultural variables can determine substance use trends and these variables are also reflected in current treatment data sets. The proportion of cases recorded as homeless increased from 6.5% in 2013 to 11.0% in 2019. While the proportion of cases recorded as unemployed decreased from 65.6% in 2013 to 54.9% in 2019 and the proportion of cases of service users in paid employment has increased from 7.8% in 2013 to 15.9% in 2019 (HRB, 2020).

Cocaine is the most commonly featured stimulant drug represented in Irish treatment data in 2019. While other stimulant drugs associated with nightlife such as MDMA and amphetamine appear in much lower numbers, it is important to note that treatment presentations for these substances are not uncommon. Overall, there are upward trends in relation to cocaine across prevalence, treatment and death datasets which is considered a reflection of economic stability. In 2019, cocaine became the second most common main problem drug reported, having ranked third behind opioids and cannabis between the period of 2015 and 2018. The proportion of cocaine cases increased from 7.9% in 2013 to 24.0% in 2019 (HRB, 2020).

	2013	2014	2015	2016	2017	2018	2019
All cases	9,006	9,890	9,892	9,227	8,922	10,274	10,664
Opioids	4,625	4,948	4,732	4,341	4,016	4,349	4,133
Cocaine	708	853	1,026	1,138	1,500	2,254	2,560
Cannabis	2,583	2,730	2,786	2,439	2,200	2,358	2,502
NPS	46	71	85	72	51	48	63
Amphetamines	54	58	63	55	40	57	59
Ecstasy (MDMA)	44	56	51	53	44	43	47

Diagram: Drug treatment cases in Ireland 2013 - 2019

Drug-related death figures

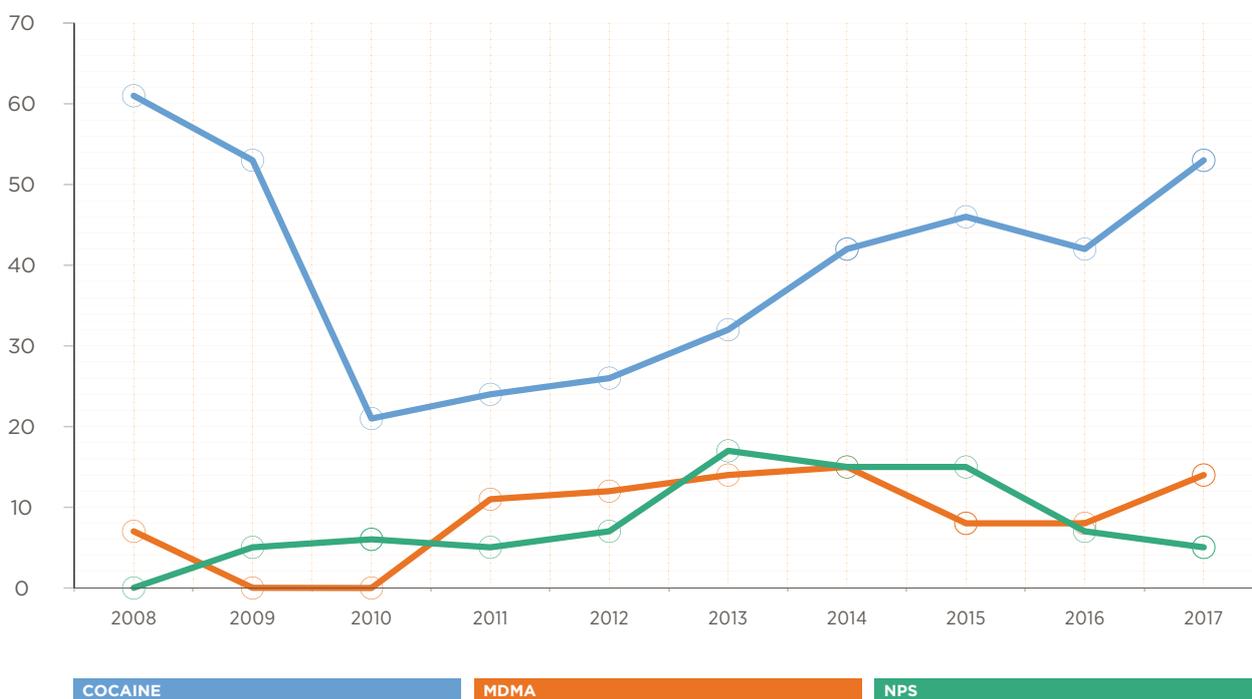
The most recent available drug-related death figures from the National Drug-Related Deaths Index (NDRDI) provide an overview of deaths for the period 2008 -2017 (Health Research Board, 2019). In 2017 the NDRDI reported an increase in poisoning deaths (overdose) to 376 cases compared to 368 in 2016. Alcohol was implicated in 33% of poisoning deaths and prescribable drugs were implicated in 67%, although there is no data available to identify the source of the prescribable drugs.

The number of deaths involving controlled drugs increased in 2017, including increases in stimulant-related deaths.

26% increase in cocaine deaths from 42 in 2016 to 53 deaths in 2017

75% increase in MDMA deaths from 8 in 2016 to 14 deaths in 2017

On review of drug trends for the ten year duration, the number of poisoning deaths has fluctuated, with 70% involving males and the median age at the time of death increasing from 38 years to 43 years of age. The fluctuation of cocaine-related deaths during the same time period is noteworthy. As documented by the NDRDI, figures for cocaine were initially high but reduced significantly during the period of economic recession in Ireland and have been steadily increasing in the period of economic recovery (HRB, 2019). For the period of 2008 - 2017 there was a total of 493 cocaine (400) and MDMA (93) related deaths combined and 82 new psychoactive substance (NPS) deaths recorded over the same period.



Graph: Cocaine, MDMA and NPS deaths in Ireland, (HRB, 2019)

One of the most significant health threats to people who use drugs is the emergence of unknown contents or more potent NPS. In recent times, the nightlife community, in particular people who use

MDMA were subject to extra risky substances PMA/PMMA infiltrating the market leading to a number of deaths across Europe and in Ireland (WHO, 2015; Refstad, 2003; O’Keeffe, 2014; EMCDDA, 2016; Drugs.ie, 2020). These substances have been unknowingly purchased by consumers in MDMA pills leading to acute medical emergencies and fatalities due to their slow onset of action and potency in low doses (EMCDDA, 2003; Johansen et al., 2003). In relation to Ireland, there were 40 cases during the period of 2012- 2017 where both PMA/PMMA were referenced on toxicology reports (HRB, NDRDI, Personal Communication, 2021). While PMA (except if it was present as a metabolite of PMMA) has not appeared in toxicology reports since 2014, there is evidence of PMMA appearing in a small number of cases in the years 2015 and 2017 (HRB, NDRDI, Personal Communication, 2021).

For the period of 2008 – 2017 there was a total of 493 cocaine (400) and MDMA (93) related deaths combined and 82 new psychoactive substance (NPS) deaths recorded over the same period

SECTION 3:

Drug use and the night-time economy

International evidence identifies that drug use is common place within the NTE, across a variety of settings such as pubs, nightclubs, music festivals, private settings or domestic parties and at illegally organised gatherings or “raves” and holiday locations, which has led to the use of terminology such as “club drugs”, “party drugs” and “dance drugs” due to certain substances association with dance and party scenes (Newcomb 1991, 1992; O’Gorman, 1998; Measham, et al., 2001; Kelly et al., 2002; Sanders, 2006; Bellis et al., 2003).

In the context of social or nightlife settings, people who use drugs generally form part of an integrated youth culture in which socialisation and substance use co-exist. This group will have unique norms and practices in relation to their drug consumption that can vary from other groups among the general population. Although drug use has always been an aspect of previous youth cultures, it remains a defining factor of rave and club cultures (Shapiro, 1999; Sanders, 2006). Nightlife culture has a strong influence on the way young people categorize pleasure, entertainment, social relations as well as alcohol and drug use (Cafalt, 2003). Surveys among young people who regularly attend nightlife events typically indicate higher levels of drug use when compared to the general population (EMCDDA, 2015). However, nightlife and cultural influences are often overlooked by research, policy practice.

Survey findings from Irish dance culture magazine ‘Four Four’ identified that 73% of respondents considered themselves a ‘regular drug user’ (Connolly, 2019) showing the strong correlation between the Irish nightlife community and frequent substance use. Importantly, those who use drugs in nightlife environments will vary from other drug using populations, for example those who present to traditional addiction services in Ireland. Populations who use in nightlife settings are generally students or people in full-time employment who tend to make decisions about their drug use based on assessments of the risks, benefits and peer association (EMCDDA 2006; Sanders 2006). While we are generally more informed of use among socially excluded groups, further discussion is required on how these groups engage in nightlife activities (Morton, 2017).

MDMA and nightlife culture

MDMA in the form of ecstasy pills has been a prominent feature within club scenes and has historically transcended socio-economic barriers and is used across a range of demographics in society (Gervin, 1998; Murphy et al., 1998; O’Gorman, 1998; Sanders, 2006). To fully understand the current user population, we must contextualise the current trends, popular nightlife environments and also acknowledge the cultural and music preferences for that group at that given time. Music preference and venue choice have been recognised as predictors of illegal drug use throughout Europe (Forsyth, Barnard & McKegeabey, 1997; Calafat et al., 2008). The dance music scene has a long established relationship with the use of club drugs, predominantly the substance MDMA and increases in the use of this substance led to the development of a number of European nightlife harm reduction programmes in the early 1990s (Van Havere et al., 2001; Brunt, 2017).

