EMCDDA SCIENTIFIC REPORT

SUMMARY

Feasibility study on detecting, tracking & understanding emerging trends in drug use

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Contents

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Summary:

Introduction

This document provides a short review of the key learning that has emerged from the EMCDDA project; >Feasibility study on detecting, tracking and understanding emerging trends in drug use=. The primary purpose of the document is to facilitate discussions on what further activities are likely to pay dividends in this area. The work conducted during the course of this study is not, therefore, comprehensively reviewed here.

The study was initiated to explore how we may be able to better respond to changes in patterns of illicit drug consumption by identifying them in a more timely fashion. Work was prompted by the observation that existing information systems have performed badly in identifying the emergence of ecstasy use (MDMA). The earlier identification of new drug consumption patterns would allow more time to assess the likely impact of such changes and, therefore, facilitate the earlier development of appropriate responses. In this respect, improving our information gathering may provide us with an >early warning= of problems before they manifest. However, it is unhelpful to think that what is being suggested is the development of a new >early warning system=. For a number of practical and technical reasons, improvements in information about new trends are only likely to be made if they are integrated with the data collection activities that pre-exist. The key question is, therefore, >how can existing information systems be made more sensitive to emerging trends in drug consumption?'

The feasibility study provided an analysis of the conceptual, practical and methodological issues associated with identifying new trends. Experts participating in the study from Germany, France, The Netherlands, Spain & the UK prepared individual reports. These assessments explored what resources existed in the respective countries for the collection of information on new drug trends and developed proposals for the future improvement of information collection. Case studies were conducted which reviewed the relative performance of different indicators of drug use with respect to significant historical changes in drug consumption patterns (e.g. the emergency of ecstasy, the heroin epidemic of the 1980s). This information was synthesised to provide an overview of how information systems have historically performed. Available information sources, which are currently not utilised or are poorly utilised, have also been identified. In addition, the study provided a conceptual review and summary of how other international and national drug information systems have attempted to address the problem of detecting, tracking and understanding emerging trends in drug use.

European Union, National & Local Aspects of the Work

One general conclusion of the work is that, whilst developments in data collection systems depend on the national context in which they take place, it is possible to identify common themes between countries. General principles of how data collection can be made more sensitive to the emergence of new drug trends can, therefore, be suggested. However, these general principles need to be interpreted according to the differing situations that exist in different member states of the EU. This argument also applies to the operational level of information collection within member states.

Data collection systems may be designed to operate at a local, city or regional level, as well as at a national or international level. In some respects, such differences are irrelevant to the concerns of this paper as the general principles of how we might make information systems more sensitive apply regardless of the operational level at which data collection takes place. That said, one of the central concerns of this paper is that information is often >trapped=. In other words information is available, but not utilised to draw conclusions about changes in patterns of drug consumption. Often, such information can be found among those who have regular contact with drug users. For example, during the UK=s heroin >epidemic= of the 1980s, reports of young heroin smokers can be found within the internal reports of low threshold street agencies, however, it was a considerable time later that national reporting systems reflected this new trend. Similarly, youth workers and others working with young people were aware of the emergence of ecstasy (MDMA) as a commonly available substance long before the phenomenon had been widely recognized at a national level. New trends tend to start in a number of small geographical locations and, as such, may be missed if data is only considered on a national level. For example, ecstasy use could be found in such places as Ibiza, London, Amsterdam, Berlin and Manchester, when, elsewhere in Europe, the drug was virtually unknown. This suggests that if data collection is to be made more sensitive to emerging trends, the geographical level at which analysis can be conducted should be relatively focused. Information systems that allow data to be analysed at different operational levels are likely to be more efficient at tracking changes in patterns of drug consumption as different locations can be compared and geographical spread mapped over time.

It is not only local comparisons of data that are of importance. New problems existing in one country may have at least the potential to spread elsewhere. International comparisons are therefore an important part of a European system for detecting, tracking and understanding emerging trends. A number of commentators have suggested that, in the EU, the creation of a unified market is associated with the faster diffusion of new ideas, products and technologies. Patterns of drug consumption appear to be as influenced by these changes, as much as other areas of human activity. Globally, developments in the travel and information technology industries now mean that the communication of new ideas takes place both more quickly and to a wider constituency than has ever previously been the case. The entertainment, fashion and style industry has benefited particularly from these developments and young people are now rapidly informed about new youth sub-cultures, to some extent regardless of where they originate. Arguably these factors provide the conditions for new patterns of drug use to transcend national borders far more quickly than previously has been the case. As such, the identification of a new drug trend accruing in one Member State may have the potential to spread to other countries. Therefore, new patterns of drug consumption occurring in any one country will be of interest to other member states, regardless of whether or not they have

similar patterns themselves.

