

Mapping Current and Potential Sources of Routine Data Capture on New Psychoactive Substances in Scotland

**Allan Gillies (with contributions from Isla Wallace)
Justice Analytical Services
Scottish Government
March 2015**

Introduction

The Evidence Group on New Psychoactive Substances (NPS) met on 26 August 2014 to discuss the state of knowledge of NPS in Scotland. The Group agreed that prevalence and harms constitute the most pressing evidence gaps on NPS-use. Addressing these gaps is essential to ensuring an effective and proportionate response to the issue. Enhanced systems of data capture on NPS and information sharing between stakeholders, therefore, were viewed as priorities.

The Drugs Research Team has undertaken work to map existing and potential data capture systems on NPS in Scotland. This paper summarises information gathered from 8 interviews, conducted with individuals from across sectors. It provides a starting point for exploring the strengths and weaknesses of a number of existing data systems in Scotland, considers how they may be improved and the opportunities for collaboration between stakeholder organisations.

Main findings

Information on NPS is already being collected by a number of agencies, and there is generally increased awareness of the issue within these organisations.

- Forensic analysis of NPS products: Police Scotland has carried out analysis of hundreds of recovered packages of NPS, compiling information on the chemical contents of these products.
- NPS Toxicity: Records of enquiries to the National Poisons Information Service (NPIS) can provide indicators on general trends in NPS-use. In addition to this, patient data collected via telephone enquiries captures harms associated with NPS and the demographics of use¹. Data is currently gathered at a UK-level, although this may be disaggregated to give Scotland-specific analysis.
- NPS-implicated deaths: Deaths related to NPS are captured as part of the National Drug Related Death Database (NDRDD). NHS Scotland – Information Services Division (ISD) have managed and analysed this database since 2009². In addition, National Records of Scotland (NRS) produce an annual report on drug related deaths³. The most recent reports from both NHS Scotland – ISD and NRS contain annexes on the harms associated with NPS.
- Prevalence data for NPS use: The Scottish Crime and Justice Survey (SCJS) gathers information on the prevalence of self-reported drug use in the general

¹ NPIS, (2014) [National Poisons Information Service Report 2013/14](#)

² The most recent report was published in 2014: NHS National Services Scotland – ISD Scotland (2014) [The National Drug-Related Deaths Database \(Scotland\) Report: Analysis of Deaths occurring in 2012](#)

³ National Records of Scotland (2014), *Drug-related deaths in Scotland in 2013*

population⁴; the Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS) carries out this function in the 13-15 age cohort⁵. Both surveys added previously legal and/or 'new' drugs to their methodology in 2010. There are limitations to these surveys, though, as they do not cover all forms of NPS and fail to capture marginal sub-populations.

- Individuals presenting to drug treatment services: The Scottish Drug Misuse Database (SDMD) collects data on individuals presenting to drug treatment services. SDMD allows for reporting on NPS use, with specific coding for several substances, including mephedrone, Benzofury, and Spice. Respondents may also enter 'Legal High Unspecified', with a free text field to provide the name of the NPS. Data on NPS-users in the SDMD, at this stage, is relatively sparse; constituting a small percentage of the total number of people presenting to drug treatment services in Scotland. This database is due to be replaced by a new Drug and Alcohol Information System (DAISy) in Spring 2016. This will capture data on the categories of NPS used by clients attending Drug Treatment Services (e.g. synthetic cannabinoid, stimulant depressant, hallucinogenic, analgesic, dissociatives).
- Ground-up response to the emergence of NPS: Those providing frontline services are also gathering information on various aspects of NPS. This includes third-sector organisations and local practitioners, such as healthcare professionals and service providers. The focus of these groups tends to be on formulating practical guidelines for responding to NPS, e.g. advancing harm reduction messages. Although such groups are sensitive to the changing dynamics of NPS-use on the ground, evidence collected at this level is largely anecdotal.

Significant gaps in formal data capture on NPS in Scotland remain. There are potential sources of information on NPS that are not currently being utilised.

- Including NPS in standardised reporting: Stakeholders from across agencies noted that NPS have yet to be incorporated into standard reporting procedures. NHS Scotland patient recording systems, for example, do not include coding for NPS. Systematic collection of data on NPS prevalence and harms within such organisations, therefore, is limited.
- Mechanisms of data sharing: There are a range of existing and potential sources of information on NPS, which may be used in conjunction to enhance collective knowledge of prevalence and harms. These sources may be linked through improved systems of data sharing. At this time, organisations rely on informal channels of communication, such as regional drug trend monitoring groups, to share and discuss the issues they face. There is, though, scope to establish more formal regional and national systems of data sharing. This would have utility both from an operational and analytical perspective.