In the past, MDMA use was attributed with niche or subcultural nightlife grouping and particular settings, whereas at present, use is now considered mainstream which is reflected by increased levels of use among the general population in Ireland. Based on general population studies, Ireland has one of the highest rates of MDMA use in Europe, second to the Netherlands (EMCDDA, 2021), yet there is a relative absence of information on Irish MDMA users. Much of our understanding in relation to MDMA use patterns and trends is adapted from UK and EU publications (Measham, Aldridge, &

Parker, 2001, Smith, Moore & Measham, 2009; EMCDDA, 2016 and van der Gouwe & Vrolijk 2019). The proliferation of dance music internationally has been associated with corresponding patterns in MDMA use among new user groups (Measham, Aldridge & Parker, 2001; Laidler et al., 2006; EMCDDA, 2016). It can be assumed that these variables have also had a significant influence on the progression of drug trends in an Irish context. Other factors may have also contributed to the popularisation of MDMA such as increases in the use of new media applications, the globalisation of trends as well as the improved production, marketing and branding of MDMA products (EMCDDA, 2016). A key feature of the MDMA market is the branding of products (Duterte et al., 2009; EMCDDA, 2016). We continue to see supplier's adaptation of ecstasy pills so products are not only recognisable to the consumer but also symbolic to that aspect of youth culture. Recent features of this market include tailoring products for individual dance events, such as pills branded with the festival logos for Tomorrowland in Belgium and the Amsterdam Dance Event (EMCDDA, 2016).

Upward trends in the use of MDMA among female nightlife attendees requires further investigation by health care providers, with indications of females being at greater risk to adverse reactions to MDMA (Baggott et al., 2016; Salathe et al., 2018). The proliferation of the dance scene and MDMA use in Ireland is occurring during a period of increased purity and potency of products which is a cause of concern for health officials (EMCDDA, 2016, 2020a; Gremaux & Plettinckx, 2017). Due to drug monitoring limitations, there is currently no available information on the contents and purity of MDMA in Ireland.

As previously mentioned in this report, the latest EMCDDA EU Drug Report 2021 recognises the on-going threat to health as a result of high strength MDMA products. The most recent estimates suggest great disparity in the purity of products available in Europe (EMCDDA, 2021).

MDMA pills ranging from 118mg - 210mg

MDMA powder ranging from 34% - 94%



Alongside MDMA, a number of other club drugs such as ketamine are increasing in popularity, but at present there is limited data on the prevalence of this trend in an Irish context. We are aware that the Irish drug market now encompasses a broad range of substances as illustrated by an Garda Síochána drug seizure records which show a greater diversity of club drugs being sold such as ketamine, 2C-B and GHB. The latest available drug seizure data shows an upward trend in ketamine seizures. Ketamine was the most prominent hallucinogen seized in 2019 (n=240), indicating a fivefold increase on ketamine seizures since 2018 (n=48) (HRB, 2021). Further, during the COVID-19 pandemic in 2020, seizures of these drugs continued despite closures of nightlife settings. There were notable seizures of both MDMA and ketamine highlighted in recent media reports (Lally, 2020).

Music Festivals as a risk taking environment

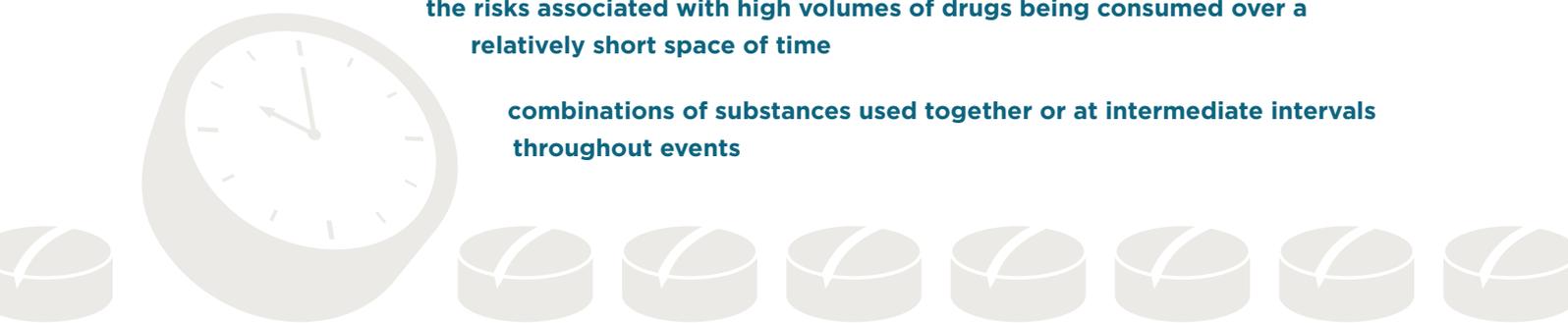
Until the emergence of the COVID-19 pandemic, music festivals and all day dance events represented a prominent part of Irish nightlife culture. Music festivals have grown in numbers and size over the last decade or so with young people attending national events as well as travelling extensively to attend music festivals throughout Europe and North America.

For many young Europeans, music festivals and nightlife tourism offer a time out from 'normal' life, and new experiences which attracts a range of populations whose patterns of substance use can range from experimental, occasional or frequent (EMCDDA, 2018). Despite previous use patterns, for the duration of a music festival, attendees may engage in 'binge' type behaviours where alcohol, illicit drug and possibly NPS use can be compressed into a relatively short period of time, meaning that those who use occasionally become daily or high risk users for the duration of events making them more vulnerable to health harms (EMCDDA, 2018). Use within nightlife settings such as festivals is often linked with potential health harms, such as acute health problems, sexual assault, violence and driving under the influence (EMCDDA, 2012, 2017, 2018; Bellis, Hughes & Lowey, 2002).

From a health care perspective, two of the main concerns often raised relate to;

the risks associated with high volumes of drugs being consumed over a relatively short space of time

combinations of substances used together or at intermediate intervals throughout events



In addition, as previously mentioned in this report, higher potency substances and NPS emerging on the European market are on-going threats for festival attendees and young populations who use in across nightlife settings.

The proliferation of the dance scene and MDMA use in Ireland is occurring during a period of increased purity and potency of products which is a cause of concern for health officials

Poly drug use

We are aware from existing studies that people who use drugs in nightlife settings such as at festivals are likely to use as part of a poly substance use pattern, with evidence suggesting that poly use has been a trend for some time (EMCDDA, 2009; Grov, Kelly & Parsons, 2009; Measham & Moore, 2009). Combining substances can involve the person actively seeking desired effects from the mixture to suit their intended outcomes within nightlife spaces. For example, because of the overall sedative effects of ketamine, some consider it necessary to combine it with stimulant drugs such as cocaine or ecstasy when participating in nightlife activities (Raven & Demant 2012). In particular, this trend has been documented among those who attend electronic music dance parties (Sanders, 2006; Grov, Kelly & Parsons, 2010). An emerging club drug poly substance culture is a concern in an Irish context. As later documented in this report, the 'What are you taking' survey found that poly substance use was the norm among a sample of Irish festival attendees with 86.8% of respondents stating they had used more than one type of substance for the duration of an event with, the majority reporting the use of one to three substances (Ivers, Killeen & Keenan, 2021). The Working Group are aware that responding to an emerging Irish poly substance culture will be a challenge moving forward, with greater insight needed on this practice across demographics in different nightlife settings. Novel responses and interventions are required within nightlife settings to influence poly drug use behaviours to reduce the harms to health among young populations of club drug users.

Medical emergencies at festivals

Music festivals can be considered risk settings where medical emergencies are likely to occur. Drugs like MDMA can cause severe health effects including hyperthermia, seizures and multiple organ failure (Ridpath et al, 2014) while drug combinations from poly substance use can also lead to poisoning. The occurrence of illness and deaths at music festivals have been reported internationally (Ridpath et al., 2014; Lud & Turriss, 2015). Changing drug trends are likely to influence the occurrence and type of emergencies that present such as the emergence of NPS, unknown contents appearing in substances and high potency substances. A 2018 coronial inquest into MDMA-related deaths occurring at festivals in Australia found that young consumers were unaware of MDMA market changes such as the increased potency of products in circulation (State Coroners Court of New South Wales, 2019).

No localised data was available at the time of this reports publication to provide accurate insight on emergencies occurring in Irish festival setting or throughout the NTE. However, it was acknowledged by the Working Group that medical physical health or mental health emergencies are now a likely occurrence at all events in an Irish context and not just dance music events. Further discussion is required by Working Group members to oversee improved data collection processes and to recommend best practice medical responses.

Interventions in the NTE such as drug checking provision offer new opportunities for health care providers to deliver overdose prevention to populations at risk. A 95% reduction in hospitalisations was noted at the festival where the first UK Multi Agency Safety Testing (MAST) occurred. While the MAST pilot cannot ascertain any contribution towards reduced drug-related hospitalisations, stakeholders believe a number of factors associated with improved harm reduction awareness on site at the event and earlier medical presentation led to this decrease (Measham, 2019).