Difficulties in Detecting New Trends in Drug Consumption

The illicit and hidden nature of drug use makes any information gathering activities difficult, regardless of the topic. When new drug trends are considered, initially at least, only small numbers of individuals are likely to be engaging in the activity and, as such, detection is likely to be challenging simply because of issues of scale.   Not all populations of drug users are equally difficult to observe and some patterns of drug use are the focus of considerable monitoring activity. For example, changes in the behaviour of heroin users in contact with treatment agencies may be relatively simple to monitor. New patterns of use, however, are most difficult to detect when they occur in populations that are largely hidden. Similarly, the uses of new substances or innovations in the way existing illicit drugs are used are also difficult to monitor. This is partly because structured data collection often relies on the repeat measure of standardised variables. New substances may simply not be recorded because no questions or codes currently exist.   When new trends occur with respect to both a new substance of use and a new population of users, as appears often the case, then monitoring systems are particularly challenged.   The following table summarizes the features, which make new consumption patterns difficult to detect.

Factors likely to impede the detection of new drug trends

Substance specific factors:
∃   A newly developed substance or a substance that has previously not been used for its psychoactive properties becomes popular.
∃   A new preparation of a substance becomes available or a substance that has a previous history of use but has ceased to be commonly consumed becomes popular once more.
∃   A substance is used in a new way (route of administration).
Population specific factors:
∃   Use occurs among social groups who have previously not been associated with drug consumption.
∃   Use occurs among a group in society to which access by non-group members is limited or difficult, such as certain professional groups or ethnic minority groups.
∃   Use of the substance is not accompanied (in the short term, at least) by serious consequences that cause the individual to become >visible= to existing monitoring systems (i.e. accidents, deaths, treatment attendance etc).
∃   Use occurs in a context in which drug use has not previously been associated with (rural communities, sports clubs, etc.)
∃   Use occurs among newly arrived or transient populations (refugees, migrants, tourists etc).

Not only a problem for >new= drugs

It has been the emergence of the use of >new= synthetic drugs, like ecstasy, that has prompted interest in improving the sensitivity of information systems to new drug trends. However, it does not follow that activities in this area should be restricted to the identification of the use of >new= substances. Indeed, with the exception of the production of analogues of the ecstasy group, the extent to which Europe will be faced with a large number of new drug types

appears questionable. Information systems have performed equally poorly with respect to changes in the use of other drugs whose properties and effects are well known. Given the potential negative consequences that may emerge from a change in the way opiates, cocaine or amphetamine is used in Europe; it is vital that new patterns of use are identified rapidly. If, for example, smokeable methamphetamine (called 'ice' in the USA) became widely available across the EU this would be an important change in drug consumption patterns that would, in all probability, be accompanied by pronounced social and health problems. At present, information systems are poorly configured to identify such new trends regardless of whether the substance is new, or has a previous history of non-medical use.

It is also hard to see how improving the sensitivity of information systems could be accomplished in a manner that selectively looked for the emergence of >new drugs=. Improvements are likely to be accomplished by developing our ability to monitor existing patterns of consumption and identify changes when they occur. Such improvements would, ideally, detect changes in young people taking up the smoking of heroin as much as they would detect the emergence of a new and previously unknown drug.

Sensitivity or false alarms

In any consideration of the problems associated with improving the sensitivity of information sources to new drug trends, one is rapidly drawn to the conclusion that this is only likely to be achieved as part of an ongoing system of review and analysis. Sensitivity, by definition, suggests that you will be identifying new behaviors earlier. By increasing our ability to detect trends that will go on to become significant, we are also likely to increase our ability to detect trends that will not. It also appears probable, for a number of reasons, that the early identification of new trends will require consideration of data that can be considered weak in some respect. No information system is likely to remain credible for long if it repeatedly warns of new trends that do not develop. All these factors suggest that increasing sensitivity should only be seen as allowing the assessment process to begin earlier or, in other words, an >early warning system= can only allow the start of the existing process of epidemiological evaluation to begin more rapidly. It does not replace or substitute the existing processes.

