



European Monitoring Centre
for Drugs and Drug Addiction

Health risk communication strategies for drug checking services

A manual

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About this report

This report provides an overview of principles of effective health risk communication for a drug checking service audience. The contents of this report are based on the findings of international evidence reviews of health risk communication, communication guidelines published by international organisations and specific initiatives undertaken with people who use drugs and the services that support them.

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The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) is the central source and confirmed authority on drug-related issues in Europe. For over 25 years, it has been collecting, analysing and disseminating scientifically sound information on drugs and drug addiction and their consequences, providing its audiences with an evidence-based picture of the drug phenomenon at European level.

The EMCDDA's publications are a prime source of information for a wide range of audiences including: policymakers and their advisors; professionals and researchers working in the drugs field; and, more broadly, the media and general public. Based in Lisbon, the EMCDDA is one of the decentralised agencies of the European Union.



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Executive summary

This report provides an overview of principles of effective health risk communication for a drug checking service audience. The contents of this report are based on the findings of international evidence reviews of health risk communication, communication guidelines published by international organisations and specific initiatives undertaken with people who use drugs and the services that support them.

Health risk communication, more generally, refers to the exchange of information, opinions and recommended actions between individuals, groups and institutions about the nature, magnitude, significance or control of threats to health and well-being.

Effective health risk communications notify target audiences of the existence of threats, help them to understand their susceptibility, and provide advice and support on how to reduce the risk of exposure and harm. Ineffective communications not only fail to prepare audiences for threats, but potentially increase the risk of harm by presenting inappropriate advice and eliciting cognitive responses that may act as barriers to effective action.

Drug checking services enable people who use drugs to have their drugs chemically analysed and receive information on the content of submitted samples as well as advice, and, when feasible, counselling or brief interventions, including referral to other support services. Although the range of services provided may differ, all drug checking services undertake some form of health risk communication activity, often through issuing alerts on analysed drug products and the sharing of data with other stakeholders. This is done with the aim of preventing or reducing individual-level harms (the person submitting the substance for checking) and population-level harms (other people who might be exposed to the same substance).

Communication intended to change drug use behaviour typically requires target audiences to accept and trust the values and recommended actions of communicators. Development of trust, and audience beliefs about communicator competence, needs to be established long before a drug threat emerges.

As audiences process and respond to threats to health and well-being in different ways, communications and alerts are likely to have differential impact. They will be accepted by some audience members but rejected by others. The use of *audience segmentation* and *message mapping* techniques, whereby the same overall message is delivered and framed in different ways to different segments of the target audience may be beneficial. This is work that takes place prior to the emergence of a threat, and it is an essential component of risk communication preparedness, as the effectiveness of communications may depend on prior actions aimed at better preparing target audiences for future events.

In the process of drafting this report, a substantial set of guideline statements were agreed in consultation with drug checking services from the TEDI (Trans-European Drug Information project) network. These are based on scientific reviews and guidance from authoritative organisations. From this list, ten key principles in communication for drug checking services

were identified and agreed through a consensus-building exercise with TEDI members. These principles suggest some of the best ways in which drug checking services can help ensure that their drug safety alerts and public communications reach target audiences and improve the likelihood that recommended actions will be adopted.

As with many interventions in the health and social responses arena, there is the risk of unintended consequences and 'communication backfire', whereby communications can have the opposite effects to those desired (e.g., target audiences seek out a potent drug). Bearing this in mind, an iterative process of research, monitoring and especially evaluation is important to ensure the desired outcomes are achieved.

Undertaking large evaluations may not be feasible for many drug checking services, but services should try to incorporate some evaluation and data collection work at different stages of development of their communications, and alongside their service delivery.

The role of drug checking services within a wider public health response to drug-related harms has become increasingly relevant in recent times. Future steps in this field may include moves towards harmonisation and the building of consensus among European drug checking services on the determination of criteria and thresholds for when and how to issue alerts as well as the adoption of evidence-based standard operating procedures in health risk communication. This work will greatly benefit from the evaluations of risk communication methods that drug checking services are encouraged to undertake, as well as from newly acquired evidence in other areas of public health.

Context for this guide

Drug checking services are available in 11 EU countries and in Switzerland and the United Kingdom, as well as in other parts of the world. Their primary role is to provide information on the content of samples submitted to the service by people who use drugs, based on a chemical analysis ([EMCDDA, 2022](#)). Drug checking services are delivered in a variety of ways, but primarily through mobile drug checking stations, located in proximity to nightlife settings and festivals, and through office-based fixed sites, which can also provide associated follow-up services to clients. Recent years have seen new developments, with drug checking services moving online and into new settings such as supervised drug consumption rooms, where they provide services to people who engage in high-risk drug use.

A central challenge for drug checking services is deciding on the best way to communicate the results of their analyses with stakeholders, both with service users, and in some cases with the wider public. In addition to individualised feedback to the people submitting substances for analysis, many drug checking services issue alerts and other communications to raise public awareness of a drug-related threat. The methods used by drug checking services to communicate both the individual feedback and the group-level alerts vary, as does the content of the messages. These approaches need to be grounded in the best evidence available or principles of effective and safe health risk communication.

Health risk communication more generally describes the exchange of information, opinions, and recommended actions between individuals, groups and institutions about the nature, magnitude, significance or control of threats to health and well-being. Effective health risk communications notify target audiences of the existence of threats, help them to understand their susceptibility, and provide advice and support on how to reduce the risk of exposure and harm ([World Health Organization, 2018](#)). There has been relatively little evaluation of the development and delivery of communications and alerts in the drugs field, including within activities of drug checking services or as part of comprehensive multiagency communication strategies. This is important, as despite good intentions, and as with all interventions in the drugs field, there is the risk of unintended consequences and 'communication backfire', with communications having the opposite effects to those intended. Ineffective communications not only fail to prepare audiences for the identified threat, but some may even increase the risk of harm or produce cognitive responses that act as barriers to effective action. Thus, poor risk communication practices by drug checking services, including practices not supported by evidence, may result in: (1) erosion of trust in the issuing organisation (for example, by providing information that service users recognise as incorrect or inadequate); (2) direct harm due to behavioural responses that lead to health complications through presentation of inappropriate advice; (3) indirect harm due to missed opportunities to reduce risk (e.g. advising simply to not use heroin and neglecting to suggest carrying naloxone).

In order to better inform and improve current practices in this area, the European network of drug checking services (Trans-European Drug Information project – TEDI) and its members collaborated with the EMCDDA to produce this report, which provides an overview of

principles of effective health risk communication for a drug checking services audience. The contents of this report are based on the findings of international evidence reviews of health risk communication, communication guidelines published by international organisations and specific initiatives undertaken with people who use drugs and the services that support them.

The primary audience for this report is staff working in drug checking services. Other stakeholders and organisations involved in reducing harm and communicating drug-related risk may find the principles outlined in this report useful. Importantly, it is intended that this report will be reviewed and updated in the future, based on the feedback and field testing of these principles and methods by the drug checking services of the TEDI network collaborating with the EMCDDA.

This guide focuses on the issuing of risk communication at the community level, rather than individual feedback to people who submit samples. While many of the principles presented also apply to individual communications in the context of drug checking services' routine operations (e.g., communicating test results to individual clients), this publication focuses on wider health risk communications of alerts produced and published by drug checking services. This report also does not present rules about the content of alerts (summarised in publications such as [Centers for Disease Control and Prevention, 2014](#); [Covello, 2006](#); [Glik, 2007](#); [World Health Organization, 2005](#); see also the Annex), as this will depend on the nature of the service, the threat and the target audience.

The early chapters in this report provide an overview of the theory, scientific evidence and principles of health risk communication in the public health field and its relevance for drug checking services. These include a set of message-development and delivery principles that can help improve communication practices of drug checking services. In a following section, and based on scientific reviews, guidance from international organisations and in consultation with drug checking services from the TEDI network, ten key principles in health risk communication for drug checking services are proposed. These provide guidance to drug checking services on ways to ensure that their drug safety alerts and public communications reach target audiences and improve adherence to recommended actions. This section is followed by suggestions and resources to support drug checking services in incorporating data collection, monitoring and evaluation at different stages of development of their communication activities and service delivery. Crucially, it is not possible to ascertain whether alerts and other messages have been effective, or alternatively have had unwanted side effects, without carrying out evaluations of their communication strategies. In addition, [Annex A](#) provides references to resources that may be of interest to those seeking further information.

Finally, the role of drug checking services within a wider public health response to drug-related harms has become increasingly relevant in recent times. A central part of their work is to inform service users and the public about the risks and the threats associated with substances identified in the submitted drug samples. This report explores how services can ensure that their activities are both evidence-based and evidence-generating. The guidelines and key principles presented here provide some first guidance on how these aims may be achieved, not only for drug checking services, but also for other organisations who issue drug-related alerts to their stakeholders. The future steps in this direction will also involve

harmonisation and consensus among European drug checking services on determining criteria and thresholds on when and how to issue alerts, as well as the adoption of evidence-based standard operating procedures in health risk communication. Newly acquired evidence in other public health areas, such as from the COVID-19 pandemic, has provided real-life experiences and opportunities to learn what has worked and what has not worked in communicating health risks about the virus to the public and how to reduce or prevent these risks.

1. Health risk communication and drug-related risk: What is it and why does it matter for drug checking services?

What is health risk communication?

Health risk communication more generally refers to the exchange of information, opinions, and recommended actions between individuals, groups and institutions about the nature, magnitude, significance or control of threats to health and well-being (Covello, 1992). Effective health risk communications notify target audiences of the existence of threats, help them to understand their susceptibility, and provide advice and support on how to reduce the risk of exposure and harm (World Health Organization, 2018). Ineffective communications not only fail to prepare audiences for the threat, but potentially increase the risk of harm by presenting inappropriate advice and eliciting cognitive responses that may act as barriers to effective action.