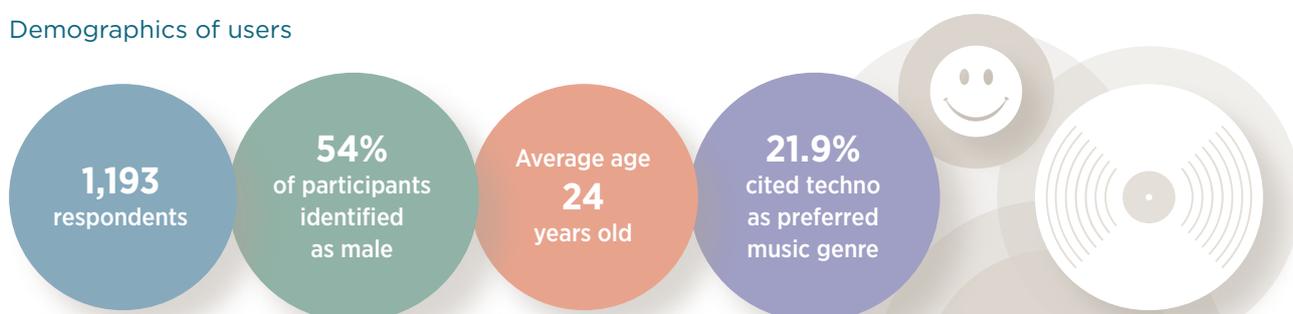
‘What are you taking?’ Irish survey of festival attendees

To gain insight on drug use trends, harm-reduction practices and participant’s willingness to engage with drug checking services. The HSE National Social Inclusion Office collaborated with the Department of Public Health and Primary Care, Trinity College Dublin to develop an online survey aimed at music festival attendees (Ivers, Killeen & Keenan, 2021). The survey targeted self-reporting drug users, residing in Ireland who were over the age of 18 years old and had attended a festival in the preceding 12 months. Participants were mainly recruited through the Drugs.ie website and affiliated social media channels as well as through the dance culture magazine ‘Four Four’.

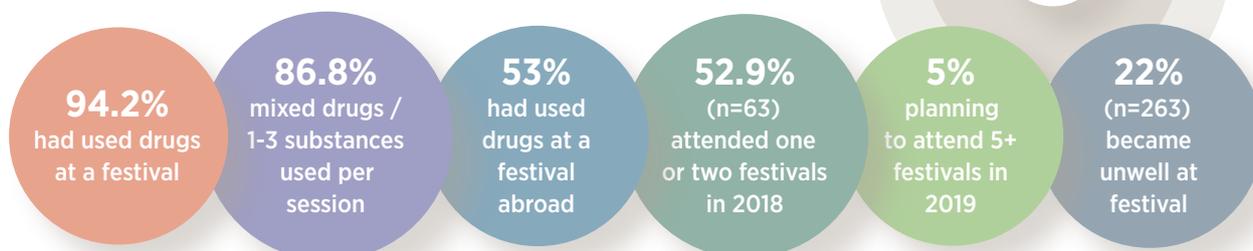
The survey focused on drug use trends in a festival setting in Ireland and abroad and did not investigate drug use in other nightlife settings. Initial findings were presented to the Working Group for consideration.

Key findings

Demographics of users



Festival drug use practices



Alcohol (96.9%), MDMA powder/crystals (84.49%), cocaine (81.8%), MDMA pills ‘ecstasy’ (80.3%), cannabis (71.5%) and ketamine (63.37%) were the highest drugs used by this cohort in festival settings. Participants travelled extensively to attend festivals and over half reported the use of drugs at a festival abroad, showing the significance of nightlife tourism in the lives of this cohort pre COVID-19 pandemic. In general, higher rates of use were documented while abroad with noted increases in the use of psychedelic mushrooms and nitrous oxide while attending festivals outside of Ireland. When asked about attending new harm reduction services, respondents reported a high level of willingness to engage with a drug checking service to discuss drug use compared to attending a medical tent. Overall, this study confirms that the demographics of festival drug users are similar to those portrayed in international studies. It confirms that Irish young people are willing to engage with drug analysis services in two different settings. Most interest was expressed for attending drug checking in a festival setting (96.3%). However, there were also a sizable number of participants

who would use drug checking services in a fixed site or community based location in advance of an event, such as at an office or drug service (70.3%). Further, the survey identified that participants would discard substances in amnesty bins at events if for the purpose of drug monitoring and risk communications purposes to notify if dangerous drugs are in circulation (75%).

COVID-19 impact on drug use and the night-time economy

Internationally, public health measures were rapidly implemented in early 2020 as a response to the emergence of the COVID-19 pandemic, which had immediate implications on all aspects of people's lives, including the behaviours of drug using populations (EMCDDA, 2020b). During this time, experts expressed concern for the health, well-being and safety of people who use drugs. This population were classified as an 'at risk' group who were susceptible to illness and overdose in hidden settings (Drugs.ie 2020). Findings captured at the start of the pandemic identified that there was an initial decline in the use of some drugs, particularly drugs such as MDMA and cocaine which are associated with the NTE. This decline is mainly linked with the closure of nightlife venues, the implementation of travel restrictions and stay-at-home measures. Across Europe there were reports of the use of drugs by people at home alone, while listening to online DJ sets and meeting friends online, with unauthorised gatherings and 'illegal raves' reported by the media in a number of countries (EMCDDA, 2020b).

As populations who use drugs in the NTE generally don't present to addiction services in Ireland, this cohort became even harder for health care professionals to reach as a result of COVID-19. There were many uncertainties in relation their drug use behaviours following the closure of the NTE. During this period the HSE liaised with student networks to discuss areas of concern (Drugs.ie, 2020) and partnered with the HRB to promote the EU Web Survey on Drugs. Results available from this survey (n=633) for the period of April and May 2020 identified there had been changes in the patterns of drug use since COVID-19 restrictions were implemented in Ireland (Mongan et al., 2020). Cannabis users were least likely to change their pattern of use, although daily/almost daily users reported using cannabis more frequently. While reports of last year use of cocaine (71%) and ecstasy (62.6%) were high, reports of use within the past month were much lower during the lockdown period (cocaine 29.2%, ecstasy 11.2%). Overall, the main reasons for reduced use during this period were that people had "fewer opportunities" available to use drugs (65.4%) as well as the "reduced availability" of drugs (49%). Of those who reported increases in use during this time, "boredom" was the main reason cited (79.7%), followed by 53.4% of people reporting the use of drugs to cope as a result of anxiety during this specific period (Mongan, 2020).

These findings are representative of the start of the COVID-19 pandemic and it should be acknowledged that trends may have changed at intervals throughout 2020 with fluctuations expected throughout the year based on the easing of restrictions. Further information on use patterns throughout COVID-19 will be available from the 2021 EU Web Survey on Drugs.

A HSE review on public knowledge and attitudes towards nightlife drug use (n=511) during the COVID-19 pandemic found that 47% of respondents perceived drug use to have increased during the COVID-19 period as a result of people having more money to spend, "boredom" and less structure or routine while working from home. When questioned on socialising during the summer of 2020, while the NTE remained closed, 23% of respondents had attended a house party, 25% were planning to attend a future house party and 6% had attended what they considered an unauthorised 'rave' (Drugs.ie, 2021).

Review of health and social responses in the night-time economy

The nightlife environment offers a unique opportunity to engage with drug using cohorts that health care professionals normally have no contact with in Ireland. Ireland currently has no dedicated or recognised organisation providing on-going information and support to young groups as they have in other countries, such as 'Jellinek' and 'Unity' (The Netherlands), 'Crew 2000' (Scotland) and 'Safe 'n' Sound' (Belgium). A number of nightlife networks exist to support best practice and knowledge exchange within this area in Europe that could offer guidance to Ireland on developing services in this area such as The Nightlife Empowerment & Well-being Network-New Network, The Club Health Network and T.E.D.I (Trans-European Drug Information project).

In 2008, the Healthy Nightlife Toolbox (HNT) was developed to support European policy makers and prevention workers. The HNT offers best practice guidance on a number of areas such as education for nightlife users, peer education, brief interventions, drug checking, environmental strategies, staff training, medical and first aid responses as well as intoxicated driving (HNT, 2017). While there are many different health and social responses affiliated with the nightlife arena, most evidence for this setting relates to alcohol. Despite the wide application of harm reduction approaches in nightlife settings since the 1990s, few have undergone robust review and there have been few studies on the application of brief interventions to reduce illicit drug use in the NTE (Akbar et al., 2011; EMCDDA, 2017; HNT, 2017). The below approaches merit consideration as part of a comprehensive response throughout the NTE:

- **Co-ordinated multicomponent interventions involving community stakeholders, generic health and emergency services, regulatory bodies, and policing and law enforcement**
- **Environmental strategies, such as providing chill-out rooms or free drinking water**
- **Training staff in nightlife venues**
- **Rapid emergency measures**
- **Early warning systems and monitoring of substances being consumed, including the provision of drug checking services**
- **Provision of prevention and harm reduction materials – although in isolation they are unlikely to be effective in regards to behavioural influence**

(EMCDDA, 2017)

The main aim of services operating in nightlife spaces is to prevent or reduce drug-related harm. While abstinence may be a goal for some, it is considered an unrealistic message to communicate to people who use in the NTE (HNT, 2017). Nightlife services are known by many titles, such as 'Prevention', 'Education', 'Peer education', 'Harm Reduction' and 'Drug Welfare' (Calafat et al., 2010; Noijen et al., 2013; Ridley, 2019). As well as providing a drug checking service, 'Kosmicare' in Portugal have developed their own intervention model and psychedelic support service which is delivered at the annual Boom Festival where they combine different theories and strategies such as a peer education model, prevention, harm reduction and crisis intervention models (Carvalho, et al., 2014).

The Working Group found that less information was available in relation to the delivery of 'Drug Welfare' services. Welfare services at events generally incorporate support services in relation to general health, mental and sexual health, drug information, education, harm reduction and brief interventions. Lost and found, disability support, the provision of sun cream and other practical items

can also come under the welfare remit. Welfare points in some situations operate as a triage between the medical tent and a drug information point (Ridley, 2019). Generally, these services will be based on local adaptations and expert guidance and will include services such as; emotional support, 24/7 on call support, de-escalation, non-medical crisis intervention, disposable bowls and hazard bags, portable beds, blankets and general health promotion.

Specialist consideration is needed in relation to the cultural adaptation of services, which is guided by peer involvement in some countries. Peer educators are said to be viewed as more effective or credible sources for disseminating information in nightlife settings and the selection of peer educators is essential as they need to be viewed as knowledgeable and credible by the target audience (Ventura et al., 2012). Although valuable, peer education structures must not operate in isolation and should be embedded within a formal structure which requires effective investment, guidance, training and evaluation (Noijen et al., 2013).