Historical Case Studies

Logically the task of improving the sensitivity of information systems to new drug trends can be broken down into the following three questions.

1. Can existing information sources be developed or improved to better detect new drug consumption patterns?

2. Is it possible to identify new or poorly developed data sources that would have utility for detecting drug consumption patterns?

3. How can we develop a system that allows information from existing data sources or new data sources to be efficiently collated, evaluated and disseminated?

To help answer these questions, a retrospective analysis of how information systems had

performed in relation to previous known drug epidemics was conducted. Library and other sources were audited to explore at what point reporting first occurred. The two drug trends to be considered were: the emergence of ecstasy use in the late 1980s and early 1990s; and the growth in heroin smoking which occurred in a number of European countries during the late 1970s and 1980s.

Both case studies revealed how long it took specialised drug information sources to catch up with phenomena that had become widely known. From relatively early in the development of both new trends, information was available, but was either not collected, not interpreted, not disseminated, or not disseminated in a timely fashion. In both cases, if the policy response was driven by information, then it was from reports in the popular press, whose portrayal of the problem was often both sensationalist and inaccurate, rather than from a considered analysis of the epidemiological data. By the time research studies had been commissioned and undertaken, and the reports appeared in scientific journals, a considerable period of time had elapsed.

Information Sources

If each information source is considered in turn an appraisal of the sensitivity of data sources can be made.

Specialist youth press, Investigative Journalism & Tabloid Sensationalism: In both case studies, the first published accounts of the emerging trends can be found in articles by journalists in the youth/style/culture press. These accounts are one-off and appear substantially in advance of other reports of the trends. In-depth articles by investigative journalists within the quality press appear a couple of years later alongside lighter, more sensationalist reports. The monitoring of other cultural areas, such as popular music, the fashion industry and television, was not systematically reviewed for this project, but appeared, again, to rank among the earliest sources of information.

Specialist Agency Reports - annual & research reports: The next group of references to emerging trends appear within specialist drug agency annual reports. These are initially noted as professional's observations on changes within their client group or reported by their client group. These professional observations tend to be concealed within annual reports, which have often a very limited circulation. Simultaneously, one or two research projects working directly with drug users and drug agencies picked up on the patterns of use. References to emerging trends were found in reports to funding bodies or in internal documents that, again, were not widely available. Research teams, in particular, are often reluctant to release results before studies are completed and journal submissions made. National agencies tended to report on trends to a wide professional audience only once the trends had become reasonably well established. Those working with drug users were aware of the new trends, be it only through anecdotal reports from their own contacts. However, since no forum existed to collate this information, it tended only to appear as brief comments in internal documents or documents whose circulation was extremely limited.

Market Research / Local Surveys: It is interesting to note that both ecstasy use and heroin smoking were picked up fairly early on by a few ad hoc local surveys, usually employing

relatively simple methodologies. Whilst scientific rigour in these exercises was lacking, their simplicity and, perhaps because they were not intended as serious research studies, meant that they rapidly became available in the public domain. In the most part, these were published in the national or local press and quickly forgotten.

Routine Indicator Data Sources: On the whole, routine drug data sources were slow in reporting on the new trends. However, in the case of heroin smoking, one or two of the routine data sources reported fairly rapidly on aspects of the emerging trend. For example, in the UK, the Home Office Forensic Service reported the availability of new smokable heroin, whilst the Addicts Index showed an increase in the number of younger people notified as heroin users. However, the importance of this data was not appreciated at the time. This is largely because the data was not placed in a wider analytical context and no forum consisted for considering if significant changes were occurring.   Only in retrospect is the importance of information about increases in heroin smoking noted.