Why is health risk communication important for drug checking services?

Drug checking services enable people who use drugs to have their drugs chemically analysed and receive information on the content of submitted samples as well as advice, and, when feasible, counselling or brief interventions, including referral to other support services. Although the range of services provided may differ, all drug checking facilities undertake some form of health risk communication activity, often through issuing alerts on analysed drug products, and the sharing of data with other stakeholders. This is done with the aim of preventing or reducing individual-level harms (the person submitting the substance for checking) and population-level harms (other people who might be exposed to the same substance). Drug checking services are also sources of intelligence and data for more formal risk assessments of substances and can provide a platform for other types of risk communication and harm reduction activities (Giné et al., 2017).

An important role for drug checking services is communication of test results to stakeholders, including service users and the wider public. In addition to individualised feedback to the people submitting substances for analysis, many drug checking services issue alerts and other communications to raise awareness of a drug-related threat, to make specific recommendations on how to reduce the risk of exposure to a drug threat, and to offer general harm reduction advice, with the objectives of improving knowledge and encouraging changes in drug-related behaviour and the adoption of safer consumption practices (Brunt, 2017). Accordingly, risk communication activities carried out by drug checking services are important components of harm reduction strategies.

In this respect, drug checking services can be defined and work as *primary communicators*, since they are the primary source of the information. This is a direct result of the analyses that they have conducted, the drug alerts they issue, and the sharing of harm reduction information. Drug checking services that deliver alerts and other risk communication activities directly to target groups can act as a bridge between health authorities, national

experts and the public. They are often trusted communicators that are able to reach people who might not otherwise access traditional drug and other support services. Through social media, dedicated mobile applications and other dissemination activities, drug checking services have the potential to reach large and diverse audiences ([Fernández-Calderón et al., 2014](#); [Keijsers et al., 2008](#); [Koning et al., 2021](#); [Measham, 2019](#); [Ventura et al., 2013](#)).

Drug checking services also act as *secondary communicators* when they tailor and disseminate alerts, information and harm reduction advice provided by network members and other stakeholders such as governmental health agencies.

What are the aims and objectives of health risk communications by drug checking services?

The primary aims of public communications by drug checking services are to increase awareness of newly emerging drug threats (e.g. high-dosage MDMA tablets), to encourage and support a recommended course of action to avoid threats or reduce harm, and to mobilise other services and organisations into action. These are key principles that underpin all forms of health risk communication ([Ghio et al., 2020](#)).

This may include advice on how to reduce the risk of exposure or harm, or provide customised feedback and advice to target groups on the harmful effects of specific substances that have been identified ([Brunt and Niesink, 2011](#); [Brunt et al., 2016](#); [Hungerbuehler et al., 2011](#)).

Specific objectives of drug checking services communication may include some or all of the following (but are not limited to):

- alerting people who use drugs and the public (including friends, families and carers of people who use drugs) about emerging drug-related threats;
- promoting individual behaviour change (including avoidance of harmful drugs);
- communicating safer-use messages and motivating the adoption of general or specific harm reduction practices in response to a drug threat;
- improving audiences' factual knowledge and awareness of substances and potential harms;
- preparing individuals and populations for future threats;
- influencing attitudes regarding harmful drug use practices;
- mobilising professional responses and networks;
- fostering support for harm reduction activities;
- developing trust between communicators and target audiences;
- sharing information between stakeholders.

Determining drug-related harms and threats

Drugs submitted for testing to drug checking services may pose threats due to different interacting factors including the properties of the drug, the characteristics of people using the drug, the setting where drug use takes place and existing responses to drug use. Acute health harms arising as a result of these factors are often the focus of public health oriented risk communication campaigns and are of most relevance to drug checking services.

The properties of the drug

Harms that may be related to drug properties can be associated with:

- dose, purity and potency of the drug, especially when these are higher than expected;
- potential drug-drug interactions with other substances (including alcohol and medicines);
- pharmacokinetic properties of the drug – how the body processes a drug, and its time course through the body;
- pharmacodynamic properties of the drug – drug concentration at the site of action and the resulting effect, including the time course and intensity of desired and adverse effects.

Drug properties may also influence the route of drug administration (e.g., orally or by injection) and how frequently it is taken. This can also affect the risk of harm.

The quality and availability of scientific knowledge on these properties are also important when assessing risk, and important to consider in the development and delivery of evidence-based responses (e.g., little information about the drug properties may be readily available for a particular new psychoactive substance). Risks are also associated with illicit drug production processes, leading to variations in product quality and constituents, and the presence of adulterants, diluents or unexpected compounds. There are also known risks resulting from misidentification, substitution and mis-selling of the products.

The characteristics of the people who use drugs

Individual characteristics include age, sex, genetics, personality and cognition; co-occurring physical and mental health conditions; social, geographic and socioeconomic factors; and drug-related behaviours such as polysubstance use and preferred routes of administration. Included also are factors such as individual and collective knowledge of harm reduction, and harm avoidance practices.

Drug-taking settings and responses to drug use

Drug-related harms may also be influenced by the setting where the drug is taken and with whom (e.g., in an over-crowded nightclub or at home, in a group or alone). Responses to drug use, including legislation and enforcement may also lead to an unequal distribution of

risk across different populations. Biases in reporting in the popular media, stigma and discrimination may generate inequalities in the volume and quality of advice and support offered to different user groups, which can also affect the risk of harm.

These interacting factors highlight the complexity of public communication and the importance of adequate preparation and planning. For instance, it may not always be immediately evident whether a threat is due to differences in individual susceptibility to drug harm (e.g., genetics, health conditions), or if it might affect the wider population (e.g., availability of harmfully high-dose substances, emergence of potent new psychoactive substances).

Different types of health risk communication by drug checking services

The types of health risk communications carried out by drug checking services vary greatly between different organisations. Also, various channels and methods are used to communicate with target groups, including provision of general information on risks associated with drugs issued through social media, posters and information boards at events, information stands at events with skilled staff present to answer questions and paper information leaflets, one-to-one or one-to-multiple risk reduction consultations when collecting test results, alerts issued through social media (Twitter, Facebook, Instagram) or push notifications with critical information sent through festival apps. Most European organisations combine a variety of these methods.

Individual communications of test results to service users and general harm reduction information constitute the bulk of the health risk communications carried out by drug checking services (see [Figure 1](#)). Individual communications typically include personalised harm reduction advice according to the results of the product submitted for testing. If drug checking results reveal that the characteristics of a substance pose a threat, warnings or alerts may be issued by drug checking services to user groups or to the wider public, depending on the level of the threat. [Table 1](#) presents an example of a protocol-based criteria to determine the level of alert and the subsequent actions and target groups, as established by the Spanish drug checking organisation Energy Control.

The criteria determining threat levels, and whether and how an alert should be issued, are not yet standardised among European drug checking services. Although a general consensus on these criteria may exist among European drug checking services, agreed standards and health risk communication procedures based on evidence will undoubtedly further improve current communication practices among these services.

TABLE 1
Public health communication protocol example: Energy Control, Spain

Alert level	Criteria
Alert level 1 (yellow-orange)	An alert level 1 is established when a substance causes (actual or potential) acute adverse events (e.g. high-dosage MDMA tablet). People who use drugs are the main target group of this alert and are informed through targeted social media channels, the organisation's website, or user group networks.
Alert level 2 (red)	An alert level 2 is established when Energy Control detects a hazardous substance in a drug sample (e.g., cocaine containing fentanyl). The presence and consumption of these hazardous substances would have severe health consequences and even death. The main target groups of level 2 alerts issued by Energy Control are people who use drugs and the public. These are also communicated to the Reitox Spanish national focal point. Level 2 alerts are communicated within a multiagency action through social media but also mass media (e.g., TV, radio).

In 2019, the EMCDDA carried out a survey among 21 TEDI network members (from 11 EU Member States, Switzerland and the United Kingdom) on current health risk communication practices. When asked who are the recipients of all or most results from their drug checking service, findings showed that results are mostly communicated to the individual who submitted the sample. Some drug checking services communicate results also to the attendees of the events via posters. A few drug checking services reported posting all or most results on social media or specific websites.

When asked how many alerts their services issued during the last 12 months, the majority reported issuing between 1 and 20 alerts. Six services reported that they did not issue any alert during this period, and three services reported to have issued 20 alerts or more. The difference in the number of alerts between services may also be due to differences in the number of events covered or the number of samples submitted to each service during that period.

Reasons provided by the drug checking services for issuing alerts during that period included: high dose of MDMA in ecstasy pills (≥ 200 mg); 25I-NBOH sold instead of LSD+DMT; PMMA Superman pills; fake Xanax tablets; N-ethylpentylone and new psychoactive substances sold as established drugs.

Most drug checking services participating in the survey reported carrying out a risk assessment before issuing an alert, but these procedures differ depending on whether the detection of hazardous substances occurs at an event or is office-based. Among the risk assessment procedures carried out before issuing an alert, drug checking services reported that they assess the content, substance, toxicology and investigate existing drug databases. Drug checking services also commonly reported that they investigate the source of the

purchase and whether any other similar events happened at the same time locally or more widely.

Half of the surveyed drug checking services reported that they have in place a protocol or operating procedures for issuing alerts, mostly with a specific document as the basis. Half reported that they have guidelines on the wording to be used on an alert, while most use the template from previous alerts.