⁴ Robertson, Laura, with Bates, Ellie, (2014), [The Scottish Crime and Justice Survey Drug Use](#), Scottish Centre for Crime and Justice Research: University of Glasgow, Scottish Government Social Research

⁵ NHS National Services Scotland (2014) [Scottish Schools Adolescent Lifestyle and Substance Use Survey \(SALSUS\) Drug Use](#) Report

There are a range of issues to overcome if both existing and potential systems of data capture on NPS are to be improved.

- Constantly evolving market: Supply and demand for NPS fluctuate, which means new substances rapidly appear, before fading quickly from the market. Data capture systems struggle to keep-up with this rate of change.
- The problem of time-lag: Measures of prevalence and harm for established drugs have a natural time-lag, as different sources are coordinated and analysed. The stability of these markets makes such a lag in reporting inconsequential. For NPS, the changing composition of supply and consumption mean that such information may be outdated by the time it is released.
- Identifying NPS: There are hundreds of NPS products sold under different brand names. Packages contain different mixtures and ratios of chemical compounds. Even for products with the same brand name, chemical compositions are inconsistent and NPS users are often unaware of what drug they have taken.⁶ There is, then, a real problem in identifying the active chemical compound(s) in NPS products.
- Testing for NPS: Routine blood and urine screens do not pick-up on NPS. Although there are new rapid detection methods to identify these substances, access, at this time, is limited. Incomplete information on how long different NPS stay in the body and difficulties in testing for miniscule quantities compound the problem.
- Establishing standardisation across systems of data capture: Practitioners lack a settled, standard system for classifying NPS. First, there are questions around what constitutes an NPS.⁷ For example, whether a substance such as mephedrone, which has been under control since 2010, should still be referred to as an NPS. Additionally, a model for categorising NPS needs to be agreed by stakeholders, e.g. with the use of broad categories (stimulant, sedative, dissociative, hallucinogenic, etc.)⁸ or under chemical compound groupings (cannabinoid, tryptamine, cathinone, etc.). Resolving these questions would ease data sharing between organisations.

⁶ This highlights the problem of self-reported drug use in survey data. Uncertainty around the identity of NPS reduces the reliability of such data.

⁷ Stakeholders may wish to adopt the Home Office definition of NPS: 'psychoactive drugs, newly available in the UK, which are not prohibited by the UN Drug Conventions, but which may pose a public health threat comparable to that posed by substances listed in these conventions'. Home Office, (2014), [New Psychoactive Substances Review: Report of the Expert Panel](#), p.4.

⁸ This system also allows the clinical features that a patient presents with to be grouped into these categories when NPS not known.

Data capture by sector

Stakeholders from across sectors face distinct challenges and opportunities in collecting data on NPS. Each organisation constitutes a different arena for data capture, and may play a role in enhancing knowledge on the prevalence and harms associated with NPS-use. This section discusses what work is already being done in this regard, and ways in which data collection may be improved.

Police Scotland

Police Scotland has formed Operation Redwall to address the problem of NPS. During a 'day of action' on 22 August 2014, they worked with partner enforcement agencies to recover 6000 packets of NPS from 58 'head-shops' throughout the country. From this, 400 samples were analysed by Police Scotland – Forensic Services.

Analysis identified 37 different chemical compounds present across samples, but with great variation in contents between products, e.g. chemical mixture, potency and ratio. This extended to packages carrying the same brand name. This analysis can provide a useful reference resource for partner organisations in health and the third sector; giving data on the basic chemistry of NPS products present in Scotland. In this way, particular chemical compounds and brands of NPS may be matched to acute harms. Variation between NPS packages, the supply of NPS via the internet, and the emergence of new forms and brand names of NPS may limit the long-term utility of this particular resource.⁹

Although Police Scotland must protect subjudicious information, they indicated a general willingness to share their data with other stakeholders. For example, they held a debriefing on their 'day of action' and there are plans to circulate a restricted version of the Operation Redwall report, containing the chemical analysis carried out by Forensics Services. There is the potential, then, to open more formal channels of communication between Police Scotland and partners; allowing for regular up-dates of NPS trends. This would also be affected by the ability of Forensic Services to meet demand for analysis of constantly emerging NPS products. The Welsh Emerging Drugs and Identification of Novel Substances Project (WEDINOS) provides an example of an alternative model for providing up-to-date analysis of NPS products at a national level (see appendix two).

