Drugs and drug dependence: linking research, policy and practice

Lessons learned, challenges ahead

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The author

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Pompidou Group

The Co-operation Group to Combat Drug Abuse and Illicit Trafficking in Drugs (Pompidou Group) is an intergovernmental body formed in 1971. Since 1980 it has carried out its activities within the framework of the Council of Europe. Thirty-four countries are now members of this European multidisciplinary forum, which allows policy makers, professionals and experts to exchange information and ideas on a whole range of drug misuse and trafficking problems. Its new mission, adopted at the Ministerial Conference in Dublin in October 2003, is to promote dialogue and interaction between policy, practice and science with a special focus on the practical implementation of drug policies.

Through the setting up in 1982 of its group of experts in the epidemiology of drug problems, the Pompidou Group was a precursor for the development of drug research and monitoring of drug problems in Europe. The multi-city study, which aimed to assess, interpret and compare drug-use trends in Europe, is one of its major achievements. Other significant contributions include the piloting of a range of indicators and methodological approaches, particularly in the areas of school surveys, resulting in the ESPAD (European School Survey Project on Alcohol and other Drugs),[1] treatment demand (*Treatment demand indicator*), prevalence estimation (*Estimating the prevalence of problem drug use in Europe* publication)[2] and qualitative research. The most recent activity has been the development of an indicator of the social cost of drugs, which has been successfully tested in Poland. Over the years, the Pompidou Group has served as a key forum for epidemiological research and monitoring in Europe, including central and eastern Europe and subsequently the Russian Federation and the Mediterranean region.

In 2004, in the light of developments in the various international organisations active in the field of drugs, the Pompidou Group felt that after twenty years the time had now come to assess what had been learnt and to identify gaps in knowledge in order to strengthen the research base for promoting evidence-based policies. This rationale became the

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1. Initiated by the Swedish Council for Information on Alcohol and Other Drugs and supported by the Pompidou Group.
2. See the Pompidou Group's list of documents and publications at the end of this publication.

objective of the Pompidou Group's Strategic Conference on "Connecting research, policy and practice: lessons learned, challenges ahead" (Strasbourg, 6-7 April 2004). The present background paper, commissioned by the Pompidou Group from Richard Hartnoll, a well-known drugs researcher, formed the starting point for the discussions. The proceedings of the conference are available in a separate publication.[1]

The opinions expressed in this publication are those of the author and do not necessarily reflect those of the Council of Europe/Pompidou Group.

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1. Actes de la conférence stratégique du Groupe Pompidou.

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Introduction

Context and purpose

The Pompidou Group's new work programme for 2004-2006, adopted at the Ministerial Conference in October 2003, foresees a reorientation of approach, taking into account wider European developments, in particular EU enlargement and the EMCDDA. The mission of the new work programme is "to organise discussions and facilitate the exchange of experience and the transfer of knowledge as a bridging role between policy and practice and research in the area of drug misuse and drug trafficking". This text was written for the strategic conference on epidemiology held in Strasbourg in April 2004 to discuss directions and strategies for future developments in epidemiology and research.

The Pompidou Group has been active in epidemiology since 1982 developing activities such as the multi-city study and piloting and promoting a range of indicators and methodological approaches including school surveys, treatment demand, prevalence estimation, snowball techniques and qualitative research. For much of that time, it has been a key forum for epidemiological development and monitoring at European level, including central and eastern Europe and subsequently the Russian Federation and the Mediterranean, and provided the foundation for the epidemiological work programme of the EMCDDA when it became operational in 1995.

The EMCDDA is now responsible for defining indicators and monitoring the situation at European level, so the Pompidou epidemiology group and multi-city study will not continue. Instead, as a multidisciplinary intergovernmental body for exchanging information and experience regarding social cohesion, social policy and drugs, the Pompidou Group will develop its role as a platform to stimulate dialogue between research, policy and practice and to act as a catalyst for evidence-based innovative approaches to drug policy and practice.

It is thus an appropriate time to assess what we have learned over the past twenty years in drug epidemiology and research, in the Pompidou Group and more broadly at European level, to identify gaps in knowledge and obstacles to communication between research, policy and practice, and to reflect on challenges and opportunities for epidemiology and research to inform policy and practice in the future.

The paper is targeted at reflexive policy makers, senior officials and practitioners, research funders and senior researchers. While the immediate context is the future work of the Pompidou Group, it is hoped that the paper and strategic conference will provoke questions relevant to a wider audience of researchers and policy makers. Thus the paper:

– identifies achievements and major gaps in knowledge and methodology;

– suggests directions for strategic developments in epidemiology and other social research on drugs;

– draws conclusions on opportunities for strengthening policy-relevant drug epidemiology and social research in Europe; and

– lays a basis for discussion of options for the Pompidou Group (PG), taking into account its new work programme.

Overview of approach

Outline

Chapter 1 starts from the sorts of questions that policy makers ask of epidemiology and drug research and, using topical examples, examines what trying to answer them involves. Chapter 2 describes what epidemiology is and how different paradigms have important implications for what sorts of answers can be expected and what sorts of policies and interventions they may imply. Chapter 3 gives an historical account of how drugs epidemiology and related research has developed in Europe, leading to Chapter 4, which gives an overview of what questions have been answered and what lessons have been learned about "what works" in drug research, and to Chapter 5, which looks at what questions remain unanswered, why we need to know and what prevents us from knowing them. The final chapter brings together the conclusions of the previous chapters and discusses future research strategy in terms of policy needs, building on what has been achieved so far.

Evidence-based policy and practice

The Pompidou Group's Ministerial Conference stressed the importance of evidence-based policies. "Evidence-based" is a widely used term but the meaning is not always clear. Some define randomised controlled trials as the "gold standard" for establishing effectiveness of interventions. This paper suggests that such criteria are too narrow for many drug policy questions and that a step-by-step process of building evidence through observation, developing theory, testing hypotheses and crossing information is more appropriate.