On review of brief intervention styles, the Working Group discussed an Irish screening and brief intervention model ‘SAOR’ which could be trialled and evaluated for use within the NTE (Corrigan, 2019). This model has been used for a number of years in Ireland across healthcare and non-health care settings including emergency departments, primary care services, addiction services, educational settings such as the third-level institutions and criminal justice settings (O’Shea et al., 2017). The Working Group agreed that this model could be incorporated as part of a wider training for nightlife service providers which could then be evaluated and reviewed for suitability and effectiveness.

In relation to the general public’s attitude on nightlife drug use and health services (n=511), the HSE identified overall support for health based responses and harm reduction activities aimed at nightlife cohorts (Drugs.ie, 2021).



56% were likely to access drug information stand

61% would prefer a service catering for a combination of issues (drug use, mental health and sexual health)

“How can the HSE improve drug awareness in Ireland?”



SECTION 4:

Drug checking approaches

As defined by the EMCDDA, drug checking facilities enable individuals who use drugs to have substances chemically analysed providing information on the content and purity of the samples as well as receiving an intervention (EMCDDA, 2017). While services vary in terms of delivery, overall, drug checking services aim to identify and prevent the use of extra risky substances, offer education, health interventions and assist with onward referral, if necessary (Ventura et al., 2012). Although services have the same goal, the structures and systems they provide are strongly influenced by budget allocation, government and law enforcement support and local policies (Bartle & Lee, 2019).

Drug checking services often vary on the below variables;



Who conducts the analysis: Services vary regarding the type of staff and number of staff. Some services are voluntary led whereas others receive statutory funding



The range of quantitative or qualitative analytical methods used



Who disseminates test results and how: If services adapt a 'front of house' or 'back of house' system



Where testing is located: If this is a fixed site location or mobile laboratory



Communication channels: Whether test results go directly to consumers through a face to face intervention, through identified networks, social media and warning system structures



The level of engagement with other stakeholders, such as law enforcement

While services vary in terms of delivery, overall, drug checking services aim to identify and prevent the use of extra risky substances, offer education, health interventions and assist with onward referral, if necessary

Types of drug checking services

Drug checking programs are often defined in literature by the style of approach they deliver with services are generally known as ‘front of the house’ or ‘back of house’ approaches. Services are also defined by the settings they are operating from such as ‘onsite’ at an event or at a ‘fixed site’ location, such as a permanent laboratory (Makkai et al., 2018; Barratt et al., 2018). Although mostly defined by these terms, many services operate across a spectrum of settings while implementing strategies best suited to each environment. While some services offer nuanced approaches, for the purpose of this report, examples will be divided into the below themes as these were the approaches reviewed by Working Group.



**Back
of house**



**Front
of house**



**Fixed
site**



**Postal
services**

Most services operate through a ‘front of house’ approach in the NTE where people directly submit substances for analysis and receive their unique results. However, there is also evidence to support ‘back of house’ systems operating analysis from drop off sites and medical incidents, with results provided via stakeholder meetings or alerts broadcast through social media and other channels (Bartle & Lee, 2019).

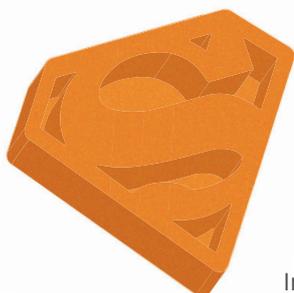
‘Back of House’ drug checking

‘Back of House’ drug checking is where analysis is undertaken on samples that are obtained through a number of different mechanisms, but does not include accessing substances directly from people who use drugs. This approach is used for market monitoring and communicating messages indirectly with people who use drugs (Makkai et al., 2018). In 2013, ‘The Loop’ UK adapted an extension of this strategy which they called a ‘halfway house’ approach. This involved analysing substances obtained from a number of indirect sources to inform health responses (The Loop, 2017). Examples of how ‘back of house’ and ‘halfway house’ samples can be obtained were presented to the Working Group (Keenan, 2019). Examples include:

- **Law enforcement purposes:** Substances obtained by police or security at an event either through seizures directly from individuals or found at a location.
- **Amnesty bins:** Substances willingly submitted to designated bins or ‘drug drop box’ points at events where individuals can discard drugs for personal use without any legal repercussions. These can be placed in festivals or nightclubs.
- **Medical emergency response:** Samples provided to a medical service or a welfare point at an event following a presentation of an individual who may have suffered adverse consequences following use.
- **Community services:** Outside of the NTE, samples of concern may be shared by a hospital, drug or community services.

While often used for monitoring purposes, ‘back of house’ analysis could support drug harm reduction at events to effectively communicate risk in the absence of ‘front of house’ service provision.

Although the results may not be directly communicated to individuals, the information could be disseminated to event attendees through onsite communication channels.



UK collaboration, reviewed by the Working Group based on social media communication from the services 'The Loop' and 'TicTac Communications', illustrated how substance analysis coupled with drug harm reduction services can inform an alert mechanism in a festival setting. The Working Group felt that alerts issued by 'The Loop' at 'Boom Festival' 2019 reduced possible harms following the identification of PMMA onsite (Keenan, 2019).

In 2019 the HSE developed two proposals to pilot Ireland's first 'back of house' testing projects at two Irish festivals which were overseen by the National Clinical Lead for Addiction Services. The proposals were developed by the HSE National Social Inclusion Office with input from local festival organisers and local Garda advice. The plan involved taking a small sample of seized drugs or drugs that were willingly discarded and conducting analysis to inform a risk communication mechanism (Keenan, Killeen and Dowling, 2019). These proposals were unable to proceed due to legal concerns raised regarding the interference in the 'chain of custody' process for a criminal prosecution. Law enforcement barriers remain an obstacle and this area requires further discussion upon completion of the Working Group.

Possible advantages of this approach:

- **Potential pilot project:** This approach would require less detailed policy amendments. A 'back of house' approach was discussed by the Working Group with the Department of Justice. The use of an amnesty bin located in a drug service to inform an alert mechanism at a festival was discussed as a feasible option. This approach could ensure an anonymous and secure drop off point while health care professionals are also available to offer information and support.
- **Drug market insight:** Although the results of this approach are not delivered directly to the person using, samples obtained from a 'back of house' pilot could be used to gain valuable insight into the most recent contents at that point in time which would be otherwise unknown, this would contribute to the development of appropriate harm reduction communications and interventions.

Possible disadvantages of this approach:

- **Access to substances:** This approach relies on people who use drugs willingly using the amnesty bin.
- **Limited intervention:** Face to face interventions by health care providers generally don't form part of this approach. Further, this approach may not engage with hard to reach populations and nightlife users, unless embedded in a nightlife service or venue.

While often used for monitoring purposes, 'back of house' analysis could support drug harm reduction at events to effectively communicate risk in the absence of 'front of house' service provision.

'Front of House' drug checking

Services providing drug checking in nightlife settings mainly operate through 'front of house' or 'on-site' systems which are delivered by temporary laboratories located at events such as festivals. Through this approach, drug checking results are provided directly to people at events with a quick turnaround of results (Bartle & Lee, 2019; Guirguis, et al., 2020). By delivering results in this manner, health services can support that person's ability to make an informed decision in relation to potential health harms and their drug consumption behaviours (Barratt et al., 2018). This is an important component of drug checking service provision.

This approach is frequently carried out in a mobile unit or tent and is publicly promoted to event attendees. To deliver services within the NTE, 'Check It' Vienna operates a van containing a mobile laboratory which transports the drug checking service to events (Rosenauer et al., 2013). It is usually not possible to provide extensive, state-of-the art laboratory facilities within the NTE and for this reason, 'Check It' uses mobile High-Performance Liquid Chromatography (HPLC) devices (Brunt, 2017).

'Front of house' services operating portable labs in nightlife setting include but are not limited to 'Check It', 'Safer Dance' Switzerland, 'Pill Testing Australia', 'Kosmicare' Association in Portugal and 'The Loop' UK. Based on a similar intervention model, temporary community based services can also offer analysis directly to populations outside of the NTE and in community settings (Measham, 2020).

Possible advantages of this approach:

- **Engaging directly with people who use drugs:** Through a 'front of house' system, prevention and harm reduction interventions can be delivered directly to people who use drugs ensuring accurate health messages are received.
- **Overcome service delivery gaps:** This approach could help overcome gaps in service delivery and support health care providers to develop rapport with populations who may not attend nominated community or addiction services.
- **Tailored health interventions:** A trained health care professional can provide scientific information in the context of the persons individual health needs. Direct intervention with nightlife populations could also facilitate screening for areas of concern, onward referral to suitable services and data collection to further inform responses.

Possible disadvantages of this approach:

- **Requires policy amendments:** As stated by the Department of Justice to the Working Group, 'front of house' service provision would require legislative changes which could take some time.
- **Service barriers:** Currently there is no prevention, harm reduction or peer service providing on-going support for people who use drugs in the NTE in Ireland. A national training structure would be required to identify suitable staff in the absence of such service.
- **NTE environment:** Criticism has been expressed in relation to delivering interventions in this environment. However, similar approaches can be applied in other settings such as offices or addiction services.

'Fixed Site' drug checking

Fixed site or 'stationary services' are generally fully equipped laboratories located in a permanent service (Bartle & Lee, 2019). These services offer analysis of samples and forwarding of results within the following days. A 2018 report identified that there were eighteen services throughout Europe offering 'fixed site' services at the time of publication, with three offering a 'fixed site' laboratory which accepts samples through the postal system (Barratt et al., 2018). A number of services that offer onsite testing at events also have fixed site laboratories such 'Energy Control' in Spain. Another example of a fixed site laboratory is MANDRAKE (Manchester Drug Analysis and Knowledge Exchange), which works in partnership with local police and other stakeholders in Manchester to obtain substances to provide analytical results online and through local networks (Guirguis, et al., 2020).