Other methods of data capture, which are used as indicators for established drugs, have limited utility for NPS. Because most NPS are legal, there is little information on NPS in Police Scotland's drug seizure data.¹⁰ The same applies to data on individuals suspected of driving under the influence. While NPS may impair driving, uncertainties around their effects make it difficult to secure convictions for their use, e.g. questions around what constitutes an intoxicating dosage. Therefore, blood samples are not generally tested for NPS.

⁹ UK-wide and European systems may act to supplement this information (see appendices).

¹⁰ NPS which have been controlled (if these are included in the definition of NPS), such as mephedrone, are picked-up on this data.

NHS Scotland

Within NHS Scotland, there are numerous arenas for data capture on NPS. These may be used in conjunction to establish a stronger evidence base on the issue. To date, though, collection of information on NPS has been sporadic. Reporting for NPS has generally not been integrated into standard recording systems.¹¹

There is scope to improve this, but it is important to first clearly define the key research questions on NPS prevalence and harms. Mining information on NPS from across the Health Service may be an ineffective use of resources. Bespoke research may offer a more efficient and timely alternative for addressing certain research questions.

Ethical considerations and data protection regulations around NHS Scotland data are paramount concerns for ISD. Generally, though, it is possible to share anonymised data with partner organisations.

Finally, there is variation across NHS health boards in the requirements for ethical approval of projects working with patient data. For example, where analysis of anonymised, discarded blood samples was adopted as a standard policy in NHS Lothian, the practice was initially declined by an ethics board in NHS Greater Glasgow and Clyde. Differing requirements may create issues in rolling-out certain projects/practices throughout NHS Scotland.

A & E

A & E is potentially a valuable source of data capture on NPS, picking-up on prevalence and harms in a range of populations. Collection of this information is currently limited. For example, there is no coding for NPS-implicated attendances in TrakCare, the patient recording system used throughout NHS Scotland. This is a problem that extends to patients who are subsequently admitted to wards. High-level data on the prevalence and harms of NPS-use, then, is being lost. There are proposals to extend routine data collection in A & E to include substance misuse-related attendances. However, as outlined previously (pages 2-3), there are a number of issues to resolve in incorporating NPS in this way.

There are also more prosaic barriers to new systems of data capture. Efforts to introduce a reporting system on NPS in NHS Greater Glasgow and Clyde encountered difficulties in up-take. A & E staff were asked to complete an additional form outlining information on NPS-use in patients, which would then be entered into a central database. In order to encourage participation, only basic information was sought: suspected NPS taken, clinical presentation, and admitted/discharged. However, the response rate to the survey was low. As staff are already under time pressure relating to direct clinical care, additional tasks that do not impact on the patient's immediate management are difficult to implement.

¹¹ Clinical case notes also provide information on patients reporting NPS-use. It is not routine procedure, though, to collate and analyse such material.

Psychiatric Services

Anecdotal reports suggest that NPS-use is a growing problem for psychiatric services. For example, synthetic cannabinoids have been linked to patients presenting with psychosis. Additionally, frontline staff have noted cases of significant adverse effects from stimulant-type NPS. This may occur in people presenting to psychiatric services for the first time or individuals with pre-existing mental health issues and/or substance misuse.

As in the case of A & E departments, there is no formal system for data capture on NPS-use in psychiatric services. This is compounded by the problem of screening blood and urine samples for NPS (see 'testing for NPS', page 3). Systems of data collection here may improve understanding of prevalence and harms of NPS-use in a vulnerable sub-population.

The Forensic Medical Examiner Service

Addiction and mental health are commonly encountered issues in custody healthcare and forensic medical services. Here too, NPS-use is viewed as a mounting problem. In Edinburgh for example, staff have witnessed individuals having extreme adverse reactions to NPS. Injecting of NPS, which delivers a highly potent dose, was perceived to be a factor in some of these cases. Furthermore, the physiological effects of consuming various forms of NPS in conjunction with other substances, such as alcohol, are unknown.

Again, there are similar gaps in formal data capture on NPS-use: qualitative information gathered in the form of clinical notes, but no diagnostic coding in reporting systems. Difficulties in screening for NPS in blood and urine samples present issues, not only in data capture, but in providing treatment.

Needle Exchange Services

Stakeholders noted their concern over risks associated with injecting of NPS. Consuming NPS in this way is more potent and corrosive to the skin and veins. It is believed that long-term injecting drug users are increasingly turning to NPS. There are also reported cases of NPS-users who are injecting for the first time. Harm reduction messages, which were developed around, and largely focus on, heroin users, may not have the same impact on NPS injecting behaviour.¹² The public health consequences of this, in terms of the spread of blood borne viruses, for example, could be severe.