Enforcement sources - arrests and seizures: Generally, there is a considerable time lag between the collection of arrests and seizure data and the publication of this data. An obvious additional problem with interdictment data is that it reflects the current level and focus of law enforcement activity as much as any underlying trend in consumption patterns. For example, initially, ecstasy was only rarely seized and when seizures were made they were often not reported separately in official statistics. Later data is difficult to interpret as production facilities are targeted and often many hundreds of thousands of doses can be seized at any one time. Despite these problems, again in retrospect, trends can be identified in this data that did not appear to be widely recognised at the time. Interestingly, some internal documents suggest that police and customs >intelligence= were aware, at least in an anecdotal manner, of the emergence of the new trends. However, issues of confidentiality and the absence of a forum for discussion meant this information was rarely widely disseminated. Similarly, in the late 1970s, customs officers may have been aware of an increase in heroin importation and that the chemical composition and country of origin had changed. Arguably, these factors were to have pronounced impact on the potential spread of heroin use, as the product was now cheap and smoking efficient. However, no forum existed to discuss the likely impact of these changes with health service workers or those studying drug use among young people. In the absence of such a forum, conclusions that may seem obvious with hindsight were not drawn.

National surveys: With the exception of market research studies, surveys have proved to be particularly slow in identifying new trends. The reasons for this are twofold:

1. The appearance of a new drug requires the addition of new questions / codes. Those completing repeat measures surveys are often reluctant to make changes in instrument design. It is costly to collect survey data and there can be resistance to inquiring into low frequency events of uncertain importance. Alternatively, those responsible for survey design may simply be unaware of the need to include new questions.

2. The time lag between data collection and reporting of findings tends to be long. For example, there is a time lag of up to two years in the case of the British Crime Survey.

Treatment Attendance Databases: Treatment databases were often designed for monitoring purposes and, as such, they do not have a built in sensitivity required to detect and report rapidly on new drug trends. As with the surveys, the development of new codes takes time, so databases represent a blunt instrument when it comes to picking up on new drugs or uncoded routes of administration. In general terms, treatment attendance can be considered as a >lagged indicator= of the incidence of new drug use. This is because often a considerable interval exists between first use of a drug and the development of problems requiring formal treatment interventions. Furthermore, some patterns of drug use rarely result in treatment attendance. Consequently, drawing inferences about the general population from treatment data is unreliable. In the case of the new heroin users in the UK, it was probably about 8-10 years after the possible identification of the new pattern of use that this became apparent in the treatment data.

Sociological & Ethnographic Research: With the exception of a few research projects that published interim findings or annual updates, most ethnographic and quantitative field studies proved slow in reporting on the new trends, although the quality and reliability of the data provided was very high compared to many other sources. In general, these studies were commissioned after a new trend had been identified, with the purpose of exploring, in more depth, what was actually going on. In most cases, there was an additional gap of two or more years between the fieldwork taking place and the publication of findings. Whilst researchers in the field were often aware of the existence of new patterns of use relatively early on, no forum existed for the dissemination of this information. Networks of researchers, especially qualitative researchers who are studying patterns of drug use in the field, are therefore likely to be an important resource for developing a better understanding of new patterns of drug consumption. What is required is consideration of how this expertise can be utilised. The EMCDDA is currently supporting the development of qualitative research networks in the EU through the creation and maintenance of a website for qualitative drug research (www. QED.og.uk).

Summary and conclusions from case studies

In summary the case studies suggest the following:

1. The earliest reports of new trends appear firstly in the specialist publications designed for the sub-cultural group who are likely to be potential recruits into the use of the drug or share the same social environment with users of the drug. Often these are publications reporting on the music or entertainment industry or publications prepared by young people themselves, such as >fanzines= or alternative youth type magazines. Explicit or implicit references to new patterns of drug use are also likely to appear in music, fashion and the visual media. However, interpretation of these messages may not always be obvious. As use becomes more common, the National and local press begin to carry accounts either investigative or sensationalist. None of this information is currently used in any systematic way to inform formal consideration of changing drug consumption patterns.

2. New trends are quickly observed by people who are in direct, or indirect, contact with the sub-culture in which the potential consumers of the substance are aware of its use. These

people include front-line treatment staff whose clients, if they are not using the drug themselves, may know of others who are, and police officers whose daily work brings them into contact with drug users. In addition, others who work with, or are affiliated to, the sub-cultural group using the substance will also be aware of its popularity. This group will vary according to the trend in question. In the case studies considered here they were youth workers, social workers, outreach workers, and those working in the entertainment, fashion and music industries. All these groups, and the drug users themselves, would represent useful key informants for assisting the initial identification of changing patterns of consumption.