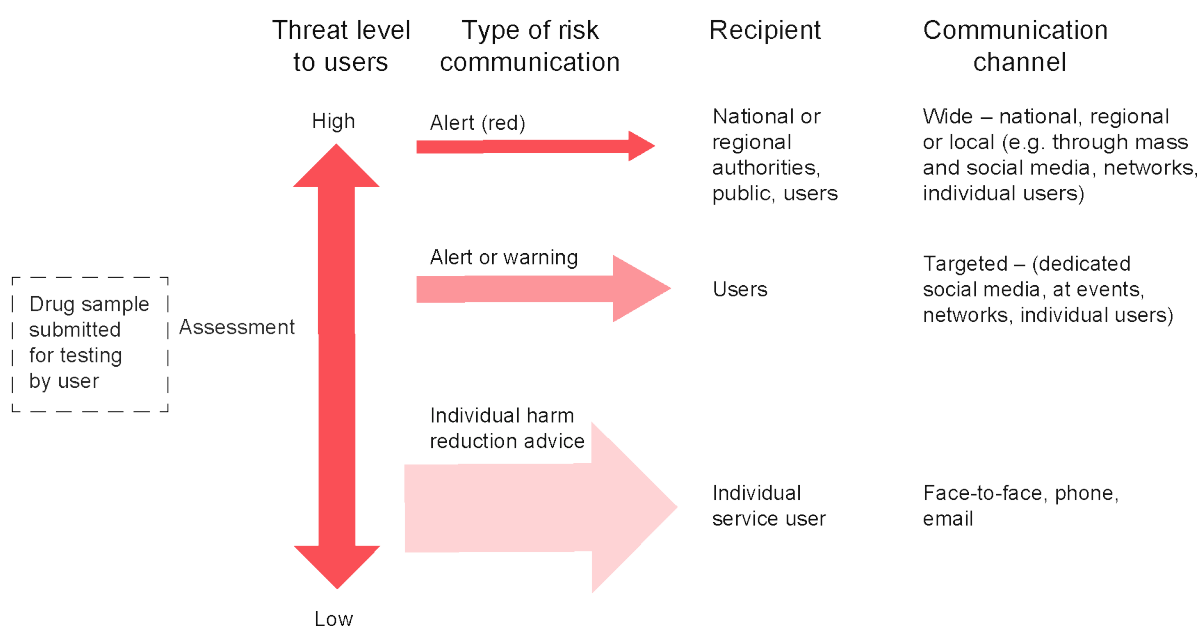
For those without a protocol, issuing alerts mainly relies on an individual decision, informed by some internet research and using social media for wide dissemination. Only two services reported that they had carried out an impact assessment of an alert after it had been issued.

Finally, half of the services have outlined different levels of threat levels. These vary by organisation, but most organisations work with either two or three categories of threat. Alert levels were generally reported to be defined by:

- coverage: internal alert (only communicated within the organisation), local alert, nationwide alert;
- content: warning versus alert based on dosage and toxicity;
- substance: if new/known negative effects, if the EMCDDA or national focal points have issued an alert;
- observed or reported acute adverse health effects.

FIGURE 1

A simplified typology of health risk communications carried out by drug checking services



Assessment and communication of drug-related risks by drug checking services

Five interrelated components of drug-related risk are particularly important for drug checking services: (1) the *identification* of a drug that has the potential to cause harms (the ‘drug threat’); (2) the likelihood that target audiences and service users will be *exposed to a drug threat*; (3) the nature of the harms that could result from exposure to a drug threat (e.g. death); (4) the *likelihood that harm may occur* as a result of exposure to the drug threat; and (5) the *seriousness of that harm* (the ‘hazard’) in susceptible or exposed individuals or populations (EMCDDA, 2009). In everyday practice, ‘risk’ is often used to describe hazards directly, rather than the seriousness or likelihood of that harm (e.g., a ‘risk’ of exposure to high MDMA-content ecstasy tablets is overdose).

Decisions about whether to issue a drug alert or other communications, who to target, and the content of the communication, are based on a balance between these components. If the risk of harm from a drug threat is high, even if only a small number of people are likely to be exposed to it, this could potentially lead to a high total burden of harm. In this scenario, communication activities would only be targeted at those who are considered most susceptible. On the other hand, if the risk of harm is relatively low, but a large number of people are likely to be exposed to it, then total burden of harm may also be high, and risk communication activities would target all members of the population of concern. This is because a large number of exposures, even if not very serious on an individual basis, could still lead to a high total burden of harm across a large population.

Drug alerts issued by organisations such as drug checking services primarily target people who use drugs, and they differ from formal drug risk assessments undertaken by legislative bodies and organisations such as the EMCDDA, which are more time-demanding technical processes based on a consideration of evidence reviews, scientific data and expert decision-making (EMCDDA, 2019). Risk communications, on the other hand, aim to quickly convey risk-related information in a format that is accessible and understandable to the audience. In some countries (e.g., France, Netherlands), drug checking services are important components of larger systems designed to reduce drug-related harm and work in partnerships with stakeholders, such as responsible ministries and health agencies, drug services and representatives of people who use drugs.

Failure to effectively control or manage drug-related risk can lead to a ‘crisis’, as harmful events may emerge within a relatively short time-frame, and its negative impacts and burdens of harm may be large and long-lasting (Ulmer et al., 2015). Examples of high-impact and long-lasting drug-related crises include the historically high number of fentanyl overdose deaths in North America (Pardo et al., 2019) and the outbreaks of HIV associated with injecting drug use in Scotland (McAuley et al., 2019). Such crises place large burdens on health systems and are difficult to resolve.

Local crises can also have disproportionately large effects on local communities, even if relatively short-lasting; for example, a cluster of local hospitalisations or deaths after exposure to a new psychoactive substance (Hill et al., 2013). Local crises are typically of most relevance to drug checking services targeting a local community, although some services operate at a national level (e.g. DIMS – the Drugs Information and Monitoring System, in the Netherlands). In addition, some drug checking services in Canada are part of

the response to national crises (e.g. identification of potent opioids at medically supervised drug consumption facilities) ([Karamouzian et al., 2018](#)).

Findings of health risk communications research ([Ghio et al., 2020](#); [Infanti et al., 2013](#); [Ulmer et al., 2015](#)) suggest that successful communications originate from authoritative and trusted organisations who have a history of engagement with target audiences and tend to:

- base their message content on core unified messages that bring together key information from various sources;
- include in their message content what is known or not known about a threat;
- provide information on what authorities are doing to control the threat;
- outline what target audiences should do in response to the threat.

Risk communication activities do not focus solely on the threat, but also include actions that can be taken to prepare target audiences for future threats, and the development of systems, interventions and information management processes that may help these audiences to predict, respond to and recover from threats and hazards.

2. The importance of trust, competence and credibility of drug checking services

Communication intended to change drug use behaviour requires target audiences to accept the values and recommended actions of communicators, and this is built upon audience perceptions of trust, confidence and credibility in the communicator ([Centers for Disease Control and Prevention, 2018](#); [Lundgren and McMakin, 2018](#); [Renn and Levine, 1991](#)).

Trust refers to an audience's expectation that a communication is true and reliable, and that the communicator is competent and honest. Trust can take a long time to develop and is easily lost. Trust is achieved through the provision of accurate, objective and complete information. The most trusted organisations and their representatives are those that are perceived to listen to target audiences, respect and acknowledge their concerns and are committed to their health and well-being, act out of good-will, care, and are predictable, fair, and consistent in their actions.

Confidence is based on the belief of members of the target audience that their prior investment of trust in a communicator was justified, and on the expectation that the communicator will provide trustworthy information in the future. Confidence also depends upon the perceived alignment of the goals and values of the communicator with those of the audience. If these expectations are repeatedly confirmed and confidence is shared by other members of the target audience (including peers), then credibility is assigned to the communicator.

Audience trust in the communicator is important, as the credibility of the source is a key determinant of the response to health risk communications. This may even be a more important factor than belief in the accuracy of the content of the message in determining whether or not the audience reacts to it ([McGinnies and Ward, 1980](#)).

Trust requires (historical) consistency in the organisation's communications and actions, but even when high levels of organisational trust exist, target audiences may be sceptical of specific information when an organisation is not perceived to have relevant expertise on a topic ([Poortinga and Pidgeon, 2003](#)). For example, a health authority might be trusted to provide advice on reducing the transmission of infectious diseases, but not necessarily when the source of transmission is drug-related behaviour, or where the organisation is believed to have failed to control transmission in the past. Similarly, trust between professional stakeholders is important, and organisations that lack credibility or have poor relationships with others are unlikely to be able to work effectively as part of a multi-agency network or partnership.

Development of trust, and audience beliefs about communicator competence, requires dialogue, transparency and consensus between relevant parties, and must be strengthened long before a drug threat emerges ([Renn and Levine, 1991](#)). References to formal expertise, job titles or the scientific and professional qualifications of communicators are rarely sufficient on their own to establish audience trust.

Research undertaken with people who use drugs has found that formal services and government organisations are often less trusted to provide accurate information about drugs, and are less accessed sources of information than those that are non-governmental or peer-led in origin (Ekendahl and Karlsson, 2015; Falck et al., 2004; Gamma et al., 2005). This may be due to a number of reasons, including the following.

- Perceived contradiction between an organisation's historical approach to drug use and the topic of risk communication (e.g., an organisation perceived to hold a 'zero tolerance' approach to drug use may be at odds with target audiences' harm reduction perspectives).
- Knowledge bias – when the audience believes that the communicator's knowledge of the topic being communicated is lacking.
- Reporting bias – where the receiver believes that the communicator is not providing, or is not willing to provide, accurate information about the topic being communicated (Frewer and Miles, 2003).