Beyond description

Much of the work carried out in epidemiology at European level has focused on describing the drug situation and improving comparability. At national level, too, a lot of work is descriptive. The same holds for many reports and studies on interventions and policies. Good description is useful in its own right and helps policy makers by providing a map of the situation and what is being done, and by tracking the changing phenomenon. However, developing appropriate, evidence-based policies and interventions requires going beyond description to understanding the reasons why and how drug use and drug-related problems develop as they do and in what way policies and interventions may affect them. The focus of this paper is therefore on analysis, explanation and understanding.

Situation-response interactions – the need for a thematic approach

Research on drug policy-related questions involves seeking to understand not only drug phenomena and responses to them, but above all calls for analysis and interpretation of how situation and responses interact. These interactions are two-way – information and interpretation of data on the drug situation influence how policies and responses are constructed. This in turn helps shape the drug situation (with both intended and unintended effects). Interactions are further influenced by wider factors such as history, ideology, social perceptions or political priorities.

The two aspects (situation, responses) have often been considered as separate fields, e.g. in the work programmes of both the PG and the EMCDDA, as well as in many national research programmes. A major gap identified in this paper, however, is the limited degree of integration of information on situation and responses, and the low level of analysis of their interactions and implications for policy. This paper thus deals with these two aspects together under broad thematic headings.

Perspectives and paradigms – it all depends how you look at it

Questions reflect underlying assumptions and perceptions about the drug phenomenon and how it should be handled. These assumptions in turn constitute a framework that determines the sort of answers that are expected. The influence of underlying paradigms on what questions are asked and on how they are answered is covered in Chapter 2.

Ethics, human rights and underlying values

Research aims to apply scientific principles and methods to achieve results that are objective, i.e. that are not based on personal opinions but can stand up to critical scrutiny and be replicated or refuted by other researchers using appropriate methodologies and sound logical

procedures. The context in which research operates, however, is not value-free, especially in the drug field where policy approaches can be underpinned by sharply divergent ideological positions and world views, and where some of those most seriously affected by drugs are vulnerable and excluded. Even when not immediately apparent, many policy statements and a surprising proportion of scientific reports reflect implicit values and at times stigmatising associations that are taken for granted, for example in the use of the term "drug abuser". These assumptions shape not only policies and interventions but also what questions are asked and how research is used. Policies and activities in this field, including research, should not be amoral, but values should be made explicit and their full implications taken into account.

Role of epidemiological and social research

Research can serve many functions beyond advancing scientific knowledge. It can be used as an instrument of social control within a framework to maintain normative behaviour and attitudes; it can serve political or ideological ends by justifying existing policies and approaches; it can function as an administrative tool for resource management and monitoring; it may serve commercial interests by providing evidence for new pharmacological treatments. The point of view in this paper is that the purpose of epidemiological and social research on drugs is to improve public health and the well-being of individuals and communities through the application of scientific knowledge.

Theoretical framework for this paper

The paradigms described in Chapter 2 reflect a range of perspectives on the human condition and human behaviour. Some approaches fall primarily under the heading of what is sometimes called "nature", such as genetics or neuroscience. Others fall mainly under "nurture" or "environment", such as the social sciences, epidemiology or economics. The focus in this paper is on the latter.

Areas covered

This paper does not offer a detailed audit across the broad fields of epidemiology and social research on drugs, but aims to assess how far key questions have been approached through research and how research might better inform policy-making in the following areas. Specific examples are used to illustrate more general points.

Thematic policy areas

These correspond to policy areas covered by the first five targets of the EU Drugs Strategy.

– Drug use, prevention and early intervention.
– Risky drug use, health consequences and harm-reduction.
– Problem drug use, treatment and rehabilitation.
– Drug-related crime, enforcement and the criminal justice system.
– Drug availability, drug markets, interdiction and other responses.

Cross-cutting topics

– Perceptions of drugs, social attitudes and opinions.
– Early warning, identifying and forecasting trends, understanding change.
– Co-morbidity, risk and protective factors, vulnerability.
– Demographic, social and economic factors, culture and lifestyles.
– Social and economic costs, burden on health, public expenditure.
– Global analyses of the situation, responses, policies, legislation.

Wider context of drugs and drug policies

Many of these broader topics not only cut across specific thematic drug policy areas but also involve issues that extend far beyond the drugs field, forming part of the wider context for drugs and drug policies. Context is not just "something out there" but the wider framework that shapes what happens in the box called "drugs" and all that is done in the name of responding to "the drugs problem".

Chapter 1 – What do you want to know ?

What do policy makers want to know? What sorts of answers can they expect from drug research and in particular epidemiology? This depends on who is asking the question and why, and the sorts of issues involved and how they are perceived.

Who? Why? What? How?

Who wants to know?

Areas of concern to policy makers vary considerably, depending on:
– *Sector:* e.g. education, health or criminal justice system;
– *Level:* e.g. local, national or international;
– *Role:* e.g. political adviser, legislator, administrator or service manager.

Why do you want to know it?

The purposes of the information are also diverse:
– strategic planning;
– reporting (e.g. annual report on drug situation, Annual Reporting Questionnaire – UNDCP);
– budgetary planning or resource allocation;
– monitoring targets;
– public relations (media, parliamentary questions, and so on);
– decision-making on new projects, sensitive issues;
– making comparisons;
– identifying "best practice", developing guidelines or training materials;
– needs assessment;
– specific programme planning and evaluation;
– reviewing or planning legislation;
– justifying existing policies or criticising other approaches (ammunition).

What sort of information do you want?

This depends on the sort of issues to be addressed, for example:
– *Scope:* broad strategic issues or a specific topic.

– *Timescale:* immediate problem-solving or longer-term planning or evaluation (short-term solutions may have longer-term consequences that are the opposite of the original intention).