3. Formal indicators of drug use that rely on structured methodologies and specially commissioned research studies often take considerable time periods to report. The delay in publishing research reports, in particular, often means that they are several years out of date by the time they appear. When ongoing monitoring systems have to be adopted to include codes or questions for a new drug type, delays are likely to be pronounced.

Two main conclusions can be drawn from the case studies

Development of new indicators that are based on cultural monitoring (press, television, music fashion etc) and the monitoring of key informant groups would allow initial information on new trends to be collected earlier.

Information is often available, either from ongoing monitoring or from those working in the field, but is not collated or interpreted. There is a need for a forum a) which allows an informed discussion of what changes are occurring and b) in which different types of data are shared and compared. In both case studies, a large amount of information was available, but no process existed that allowed it to be viewed in its totality and over time so that conclusions may be drawn from it.

Review and Typology of International and National Drug Information Systems

Charcteristics

A typology and review of a wide range of international and national drug information systems was conducted to assess what could be learnt from existing approaches to this problem. This will not be reported here in detail but in simplified terms, the following characteristics of information systems are important in relation to their capacity to detect track and understand new drug trends.

Operational Level: The operational level can be defined in relation to the geographical and political location of the information system e.g. local information systems, city level systems, national and international systems. In one respect, the level of the information system can be seen to correspond to the location of the information consumer whose needs the system serves. Although there is no intrinsic reason why drug information systems should not be located across operational levels, and indeed there may be positive advantages in doing so, the majority of systems appear to be designed to work only horizontally (i.e. at one

operational level).

Structure: Drug information systems, broadly follow two types of organisational structures: >organisational systems= and >human networks=. Organisational systems usually consist of a structure for the management and analysis of a defined set of data. Within this structure, different elements perform distinct roles. Thus, DAWN (the system used for collecting emergency room data in the US) can be seen to have a clearly defined structure. Human networks, on the other hand, are configured from a range of individuals, or organisations represented by individuals. Members of the network are generally chosen to bring either general or scientific knowledge or expertise to the drug information system. Information flow tends to be far less rigid within networks, with different members bringing information or analytical comment in accordance with their specific background or expertise. Although some networks, such as the Pompidou Group Multi-City Study Network, will expect members to produce data in a standardised format, in general, networks tend to adopt a more unstructured approach.

Function: Drug information systems exist to fulfil a myriad of information needs. Among these is the implicitly, or explicitly, stated goal to collect information on new drug trends. The timely collection of information on emerging patterns of drug use is seen as important for improving the opportunity to develop policies that minimise the public health risks or other negative impact of new patterns of drug use. This >early warning' role is often central to the information system's rationale for existence and may even be included in the systems name (e.g. DAWN,). However despite this, the majority of information systems, whilst being by definition concerned with trends, are required to produce information for other purposes.

Range of Data Sources: The range of data sources that are used by drug information systems varies. Many are configured around the collection and recording of one or more clearly defined indicators of drug consumption. Such systems can be considered 'closed' as they do not routinely extend their consideration to new data sources. Alternatively, a drug information system may be largely unstructured ('open'), collecting and analysing whatever data is available and appears pertinent the question under investigation. Often, this includes the consideration of anecdotal reports, comments on work in progress or expert opinion. This approach is more common among human networks than organisational systems. There are advantages to both approaches. Drug information systems with 'open' data sources can more critically discuss changes by reflection on a wider and more diverse information base, however, such information may be poor and the absence of time series data derived from a standardised methodology makes reflecting on change more difficult. Alternatively, drug information systems that rely solely on closed data sets may be unaware of important changes that are not currently reflected in their core data set. In addition, the danger exists that the focus on rigorous and standardised data collection takes precedent over the interpretation and dissemination of the results. Such systems also appear to find it difficult to adapt to change when it is required. The revision of structured data collection is time consuming and considerable resistance may stem from the concern that comparability with previously collected data will be lost. These concerns need to be balanced against the information required for monitoring new patterns of drug use. Whilst it is possible for an information system to utilise both open and closed data sources, this appears to be rarely done in practice.