Organisations that lack audience trust are less capable of managing the dissemination and interpretation of health information, and audience confidence in the issuing organisation to respond effectively to a health-related threat is also likely to be lower (Rogers et al., 2007).

Untrusted communicators may cause psychological responses in audiences that result in the derogation of the message source. Thus, audience members may act in a way that leads them to preserve their sense of 'freedom' over what they believe is an externally imposed restriction on their choices (Miller et al., 2007; Reynolds-Tylus, 2019). This can lead to fostering of attitudes consistent with maintaining the 'freedom' that they feel is under threat, or in some cases, lead to the individual engaging in the risk behaviour itself (Brehm and Brehm, 1981).

If there are concerns about trust in a drug checking service or communicator because of who they are perceived to represent (e.g., a government agency) then activities can be developed and delivered in collaboration with organisations that have more positive relationships with target groups. However, collaborating organisations should assess how this may be perceived by target audiences, and ensure that communications and recommended responses are in accordance with their organisational values and aims, as this may otherwise reduce trust through association.

3. Understanding target audiences: how different people understand and respond to risk

People who use drugs are as diverse as the larger populations and communities to which they belong. They might differ on the basis of factors such as individual and shared demographics, psychosocial or behavioural characteristics; the drugs that they use, how and where they use them, and who they use them with; their history of engagement with support services.

People also have different levels of health literacy, and the types and amount of social, cultural and material resources that they can draw upon to help them respond to a threat. These can all affect how people understand drug risks, access advice and information, and how they understand, interpret and act upon that advice. Some people will be highly 'drug-literate' and have a good understanding of potential harms associated with use of substances and how to reduce these, whereas others may have lower levels of knowledge and have received little drugs education in the past. However, just having knowledge is not protective against many drug-related harms (e.g. mis-selling of a harmfully high dose), and in some circumstances may lead to an optimism bias, whereby individual risks are judged to be smaller than the risks facing others in the same situation.

Target audiences respond to health threats and health risk communications in different ways, and studies have identified many of the factors that underlie this (Glik, 2007). Some of the factors most relevant to drug use include:

- the immediacy of the potential harms (immediate consequences have more impact on behaviour than long-term consequences);
- voluntariness of action (risks that are taken voluntarily are seen as less severe);
- perceived control over the risk (risks believed to be under one's control are seen as less severe);
- how familiar the risk is (familiar risks are perceived to be of lower severity than those that are novel); previous direct personal or social group experiences of the threat;
- how the risk is learned about through shaping, filtering and prioritisation through communication channels such as mass media.

Other important influences on risk perception include gender, age, ethnicity, income, education and levels of general health literacy. These findings highlight the importance of tailoring and targeting communications to different audiences (see Section 4).

While it is beyond the scope of this report to review all of these factors (for summaries, see Glik, 2007; World Health Organization, 2005; see the Annex), overall, how people respond to a threat depends not only on what they *think* about it, but also on how they *feel* about it and who is telling them about it (Peters et al., 2006). Simply put, if individual feelings towards an activity are usually generally favourable (such as positive experiences of drug use, or beliefs that existing personal harm reduction strategies are effective), the risks tend

to be judged as low and the benefits high; if feelings toward the activity are already unfavourable, then there is a tendency towards the opposite judgement (Slovic, 2002).

It is important for communicators to increase awareness and highlight drug-related threats, and target audience susceptibility to those threats, as this is a primary motivating component for risk-behaviour change (Rogers, 1975; Witte, 1992). If target audiences do not feel susceptible to identified harms, then they are unlikely to change their behaviour. However, successful health risk communication messages also emphasise effective and achievable harm avoidance and harm reduction strategies, in addition to communicating the threat. Communications should therefore include sufficient threat messaging to encourage people to change their behaviour, but fear-arousal messages alone without efficacy messages can result in unexpected and unwanted responses.

When perceptions of a threat are strong, trust and confidence in the communicator is high, belief in the proposed behavioural response or strategy is effective, and perceived levels of self-ability to avoid or reduce the risk of harm is also high (termed *self-efficacy*), then communications are more likely to lead to the expected response. However, when perceptions of a threat are strong, but audiences' belief in the effectiveness of the proposed response or confidence in the communicator or authorities' ability to manage the threat is low, or if they doubt their own ability to successfully practice the proposed response, then target groups may instead act to control the feelings of fear the communication evokes, rather than following any recommended actions (Witte, 1992).

This means that instead of pursuing self-protective actions (e.g., avoiding using a drug), recipients may instead engage in potential harmful and self-defeating ones (e.g., ignoring the communication). Feelings of anxiety, fear, dread and other negative emotions can affect responses to health risk communications. They can make people feel powerless to respond, less able to pursue recommended actions, believe that it is others' responsibility to act, or to paradoxically pursue the harmful behaviour in an attempt to 'control' it (e.g. seek out a drug to demonstrate 'control' over the threat or the efficacy of their own preferred harm reduction response).

This happens because much of human behaviour is based on rapid decision-making processes that involve the use of rules and cues ('heuristics') that individuals develop when they are faced with high levels of mental 'noise', or when they are anxious about something, or don't have the time or necessary information and understanding to deliberate over a decision (Slovic, 2002). While this process can lead to beneficial behavioural choices where a rapid decision is required, it can also lead to biases in the interpretation of risk (either overestimating or underestimating severity and susceptibility to risk). This is particularly true when target audiences have a low level of familiarity or understanding of a threat, or where attitudes and beliefs have not been formed about the responses that have been proposed.

Differences in target audience receptivity to risk and risk communications may also be shaped by social and cultural factors (Slovic, 2010). Audience members who are part of strong social and peer networks, or who have ties to communities that are already engaged in discussions about harm reduction will be more receptive to communications.

Drug information may be amplified or attenuated depending on shared understandings of the risk within these groups; and this may be affected by previous (positive and negative) experiences of engagement with the communicator, shared social identities and how group members differentiate themselves from others with regard to relevant normative behaviours of the group (Cho and Boster, 2008). A drug-related threat that may be considered harmful by a communicator and some parts of the target audience may fall within the boundaries of tolerated risk for another (e.g., some audience members may always divide an ecstasy tablet into smaller dose segments).

It is therefore important that communicators consider what challenges might arise as a result of the social and cultural environments in which drug use takes place, and whether their own definitions of risk and the nature of the drug threat, and the values and priorities that underpin their messages correspond with those of target groups (Gamhewage, 2016).

4. Preparing public communications: segmenting audiences and message mapping

Audience segmentation

As audiences process and respond to threats to health and well-being in different ways, communications and alerts are likely to have differential impact. They will be accepted by some audience members but rejected by others. The use of *audience segmentation* and *message mapping* techniques, whereby the same overall message is delivered and framed in different ways to different segments of the target audience may be beneficial ([Harrington et al., 2015](#)). This is work that takes place prior to the emergence of a threat, and it is an essential component of risk communication preparedness, as the effectiveness of communications may depend on prior actions aimed at better preparing target audiences for future events.

There are different approaches to audience segmentation, and this could be undertaken on the basis of demographic, social, socio-economic and behavioural characteristics (including drug use history and preferences), or combinations of these approaches.

As sections of the target audience are likely to have different levels of understanding, receptivity and resilience to risk, one useful strategy is to segment the audience on the basis of prior engagement with drug checking and harm reduction, 'drug-literacy' ⁽¹⁾, or likely readiness and motivation to engage with health risk communications ([O'Neill, 2004](#)). This could be achieved with target-group profiling activities that focus on better understanding audience beliefs about drug harms, personal susceptibility and perceived efficacy to respond.

Target audience members are unlikely to sit within discrete categories, and these will differ depending upon the scale, location and nature of the drug checking service. The results of audience segmentation activities could therefore be used to help identify the range of different communication strategies and resources that might be needed in the event of a hazard emerging, or to help a service think about potential barriers to the effective delivery of their messages.

Different techniques can be used to gain these insights. While a formal needs assessment ⁽²⁾ is a useful exercise, other techniques such as surveys, interviews, focus groups and 'insider-knowledge' can be useful.

A possible scenario of how a fictitious drug checking service might develop audience segmentation and profile when preparing their communication strategy is presented in the

(1) The degree to which individuals have the capacity to obtain, process and understand basic information about drugs, in order to make appropriate health and social decisions.

(2) See the needs assessment section of the [EMCDDA Prevention and Evaluation Resources Kit](#) (2010) for suggested approaches.

box [Example of audience segmentation and profile by fictitious Nightfun DCS](#). For illustrative purposes, the fictitious drug checking organisation is called 'Nightfun' and the labels used to describe audience segments and readiness for communications are only intended to be illustrative and are not based on an actual assessment.

In real life, no population or audience will be so clearly segmented, but the approach is still useful to help the development of risk behaviour change messages. The purpose of segmentation is to create relatively homogeneous groups, whose message content and preferences are similar to one another, so that messages can be designed to be maximally effective throughout the whole target audience. Lack of target audience segmentation activity and message targeting are thought to be factors contributing to failures of risk communication campaigns in the past.

Pre-testing messages

Testing and pre-testing of communications and messages among audience members before a threat emerges is important. Although not always possible, having pre-tested messages allows rapid dissemination once a threat emerges and the decision has been taken to inform people about it.

While the exact nature of a threat may not be known, key message components such as design, delivery platform and recommended actions can be prepared and tested among target populations. This can range from formal development activities, including structured workshops and research into message efficacy, to rapid consultation with target groups through outreach and social media.