The Dutch Drug Information and Monitoring System (DIMS) also operate a 'fixed site' approach as part of a network of community services. The network currently consists of 31 facilities across the Netherlands, coordinated by the DIMS-bureau, which is embedded within the Trimbos Institute (Jellinek, 2020; Smit-Rogter and Van der Gouwe, 2019). While services as part of the DIMS model don't deliver drug analysis at events in the NTE, services are utilised by populations who intend to use in these settings. Local drug testing services deliver campaigns in partnership with event organisers so that information about drug checking services and harm reduction content can be promoted in advance of attending events.

Possible advantages of this approach:

- **Benefits of testing outside of NTE:** Office based testing facilitates the delivery of interventions outside of the NTE. People can have their results and consider harm reduction strategies in advance of attending nightlife events, if planned carefully.
- **Potential to reach a range of user groups:** This service may engage with people who aren't attending nominated nightlife venues and festivals.
- **Utilisation of different services in a network:** The extended DIMS network in the Netherlands means that established prevention and addiction services can offer integrated and permanent drug checking services in different locations.
- **Facilitates GC-MS analysis:** Overall, this approach can facilitate more in-depth analysis. A fixed site location could support the use of GC-MS methods, which was the favoured approach by Irish experts on the Working Group.

Possible disadvantages of this approach:

- **May not engage with nightlife populations in an Irish context:** Many addiction services in Ireland are accessed by traditional user groups and not by young populations who use in nightlife settings. Investment would be required to establish bespoke services.

Postal drug checking services

To our knowledge, three services operate internationally that are considered 'postal' drug checking services. These are the Welsh Emerging Drugs Identification and Novel Substances Project (WEIDNOS) funded by the National Health Service in Wales, 'Ecstasy Data' based in the United States and 'Energy Control' Spain. These services are stationary facilities and accept samples submitted via the mail and post the results online through an online catalogue or through direct contact with the person (Barratt et al., 2018).

Drug checking organisation 'Energy Control' Spain, has a long standing relationship with local nightlife cohorts having operated an integrated harm reduction service since 1997 and offer a range of services. In 2014, 'Energy Control' launched a Pilot International Drug Testing Service (IDTS) advertised to cryptomarket users offering new methods to engage with hard to reach populations internationally. Within the first year of the IDTS, samples had been received from Europe, Australia, The United States, Canada, China and Argentina (Caudevilla et al., 2016). The IDTS continues to operate an anonymous and confidential postal service with the stationary service at Energy Control facilitating both qualitative and quantitative analysis (Energy Control, 2019; Brunt, 2017).

Possible advantages of this approach:

- **Removes access barriers:** Postal services remove geographical barriers and can allow analysis submitted from a range of user cohorts.
- **Could engage with hard to reach and niche groups:** Some cohorts may prefer the discrete nature of a postal service without disclosing their identity through face to face communication.
- **Benefits of testing outside of NTE:** Facilitates the delivery of interventions outside of the NTE. People can have their results and consider harm reduction strategies in advance of attending nightlife events, if planned carefully.
- **Facilitates GC-MS analysis:** Overall, this approach can facilitate more in-depth analysis. A fixed site location could support the use of GC-MS methods, which was the favoured approach by Irish experts on the Working Group.

Possible disadvantages of this approach:

- **Limited contact with NTE target audience:** A postal service removes face to face interaction with populations who use drugs. 'Energy Control' provide this service as part of an integrated system which ensures they maintain their relationship with the local target audience. Standalone postal services may lack this component and may not appeal to populations using in the NTE in the same manner as Energy Control.
- **Legal implications in the context of Ireland:** Legal impediments were raised by the Department of Justice to the Working Group when reviewing the potential use of postal transportation of controlled substances for analysis purposes.

Communicating risk

Risk communication is at the core of drug checking services, yet each service will vary in terms of how they relay the results of analysis and how they issue alerts. Different techniques are applied when issuing warnings or alerts, some will utilise websites and social media channels to communicate with a wider drug using audience whereas others do not (Bartle & Lee, 2019).

Organisations such as 'Check It' Vienna and 'Pill Testing Australia' communicate results at events through an information board and colour coded system with samples identified from an assigned number with no images, logos/brands or other identifiers displayed. However, all results are available on the board so a wider community are aware of what substances in circulation but without descriptive identifiers (Brunt, 2017). As part of the Australian pill testing pilot, they found that photographs would not be helpful when communicating risk at events, as the vast majority of samples looked the same (Makkai et al., 2018).



The UK drug checking service 'The Loop' communicates results directly with people who use drugs as part of their interventions and have also developed a recognised social media presence. Communications include notifications on extra harmful substances and high strength products. Similarly, DIMS provide a list of 'extra risky' substances including imagery and descriptive information which is available on their tailored website (drugs-test.nl). As well as a custom website, DIMS communicate through a 'Red Alert' system, including a mobile phone application. As part of the DIMS model, a 'Red Alert' would be implemented when there is cause to believe that there is an extra threat to the health of people who use drugs. While on-going regional communication occurs frequently in the Netherlands through internal releases within networks and local warnings, in total, only four national warnings were issued during the period of 1999 to 2019 (Smit-Rigter & van der Gouwe, 2019). More recently, DIMS have issued alerts on the emergence of synthetic cannabinoids and Dimethoxy-4-chloroamphetamine (DOC) appearing in 2C-B (Trimbos Institute, 2021).

As part of the review of risk communication strategies, the Working Group considered the impact of frequent warnings and the need for a categorised system to ensure large scale warning campaigns have maximum effect on behaviour. A stratified alert mechanism such as the DIMS model could ensure that alerts remain impactful and could mitigate against the development of 'alert fatigue'. It was recognised by the Working Group that further guidance is required on the area of risk communication to support new service providers in developing evidence based structures.

Analytical techniques

Literature suggests that established programmes are difficult to compare as the chemical drug analysis techniques used vary considerably (Brunt 2017). Analytical techniques implemented by services vary based on their budget, goals and the setting in which the analysis is being conducted. Methods vary from limited self-testing kits that indicate only the presence or absence of a substance to sophisticated technology that determines the exact nature and composition of the substance analysed (Brunt, 2018; Luf, 2018). Many services utilise a mixed method approach through applying a number of different analysis styles to achieve their goals across a range of settings. The Working Group reviewed a number of analytical techniques with specific focus on the methods below.



Reagent test kits: These are kits containing chemicals that change colour when combined with particular drugs. Different kits are utilised to achieve results.

Advantages: Cost and portability.

Disadvantages: These tests only provide information about the presence or absence of a substance and not how much of the substance is present and they may not detect a combination of substances or adulterants that are present (Harper, Powel & Pijl, 2017, Bartle & Lee, 2019).



Spectroscopy: Spectroscopy uses electromagnetic radiation to get information about the structure of a substance. Commonly used techniques include Fourier Transform Infrared Spectroscopy (FTIR) (Bartle & Lee, 2019).

Advantages: Cost and portability.

Disadvantages: The accuracy is slightly less compared to other methods and the method may miss substances present at a low percentage level.



Chromatography: Chromatography separates mixtures of substances into their components. The most commonly known methods are thin layer chromatography (TLC), and high performance liquid chromatography (HPLC) (Bartle & Lee, 2019).

Advantages: In regards to TLC methods, cost, portability and easy application are considered advantages. HPLC methods are considered quick, efficient, and accurate and provide a high degree of versatility not found in other chromatographic systems.

Disadvantages: TLC does not quantify how much of a substance is present in the sample or identify new substances without use in conjunction in other methods (Harper, Powel & Pijl, 2017). The cost of HPLC may be a disadvantage with more specialised staff required.



Mass Spectrometry: Mass spectrometry separates different chemicals in a substance by their mass. Techniques unique include gas chromatograph mass spectrometry GC-MS (Bartle & Lee, 2019).

Advantages: GC-MS was considered the gold standard approach by Working Group members as results are highly accurate and small amounts are needed for analysis.

Disadvantages: GC-MS is relatively expensive (purchase, running costs and maintenance) while also this approach requires technical staff. It is difficult to transport to nightlife environments and is not considered suitable for onsite testing (TEDI, 2012).

Applying analytical techniques to nightlife settings

The main function of the Working Group was to identify relevant structures that can be applied within a festival setting. For a number of reasons such as transportation to remote locations and the real time communication of results, generally services operating within the nightlife environment will use methods that are portable and adaptable. Relevant literature reviews of international drug checking services indicate the importance of identifying the analysis setting in advance of selecting the most suitable methods for that environment as this should inform analytical decisions (Bartle & Lee, 2019; Kerr & Tupper, 2017). From a scientific perspective, portable mechanisms are considered to have limitations, while the complexity of providing GC-MS systems as part of onsite services in nightlife settings are recognised (Brunt, 2017; Makkai et al., 2018). For these reasons services will use a combination of approaches and not a singular system with some using 'fixed site' laboratories to conduct further testing with more sophisticated equipment to achieve their aims (TEDI, 2012; Brunt, 2017; Mayor et al., 2017; Makkai et al., 2018; Bartle & Lee, 2019).