– *Nature of the question:* conceptual (e.g. potential consequences of criminalising tobacco) or applied (efficacy of methadone versus buprenorphine for maintenance treatment).

How can research help you?

Description

Sometimes the request is for descriptive information – how many people use drugs? Which drugs and what sorts of people? What types of prevention or treatment exist? What is being done to reduce supply? Essentially these question are concerned with mapping the drug situation and responses. They are in principle relatively straightforward, though there can be tricky issues of definition (What is problem drug use? What counts as prevention?) as well as methodological challenges over reliable measurement. While a good picture of the drug phenomenon is a necessary beginning for any evidence-based policy, the big question of "so what?" remains.

Consequences and costs

Descriptive data can contribute to answering policy questions on the impact of drug use on individuals and society. What are the consequences of drug use and what costs do they imply? Which aspects of the drug phenomena are linked with more serious consequences and higher social costs? How do these costs compare with, for example, the costs of mental illness or alcohol consumption? Methods exist to answer these questions, though inevitably there are definitional and methodological issues (What counts as a cost? What proportion of morbidity, mortality or crime is attributable to drugs?). A common obstacle is lack of adequate data.

Needs assessment

A good description can also help assess needs. Setting description of a situation (prevalence, characteristics, consequences) against responses gives a first indication of coverage and how far responses match the situation. An example of whether this is sufficient to answer the question "Are adequate resources being allocated to the problem?" is discussed below. Needs assessment further implies asking: What sorts of problem? What sorts of needs?

Comparison

At international and national level requests arise for comparisons between countries or between regions or localities. Is prevalence higher in A or B? How does coverage of school drug-prevention compare? Who has the most methadone? As with simple description, these questions are in theory straightforward, though comparability of definitions, methodology and data collection must be faced. Information can be used to target resources, for example at high-prevalence areas in a country, though the value of crude numbers without fuller information is questionable. Often, however, comparison, especially between countries, resembles a league table exercise, with the implicit assumption that ranking in some way reflects "better" or "worse" policies or practice. Cause and effect is a fundamental issue dealt with throughout this paper.

Tracking trends, diffusion of drug use

Is X (drug deaths, prevalence, and so on) going up or down? As with simple description, this is basic information needed to identify changes that may require attention. The example of early warning is discussed below. Knowledge of changes over time in both situation and responses is also basic information for assessing the impact of policies and interventions. However as with comparisons, there are often implicit assumptions about causality, for example that increases reflect something bad (and external), while decreases reflect good policy.

A further question here concerns diffusion of drug use, in other words how the use of a given drug (e.g. ecstasy) or a particular pattern of use (e.g. smoking heroin) arises in certain areas or among certain groups (often in major cities) and subsequently increases in other areas and countries and among other groups. Understanding the processes involved should help us understand some of the reasons for local or national trends within a wider European context.

Monitoring targets

Some national drug policies, as well as the EU Drugs Strategy 2000-2004, specify targets such as reducing prevalence significantly (or by x%) within five years. These targets then require appropriate indicators to measure progress. While setting targets may help to focus attention on policy objectives, they bring their own problems. There is some evidence to suggest that phenomena such as drug use (or alcohol or crime) show long-term cyclical patterns, probably reflecting wider social, political and economic processes, and that drug policy per se may have only a secondary effect on prevalence. So what happens if targets are set during a phase when prevalence is rising (or alternatively when it has just passed

a peak)? The indicators will very likely show "failure" or "success" regardless. Causality is again a central issue and the challenge is to develop analyses to assess the contribution of policy against what might have happened with another policy (or no policy at all).

Explanation and implications

Sometimes the request is for explanations – Why? How? These sorts of questions are more complicated. Not only do they usually require more sophisticated analytical approaches, they often also contain implicit assumptions and expectations that arise from underlying perspectives or paradigms regarding the drug phenomenon. These too are explored through examples.

Evidence and evaluation

A common question is: What works? The follow-up question is: What about costs and cost-effectiveness? At present, a relatively small proportion of evaluation research on interventions (e.g. different treatment modalities or prevention models) meets the highest scientific standards, but the situation is improving, and if the broader concept of "evidence-based" used in this paper (see next chapter) is adopted, then research can already offer quite a lot in terms of effectiveness of specific types of intervention.

Policy guidance – what are the options?

What to do in a new situation? What is the best approach? Such questions call for a more speculative input that may draw on historical examples or comparative assessments of similar situations, qualitative or quantitative modelling of different scenarios and so on, depending on the circumstances.

Complexity: are you willing to deal with it?

Some requests, especially for descriptive information, can be met fairly easily, as long as the question is unambiguous, methodological tools exist and data collection is feasible with the time and resources available. Many questions, while seeming simple, are more problematic. Sometimes they raise more technical difficulties, but often it is because they involve concepts like "adequate and appropriate treatment" that turn out to be more complex than appears at first glance, or because they are based on questionable assumptions about drug phenomena and oversimplification of causal links between responses and changes in drug use. The need to confront complexity and the closely related notions of dynamic processes and interaction is a persistent theme running through this paper. Likewise, using research is not a simple matter of asking questions

and getting an answer but a process of progressively clarifying the questions you haven't (yet) asked.

Answering your questions. Three examples

Three examples of questions asked by policy makers are selected here to illustrate key points about what might be entailed when researchers try to respond. Further examples are given throughout the paper.

How many treatment places for drug users?

A newly appointed drug services planner at the department of health wants to know how many beds are needed for treating problem drug users. She previously worked in hospital administration and has no experience in the drugs field, but is enthusiastic about evidence-based planning and commissions a study.

A simple needs-assessment approach would be to estimate the number of problem drug users and estimate the number of beds needed if all of them were to accept in-patient treatment for a certain duration. Many however are not willing to seek treatment, so an alternative approach might be to see if there is more demand for beds than the clinics can handle – the project might be based on waiting lists. Since waiting lists are not a very reliable source, the preliminary findings could be validated through surveys in clinics and in the drug scene to ascertain whether drug users can get in-patient treatment if they wish. The study might further investigate barriers to treatment, for example lack of information about referral channels, bureaucratic and daunting assessment and admission procedures, or fears about confidentiality, loss of income or children being taken into care.