Testing messages requires careful planning and should be considered a risk-preparedness exercise, as once a drug threat has been identified there is usually insufficient time available to conduct the work. Undertaking this type of formative research can also have the added advantage of helping to build trust and engagement with harder-to-reach audiences. Evaluation of previous communications, including the success and failure of particular messages, and the processes of delivery, should also be incorporated into this work.

Message mapping

A useful tool for preparing risk communications is 'message mapping' ([Covello, 2006](#); [World Health Organization, 2005](#)) (see [Annex A](#) for full guidance on this approach). This technique was designed to help organisations develop communication plans in response to questions or information requests during a crisis, but the principles can be used to help shape the content of drug alerts, or to inform people about harm reduction techniques more generally. The map is a means of organising information, anticipating the concerns of different audiences, and ensuring that multiple messages – sometimes from different communicators – are consistent with the overarching aims of the alert (see the box [General process and suggested adaptations for drug checking service alerts](#) and [Table 2](#)).

Example of audience segmentation and profile by fictitious Nightfun DCS

In preparation of their communication strategy, the drug checking service 'Nightfun' identified five groups.

Harm reduction innovators constitute the smallest but most important audience segment. It comprises people that already have high levels of involvement with drug checking and other services, and will be involved in delivering responses as a drug threat begins to emerge. They are likely to be embedded in relevant cultures, and might also be volunteers in drug checking services or peer organisers in harm reduction organisations. They have a high level of knowledge and understanding of drug-related topics, are motivated to help develop and disseminate risk communication activities, and are willing to invest time and personal resources into these activities. This group is likely to be actively involved in responses to drug-related threats and is the first group to be reached by communications. Harm reduction innovators may already have participated in activities to develop resources, and can be relied upon to share information, and advise others on how to minimise harms.

Harm reduction early adopters form what is possibly the second largest group. People in this segment may not be actively involved in the development and delivery of communication activities but are important to consult in the development and testing of materials, as they have high levels of receptivity to guidance and motivation to act. They are already likely to incorporate protective strategies as part of their drug use behaviours, such as regularly using drug checking systems or volunteering in services, and have regular face-to-face contact with them. This is an informed target audience segment with high levels of health-literacy and self-efficacy for behaviour change, and hence can be expected to understand and process most risk communication messages.

A **distracted majority** is one of the largest audience groups identified by Nightfun. It comprises people who use substances, but not necessarily on a regular basis, and enjoy specialist cultural activities such as dance music parties and festivals. They have some awareness of drug-related harms and dedicate a relatively low level of personal resource into learning about or preparing for the emergence of drug threats. This group is, however, aware of the potential harms of drug use and the benefits of protective actions and can be persuaded to adopt protective social norms (e.g., general harm reduction advice). People in this group are therefore likely to be responsive to harm reduction outreach work and the harm avoidance recommendations provided in communications.

Resistant group is a large segment prioritised by Nightfun in risk communication activity. Similarly to *distracted majority* it comprises people who use substances and enjoy specialist cultural activities. Unlike that group, however, they have low general awareness of drug harms, perceive themselves to be at low risk – even from emerging threats – and dedicate little or no personal resources to harm reduction. Nightfun assessed this group as likely to resist many general harm reduction and behaviour change activities, but could respond to targeted advice from authoritative sources about avoiding drugs of concern.

Harm reduction sceptics are a relatively small group but one of concern. Although exposed to harm through the use of substances, they may believe they can avoid this through the strategies they have developed, and may be unlikely to pay attention to a risk communication alerting them to a hazard because they don't think it applies to their type of drug use, or they think they can control their exposure to the substance of concern. This group enjoys nightlife, but not in the types of setting that Nightfun usually operates its field office. Not all segments of the target audience will acknowledge or respond to risk communications, but rather than ignore this group, or hope that general risk communications will be sufficient, the drug checking service is considering collaborating with a peer-led harm reduction service that is conducting outreach work in mainstream nightlife settings to try and raise awareness of drug-related harms in preparation of a hazard.

It is important that target audience members and other stakeholders are invited to join message mapping teams to ensure relevance of the information and that no gaps are left. While drug checking services could prepare message maps on their own, co-production with target audience representatives and expert stakeholders (including communication specialists where possible) helps to identify both the questions and concerns people might have and the content, language and format of answers. These will help to inform the final alert. While it might be easier to get those enthusiastic members of the target audience identified in segmentation activities involved in this process (e.g., *innovators* and *early adopters* in the example above), it is also important to try to include other, harder-to-reach people, as these might benefit most from a drug alert when a threat emerges.

TABLE 2
Illustrative message map for a rapid alert in response to the on-site detection of a drug hazard

Stakeholders: people attending a music festival		
Question or concern: general alert about threat exposure to ecstasy tablets with high doses of MDMA (>300 mg)		
Key message 1	Key message 2	Key message 3
Ecstasy tablets containing <i>harmful high</i> doses of MDMA have been <i>detected</i> at this festival	<i>Avoid</i> [brand name] tablets; for all other tablets only take a quarter	If you <i>feel unwell</i> for any reason then <i>seek help</i> from the on-site <i>welfare team</i>
Supporting information 1-1	Supporting information 2-1	Supporting information 3-1
A festival attendee submitted an ecstasy tablet for analysis at the on-site field-testing station. It was found to contain 300 mg MDMA	Consumption of high-dose MDMA associated with hyperthermia leading to multiorgan failure; risk of intracranial haemorrhage, seizures, acute kidney injury, cardiac dysrhythmia, psychiatric complications	Welfare teams include medical staff and drug workers
Supporting information 1-2	Supporting information 2-2	Supporting information 3-2
Festival attendee reported buying it from someone on-site	People may think they are ‘safe’ if they take other brands of ecstasy tablet; profile of other available drugs at festival unknown	Welfare teams won’t call the police if someone seeks help. Police will not arrest people in possession of tablets if they dispose of them
Supporting information 1-3	Supporting information 2-3	Supporting information 3-3
Police report that these types of tablets have also been seized in the community, so are likely to have been bought off-site as well	Peer workers have asked people selling or distributing these tablets to dispose of them in designated amnesty bins	Network partners in off-site health services have been informed

General process and suggested adaptations for drug checking service alerts

The first step in a message mapping exercise is to identify the stakeholders for drug alerts including people who use drugs, but also other interested and influential parties that might help share alerts, or who are part of the response to a drug threat, such as national or local early warning systems, other health professionals working in the field, law enforcement, event promoters, etc.

In the second step of a message mapping exercise, a list of questions and concerns that are relevant for each stakeholder group is put together. These are derived from the different types of research the service has undertaken to understand their audience and the potential drug threats they might face, as well as previous experiences in responding to threats.

Questions and concerns might broadly include: (1) the key information that stakeholders will need or want to know about the nature of threat, and how it has arisen; (2) specific informational questions that stakeholders might ask about the threat; (3) challenging questions/concerns that might arise, including those regarding trust and confidence in the communicator; and (4) what the stakeholder is expected to do in response to the threat and the other stakeholders that are part of the response.

Questions are then analysed and categorised according to topic and the extent to which stakeholder groups might be concerned about them. This helps to prioritise initial messaging when a rapid response is required or there is unlikely to be an opportunity to issue follow-up communications. At this stage in the process, the focus is on prioritising different questions/concerns. Identifying the core overarching message of an alert, what recipients will need to do in response, and the advice given to them is addressed in the next step.

The mapping team then develops answers in response to the questions/concerns that have been prioritised for each stakeholder group. Drug alerts provide information and advice about a drug threat, and so prioritised questions/concerns may relate to what the threat is, what the potential harms are, and how target audiences can avoid them. Keywords related to each answer are identified, and a set of key messages are created that include them. These are then used to inform the content of the alert.

While a communication might comprise a combination of graphics, written text and other media, these are all based on the key messages derived from the answers to prioritised questions/concerns, and are rooted in key risk communication, harm reduction and behaviour change principles.

An appendix is created which includes all the supporting information that was used to answer the questions and create the key messages.

Most alerts will be relatively simple, bringing attention to a threat and advising how to respond, but follow-up messages or risk-preparedness activities that aim to initiate or sustain longer-term behaviour change require a different approach. The input provided by experts is crucial here, not just drug- and behaviour change specialists but also communication experts and 'real-world' expertise gained from working with target groups.

Message testing is undertaken with partner organisations and target group representatives to validate the accuracy and clarity of the communication. Again, while it might be easier to utilise volunteers and other people attached to the drug checking service, their familiarity with drug threats and harm reduction techniques may mean that they are not representative of the wider audience.

Lastly, an action plan is developed for the delivery of communications based on the message maps, including relevant formats, media platforms, and trusted partners and communicators.

What does research tell us about effective messaging?

Research on effective messaging (see [Section 5](#)) has identified a series of principles important to adhere to when developing messages. In short, findings suggest the following.