There are efforts to incorporate NPS into the national system for recording transactions in needle exchanges (NEO) for 2013/14. In the past, however, ISD has not included a national analysis of reported drugs at needle exchange services due to incomplete data. The majority of injecting equipment provision (IEP) services in Scotland are pharmacies, which tend to collect the least detailed data. It is likely, then, that data on NPS-injecting behaviour from this source will remain limited.

¹² Individuals in this group may or may not also be heroin injectors.

National Records of Scotland (NRS) and NDRDD (ISD)

The number of NPS-implicated deaths has been increasing over the past 4 years, rising to a sufficient level to warrant an in-depth analysis of the issue for the most recent reports on drug related deaths produced by NRS (reporting on deaths in 2013)¹³, and the National Drug Related Deaths Database produced by ISD (NDRDD, which reports in more detail on a subset of the deaths reported annually by NRS)¹⁴.

Using information from post-mortem and toxicology reports, the NRS DRD report provides information on the number of deaths where NPS was present and/or implicated and whether this was alone or along with other drugs. It also provides information on the demographics of the individuals who died. The NDRDD report provides more detail and context around a subset of the deaths that NRS reports on annually, in order to identify risk factors and inform measures to prevent drug deaths. For the NDRDD, information is fed to a Drug Related Death Co-ordinator with the local Alcohol and Drug Partnership (ADP) or Health Board who has responsibility for pulling together different data sources on each DRD. These include Police Scotland, the Scottish Prison Service (SPS), GPs, social work, substance misuse teams, and family. The Co-ordinator, therefore, will have good local links with a range of stakeholder organisations. This information is used to compile a 'social autopsy' of the deceased. ISD is responsible for holding this rich source of data on a national database. Sharing of this data is governed by similar ethical and data protection requirements to those outlined previously.

By definition, the NRS DRD report and NDRDD report provide a narrow picture of the overall prevalence and harms of NPS in Scotland. However, the system for coordinating data on DRDs may act as a template for models of data sharing on NPS.

National Poisons Information Service (NPIS)

Drawing on medical and scientific evidence, as well as analysis from the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), NPIS provides a range of information on NPS for healthcare professionals, e.g. treatment guidelines, chemical composition of NPS and substance synonyms. This is available via telephone and through an online database, TOXBASE. Phone enquiries are also a source of information for NPIS, as data is gathered on patients and their symptoms. This is UK level data but may be disaggregated, giving Scottish specific analysis on the associated harms of NPS use.

Figures 1.1 and 1.2 (page 8) show the number of NPS-related telephone enquiries and TOXBASE accesses to NPIS from 2009-onwards. This data provides an indication of general trends in NPS-use, with increases in the number of enquiries believed to correspond to increases in prevalence. Such data may also highlight the emergence of highly harmful substances; when enquiries spike for a particular NPS,

¹³ National Records of Scotland (2014), [Drug-related deaths in Scotland in 2013](#)

¹⁴ NHS National Services Scotland – ISD Scotland (2014) [The National Drug-Related Deaths Database \(Scotland\) Report: Analysis of Deaths occurring in 2012](#)

for example. As mentioned previously (page 1), this is aggregate data for the UK, which may be broken down for Scotland-specific analysis.¹⁵

There are, though, certain caveats around this information. First, the number of enquiries to NPIS does not directly correlate to the number of patients presenting due to NPS-use.¹⁶ Healthcare professionals may not utilise NPIS resources for each case as they become familiar with the effects of a particular NPS, for example. Equally, some enquiries may be for general educational purposes or personal interest. In addition to this, enquiry data is based on reported NPS-use. Difficulties in identifying NPS, detailed previously, may lead to misreporting.

The problem of identifying NPS is also present in analysing NPIS data on harms. Although information given by healthcare professionals through phone enquiries will generally be reliable, there may be a degree of uncertainty over the identity of the NPS. Even with these limitations, data collected in this way may be valuable in monitoring national trends and harms in NPS-use. Furthermore, TOXBASE provides a ready-made system for cascading information to stakeholders. This includes warnings on NPS products which are causing concern.