The limitation of this approach is that one service cannot suit all clients – it is likely that in-patient treatment is only relevant for a minority. It then makes sense to check if those not entering the present system might be attracted by different treatment facilities. This could be done through a "snowball" study of not-in-treatment drug users, as well as through a review of what has been done in other areas facing the same question. If the need for an alternative service is demonstrated, one could start a pilot service and see if it actually attracts clients, and if it does, whether the capacity is sufficient. Developing a network of relevant services and defining the demand for each of them involves a series of small research steps. It is rare for a single research study to give conclusive answers – usually each result suggests further steps for clarification until an adequate understanding of the situation is established which provides a sufficient evidence base for (in this case) a treatment policy.

The implicit understanding of research is a process where relevant questions evolve, where existing evidence is put together as in a puzzle, where missing pieces are temporarily added based on common-sense and logic and eventually clarified through further research. A researcher, according to this conception, is like a detective who systematically collects and assembles evidence until the case is solved.

How to respond more rapidly to new drug trends?

How can we anticipate new trends so as to respond more rapidly to emerging drug problems? This is a frequently asked question and arises from a sense of frustration that policy-making often seems to be reactive rather than proactive. Many indicators are "lagged" in the sense that they reflect changes that have already occurred. By the time information has been processed and absorbed by the decision-making process and responses have been formulated and implemented, several years can have passed. However it is also a problematic question. In the first place it is assumed that it is feasible to detect emerging trends and anticipate potential problems at an early stage by setting up some sort of early-warning system. What, though, is to be monitored if it is not known in advance what it might look like? Changes are taking place all the time – how can we know which changes represent the early stages of a more significant trend and how can we know what the consequences may be? How can we avoid repeated false alarms? Usually we can only know a new trend was a new trend after it has happened.

A second problematic assumption is that rapid responses are appropriate and effective ("prevention is better than cure"). This may be true where it is already clear what an appropriate and effective response should be. For example, hurricane warnings or indications of an impending flu epidemic work because effective responses are already known. This is often not the case with new phenomena emerging as part of wider patterns of social change where there is little understanding of the causes and consequences and no ready-made solutions. Rapid responses based on fear, ignorance and the need to be seen to be doing something may be likely to do more harm than good. Early warning is not sufficient – effective responses only make sense where there is understanding and reflection as well.

One concrete example where the concept of "early warning" is problematic as a basis of an early intervention policy is HIV in the countries of central and eastern Europe. Some countries have very low HIV in drug injectors. Others have recently seen rapid, epidemic increases. What should the low prevalence countries do?

One option is to say that since HIV is low the situation is under control – we must be doing the right thing, and anyway we're monitoring the

situation. However, in the event that HIV rates do start to increase, then even if early-warning HIV surveillance is in place, no matter how rapid any responses might be, it is already too late.

An alternative approach is to analyse the situation of the countries concerned in terms of the range of risk factors known to be associated with HIV epidemics. These include: the size of risk populations such as drug injectors or sex workers, levels of risk behaviours, contacts with high-prevalence populations (e.g. in neighbouring countries), availability of syringes and condoms, knowledge and attitudes about HIV, existence of coherent health promotion and harm-reduction policies, general economic situation and level development of health and social services.) This would indicate, for example, that some countries are at (very) high risk of HIV epidemics in drug injectors, and that the risks in others, though lower, are significant.

The early-warning system/rapid-response model may only work for specific phenomena where pre-defined and effective procedures are available to respond to alerts. In other situations, a more considered analysis of existing information in order to assess risks according to different scenarios would be more valuable.

What to do about poly-drug use?

What indeed? In contrast to the first example, which dealt with a specific issue, this is a very broad topic. The Political Declaration from the Pompidou Group's 2003 Ministerial Conference identified levels and patterns of poly-drug use as a priority:

> Concerning poly-drug use we recognise the need to:
> – step up monitoring of poly-drug use;
> – undertake research into its associated risks for individuals and society;
> – adopt a co-ordinated global approach to substance abuse and addictions taking into account the effects in this regard of consumption of alcohol, tobacco and prescription psychoactive medicines;
> – adapt the organisation of prevention and treatment services so that they can address effectively developments in drug use, new substances of abuse and concomitant use of several psychoactive substances;
> – provide appropriate training for professionals and other key service providers.
>
> (Political Declaration, 2003)

So where should we begin? What sort of research strategy would help develop sensible policies and responses to poly-drug use? The Declaration identifies monitoring and research on risks. This seems a reasonable starting point. The question is then, what to monitor and risks of what?

Poly-drug use (PDU) has been defined as the use of more than one psychoactive drug by an individual either simultaneously or sequentially (WHO, 1994). However, patterns of use vary greatly in terms of substances, frequency and intensity. Existing surveys repeatedly demonstrate that people who use cannabis are also very likely to drink alcohol and smoke cigarettes, either simultaneously or within a short time. Almost every heroin addict entering treatment is using or has recently used other drugs (e.g. tobacco, cocaine, cannabis, benzodiazepines). Many patients with mental health problems receive more than one psychoactive medicine on prescription, and in addition smoke, drink and perhaps use drugs such as cannabis. Even drug researchers may at the very least drink alcohol, smoke cigarettes and consume large quantities of coffee.

So on the one hand, stepping up monitoring would appear to imply making better use of existing data on poly-drug use, for example from drug-use surveys or treatment-monitoring systems, and on the other hand adding new information from equivalent sources in the fields of mental health, alcohol and tobacco. This promises to generate a very large and diverse amount of information. If it were decided to include drugs in sport, over-the-counter medicines and caffeine as well, then who knows where it all might end. It is not clear what such a "blank cheque" approach to monitoring would achieve, apart from drowning everyone in data and underlining what is already known, that poly-drug use, defined in a broad and undifferentiated fashion, is rather common, if not the norm.