- **Messages are simple, specific, prioritised and certain.**
- **Messages are accurate and based on robust evidence and intelligence.**
- **Communications contain sufficient information to motivate people to act.** Ideally there should be just one core message, and not more than three. A 27-9-3 rule has been suggested, which corresponds to a maximum of 27 words, audio of 9 seconds, and not more than 3 key messages. This is not proscriptive, but audiences may be less able to retain and act upon more information than this, and may also be receiving the alert in nightlife and other leisure environments or when they are intoxicated, which will affect attention and comprehension.
- **The content combines words with graphics and other visual stimuli to illustrate recommended concepts and actions.**
- **References to organisations and communicators that are credible and trusted by target audiences be included.** This includes relevant logos, pictures and quotes.
- **Language is easy to understand and uses concrete terms and expressions rather than nuanced or ambiguous phrases** that can be interpreted in multiple ways. The readability level should be appropriate to the audience, and this might be lower than expected. A reading/comprehension age of 12 years can be assumed. Key phrases that are likely to be used in alerts should be prepared, for example 'High Strength' when referring to drug content, or 'seek help if unwell', and pre-tested with service users. People should be asked how they interpret these messages and what they would do in response, and the message changed and re-tested if they respond in unexpected ways. Messages should be tested with people who have never accessed a drug checking service before. It should not be assumed that just because the team or frequent service users understand a particular message that others will too.
- **Messages provide sufficient information to motivate people to act, but not too much that they are overwhelmed by the detail.** Less relevant or complex technical details should be left out.
- **Alerts highlight the immediacy of the threat, and audience susceptibility to the threat, but not too much that audiences enter 'fear control' mode** ([Section 3](#)). The 'fear' component of a message should be balanced by positively framed solution-oriented advice that clearly states recommended actions. It may include information such as where and when a drug threat was detected. Issuing general alerts about previously detected drug threats ('background threats') is to be avoided, as this may lead to complacency and new threats being ignored. Sensationalist language should not be included in alerts. If target audiences need to act, this should be clearly stated.
- **Messages provide feasible advice and recommendations for action that the target audience are capable and motivated to complete.** Messages should not assume that people will already know what actions to take in response to a drug threat. It is important to advise audiences where they can seek support if necessary, and ideally, name them

and highlight where they are located. If warranted, 'no use' messages should be included in the drug threat.

- **Alerts be backed up by other resources with more detailed or supporting information, as audiences look to confirm, qualify and understand the content of an alert.**
- **Core messages are consistent across stakeholders.** When messages are repeated, it is important to update the content in response to relevant new information.

5. Guidance in public communication for drug checking services

This chapter presents some guidance for drug checking services in an effort to support them in developing their health risk communication activities.

The size, structure and function of drug checking services can differ greatly. Some services may be part of coordinated networks that help to deliver national responses to drug harms and have the resources to develop comprehensive communication campaigns. Other services may only issue local alerts in response to on-site testing and individual submissions.

The guidance presented here consists therefore of key principles that are relevant to all types of service. It is designed to support drug checking services that are developing and releasing public alerts and other communications, but it is not intended to guide individual-level interventions with service users (e.g. brief interventions).

A longlist of guidelines was agreed in consultation with drug checking services from the TEDI network, and are based on the content of this report, scientific reviews and guidance from authoritative organisations (see [Annex A](#)).

From this list, ten key principles in communication for drug checking services ([Table 3](#), see also [Figure 2](#)) were identified and finalised through a consensus-building exercise with TEDI members by means of an online survey among European drug checking services and in dedicated workshops at the annual EMCDDA technical expert meeting with the TEDI network in 2019). These ten principles are aimed at staff working in drug checking services who are involved in communicating drug-related risks or threats to service users, people who use drugs and the wider public. The practices suggest some of the best ways in which drug checking services can help ensure that their drug safety alerts and public communications reach target audiences and improve the likelihood that recommended actions will be adopted.

Key principles in health risk communication by drug checking services

Activities in health risk communication from drug checking services can be divided into three phases.

1. *Preparedness phase*: where drug checking services seek to understand their target audiences, develop partnerships with other organisations, and develop, test and refine their messages and communication plan.
2. *Response phase*: where drug checking services issue alerts and other communications, monitor dissemination and support target audiences to implement recommended harm reduction practices.
3. *Review phase*: where organisations evaluate the impact of their activities and reflect on the lessons learned from their communications.

Preparedness

- **Trust and credibility are essential.** These are difficult to develop and easy to lose. Audiences respond positively to communicators that they perceive are trustworthy and credible and are sceptical of information provided by organisations that lack these qualities.
- **Target audiences want to know that you care before they care about what you know.** The public, and in particular, people who use drugs, are central to drug checking activities, and should be invited to be part of the development of risk communications.
- **Risk communication is a process that begins long before a threat emerges** and an alert is issued. It is not only a response to a drug-related threat, but also a way of building resilience towards future threats. Efforts should be made to socially normalise and develop target group skills in preventive and harm reduction practices. The use of culturally relevant messages and messengers can support the short and long-term adoption of these preventive and harm reduction behaviours.
- **Have an informed plan.** Know what needs to be achieved and how to achieve it before a drug threat emerges. It is essential to understand the barriers that may prevent target groups from adopting a recommended action, or where message resistance might arise, in order to develop strategies to reduce these barriers, and to listen and respond to the concerns of target groups
- **Undertaking audience segmentation and message mapping** activities will help prepare for a drug threat. Audience segmentation helps drug checking services understand different groups and their information and support needs. Message mapping is a systematic process of risk communication design conducted in collaboration with key stakeholders.
- **Message design activities should take into account research on effective messaging:** for example, messages should be simple, specific, prioritised and certain; ideally there should be just one core message, and not more than three; language should be easy to understand and use concrete terms and expressions rather than nuanced or ambiguous phrases that can be interpreted in multiple ways. Less relevant or complex technical details should be left out.
- **Understand your audience(s):** how do they think, feel and communicate about drugs and the risks involved? How does a drug checking service message fit with their own experiences of drug use? A single uniform message is unlikely to be appropriate for the whole audience. Audience profiling and message tailoring are essential activities. How drug checking services communicate is just as important as what they communicate. Efforts should be made to understand what information audiences want to receive and how they want to receive it.
- Message design activities should take into account **message sensation** (how messages attract, stimulate and hold the attention of target audiences); **message narrative** (what 'story' does the communication tell); **message framing** (the extent to which the consequences of a hazard or behaviour are emphasised in a communication); and **message tailoring** (messages uniquely designed for segments of the target audience on the basis of their characteristics).

- **Modification of message may be required**, but consistency in the core information to be communicated should be ensured. This can be achieved by testing different messages and evaluating their impact, examining different ways of presenting information that make use of words, images and technical information, and remembering that even the most highly health-literate audience members might be receiving the message in less than ideal circumstances.
- **Don't work alone.** Drug checking and risk communication should be seen as one component of a larger interconnected approach to reducing drug-related harm. Drug checking services should coordinate, collaborate and work in partnership with other credible and trusted organisations where possible. It is also important to listen to the concerns of the public, the organisations the service works with, and those with which it does not.

Response phase

- **Risk communications ought to adhere to the values, interests and concerns of the target groups**, and not just those of the communicator, funders or policymakers.
- **The public and other stakeholders may need to know different things about a drug threat**, and drug checking services may want them to respond and take action in different ways. Some types of communicator are better able to achieve this with some audiences than others, and are better able to convey certain types of information. Where a drug threat or specific audience requires different types communicators, drug checking services should ensure that there is consistency in the message delivered and any recommended actions.
- **Deliver communications through multiple platforms** and ensure that the message is compatible with the media the target audience likes to use and that it is easy for them to access.
- **Providing information about a threat is useful in increasing knowledge and awareness, and this can lead to attitudinal change.** While this may be sufficient to support behaviour change in people who invest significant personal resources and time in harm reduction, it is unlikely to be a successful strategy for the majority of the audience. Instead, drug checking services may focus on *what* they want their audience to do in response to the threat, how effective that will be, and *how* they want them to do it. Do audiences already have the motivation, skills and opportunity to act upon the advice? It is important to bear in mind barriers that could prevent audiences from taking action or reduce their motivation to do so.
- **Timing of alerts is important.** Audiences may pay the most attention to the first communication they are exposed to and base their subsequent attitudes and behavioural response to the threat on this. Premature alerts that contain no useful information or recommendations for action can undermine audience trust and confidence.
- **Audiences may need to hear the message multiple times and in different ways.** Communication platforms should be culturally, socially and contextually appropriate. Choosing the right platform for the audience and setting, and the urgency of the message, is therefore necessary.

- **Audiences need to feel that they are personally at risk from a drug threat, but not to the extent that their fear prevents them from adopting recommended actions.** Messages should be tailored to take into account differences in risk perception and susceptibility and, where possible, personalised to appeal to the skills and experiences of audiences.
- **Positively framed messages that emphasise the benefits of adopting a recommended course of action tend to be more effective than those that focus on the harms that might result from not following advice.**
- **Message framings that emphasise pro-social actions and reinforce a sense of shared identity** can strengthen audience motivation to share advice and help others to follow it, as people who participate in nightlife, festivals and other recreational activities can have a strong community or social identity.
- **Supplementary messages can be used to inform audiences about how responses to the threat are developing,** once drug checking services have informed target audiences about what they want them to do, and depending upon the nature of the drug checking service and type of threat. Although many drug alerts are single messages, as the threat is time-limited, follow-up messages might focus on what is already known or still remains to be learned about the threat and what external organisations (including authorities) are doing about it.
- **The effects of information overload can be as much of a problem as providing too little information.** It is important to keep audiences updated on the changing nature of a threat, and recommendations for action might change across time. However, issuing too many alerts, or overwhelming audiences with too much information, can lead to response fatigue, where audiences become reluctant to act upon important new advice, or they only pay attention to familiar information sources.
- **Social media has the potential to deliver risk communications rapidly and to large audiences** and is a good way to engage and build trust. However, social media also shares messages beyond the original target group and geography. With increasing audience reach, drug checking services have less control over how the message is interpreted and changed by others. Considering the ways in which the content of the message (including images and factual information) might be edited or manipulated by others and how this might be prevented is also important.