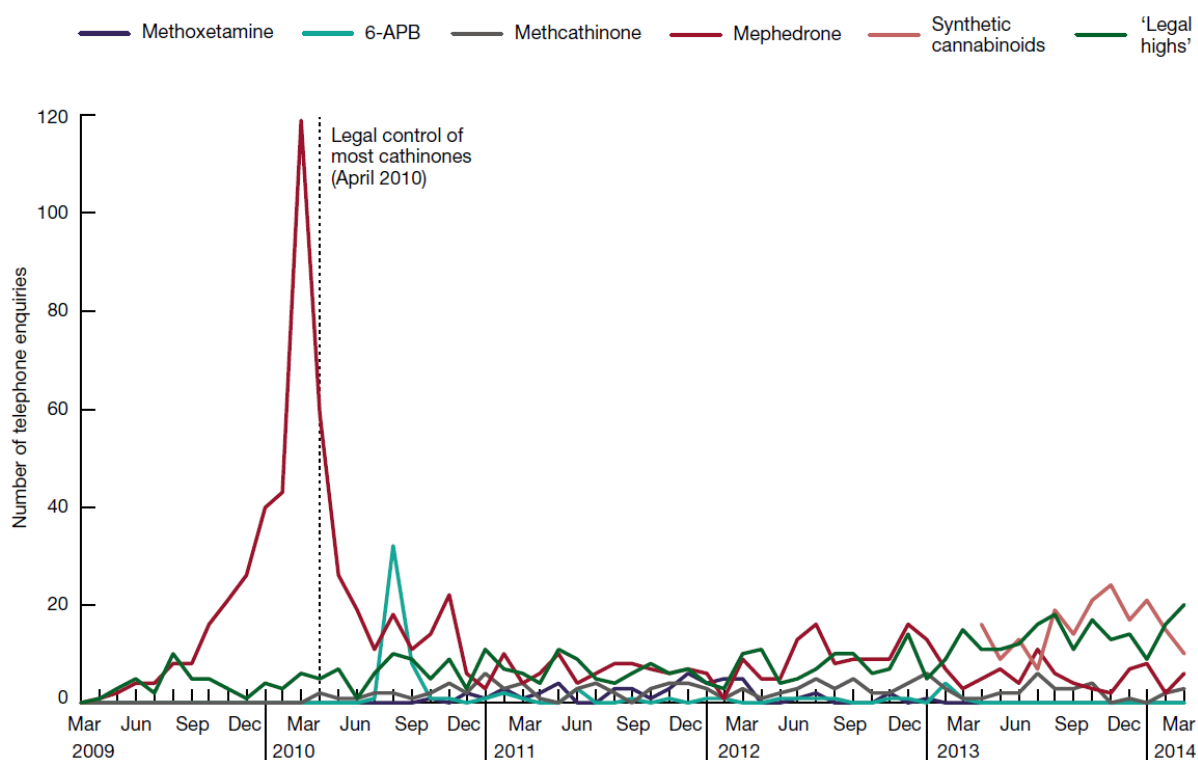


Figure 1.1: NPS-related telephone enquiries¹⁷

¹⁵ This would require additional resources.

¹⁶ Woods, et. al., (2014), 'Using poisons information service data to access the acute harms associated with novel psychoactive substances', *Drug Testing and Analysis*, Vol. 6, pp. 850-860.

¹⁷ Graphs taken from NPIS, (2014) [National Poisons Information Service Report 2013/14](#), p.36.