It might then make more sense to start by identifying risks and focusing on patterns of poly-drug use that pose most difficulties for individuals and society. This, too, is not without some difficult questions. What are the "added risks" that accompany poly-drug use that are not already known and being dealt with in some way? For example, treatment centres have for many years been treating poly-drug users. Changes in client profiles, such as an increasing predominance of cocaine or cannabis, may raise new challenges for treatment methods and staff, but existing monitoring systems have identified these changes, clinical experience already exists, and research on risks and implications for responses is under way. Similarly, much is known about increased risks of accidents or overdose associated with mixing alcohol and other depressant-type drugs.

While a comprehensive audit of all possible areas of risk and poly-drug use would certainly show many gaps in knowledge, it may well be that the most difficult issues arise from the question of adopting a co-ordinated global approach encompassing illegal drugs, alcohol, tobacco and psychoactive medicines. How to integrate under one roof policies and responses based respectively on prohibition, regulated free markets and

medically-mandated consumption? What sort of evidence is needed as a basis for this approach, what are the key questions, and how could research help?

The issue of poly-drug use throws up a multitude of diverse, overlapping and sometimes contradictory questions not only for research but much more widely in terms of basic policy goals, legislation, administrative structures, the organisation of prevention, treatment and harm reduction services, the role of enforcement agencies, the regulation of production, distribution and international trade, including the handling of powerful commercial and economic interests, and the relevance of the international treaties. This could be the focus for discussion in the various platforms foreseen in the new Pompidou Group (PG) work programme. An obvious precedent is provided by the WHO, which for many years has combined legal and illegal substances together in one conceptual framework.

Chapter 2 – Paradigms, theories, methods and evidence

Basic concepts

Paradigms

"Paradigm: a mode of viewing the world which underlies the theories and methods of science in a particular period of history." (*The new shorter Oxford English dictionary,* 1993)

A paradigm is a term used in the philosophy of science to define the broad conceptual framework within which endeavours to describe, analyse and above all explain and understand phenomena are carried out. An essential characteristic of a paradigm is that it incorporates the fundamental assumptions on which scientific theories and explanations are based, in particular assumptions about the phenomena to be explained, the sorts of explanation that are acceptable, and the sorts of evidence that are considered valid.

The question of what paradigms underlie theory, policy, practice and research in the drug field is fundamental since paradigms shape how "the problem" is constructed, how questions are asked, what sorts of answers are expected, and how knowledge is used to develop policies and responses. Examples given below illustrate how these paradigms (a) reflect assumptions about how drug use should be conceptualised, and (b) determine what sort of "solutions" or responses are constructed on the basis of those assumptions and within the conceptual framework defined by the paradigm.

Unlike theories, paradigms are not normally tested directly against evidence. Rather, they are judged on how well the assumptions on which they are based provide a satisfactory framework for the whole range of scientific work of theory development, hypothesis testing and results. A shift in paradigm usually has far-reaching implications for how theories are formulated, on what sort of evidence is needed to test them, and on what sorts of conclusions can be drawn. A well-known example of a paradigmatic shift is Einstein's general theory of relativity, which challenged assumptions of Newtonian physics about fundamental concepts such as the nature of time, energy and mass and led to new hypotheses and types of investigation.

Progress in research requires that we constantly question and analyse taken-for-granted assumptions and implicit prejudices and are willing to think laterally and consider unorthodox approaches, even if this risks incurring resistance and incomprehension. The example of Galileo is perhaps more relevant than Einstein.

Theories

Theories are propositions that purport to explain why phenomena, or certain aspects of them, are as they are. A key characteristic of a scientific theory is that it generates hypotheses or predictions that can be tested with evidence, leading to the theory being either supported, or rejected and replaced by another theory that it is hoped will generate more valid hypotheses. A range of different, sometimes competing, theories is often found within a given paradigm.

Models

The term "model" is used in a variety of ways that no single definition can cover. For our purposes, a model is a simplified representation of a phenomenon and how it works. Models are usually derived from theories and include assumptions about which elements and dimensions of the phenomenon are important as well as specifications of the hypothesised causal factors and processes involved. Examples range from neuroscientists constructing models of how different drugs affect behaviour through actions on the dopamine and other pathways to economists developing models of the impact of different interventions on prices, supply and demand for various drugs.

For a model to be considered a valid representation of a phenomenon, three aspects need to be considered – face, construct and predictive validity. Face validity means that there are recognisable similarities between the model and the phenomenon, construct validity means that the model has a coherent theoretical rationale, and predictive validity means that the model predicts what happens in the real world under the conditions being modelled.

Research methods

Methods are specific techniques or tools for collecting and analysing data in order to describe a phenomenon or test hypotheses. The particular characteristics of a given methodology depend on the sort of question that is addressed, but to be scientific, any methodology must adhere to a set of basic principles and logical rules, for example concerning the necessary and sufficient conditions to establish cause and effect. Although methodology is often seen as a purely technical domain, a shift in paradigm also has a profound effect on what sorts of methods should

be applied, on how the results should be analysed and interpreted, and on what they imply for any actions that are taken based on those results.

Evidence-based

"Evidence-based" is widely used but the meaning is not always clear. In medical research, the "gold standard" for establishing effectiveness of therapeutic interventions is often defined in terms of randomised controlled trials (RCTs). For example, a standard procedure for evaluating new medicines is a double-blind clinical RCT, meaning that patients are randomly allocated to groups receiving either the new drug or a placebo or other drug whose effectiveness is known. Neither patients nor clinicians know who is receiving what. They are then followed up over time and outcomes compared between groups. Such trials are closely regulated by ethical guidelines, and informed consent by patients as well as pre-clinical safety testing of the drugs are mandatory.