Review phase

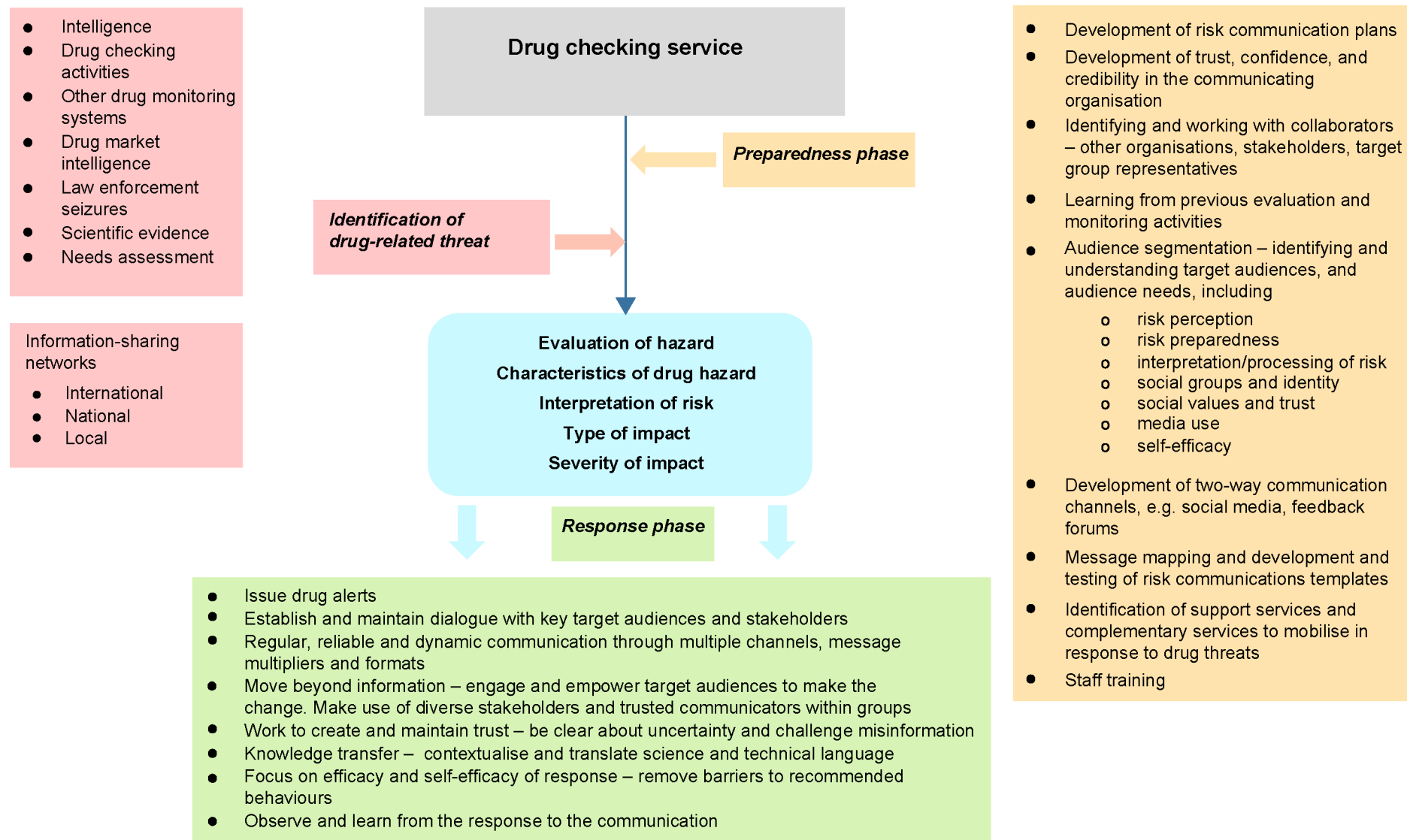
- **Risk communication activities should be evidence-based and evidence-generating.** Evaluation and routine monitoring should be embedded within drug checking services. When reviewing organisational responses to a threat, transparency about the 'lessons learned' can help to maintain and build trust with audiences in readiness for future alerts (see the [next section](#), on evaluating drug checking services' communication strategies).

TABLE 3
Ten principles in health risk communication for drug checking services

Preparedness phase
<p>1. Trust and credibility are essential – <i>these are difficult to establish, and easy to lose.</i> Audiences respond positively to communicators that they perceive are trustworthy and credible, and are sceptical towards messages provided by organisations that they believe lack these qualities.</p>
<p>2. Risk communication is a process that begins long before a drug threat emerges and an alert is issued. It is not only a response to a drug-related threat, but also a way of building resilience towards future threats. Preparatory activities should aim to socially normalise and develop target group skills in preventive and harm reduction practices. The use of culturally relevant messages and messengers can support the short and long-term adoption of these preventive and harm reduction behaviours.</p>
<p>3. Understand your audience(s). How do they think, feel and communicate about drugs and the risks involved in use? How does your message fit with their own experiences of drug use? A single uniform message is unlikely to be appropriate for the whole audience. Audience profiling and message tailoring are essential activities. How you communicate is just as important as what you communicate, so it is important to understand what information audiences want to receive and how they want to receive it.</p>
<p>4. Message design activities should take into account <i>message sensation</i> (how messages attract, stimulate and hold the attention of target audiences); <i>message narrative</i> (what 'story' does the communication tell); <i>message framing</i> (the extent to which the consequences of a hazard or behaviour are emphasised in a communication); and <i>message tailoring</i> (messages uniquely designed for segments of the target audience on the basis of their characteristics).</p>
Delivery phase
<p>5. Communications about responses to drug harms should adhere to the values, interests and concerns of target groups, and not just those of the communicator, funders or policymakers. This can sometimes be difficult to balance, which is why drug checking services should work with partners to reassure them of common goals of harm reduction and safety.</p>
<p>6. Timing of alerts is important. Audiences may pay the most attention to the first communication they are exposed to and base their subsequent attitudes and behavioural response to drug threats on this. Premature alerts that contain no useful information or recommendations for action can undermine audience trust and confidence.</p>
<p>7. Deliver communications through multiple platforms, and ensure that your message is compatible with the media your audiences like to use and how easy they are able to access it.</p>
<p>8. Audiences need to feel that they are personally at risk from a drug threat, but not to the extent that their fear prevents them from adopting recommended actions. Messages should be tailored to take into account differences in risk perception and susceptibility and, where possible, personalised to appeal to the skills and experiences of audiences.</p>
<p>9. Positively framed messages that emphasise the benefits of adopting a recommended course of action, tend to be more effective than those that focus on the harms that might result from not following advice.</p>
Review phase
<p>10. Risk communication activities should be evidence-based and evidence-generating. Evaluation and routine monitoring should be embedded within drug checking services. When reviewing organisational responses to a threat, being transparent about the 'lessons learned' can help to maintain and build trust with audiences in readiness for future alerts.</p>

FIGURE 2

Summary overview of good practice in public health risk communication for drug checking services



6. Evaluating drug checking services' communication strategies

Evidence on the potential effectiveness of drug checking services in changing behaviour and reducing drug-related harms is emerging (Betzler et al., 2020; Brunt et al., 2016; Giné et al., 2017; Karamouzian et al., 2018; Maghsoudi et al., 2021; Measham, 2019, 2020; Pirona et al., 2017; Wallace et al., 2020). Research has so far tended to focus on the interactions between people and services, including intention to use services, and behaviour and behavioural intentions in response to receiving (hypothetical) drug checking results (e.g. discarding harmful substances) (e.g. Martins et al., 2017; Measham, 2019, 2020; Measham and Turnbull, 2021; Saleemi et al., 2017; Southey et al., 2020; Valente et al., 2019). While not evaluated in existing research, other potential outcomes of engagement with drug checking services include the sharing of the advice received with others and longer-term reductions in substance use.

As mentioned earlier in this report, there have been relatively few evaluations of the development and delivery of communications and alerts, either as stand-alone activities of drug checking services or as part of a comprehensive multiagency strategy. This is important because, as with all interventions in the drugs field, there is the risk of unintended consequences and 'communication backfire', whereby communications can have the opposite effects to those intended (e.g., target audiences seek out a potent drug). Therefore, it is important to always integrate research, monitoring and evaluation into drug checking service activities.

Choosing appropriate outcomes is crucial. For instance, impacts on threat exposure (Hadden, 1989) are likely to be a better indicator of success than the timely issuing of the alert, as receiving alerts does not guarantee behaviour change, and the frequent exposure of target groups to warnings in other aspects of everyday life may undermine the effectiveness of individual communications about drugs (Kitzinger, 2008).