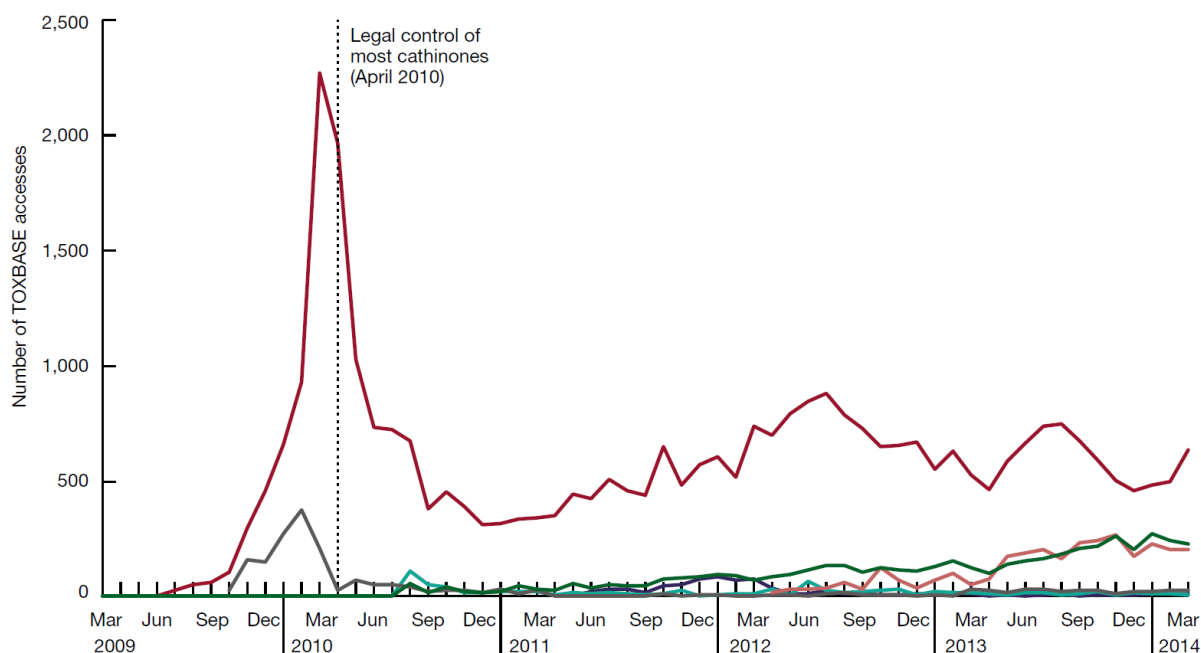


Figure 1.2: NPS-related TOXBASE accesses

There are also moves to supplement NPIS clinical data with routine analysis of blood samples.¹⁸ Collaboration between NPIS and NHS Lothian, for example, used laboratory based follow up to confirm clinical diagnoses from poisoned patients who reported taking 'Ivory Wave'.¹⁹

Plans to analyse discarded blood samples for NPS will aid the process of matching harms to specific NPS. A similar project, run between NHS Greater Glasgow and Clyde and the University of Glasgow, will also commence shortly. The Scottish Government-funded, 'Recreational Drug Intoxication Project: Detecting Novel Psychoactive Substances' will screen blood and urine samples in those presenting with recreational drug intoxication/complications at A & E in the Glasgow Royal Infirmary. In such cases currently, the implicated-NPS is rarely identified; in others, it will only be detected at autopsy. The project aims to address this.

Others

There are a number of other organisations that may also contribute to knowledge of the prevalence and harms of NPS within Scotland. For example, the SPS and child services may provide information on NPS-use within marginal and/or vulnerable sub-populations. ADPs and third sector organisations, such as the Scottish Drugs Forum (SDF), Crew 2000 and the Centre for Drug Misuse Research, are already gathering

¹⁸ To implement in all cases, this would require additional resources.

¹⁹ Desoxypyridol was the active ingredient identified in samples of 'Ivory Wave' powder and biological fluids. For more information see Murray, et al, (2012), 'Ivory wave' toxicity in recreational drug users; integration of clinical and poisons information services to manage legal high poisoning', *Clinical Toxicology*, Vol. 50, No. 2.

information on the dynamics of NPS-use on the ground, e.g. the 2014 'Legal High' National Online Survey²⁰

There are also valuable sources of data on NPS captured through UK-wide and European systems. Three of these are included as appendices: the UK Forensic Early Warning System (FEWS), WEDINOS, and the EMCDDA Early Warning System (EWS). Although there are unique dynamics to the issue within Scotland, much of the data collected at this level is transferable, e.g. chemical compounds present in NPS products and information on harms. These can be used to supplement Scottish systems of data capture on NPS.

Improving collaboration in data collection

Stakeholders identified a need for greater collaboration between agencies in responding to NPS. There are a range of existing and potential sources of information on NPS, which may be used in conjunction to enhance collective knowledge of prevalence and harms. For example, Police Scotland's chemical analysis of NPS products may provide a useful reference tool for health services, helping to match harms to specific NPS. Such forms of data capture may be linked through improved systems of data sharing. This has both an operational and an analytical aspect.

The issue of NPS has many moving parts, with supply and demand fluctuating. From an operational perspective, this poses challenges in gathering and cascading accurate information to stakeholder organisations. Frontline staff may face uncertainty when responding to NPS-use due to a lack of information. Subsequently, knowledge acquired in such cases may be lost, as gaps remain in reporting.

At this time, systems for data sharing are largely informal.²¹ For example, regional drug trend monitoring groups meet to discuss the local dynamics of drug consumption and supply. They typically consist of representatives from health services, Police Scotland, the local ADP and forensic toxicologists. Stakeholders are able to identify emerging problems and formulate a response. This has included advancing credible health warnings and halting the spread of misinformation.²² However, this model relies on goodwill between agencies, and there is no mechanism to disperse this knowledge at a national level, e.g. a Scottish NPS database. Information on the appearance of a new form of NPS in one region may be of great value to practitioners facing the issue for the first time in another area. A

²⁰ Yet to publish full results, although a summary of the key findings is available at: <http://www.drugmisuseresearch.org/>

²¹ The NDDRD and NPIS are exceptions.