	Colorimetric Reagent Testing	Fourier-transform Infrared Spectroscopy (FTIR)	Thin Layer Chromatography (TLC) with UV detection	High Performance Liquid Chromatography (HPLC) with UV detection	High Performance Liquid Chromatography (HPLC) with MS detection	Gas Chromatography (GC) with MS detection
Detect a wide variety of substances	Moderate	High	Moderate	High	Highest	Very High
Ability to detect multiple compounds at once	Low	High	Moderate	High	Very High	Very High
Quantitative analysis	No	Low	Low	High	Highest	Very High
Identify unknown compounds	No	No	No	No	Yes	Yes
Suitable setting	Stationary, Mobile	Stationary, Mobile	Stationary	Stationary, Mobile	Stationary*	Stationary
Cost	€	€€	€€	€€	€€€€	€€€€

*While this technology is considered stationary, it is used in a mobile lab-in-a-van setting.

Diagram: Adapted from Kerr and Tupper, 2017.

SECTION 5:

Drug checking as a prevention and harm minimisation strategy

A 'harm reduction' or harm minimisation approach consists of a combination of interventions, programmes and policies that aim to reduce the health, social and economic harms of drug use to individuals, communities and societies (Hawk et al., 2017). Harm reduction strategies are now positioned as part of the mainstream policy response to drug use in Europe (EMCDDA, 2010). A health-led and harm minimising ethos underpins Ireland's current National Drug Strategy (Department of Health, 2017) and has been incorporated in Irish Government policy since the 1990s through the provision of needle exchange and methadone programmes (Moore et al., 2004). The initial implementation of harm reduction measures was in response to an emerging culture of intravenous heroin use in communities (Butler & Mayock, 2005) and for some time, such responses have mainly focused on this cohort. However, as highlighted by the National Drug Strategy 2017 – 2025, there are other user groups currently at risk to emerging drug trends that require novel harm reduction responses (Department of Health, 2017).

In many countries, drug checking is viewed as an extension of existing prevention and harm reduction services and has become a prominent feature of some healthcare structures. A 2018 review identified 31 drug checking services active in 20 different countries at the time of publication (Barratt et al., 2018).

European Drug Strategy and drug checking

The new European Drug Strategy sets out overarching political framework and priorities for the European Union's drugs policy for the period 2021-2025. The strategy takes an evidence-based, integrated, balanced and multidisciplinary approach to the drugs phenomenon at national, EU and international level. Through this strategy member states confirm their commitment to implementing a balanced approach between demand and supply reduction of drugs with the preservation of human rights (Council of Europe, 2020).

The Strategy is structured around three policy areas that will all contribute to achieving its aim: (I.) Drug supply reduction: Enhancing Security, (II.) Drug demand reduction: prevention, treatment and care services, and (III.) Addressing drug-related harm. There are also three cross-cutting themes to support these policy areas: (IV.) International cooperation, (V.) Research, innovation and foresight; and (VI.) Coordination, governance and implementation. Altogether, the Strategy encompasses 11 strategic priorities.

Included are strategic priority areas that set out to:

- **Prevent drug use and raise awareness of the adverse effects of drugs**
- **Promote risk and harm reduction interventions and other measures to protect and support people who use drugs**

The strategy supports the introduction of drug checking in different circumstances, such as a support mechanism for the dissemination of targeted rapid alert risk communications and intelligence notifications when dangerous substances appear on the market, as a harm reduction tool to reduce drug related deaths and non-fatal overdoses and as a means to disrupt the channels that supply illicit drugs into prisons (Council of Europe, 2021). As such, the progressing of Strategic Action 1.3.11 (strengthen early harm reduction responses to current and emerging trends and patterns of drug use) of the National Drugs Strategy, and specifically the introduction of drug checking, at festivals and beyond is supported at EU level.

Health Interventions to support drug checking provision

Appropriate interventions and culturally tailored supports are essential components of drug checking service provision. Often drug checking is misunderstood as analysis in isolation of other components and is often not recognised as a holistic process incorporating non-discriminatory health information and brief interventions (Vumbaca et al., 2019).

Each service will vary in regards to the staff they provide with local adaptations often based on the needs of the intended target audience. Staff operating drug checking services can include, but are not limited to peer workers, social workers, youth workers, drug harm reduction worker, psychologists, psychiatrists, paramedics, pharmacists and toxicologists (Kerr & Tupper 2017; Ventura et al., 2012).

As documented by Pill Testing Australia, their multi-sectorial team provide specific expertise throughout different stages of a continuum of care. Initially chemists and medical staff oversee substance analysis and the communication of contents which is followed by peer workers delivering brief interventions and harm reduction recommendations in relation to the persons bio-psychosocial risk profile (Vumbaca et al., 2019).

While roles and responsibilities may vary between services, all staff and volunteers delivering interventions as part of drug checking services should have a high standard of training to ensure effective prevention and health interventions are delivered. Special attention should be paid to the dynamics of the drug market, drug combinations and behaviour change. Furthermore, the established drug checking team should be familiar with various recreational settings and have counselling skills to work with people who use drugs (Ventura et al., 2012).

Often drug checking provision is misunderstood as analysis in isolation of other components and is often not recognised as a holistic process incorporating non-discriminatory health information and brief interventions.

Advantages of implementing drug checking services

Engage with hard to reach populations

Evidence shows that drug checking enables health care provider's access to a hidden population of young recreational drug users who would otherwise not engage with drug or addiction services (Kriener, 2001; Measham, 2019). Young people who use drugs in nightlife settings generally have little or no contact with traditional addiction services or health structures. As illustrated by UK findings, drug checking attendees reported having never attended a substance service previously (Measham, 2019). A number of sources also acknowledge that people who attend drug checking services are likely to inform and educate their peers (Kriener & Schmid, 2002; Measham, 2019; Measham & Turnbull, 2021). Subsequently these services have potential to reach wider drug use networks with health messages indirectly.

Positive behaviour change

It has been long documented that substance analysis combined with tailored interventions can encourage people to amend their drug taking behaviour in some capacity (Kriener & Schmid, 2002; Benschop, Rabes & Korf, 2003; Groves, 2018; Makkai et al., 2018; Valente et al., 2019). This includes service users taking lower doses than planned, modifying their practices to leave longer periods of time between use and reviewing the risks of poly drug use (Measham, 2019). However, it is acknowledged that further research is required in the form of longitudinal studies, clinical trials, and ethnographic studies on the effects of different types of drug checking programmes to support existing evidence (Palamar, Salomone & Barratt, 2020; Kerr & Tupper, 2017).

By providing analytical confirmation on what substances contain, health care professionals can support service users to understand and mitigate potential health risks. Evidence shows that in some cases, people will choose not to consume the substance and will safely dispose of it after identifying the contents, particularly if they are mis-sold a substance (Kriener & Schmid, 2002; Martins et al., 2017; Makkai et al., 2018; Measham, 2019; Valente et al., 2019). However, disposal rates among services can vary (Leece, 2017; Measham, 2020). While further studies are required, reports from services document the potential value of these interventions as mechanisms to prevent the use of extra risky substances.

Newly published findings complement the existing evidence base regarding positive behaviour outcomes. The latest publication, based on service user feedback from three English festivals in 2017, illustrates that over half of service users disposed of substances as a result of analysis, while two in five reduced the dosage they consumed at the festival (Measham & Turnbull, 2021). Follow on surveys were utilised as part of the same evaluation and identified that nearly two thirds confirmed on-going changes to their drug consumption in the three month period subsequent to attending the drug checking service. Although it is also recognised that consumption patterns naturally vary outside of the festival setting. Importantly, service users reported on-going consideration when consuming drugs with 32.4% stating they applied caution regarding poly drug behaviours. Further harm reduction practices were documented by one fifth of service users continuing to take smaller doses outside of the festival setting (Measham & Turnbull, 2021). While further follow up studies are required, this research provides new and valuable insight on post festival behaviours among drug checking service users. These findings confirm that brief interventions embedded within a

drug analysis process have potential to influence both short and long term drug practices among populations who wouldn't otherwise attend traditional healthcare and addiction structures.

Market monitoring and identification of new trends

Market monitoring is essential to inform the development of public health alert systems and emerging drug trend responses in Ireland. Without these measures Ireland cannot effectively mitigate harms and identify potential health threats such as contaminants, emerging NPS or high potency substances. Effective alert systems have the potential to remove extra dangerous substances from the market as a result of increased user awareness and publicity which decreases the demand for the identified substance (Smit-Rigter & van der Gouwe, 2019; Spruit, 2001).

In December 2014, the Dutch Drug Information and Monitoring System (DIMS) effectively identified the occurrence of PMMA in a pink superman brand tablet which was intended to be MDMA (Sheldon, 2019). Through the 'Red Alert' structure, they were able rapidly issue a warning from the Minister of Health with a clear picture of the pill through TV, radio, newspapers, the internet and mobile phone networks. There were no reported incidents in the Netherlands related to this PMMA pill but several deaths occurred in the United Kingdom in the following fortnight (Smit-Rigter & van der Gouwe, 2019). This example provides evidence on how trusted alert mechanisms can reduce drug-related harms by potentially removing extra risky substances from the drug market. In this case, the image and branding of this substance was considered helpful in reducing market demand.

By providing analytical confirmation on what substances contain, health care professionals can support service users to understand and mitigate potential health risks.

Criticism, concern and solutions

Although there are recognised benefits, drug checking has also been met with concern and criticism. Some arguments have focused on drug checking provision leading to the increased use of drugs. However, overall there is no evidence drug checking leads to increases in use (Brunt, 2017). An Australian review investigated if drug checking would increase ecstasy use among a festival sample. Their findings do not support the view that offering a drug-checking service at a festival will increase the levels of use and encourage use among populations who have never used before (Murphy, Bright & Dear, 2021).

Concern has been raised that drug checking provision could provide a sense of safety without consideration of continued risk or the individual bio-variability response to the drug which could be unexpected (Oute et al., 2019; Ritter, 2020; Winstock et al., 2001). Every form of drug use is potentially hazardous and there is no way to completely eradicate this risk. However, it should be noted that services operate to communicate and mitigate risk rather than to guarantee the safety of drugs. When analysis is coupled with direct health interventions, health officials have the opportunity to discuss scientific information about the test results and the known risks (Brunt, 2017) which can help overcome the creation of a false sense of safety.