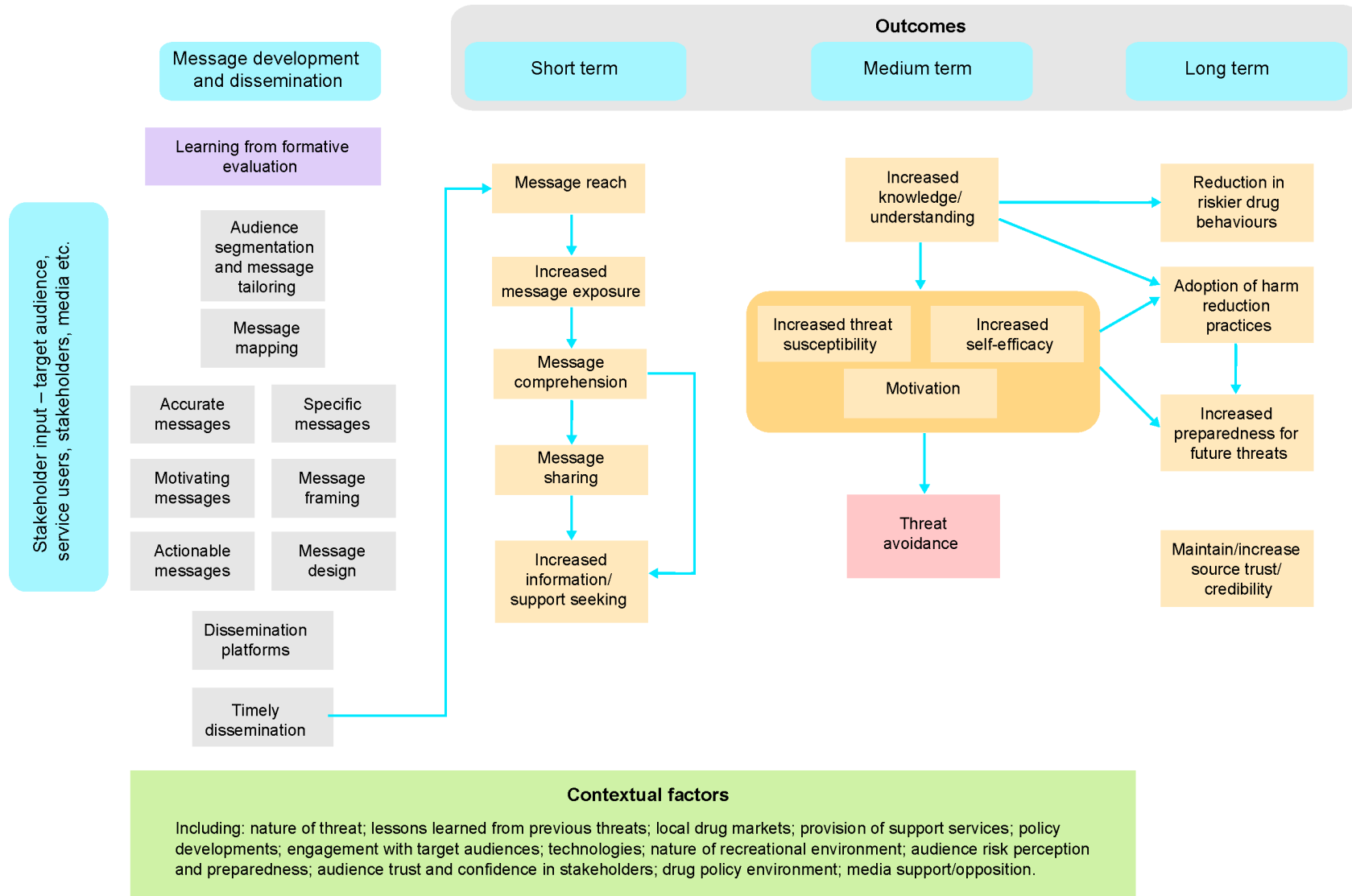
As discussed, for communications to be effective, individuals must receive the message, understand the information, agree with the recommended course of action and have the ability to act (Fischhoff et al., 2011). Without evaluation, it is not possible to ascertain whether alerts and other messages have been successful at each of these stages, and may result in scarce resources being devoted to ineffective communications.

Undertaking large evaluations may not be feasible for many drug checking services, but organisations can try to incorporate some evaluation and data collection work at different stages of development of their communications and alongside their service delivery. This work can be divided into three main categories: formative evaluation, process evaluation and outcome evaluation (Fischhoff et al., 2011).

While there are currently no specific guidelines to assist in the evaluation of drug checking communications, and the development of these is outside the scope of this report, some approaches are outlined in the general health risk communication field (e.g., Lundgren and McMakin, 2018; Seeger et al., 2018; World Health Organization, 2018). The EMCDDA's (2010) Prevention and Evaluation Resource Kit (PERK) may also be instructive. In addition, see Figure 3 for an example framework.

FIGURE 3

An example framework to support evaluation of drug checking service health alerts and communications (adapted from Seeger et al., 2018)



Formative evaluation

Formative evaluation is most appropriate during the preparation phase (incorporating learning from previous alerts) to assist in the planning of communications, and in determining if changes are required in implementation. This includes the audience segmentation and message mapping activities described in [Section 4](#), and communication plans, structures and systems. Formative evaluation also helps message designers develop content, formats and delivery strategies through participatory design ([Fischhoff et al., 2011](#)).

Other activities conducted as part of formative assessment may include conducting brief literature reviews of key areas for consideration (including drug-related toxicity information, effective communication and behaviour change techniques, management of drug threats), analysis of media coverage to establish how similar threats have been reported in the past, and audience research to determine what they currently know and how they perceive the risk being communicated ([Witte et al., 2001](#)).

Formative evaluation cannot determine the effectiveness of communication but is worth investing in in order to avoid or correct any potential shortcomings, and in turn increasing the likelihood of a successful communication ([Witte et al., 2001](#)).

Process evaluation

Process evaluation activities are conducted after communication activity has begun but before it ends, and may be repeated several times during the action ([Witte et al., 2001](#)). This evaluation helps services determine whether the communication strategy is being delivered as intended and focuses on the actual activities performed (e.g., frequency, locations, time, persons served by the activities, and how activities are performed). Monitoring these processes allows changes to be made during a long-term communications activity and helps services to refine future activities.

A process evaluation can help to later explain why a communication had the effects that it did (or not), as well as identifying potential barriers and letting others know what to expect if they follow a similar strategy. Mechanisms should be in place for the target population and stakeholders to express their views and experiences of the communication and to provide suggestions for improvement ([Ventura et al., 2013](#)).

Examples of topics that could be explored in process evaluations include:

- reach of message:
 - media coverage of communication (e.g., alert coverage, sharing of social media posts, secondary distribution);
 - number of target audience members reached and demographics (age and sex) (e.g., number of posters across locations, social media views);
- whether targeted audiences understood the communications (e.g., through cognitive testing used in survey questionnaire development);
- number of services and individuals actively involved in risk communication/network;

- drug checking service operational activity, how the alert system was mobilised, and how well any partnerships or collaborations worked;
- assessment of network members' views of the usefulness of the system and recommended improvements.

Summative or outcome evaluation

A summative or outcome evaluation is conducted at the end of a communication action to assess whether the programme was effective according to pre-determined indicators of success (whether or not the communication had the desired effect on target audiences). Health risk communications aim to change behaviour, but it is difficult to demonstrate this without undertaking complex (and expensive) research. Drug checking services should therefore be realistic about what they can demonstrate with their evaluations, and be cautious when it comes to discussing the impact of the service. It may be more realistic to investigate outcomes, such as whether alerts changed the knowledge, attitudes or beliefs of target audience members, or if they prompted the seeking of further information and support ([Witte et al., 2001](#)).

Examples of topics that could be explored in outcome evaluation of risk communication activities might include:

- whether target audiences improved their knowledge (e.g., raising awareness regarding high dosages of substances and/or cutting agents used in the making of psychoactive drugs) or adopted more cautious attitudes towards substances bought on the illicit market;
- behaviour and professional activity change as a result of the communication and associated responses; including (but not limited to):
 - reduction in drug use among target audiences (e.g., number of persons who do not consume the substance after they are informed about dangerous ingredients/situation, reduction of the inadvertent use of mislabelled or misrepresented substances);
 - reduction in mortality and morbidity among target audiences (fatal and non-fatal intoxications);
 - reduction in adverse effects (e.g., hospital presentations, community-based treatment requests);
 - increase in target audience engagement with services (through referrals or signposting provided in risk communication);
 - uptake of harm reduction advice among target audience (e.g., change in route of administration);
 - secondary dissemination of messages through peer networks, and to new and diverse groups;
 - improvements in professional (e.g., service provider) knowledge of drug harms and their confidence in responding to them.

The role of drug checking services within a wider public health response to drug-related harms has become increasingly relevant in recent times. Future steps in this field may

include moves towards harmonisation and the building of consensus among European drug checking services on the determination of criteria and thresholds for when and how to issue alerts as well as the adoption of evidence-based standard operating procedures in health risk communication. This work will greatly benefit from the evaluations of risk communication methods that drug checking services are encouraged to undertake, as well as from newly acquired evidence in other areas of public health.

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Annex A. Further information: reading and resources

Guidelines and toolkits on risk communication

Agency for Toxic Substances and Disease Registry, [Risk communication toolkit](#).

World Health Organization (2005), *Effective media communication during public health emergencies: A WHO handbook*, World Health Organization, Geneva.

World Health Organization (2018), *Communicating risk in public health emergencies: a WHO guideline for emergency risk communication (ERC) policy and practice*, World Health Organization, Geneva.

Resources on drug checking and harm reduction in nightlife and other recreational settings

EMCDDA (2022), [Recreational settings and drugs: health and social responses](#).

EMCDDA (2017), [Drug checking as a harm reduction tool for recreational drug users: opportunities and challenges](#), Publications Office of the European Union, Luxembourg.

Trans-European Drug Information project (TEDI)

[Guidelines of drug checking methodology](#).

[Drug checking consultation and counselling guidelines](#).

Theory and practice of risk communication

Glik, D. C. (2007), 'Risk communication for public health emergencies', *Annual Review of Public Health* 28, pp. 33-54.

Message mapping approach

Covello, V. T. (2006), 'Risk communication and message mapping: A new tool for communicating effectively in public health emergencies and disasters', *Journal of Emergency Management* 4, pp. 25-40.

Formal drug risk assessment and drug alert systems

EMCDDA (2019), [EMCDDA operating guidelines for the European Union Early Warning System on new psychoactive substances](#), Publications Office of the European Union, Luxembourg.

Public Health England (2015), [Drug alerts and local drug information systems](#), Public Health England, London. Includes criteria for prioritising alerts.



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