²² The 'Green Rolexes' case in Glasgow in 2013 is a good example of this system in action. Furthermore, local practitioners in Edinburgh have formed an NPS group, to discuss and share their experiences of NPS-use. This included representatives from the Forensic Medical Examiner Service, community based addiction specialists, acute health wards, psychiatric services, A & E and toxicology. The initial focus is on formulating practical guidelines, e.g. interim protocol for treatment, and pathway for sharing information. This constitutes a ground-up reaction to what is believed to be a substantial issue.

nation-wide formal system of data collection and sharing could potentially contribute to a fuller picture of the prevalence and harms of NPS in Scotland.

From an analytical perspective, continuous monitoring of the NPS market would help to capture changing trends in use, including geospatial mapping of NPS. Moving from informal to formal systems of data sharing, though, would raise certain governance issues. For example, there would be questions over access, where responsibility for managing the system should lie and ensuring data quality, ethics and consistency. Small-scale studies may offer a simpler alternative for answering certain research question on the prevalence and harms of NPS in Scotland.

Case Study One: The European Drugs Emergency Network Project (Euro-DEN)

The Euro-DEN project was established in recognition of the important role hospital emergency departments can play in gathering information on the frequency of NPS-related presentations and patterns of acute harm associated with NPS-use. As in the case of NHS Scotland, data from hospital coding systems on NPS from across Europe is limited. A network of European emergency departments, then, has been created to gather data on these aspects of NPS and strengthen the evidence base (no Scottish hospitals are part of the network).

As well as identifying existing sources on NPS at a national level and dispersing these through the network, 'a minimum dataset collection tool has been developed to enable collection of data on individual cases, including basic demographics, self-reported recreational drugs/NPS used, circumstances of use, clinical features, management and outcome'.²³ This will be collected over 12 months to geospatially map emerging NPS and their pattern of use. Findings will be reported to the EMCDDA EWS and national focal points to inform the risk assessment process for NPS.

Case Study Two: Salford Early-Warning System Pilot

The Salford Early-Warning pilot is designed to enhance scarce existing resources and knowledge exchange of practitioners confronting NPS; facilitating the identification, risk assessment and response to localised outbreaks of NPS or adulterated drug use. It has been supported by the third sector organisation, UK DrugWatch.

It is a multi-agency system, tailored to the information needs/concerns of stakeholders, which enables cascading of information on NPS to frontline staff. This information may also be shared through the media and with other regions and national bodies where appropriate.

²³ Wood, D.M., et. al., (2014), 'The European Drug Emergencies Network (Euro-Den)', *Clinical Toxicology*, Early Online 1-3.

An online forum is managed by the local Drug and Alcohol Action Team (DAAT, equivalent to Scottish ADPs), building on their existing links to local stakeholders, e.g. A & E, Police, drug services, etc. This local professional network allows for the rapid sharing of information between organisations, and may be linked into regional/national networks in time. It is a ground-up response to NPS, with an operational focus. However, the information gathered may enhance general knowledge on prevalence, harms and trends in NPS-use.

More detailed operational information may be found at:
<http://www.nta.nhs.uk/uploads/salfordewsmode1ver10.pdf>

Conclusion

Anecdotal reports suggest that NPS-use is a growing problem in Scotland. Work is needed to strengthen the evidence base on the issue, and establish the true prevalence and associated harms of NPS. A number of agencies have already instigated efforts to capture data in this regard, and these may be used in conjunction to enhance knowledge on NPS.

However, significant gaps remain. The changing nature of the NPS market poses challenges to existing systems of data capture, as information quickly becomes outdated, for example. Where data capture on NPS is limited, stakeholder organisations may wish to consider integrating NPS into their standard reporting procedures. Additionally, greater communication between agencies and innovative ways of sharing data, such as those described in the case studies, may offer a way of overcoming such challenges.

Interviews Conducted

<i>Interviewee</i>	<i>Date</i>
Richard Stevenson, A & E Consultant, Glasgow Western General, NHS Greater Glasgow and Clyde.	01/10/14
Garry Mitchell and Stevie Russell, Operation Redwall, Police Scotland.	01/10/14
Andrew McAuley, Public Health Adviser (Substance Misuse), Information Services Division, NHS Scotland.	06/10/14
Lesley Graham, Associate Specialist, Public Health, Information Services Division, NHS Scotland.	07/10/14
Jessica Davidson, Lead Custody Nurse – St Leonard’s Police Station, Forensic Medical Examiner Service, NHS Lothian.	16/10/14
Gillian Jackson and Michael Eddleston, National Poisons Information Service.	28/10/14

Appendix One – UK Forensic Early-Warning System

The UK Forensic Early Warning System (FEWS) was set-up in January 2011 to ensure rapid identification of NPS. This helps to inform the recommendations of the ACMD and, subsequently, the UK Government's position on a specific NPS, e.g. whether to apply a Temporary Class Drug Order. Newly identified NPS – chemical compounds as opposed to brand names – are reported to the EMCDDA. The FEWS also provides chemical standards, chemical identification data and advice to forensic laboratories carrying out analysis of NPS. Furthermore, information gathered by the FEWS is cascaded to the Police, the Border Force and Talk to Frank.