RCTs have sometimes been used to compare effectiveness of different treatments in the drug and alcohol field, for example different substitution treatments for opiate addicts or various forms of interventions by GPs for problem drinkers. There is considerable potential for applying this rigorous approach to a wider range of interventions, since it avoids problems of selection-bias that weaken the scientific validity of most other treatment evaluation designs.

However it is only appropriate to use an RCT design where the characteristics of, and differences between, the specific interventions to be evaluated are clearly defined, where the target population is well delineated, and where the expected outcomes are specified and can be measured at individual level over time. RCTs also raise significant practical and ethical issues and are not easy to do well.

Although RCTs have an important place in the repertoire of methodological tools for generating evidence of effectiveness of interventions, they cannot be applied in many situations and in any case cannot answer the much broader range of questions, such as many of the examples in this paper, on which policy makers and practitioners seek evidence.

For the purposes of this paper, the RCT gold standard is too narrow as a criterion for evidence-based interventions and policies. A concept of evidence as "knowledge derived sensibly from empirical research" is more appropriate. This implies a step-by-step process of building evidence through observation, developing theory, testing hypotheses and crossing information, including results from RCTs if available.

Ideologies and implicit assumptions

Interpretation of research, especially in the political and policy-making arena, is influenced by values, ideology and underlying world view. Implicit assumptions flowing from these world views have an important impact on what information is sought and how knowledge is translated into action. An example of the implications of underlying paradigms and assumptions is given in Table 1 (see page 32).

Closely related here are unquestioned implicit methodological assumptions and logical fallacies that make it easier to draw biased or erroneous conclusions that confirm pre-existing beliefs. Many of these assumptions and fallacies are well-known and easily understandable when made explicit, for example assumptions about homogeneity and generalisability or correlation and causality, but in practice there is rather little interest in considering them adequately and there is a risk that empirical results are artefacts rather than facts.

Research, ethics and human rights

In medical research, a clear ethical framework is provided by the World Medical Association's Helsinki Declaration (1964) on ethical principles for medical research involving human subjects and by national regulations, professional guidelines and ethical research committees.

In social research, ethical guidelines exist but the situation is less clear and debate continues about the acceptable limits of research in sensitive areas. For example, data protection and confidentiality are covered by the Council of Europe's 1981 Convention for the protection of individuals with regard to automatic processing of personal data (http://conventions.coe.int) and the EU Directive on Data Protection (1995). However, the full implications for research and monitoring on a topic like drugs have yet to be fully clarified. Thus, on the collection of personal data, the rights of individuals to privacy are balanced against the wider public interest in having reliable information on which base social policy. However, countries have quite different interpretations on questions such as identification of individuals for the purposes of eliminating double counting in treatment-reporting systems or crossing different data sources to estimate prevalence.

More broadly, the question of "What are we allowed to do?" as opposed to "What are we technically able to do?" depends in part on whether it is being asked within the context of a paternalistic, coercive perspective or a democratic, emancipating, empowering approach. If we believe that something is harmful to others, are we allowed to force them not to do it or only to inform them about the risks and support them if they need help? If research is an instrument of policy, then these questions have direct implications for researchers. These questions become even more

critical when the individuals or groups involved come from vulnerable or marginalised sectors of society and when issues such as infectious diseases or crime raise fears among the population that can easily be exploited for political purposes.

These concerns are addressed in statements such as the WHO's Ottawa Charter for Health Promotion (1986). These in turn can be seen as elaborations of principles embodied in the UN's Universal Declaration of Human Rights (1948) and reinforced in the Council of Europe's 1950 Convention for the protection of human rights and fundamental freedoms (http://conventions.coe.int), which sets forth a number of fundamental rights and freedoms, including, in Article 3, the prohibition of torture or inhuman or degrading treatment or punishment, and the European Social Charter of the Council of Europe (1961), which enforces an international guarantee of social and economic rights, among them in Article 11 the right to the protection of health.

Such statements and instruments assert the priority of social justice. In this context, research can be seen as an instrument of social justice. However, not everyone may agree, and this conclusion does not necessarily follow if research is seen as serving other functions such as the regulation of social norms. This is an important issue and one on which more in-depth analysis is foreseen in the Pompidou Group's new work programme.

Ambiguous definitions and unclear concepts

Scientific language in this field is sometimes highly ambiguous and vague. More energy has to be invested in reaching clear definitions of core concepts like "public health", "evaluation", "health", "addiction" and "abuse", to name but a few. Different research findings can only be combined if they use identical language and vague terminology is a major problem preventing practical implementation of research. Vague language also allows for semantic cheating over unsolvable problems (Uhl, 2000).

Explaining the drug phenomenon

Induction, deduction and crass empiricism

A common occurrence in drug epidemiology is that descriptive statistical information is generated, for example prevalence data from different countries, then someone asks why there are differences. Researchers scratch their heads and start to think of plausible explanations. These may be based on "expert opinions", on their own hunches, or on ideas derived from the scientific literature. The trouble with this sort of ad hoc inductive approach is that there is no way of telling if they are valid or

not, nor which of several competing explanations may be nearer the truth. In this case, they are not really explanations at all, but hypotheses that have yet to be tested.

Collecting data in order to describe and compare at descriptive level is one thing, useful if that is the purpose. To look at such data with curiosity and wonder what they mean is also a valuable way of generating hypotheses (though when they enter the public domain they are often treated as explanations rather than just hypotheses). But to collect data in this way and then expect to be able to explain and understand it is no more than crass empiricism.

An alternative, deductive approach to explanations is to start by designing research within a theoretical framework that explicitly seeks to explore and test causal hypotheses (Popper, 1959). This is developed below.

Levels of explanation

The use and effects of drugs can be investigated at many different levels, molecular, neurological, psychological, sociological, economic or historical. These can be broadly grouped according to whether the focus is on individual or population level. There are also different schools of thought as to how far explanations of differences should emphasise intrinsic or extrinsic factors (the old "nature versus nurture" debate).