A guidance document by the Government of the Australian Capital Territory (ACT) for implementing local analytical services illustrates that services are required to communicate the known limitations of the drugs-checking service and the risks associated with drug use rather than guaranteeing drug safety. The policy recognises that all pill checking services must be provided as part of a 'health model' to ensure the delivery of accurate medical advice from staff about the dangers associated with drug use. Further, the policy states that the limitations of analysis must be communicated, including information that testing cannot guarantee the identification of all substances in a sample (ACT, 2020).

“Regardless of the pill testing result, each patron must be advised that drug taking is inherently unsafe and safe disposal is the best way to avoid risks to health” (ACT, 2020).

Others have raised concern that potential drug suppliers will use services to legitimise their products and guarantee the quality before onward supply (Oute et al., 2019). Often measures are implemented within services to limit the number of substances analysed per person to mitigate this occurrence. As previously mentioned in this report, a colour coded system is implemented by 'Check It', Vienna and 'Pill Testing Australia' to avoid the endorsement of products ((Kriener & Schmid, 2002; Makkai et al., 2018). More recently, a Canadian study has contributed a new dynamic to this debate and highlighted the benefits of suppliers using services with an aim to reduce the high rates of overdose locally. The study indicates that local dealers have been using drug identification services due to a fear of their products being contaminated. Drug checking for this population has a potential role in alleviating the dangers of the volatile fentanyl market, given the current challenges locally with the emergence of synthetic opioids (Betsos et al., 2020).

Generally, the most portable and affordable drug checking methodologies have known limitations, particularly reagent test kits that are known to be less accurate (Brunt, 2017). This method could be perceived as misleading and may give an unjustified sense of security by providing a false-negative result (Oute et al., 2019). In terms of delivering harm reduction interventions, critics have questioned the suitability of nightlife spaces. 'Fixed site' locations in offices, such as those used as part of the DIMS network may be considered a less noisy atmosphere compared with onsite services in the NTE

where people may have already consumed substances (Oute et al., 2019; Brunt, 2017). Further, testing might not prevent people from using questionable drugs if the person is already socialising in the nightlife environment and may have less opportunity to obtain other drugs in the event of an unexpected result (Brunt, 2017).

On review, the Working Group concluded that the health benefits of drug checking outweigh the known criticism, with support noted at an EU level in the European Drug Strategy. Analysis in conjunction with structured interventions delivered directly to people who use drugs will have significant impact on behaviours and will overcome concerns raised.

Working Group conclusion and recommendations

Conclusion

As part of Strategic Action 1.3.11 of the National Drug Strategy, the Working Group were tasked with reviewing the evidence on emerging drug trends in the night-time economy and novel harm reduction approaches suitable to this area. They were also tasked with producing recommendations for consideration in the Irish context. Work was delayed significantly due to the COVID-19 pandemic which also had the consequence of effectively closing the night-time economy. The review contained within the report will be used to guide future work by health officials on the areas of service provision in nightlife settings, data gathering exercises, monitoring and drug checking provision among other initiatives.

Changing drug markets and new user groups require tailored health responses

An emerging stimulant and poly substance culture among young people who use in the night-time economy are major issues of concern. Furthermore, the changing drug market is also an area of concern, particularly in relation MDMA and the increased potency of products available throughout Europe. Novel responses are required to meet the needs of a changing drug landscape in Ireland.

Evaluate and improve current emerging drug trend reporting structures

Real time information on emerging drug trends and cases of concern is not currently available in Ireland. In order to improve health responses, existing emerging drug trend reporting structures require review. Insight is needed on changing patterns of use, non-fatal overdose and hospital presentations as well as the contents and composition of substances available on the Irish drug market. There is limited information on the composition of substances consumed in Ireland, with identification mainly being used for law enforcement purposes and not to inform health communications, interventions and warnings.

Drug checking enables health professionals to engage with hard to reach populations

There is currently no tailored service for young people who use drugs in nightlife settings as in other countries. Health and social responses in nightlife settings and drug checking provision provide an opportunity for professionals to engage with populations of young people that don't currently present to traditional service structures, including those who may have never received previous health care interventions for their substance use.

The benefits of drug checking provision outweigh concerns

There are many benefits associated with drug checking initiatives that could help improve public health and harm minimisation responses. The Working Group concludes agreed that the known health advantages outweighed the documented concerns in relation to drug checking provision. It is recommended that drug checking and market surveillance are considered as an extension of existing harm reduction strategies in Ireland.

Market monitoring and public health alert mechanisms are necessary

Substance analysis is a necessary tool to inform a public health alert system and this area requires Government support and funding to establish a long-standing monitoring system. Analysis for research and health purposes can help achieve strategic aims and inform structures such as the EMCDDA Early Warning System to support EU wide reporting. In the absence of qualitative and quantitative drug analysis these goals cannot be fully achieved. Cross-sector support is required, in particular from Government Departments such as the Department of Justice.

Pilot and evaluate analysis in the night-time economy

There is increased demand for drug checking services within the night-time economy particularly at festivals. However, there are barriers to piloting an onsite 'front of house' service at this time in Ireland.

The Working Group reviewed a 'back of house' approach with consideration for placing an amnesty bin within a drug service at a festival which could inform attendees of the contents of drugs through communication structures onsite. While not directly engaging with people who use drugs, a 'back of house' approach can provide valuable insight on drug contents to inform drug alert mechanisms. Should the pilot evaluation of a 'back of house' system prove positive, this may then support the development of a full 'front of house' approach for festival settings.

A 'Front of House' approach can provide greater opportunities

Evidence suggests that 'front of house' interventions can positively influence behaviour change, with this being a key objective of drug checking provision. By combining drug analysis with brief interventions, this approach may achieve the greatest outcomes in terms of preventing use, influencing drug taking practices and minimising acute harms. Young people are willing to engage with this service structure and 96.3% of Irish survey respondents stated that they would use a drug checking service at a festival (Ivers, Killeen & Keenan, 2021). The Working Group acknowledges the legal barriers preventing a 'front of house' approach being applied to any festival pilot service at this time with merit for further discussion.

Establish drug checking services in permanent fixed site locations

Services at events in nightlife settings offer new opportunities to engage with hard to reach populations and initial data indicates that this setting is preferred by festival attendees. However, long term permanent locations should also be considered for populations who don't attend nominated nightlife events. On review of different response types, the Drug Information and Monitoring System (DIMS) may yield the greatest benefits and could reach multiple user groups through a network of organisations, but not through service provision in nightlife settings. Irish festival attendees have also expressed interest in community based services, with 77% stating they would attend a service outside of a festival environment (Ivers, Killeen & Keenan, 2021).

Barriers to implementation require further discussion

There are a number of localised barriers that require Government and cross-Departmental support including engagement with Department of Justice and An Garda Síochána. Further discussion is required on appropriate mechanisms for analysis to inform health interventions.

A postal system whereby analysis is conducted in a stationary laboratory was also considered as another option to engage with hard to reach populations. However, concerns were raised by the Department of Justice regarding the transportation of substances in this manner. Therefore, this approach may not be practical at this time in Ireland.

Further, there are also barriers relating to current service structures in Ireland. There is currently no targeted nightlife prevention, harm reduction or peer service providing on-going support. The development of nightlife specific services and drug analysis will require the development of policies, intervention planning, environmental planning, identification of staff, identification of peer volunteers, a training programme and robust mechanism for evaluation.

Analytical approaches require further discussion

On review of the various analytical methods, GC-MS was the preferred option by the Working Group. However, the Working Group noted the cost involved with GC-MS implementation and the practical difficulties in applying this approach in nightlife settings. Mobile methods may warrant consideration which such as methods used in other jurisdictions for the nightlife environment.

Emergency care at festivals

Emergency critical medical care requires further expert discussion to consider the management and preparedness for critical illness, toxidromes and hyperpyrexia at events as well as improved data collection.

Improving research on nightlife substance use and new user groups

Research on emerging trends, nightlife use and new user groups is necessary to inform policy and service responses. Tailored web surveys can help to quickly capture more frequent data on drug trends. Work can also include qualitative studies and a review of hospital and festival emergency data.

Recommendations

The Working Group were tasked with developing recommendations on a number of key areas on the topic of emerging drug trends, nightlife drug use and novel responses such as drug checking provision.

1. Evaluate and improve existing emerging drug trend reporting structures.
2. Services and people who use drugs should be notified of identified trends and alerts through an established and appropriate communication structure. People who use drugs should also be included in response development.
3. New research is necessary to improve local knowledge on the different populations who use drugs, including young people who use across a variety of nightlife settings and at domestic parties. Funding should be considered for the implementation of local research to monitor trends and behaviours specific to nightlife substance use.
4. The development of a national working group to oversee research and training in relation to emerging drug trends and nightlife substance use is recommended.
5. A dedicated service is required to provide education, prevention and harm reduction services in the night-time economy, similar to services provided in other European countries. In the absence of a dedicated service, a national volunteer training programme should be established for delivering interventions within nightlife settings.
6. Continued Government support is necessary for resource development to target nightlife cohorts through third-level and nightlife settings, in collaboration with relevant stakeholders. Student and peer based education and training on drugs, harm reduction and overdose prevention should be progressed.
7. Festival and dance event licenses should include a requirement to provide drug information and harm reduction strategies. Those issued with licenses should liaise with health officials regarding appropriate drug related communications and responses for their particular event.
8. The formation of a national committee chaired by HSE Emergency Management to advise on emergency critical medical care at festivals and related events is recommended. This committee should develop standardised reporting templates for festival medical care providers and drug services at events to capture necessary data for health services.
9. Pilot a 'back of house' drug checking system in a festival setting through a collaborative agreement with law enforcement, health care providers and other relevant stakeholders. Support from the Department of Justice and An Garda Síochána is required. Should the pilot evaluation of a 'back of house' system prove positive, a comprehensive 'front of house' approach should be considered.
10. The development of a scientific oversight network to provide knowledge exchange and guidance on methodologies is recommended. A spectrum library of tested substances would have to be sourced. Network sharing should be facilitated among existing laboratories.