Samples are collected for analysis from a range of sources, including the internet, 'head-shops', music festivals and police seizures. 4676 samples have been analysed since the inception of FEWS, identifying 31 new substances during this time.

Appendix Two – The Welsh Emerging Drugs and Identification of Novel Substances Project

The Welsh Emerging Drugs and Identification of Novel Substances Project (WEDINOS) was established in 2009 as a ground-up response to NPS. A & E clinicians in Gwent devised a program with Cardiff Toxicology Laboratories to analyse samples of NPS provided by patients. In this way, the chemical compounds present in NPS were identified and profiled. This also aided the monitoring of trends and harms.

With the help of the Welsh Government, the project was expanded in 2013 to give national coverage. Samples may be submitted by anyone in Wales,²⁴ although there are also numerous participating organisations that support this process: substance misuse services, housing and hostels, youth clubs and young people's services, education, night clubs and bars, mental health community teams, local authorities, Ambulance Service and the Police. There is some concern that individuals may inadvertently post illicit substances, which is a criminal offence.

Information on the chemical contents of samples is made available through the WEDINOS website, newsletter and health alerts. Analysis includes geospatial mapping of the NPS market in Wales. Harm reduction messages are also formulated on the basis of this information and the legal context.

Although fears have been raised that the system may be exploited by drug dealers seeking to validate their supply, there is little evidence that this is the case. For example, WEDINOS does not provide measures of purity.

²⁴ Although WEDINOS also carries out analysis of samples sent from outside of Wales.

Appendix Three – EMCDDA Early-Warning System

The EMCDDA Early-Warning System (EWS) was established in 2005. It gathers data on NPS as they are identified by EU Member States. In this way, national early warning systems feed into the European-wide system. Working in coordination with Europol, detailed information on the NPS, its manufacture, traffic and use, is communicated to national focal points, Europol national units and the European Medicines Agency. For some substances, the EMCDDA may conduct further analysis. This includes:

- Chemical and physical description, with substance synonyms.
- Manufacture of the NPS and links to organised crime.
- Associated health and social risks.

This information is also communicated via resources published on the EMCDDA website.

In aiding identification of NPS, the EWS shares reference materials and guidelines with forensic and toxicology laboratories where limited scientific literature is limited.

Bibliography

Home Office, (2014), *New Psychoactive Substances Review: Report of the Expert Panel*, available from <https://www.gov.uk>.

Murray, et al, (2012), 'Ivory wave' toxicity in recreational drug users; integration of clinical and poisons information services to manage legal high poisoning', *Clinical Toxicology*, Vol. 50, No. 2.

National Records of Scotland (2014) *Drug-related deaths in Scotland in 2013*, available at: <http://www.gro-scotland.gov.uk/files2/stats/drug-related-deaths/2013/drugs-related-deaths-2013.pdf>

NHS National Services Scotland (2014) Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS): Drug Use Report, available at: http://www.isdscotland.org/Health-Topics/Public-Health/Publications/2014-11-25/SALSUS_2013_Drugs_Report.pdf

NHS National Services Scotland – ISD Scotland (2014) [The National Drug-Related Deaths Database \(Scotland\) Report: Analysis of Deaths occurring in 2012](#)

NPIS, (2014), *National Poisons Information Service Report 2013/14*, available from: <http://www.npis.org/NPISAnnualReport2013-14.pdf>

Robertson, Laura, with Bates, Ellie (2014) *The Scottish Crime and Justice Survey Drug Use*, Scottish Centre for Crime and Justice Research: University of Glasgow, Scottish Government Social Research, available at: <http://www.gov.scot/Topics/Statistics/Browse/Crime-Justice/crime-and-justice-survey>

Russell, C (2014) Findings of the 2014 'Legal High' National Online Survey, available at: <http://www.drugmisuseresearch.org/>

Woods, et. al., (2014), 'Using poisons information service data to access the acute harms associated with novel psychoactive substances', *Drug Testing and Analysis*, Vol. 6, pp. 850-860.

Wood, D.M., et. al., (2014), 'The European Drug Emergencies Network (Euro-Den)', *Clinical Toxicology*, Early Online 1-3.