Various levels of explanation generally correspond to different academic disciplines, which can hinder analysis of how different levels of explanation interact. However, there is growing recognition in many areas of research (not specifically in the drug field) of the importance of interactions between factors, both intrinsic and extrinsic, from different levels of explanation. For example there is growing evidence pointing to differences in genetic susceptibility to depression that may only become manifest under conditions of external stress such as family conflict or financial insecurity.

Causality and complexity

Many theories have been put forward to explain drug phenomena. While they differ on which factors are considered relevant, an important dimension concerns underlying assumptions about how causal processes operate. Theories and models can be broadly grouped according to whether they reflect a linear logical chain of explanation from cause to effect, which can lead to a rather deterministic view of a phenomenon, or whether the explanatory model is interactive, that is has feedback loops that imply a dynamic, continually evolving system.

Both linear and dynamic varieties can range from simple, single-factor explanations to complex, multi-factorial models.

Simple linear cause-effect explanations

Simple cause-effect explanations give a one-dimensional, linear view that a phenomenon arises because of a given factor X, for example that drug dependence is caused by some sort of deficiency, either in individuals or their environment.

One example, which locates the cause primarily in the individual, is a biomedical paradigm that explains drug dependence as a disease arising from malfunctions in biological functions (nature). Alternative explanations of individual differences identify deficiencies in upbringing (nurture) as the primary causal factor. An example at population level is the simple infection model based on the metaphor of drug use as an infectious disease arising from exposure to drugs and drug subcultures.

Simple explanatory paradigms may encourage simplistic assumptions that people can be divided into sheep and goats, leading to separation and stigmatisation – drug users/non-users, addicts/non-addicts, criminals/non-criminals, though even in simple models variables can be continuous or at least consist of more than two categories.

Simple cause-effect explanations are often taken to imply that responses should "fix" the cause, for example rectify deficits in individuals (therapy, family intervention, pharmacological treatment) or the environment (eliminate supply, imprison dealers).

Multi-factorial linear causal explanations

A more sophisticated approach is found in multi-factorial models in which phenomena arise from a range of factors. In these models no single factor is sufficient in itself to explain a phenomenon, and may not be necessary either if combinations of other factors provide a sufficient explanation. In contrast to single-factor causal models that lead to very deterministic explanations, these are probabilistic models in which the combinations and weighting of different factors vary.

Multi-factorial models are found across different paradigms and at different levels of explanation, for example in more sophisticated biomedical approaches to phenomena such as depression, reactions to stress and the effects of drugs.

This approach also now predominates in modern epidemiology. The underlying causal paradigm, however, while flexible is still primarily linear, in terms of going from risk factors (individual and social) via mediating factors to consequences (drug phenomena). The aim of policy

is then to change or mitigate the risk factors and/or increase people's capacities to cope with them.

Dynamic, interactive causal explanations

In contrast to linear explanations, interactionist paradigms start from the assumption that societal reactions to drug use are themselves a causal factor, and in some versions of this paradigm, the central factor. In these sorts of paradigms, policies and responses cause changes in the phenomenon, which in turn lead to further changes in responses, and so on, allowing a more dynamic analysis of how the drug phenomenon and responses interact and evolve. One implication is that instead of asking "what works, for example what intervention best 'fixes' a particular problem?" the question becomes "in what direction should policy move to achieve a desirable balance between positive, intended consequences and negative, often unintended consequences?" (How that is defined depends on priorities and circumstances.)

Paradigms of the drug phenomenon and their implications

It was suggested earlier that paradigms and definitions of "the drug problem" are important not only for the sorts of explanations they imply but also because they provide a framework within which policies and actions are promulgated. This section looks at the implications for policy, interventions and research of some of the more common paradigms found in the drug field.

The concept of "paradigm" in the drug field

Clearly delineated scientific paradigms are rarely found in real life in the drug field, especially in the interface between research, policy and practice.

– Scientific assumptions are intermingled with moral judgements, ideological assumptions and culturally-biased perceptions. This underlines a theme running through this paper – much depends not only on how you look at things (through what spectacles) but also on what value basis and with what beliefs.

– The complexity of scientific paradigms and models is simplified once taken up in policy discourse. The same often happens when scientific theory is applied to practice. Scientific progress and growing sophistication are likely to increase this tendency, as policy makers and practitioners, as well as researchers, struggle to deal with and comprehend increasing complexity. This underlines a second theme running through this paper – the paradox and challenge of how to reconcile policy-driven demands for better evidence (that is needed now and that can be understood and applied) with the proposition that to be

useful, science needs to be taken as a longer-term process and that policy makers and practitioners should be willing to confront complexity.

– Some paradigms focus on problem behaviour only (for example co-morbidity model), usually by third persons, while others cover drug consumption behaviour per se, regardless of whether it is considered problematic or appropriate use (e.g. wine and cannabis culture by the hedonism model) by third persons and by the consumers themselves.

– Some paradigms are primarily scientific and explanatory, while others reflect different approaches to intervention. Some claim to explain a phenomenon exclusively and some only part of the phenomenon.

Biomedical and clinical paradigms

Biomedical and clinical research is not covered in other chapters, but the paradigms on which such research is based have a wider, pervasive influence on how drug phenomena are perceived and investigated in other areas too. It is worth examining what this can imply.

Simple disease models

Early biomedical disease models focused exclusively on physical "deficiencies" in individuals to explain phenomena such as crime or mental illness. In the nineteenth century, Lombroso sought to explain crime by morphological characteristics ("The Born Criminal"). During the twentieth century biomedical theories of anti-social behaviour included phrenology (bumps on the head), epilepsy, extra Y chromosomes, missing genes or deficiencies in conditioning linked to the autonomic nervous system.

Early clinical approaches often shared with biomedical models a simple concept of disease. A good example was the search for "the addictive personality" that led to a large literature identifying both intrinsic and extrinsic factors.