11. Analytical approaches require further discussion. GC-MS methodology is the preference by Working Group experts and is recommended for the implementation of an ideal drug checking service. However, other methods or a mixed method approach should be explored for use at festivals and nightlife events where there are practical difficulties involved in the use of a GC-MS machine.
12. Government consideration is required for the development of a dedicated laboratory for drug market monitoring purposes. Stationary laboratories utilising robust technologies were considered to provide the most accurate results.
13. Single use reagent kits have benefits when used as part of an integrated harm reduction or drug checking service, however, the Working Group does not recommend the dissemination of these kits as a standalone harm reduction response.
14. On-going funding should be sought from Government for further developments in the area of emerging drug trend monitoring.
15. The implementation of analytical approaches on a pilot basis, such as waste water analysis, pooled urine or syringe analysis can improve local monitoring and knowledge.

SECTION 7:

Appendices

Appendix 1: Working Group Membership

Dr Eamon Keenan (*Chair*)

HSE National Clinical Lead, Addiction Services

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HSE National Social Inclusion Office / Drugs.ie

Brendan Lawlor

HSE Emergency Management

Siobhan Stokes

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Sinead Mc Namara

HSE National Drug Treatment Centre, Laboratory Services

Dr Narayanan Subramanian

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Karen O'Connor

Department of Health

Dr Geraldine Dowling

IT Sligo and Trinity College Dublin

Dr Conor Deasy

Consultant in Emergency Medicine

Prof Jo-Hanna Ivers

Trinity College Dublin

Joe Kirby

Drug and Alcohol Task Forces

Sophie Ridley

Event Safety Controller

Craig Connolly

Dance/festival community

Paul Delany

Community and Voluntary Sector

Roisin O'Donovan

Union of Students in Ireland

Detective Sergeant Eoin Browne

An Garda Síochána

(Associate member to provide observational input)

Dr David Casey

Forensic Science Ireland

(Associate member to provide observational input)

Appendix 2: Working Group Terms of Reference

ROLE

The Emerging Drug Trends and Drug Checking Working Group will convene under Strategic Action 1.3.11 of the National Drug and Alcohol Strategy 'Reducing Harm, Supporting Recovery: "A health-led response to drug and alcohol use in Ireland" – 2017 – 2025'.

The group will review drug trends and drug testing provision which will help inform recommendations and an implantation plan applicable to Ireland. Deliberations of the Working Group are time limited to a 6 month duration in order to inform festival season 2020. Associated members to include An Garda Síochána in an advisory capacity.

TERMS OF REFERENCE

1. Review and examine evidence in relation to emerging drug trends among a broad population, with a particular focus on drug use within the Irish night-time economy.
2. Review novel harm reduction strategies applicable to the night-time economy such as amnesty bins, drug testing and other health interventions.
3. Develop recommendations and create implementation plan for novel approaches with consideration of drug trends within the Irish night-time economy.
4. Discuss the provision of drug education, harm reduction and welfare services as part of the night time economy. Develop a definition for 'drug welfare' and recommend the training requirements for staff and volunteers delivering such services in an Irish context. Develop recommendations and create an implementation plan applicable to the Irish context.
5. Following review and examination of evidence, the group will make recommendations for harm reduction strategies in line with the National Drug and Alcohol Strategy 'Reducing Harm, Supporting Recovery' to the National Oversight Committee.
6. Two subgroups will be formed within the Working Group to review specialist areas in relation to drug testing analysis and information and welfare provision.
7. A blueprint for implementation of recommendations will be produced in time for festival season 2020.
8. Work initiated by this group will be on a pilot basis that will be evaluated and reviewed.
9. HSE Communications will manage media queries arising in relation to the Working Group. Deliberations are confidential within the group and draft documents should not be shared with the media. Documentation may be shared within organisations and sectors, if feedback is required to support the work. The sharing of content will be discussed with the Chair of the Working Group.
10. A HSE communications campaign may be considered to support work initiated by the group.

Appendix 3: Work conducted by the group

The group met on six occasions between September 2019 and February 2020. All members and associate members of the group agreed Terms of Reference which are available in Appendix 2 of this report. At an early stage it became apparent that there were two main areas that required more intensive deliberation which led to the Working Group forming two subgroups to review specialised areas:

- **Emerging drug trends and the delivery of health and social responses in the NTE**
- **Drug analysis methodology and implementation**

In order to inform the review conducted by the Working Group, a number of strategies were utilised. These included:

- **‘What are you taking?’ online survey:** Conducted by the HSE and Trinity College Dublin (TCD).
- **A literature review conducted by the HSE and a systematic review in collaboration with TCD**
- **Irish expert presentations**
- **Discussion with Department of Justice**
- **Sub-group discussions**
- **European expert presentations:** Subject experts were invited to attend meetings of the group to present on specific issues. These included:
 - * **João Matias, European Monitoring Centre for Drugs and Drug Addiction (EMCDDA),** presenting on the topic of monitoring drug use in Europe and in nightlife settings
 - * **Daan van der Gouwe, Trimbos Institute,** presenting on the Dutch Drugs Information and Monitoring System (DIMS)
 - * **Anton Luf, Medical University of Vienna,** presenting on methodologies implemented as part of ‘Check It!’ drug checking service.

Following the series of expert presentations, the Working Group deliberations were paused due to the emergence of the COVID-19 pandemic in March 2020. Due to uncertainty regarding the return of nightlife activities and no clear timeline for the return of festivals, it was not possible for the Working Group to develop an implementation plan for a pilot project.

Appendix 4: Review of Reagent Test Kits

The following review was conducted by the HSE National Social Inclusion Office in collaboration with Working Group members Siobhan Stokes and Sinead Mc Namara, HSE National Drug Treatment Centre Laboratory.

Reagent test kits, also known as ‘self-test kits’ or ‘reagents’, are widely available and have been promoted by various bodies targeting harm reduction messages at groups of people who may be at risk of using stimulant/party drugs e.g. students. ‘Dance Safe’ in the USA is one group that advocates for the use of reagent test kits and recommend a number of different kits for different types of analysis. Some drug checking services may also use reagents for preliminary identification coupled with other techniques. In some locations colour metric methods are used by services as they are seen as cost effective method for identifying initial compounds.

In light of the attention these kits had received in Ireland around student bodies supplying kits, the group considered the available information around their use. The kits consist of reagents to presumptively identify alkaloids as well as other compounds. For example, ‘Marquis’ reagent is the primary presumptive test used in ecstasy testing kits and employs a simple spot test method. ‘Marquis’ reagent can also be used to test for other substances such as opiates and phenethylamines. Reagent colour metric tests are easy to use, require only a scraping of the compound (~3 mgs) and the colour change of the substance once exposed to the reagent is compared to a colour chart that will correspond to particular substances. Apart from the ease of use other advantages are that they are cheap, can give an initial indication of what is present and an experienced professional will get a good idea of content very quickly.

	Marquis	Libermann	Mandelin	Mecke
MDMA	Blue/violet/black <i>(Maybe hint of green)</i>	Intense brown/black	Purple/blue/black	Dark blue
Ketamine	No colour change	Light yellow	No change/ faint orange	No colour change
2C-B	Yellow/green	Dark green	Green	Yellow
Cocaine	No colour change	Yellow or orange	Yellow or orange	No colour change

Diagram: Amended from Dance Safe, 2020 and Reagent Tests UK, 2020

However, there is concern regarding the limitations and disadvantages to this method as they will not give information on the strength or purity of the substance, there is a possibility of false negatives and they may give the individual a false sense of security (Murry et al., 2003; Winstock, Wolff & Ramsey 200). Often, multiple analysis with different kits may be necessary to fully identify the compound which would require a level of knowledge from the person using the kit in relation to what they should be looking for in the substance and how to correctly implement the kits.

Actual colour results may vary depending on the concentration, whether the drug is in salt or free base form, additional diluents, or contaminants; a positive result may indicate a specific drug or class of drugs present. Colorimetric tests rely on simple chemical reactions and produce visible results that can be interpreted with the naked eye (Harper, Powel & Pijl, 2017).

The known limitations have led to criticism of their use with calls for more sophisticated methods (Schneider et al, 2016) as the kits may not identify adulterants in the substance. For example, MDMA adulterated with an NBOMe will likely test positive for MDMA using a Marquis test. If only one test is used, the presence of the much more dangerous NBOMe will be missed (Barratt et al., 2018). Further, a video produced by the Global Drug Survey in 2016 provided an example of how a pill had a positive result for the presence of MDMA through the use of a reagent test however; upon further more accurate analysis it also identified the substance PMA, a more dangerous substance than MDMA alone (Global Drug Survey, 2003).

Findings from the 'Four Four' dance magazine survey presented to the Working Group showed that 10% of respondents utilised these kits for harm reduction purposes and 64% were not aware of the associated limitations in relation to interpreting results (Connolly, 2019). In laboratories where the reagent kits are used to give an initial indication of the substance, other analytical techniques are often employed to provide further insight on the contents.

Due to the limitations described in using the reagent kits as a standalone intervention, the variance in products is provided and the absence of supporting interventions being delivered with the kits. To conclude, the Working Group were not inclined to recommend the kits for distribution. The group were of the view that more accurate analysis methodologies were necessary as part of structured interventions.

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