Investigation Method: Two methodological approaches can be observed by which drug information systems seek to collect information on new drug trends. The first, and most commonly adopted, approach is to build up a data set over time by the continuous monitoring of data sources or by reports from individuals or organisations responsible for monitoring some aspect of the illicit drug problem. In its most unstructured form, this might constitute a regular meeting of key informants, but is more often characterised by the regular collection of predefined data types. An alternative approach (but one that could be profitably used in tandem) is that of outbreak investigation. In this model, once concern has been raised about a new topic, be it from any source, resources are invested in investigating what data exists to support or refute the existence of the phenomenon. The advantage of such an approach is that it is flexible and cost effective, only requiring resources when operational. Again, whilst there is no reason why both approaches cannot be used together by a drug information system, this rarely occurs.

Summary and conclusions from review of drug information systems

The following conclusions can be drawn from reviewing how the problem of identifying new trends has been approached by drug information systems:

1. The ideal approach is to combine the repeat collection of data in a structured format with the analytic power of expert human networks, which allows less formal knowledge to be utilized and for individual sets of information to be placed in a wider context.

2. To avoid replication of activity and to efficiently use resources an >Early Warning System= is probably best seen as only one role of an information system that also fulfills other purposes.

3. Information systems that can be proactive by collecting additional information on changes in drug consumption patterns (i.e. outbreak investigation) that are suspected, but not currently verified, are likely to be more effective than those that can only rely on analysing existing data.

4. There is a danger that attention to methodological detail can result in the purpose of the exercise becoming overlooked. It is possible to generate large ongoing high quality data sets that are poorly interpreted or interpreted in a fashion that is unhelpful for the purpose that the information is required. In most respects, this appears to be because there is insufficient dialogue between data producers (those responsible for compiling the data sets) and consumers (those responsible for translating the information into action of some form). This lack of dialogue can be attributed to a range of factors such as lack of time and the prioritisation of other work tasks but it may also be exacerbated by the absence of well founded predictive models on which to hang the dialogue.

Recommendations and Conclusions

Two key points can be drawn from this work:

1. Attention should be given to developing some new indicators of drug use that utilize

13

those information sources that are likely to be available at an early stage in the development of a new drug trend. Retrospective case studies provide consistent conclusions about where these sources lay.

Key Point - **Leading Edge Indicators(LEIs)**:

Developments are required to allow currently unmonitored information to be collected. This requires, not only identifying potential information sources, but it also requires the development of appropriate methodological procedures for collecting the information in a fashion that allows credible inferences to be drawn.

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2. Attention should also be given to developing better analytical processes, which would facilitate a better understanding of the relationships between leading edge indicators, emerging drug trends and possible responses to them. A forum is required that allows the data from a range of sources to be considered, in context, by appropriate experts on an ongoing basis so that policy and service responses to new patterns of drug use become more timely and effective.

Key Point – **Integrated Drug Information**:

Improving the collection of data on new trends (regardless of whether this concerns developing new indicators or improving existing ones) will not pay dividends unless attention is given to improving the process in which this data is analysed, interpreted and disseminated.

These issues are considered in more detail below.

Leading Edge Indicators

Conceptually indicators of drug use can be placed on a continuum from lagged to leading edge reflecting their individual sensitivity to changes in drug consumption patterns. Leading edge indicators are sensitive to changes, but such sensitivity is likely to be bought at the cost of volatility. That is, they will be influenced by fluctuations that do not go on to become significant trends. In addition, to allow data to be available quickly may result in it not being possible to collect comprehensive data sets and the time available for checking and confirmation is likely to be limited. In contrast, lagged indicators may be less volatile, but slower to reflect changes in consumption patterns. The greater time available to compile such data will often (but not always) mean that a greater proportion of the population of interest can be surveyed and there is more time for checking and verification.

Attention should be directed to the methodological development of leading edge indicators (LEIs) of drug consumption that can more systematically allow the collection and analysis of information that is currently available, but poorly utilised. A non-exhaustive list of potential

sources would include: media monitoring; cultural monitoring (music, fashion, television reports, popular literature etc); and reports from a range key informant networks (e.g. law enforcement, drug users themselves, those working with young people, treatment staff, those working in the music or entertainment industries etc.). In the Netherlands, for example, panels of drug users have been used to report on changes in consumption patterns. In the UK, networking between law enforcement and health personnel appears to have potential for identifying new trends and assessing their significance. Some interesting work has also been conducted exploring information about new patterns of drug use that is burgeoning on the INTERNET.

It should be remembered that indicators of drug consumption do not simply consist of the information itself. Indicators also require the development of a methodology of collection (e.g. definitions, inclusion criteria, reporting formats, etc.) This is as true for existing indicators, such as treatment demand, as it is for any new indicators that may be developed. Challenging methodological problems have always existed in collecting credible information on illicit drug consumption. The EMCDDA can play a valuable role in supporting the methodological developments required to allow new information sources to become available.

Exploring poorly developed existing indicators of the negative consequences of drug use, such as accident and emergency room attendance or drug use data among those involved in driving accidents, may also pay dividends. These information sources may be sensitive to some important negative consequences of new patterns of drug use.

Although Leading Edge Indicators (LEIs) may be volatile and less reliable in strictly scientific terms to dismiss such data sources for their inherent weaknesses is to miss the point. Their task is to serve as an alarm bell that drug consumption patterns may be changing, and thereby bring about both the collection of more structured data sets and discussions on what might be appropriate responses far earlier than is presently the case.

Integrated Drug Information

Developing sensitive indicators of changes in drug consumption will not pay dividends if processes are not available for the information to be evaluated and disseminated. The aim of developments in this area should be the establishment of an Integrated Drug Information System. Conceptually, this requires viewing information gathering on drug consumption patterns as an ongoing process in which data from different sources is compared and evaluated. The aim is to identify, not only what is currently known, but also what further information is required. By using a range of different information sources, the weaknesses in individual data sources can be compensated for.

Such a system requires more than the simple collection of information. It also requires an ongoing dialogue between information producers (those responsible for data compilation) and consumers (those who require information for informing action). This dialogue is essential for critically analysing the significance of the available information, identifying information deficits that hamper the development of effective policy or interventions, and for improving the sensitivity of existing indicators. For example, surveys of drug prevalence may be made

aware of the necessity of adding new questions on a new pattern of use. Similarly, providing a forum for making information anecdotally available before publication may alleviate the >reporting problem (i.e. the considerable delays in the dissemination of information collected by formal qualitative or quantitative studies).

Many of the difficulties that are apparent in encouraging an ongoing dialogue and information exchange between those interested in researching or responding to patterns of illicit drug use appear common to other areas in which human expert networking is required. Elsewhere, a range of information technology solutions has been successfully applied to these problems. It may be fruitful to explore the utility of such developments to the ongoing monitoring of new drug trends.

Significant changes in drug consumption patterns that are likely to have a pronounced impact on the extent of associated health and social problems are relatively rare but do occur. It is important that resources are available to enable the thorough investigation of such new patterns of drug consumption when it arises. We have termed this approach, which requires the commissioning of proactive information collection and risk assessment studies >outbreak investigation=. Such work is relatively costly and it is only merited on an occasional basis when ongoing monitoring of the information sources discussed above suggests that a serious new drug problem is emerging.

Theoretical models

In general, the monitoring of new trends is an area in which practice is poorly served by theory. That said, theoretical models do exist, although, at present, the predictive power of theoretical approaches is poor. Attention should be given to exploring whether developing our theoretical understanding in this area can improve our ability to predict behaviours associated with substance consumption that have the potential to spread. For example, Diffusion Theory suggests that drug epidemics have some common features. Certain groups in society may be particularly prone to adopting new drug consumption patterns and to encouraging diffusion. If the conditions in which new drug trends develop can be better understood, it may be possible to focus our information gathering in those areas where diffusion is most likely. Similarly, computer models and theoretical developments in the understanding of complex systems, whilst currently poorly developed, may, in the future, allow us a better understanding of the potential development of leading edge indicators of drug consumption.

Concluding remarks

It is easy to be either unduly ambitious or pessimistic when it comes to considering the question of early warning systems. It would be as big a mistake to assume that we can arrive at a position where all new trends will be easily identifiable as it would be to assume that investing resources in this area will necessarily prove unproductive. This is an area that may be currently poorly developed but as with other aspects of monitoring the illicit drug use, soundly based development work is likely to pay dividends in the longer term. The development of an Integrated Drug Information System need not be a necessarily complicated or costly enterprise. In essence, what is being called for is merely: better coordination of

existing information sources, modest investment in the development of some potentially fruitful new areas of data collection, and greater conceptual clarity and purpose in the way information collection on new trends is viewed.