Complex biomedical and clinical models

Over recent decades, biomedical and behavioural approaches, in particular cognitive neuroscience, have become more sophisticated in terms of explanatory processes and as noted above, increasingly seek to combine genetic variability, neuro-physiological mechanisms, previous individual experiences and exposure to environmental factors to explain a range of phenomena including drug effects.

Clinical approaches too reflect a range of theoretical foundations – psychoanalytical, behavioural, cognitive and so on – and therapeutic interventions target a variety of levels – chemical, individual behaviour,

group dynamics or settings. As theory and practice evolved, clinical models became more complex and most approaches now acknowledge the interplay of different factors.

Co-morbidity models

Drug use is seen as one manifestation of a cluster of co-existing conditions, for example drug dependence and mental illness. The causal relationship between the components is often not clear, for example drug use may be an attempt to deal with severe depression, depression may be the result of chronic drug use, or both may have evolved in tandem in response to other factors, for example wider negative factors in the environment such as persistent exclusion and stigmatisation.

Self-medication model

This is a variation on the co-morbidity model in which drug use is seen as an attempt to deal with symptoms of depression, anxiety or psychosis (which themselves may be seen as arising from constitutional factors and/or developmental experiences).

An alternative variation of this model attributes drug use to strong, even obsessive urges for sensation-seeking by individuals who are under tension and who need extreme thrills or risks to escape boredom, depression or reduced levels of central nervous system activity.

Developmental models

Drug use (or crime or school failure) are seen as caused by nurture (dysfunctional upbringing, maternal separation, traumatic experiences, neglect) or by nature (as in the biomedical model). Alternatively, some people see some forms of anti-normative behaviour as a normal and healthy part of social development in adolescence.

Implications of biomedical and clinical perspectives

Biomedical models, for example of drug use as a brain disease or a result of damage to the dopamine system, have seen a resurgence over the past decade, especially in the US (Leschner, 1998). Even where models are multi-factorial at scientific level, political use of them often is not, leading to over-simplified conclusions about causes and over-enthusiastic claims about potential scientific solutions.

Simple clinical models similarly lead to single-factor interventions. More complex approaches take into account a wider range of factors and in principle imply a wider range of more differentiated interventions at different levels. In practice, however, many clinical interventions are mainly

centred on the individual or in some cases the family, and factors such as environment, culture or setting are not really addressed.

Responses implied by these paradigms aim to:

– mend the wrong bits through pharmacological interventions, counselling, behaviour modification programmes, etc.;

– employ prophylactic measures to manage or compensate for the deficiency: e.g. opiate substitution;

– promote early identification of susceptible individuals to enable early intervention and prevention.

In authoritarian contexts a deterministic concept of drug use as disease may underpin compulsory measures, reduced concern for human rights and perhaps even lead to more extreme proposals (weeding out, sterilisation).

To the extent that they focus on the individual, biomedical and clinical paradigms fail to answer questions about why and how temporal and spatial patterns of drug use develop in relation to cultural, lifestyle, demographic and socio-economic factors. In these cases, they lack a perspective of drug use as a social phenomenon occurring in various local communities under a wide range of social and economic conditions. Individual-centred explanation thus offers little guidance for social and public-health policy on issues such as prevention, health promotion, access to services or control of drug-related infectious diseases. They also take societal responses as a given and do not offer a framework that would allow reflection on the effect of public attitudes, official policies and responses on drug use and on its consequences.

Some researchers in the biomedical and clinical fields enthusiastically promote the notion that advances in psycho-pharmacology and behavioural research will not only lead to ever more sophisticated models for understanding, diagnosing and treating "drug abuse disorders", but will also provide a major tool for managing/controlling/containing/solving "the drug problem". While the former, weaker claim that biomedical and behavioural research will advance scientific knowledge and improve clinical management and treatment is probably true, the stronger claim that this paradigm offers an important foundation for public policy on drugs is not.

Public health paradigms

There are two concepts of "public health" (Antonovsky, 1987).

Disease (pathogenic) models

The first is an extension of the traditional medical disease model and refers to endeavours to improve the health state of the population by fighting risk factors and by treating diseases.

One example is the infection or traditional epidemiological model that has been used to analyse the spread of infectious diseases in a population. Drug use "epidemics" are explained as a process analogous to "contagion" in which drug use arises through exposure to drugs and association with other users. This implies responses that modify the environment, isolate the "infected" cases (drug users) and/or "vaccinate" susceptible populations (e.g. drug prohibition and supply reduction, exclusion and stigmatisation of drug users, compulsory treatment, "say no to drugs" education).

More complex, multi-factorial models are now common in epidemiology, for example in analyses of lifestyle-related conditions such as heart disease. In this perspective, drug use and adverse health consequences are seen to arise from individual susceptibility together with exposure to environmental risk factors within a broader social and cultural context that includes lifestyles and socio-economic conditions and opportunities. The basic concept, however, remains a disease model.

Salutogenetic approach

The second meaning refers to an "emancipating, empowering, strengthening resilience and reducing vulnerability" approach that fosters protective factors. Antonovsky contrasts the traditional medical disease model focusing on the sick (pathogenetic approach) to the "salutogenetic approach" that focuses on the healthy to prevent illness. Risk factors according to this concept are quite different from protective factors. Risk factors, like bacteria, threaten every individual. Protective factors are resilience like immunisation in that vaccination only has an effect if risk factors occur. The main difference is the implicit anthropological perspective – democratic, emancipating, empowering as opposed to paternalistic, controlling and coercive.

The WHO (1977) Health for All programme, the Ottawa Charter on Health Promotion, and many public health specialists are examples of this second concept. The alcohol policy of WHO-Euro (2001), US drug policy and, in an increasing number of countries, public-health smoking policy, are oriented in line with the first concept based on control and coercion.

Implications

The choice of approach has far-reaching implications for drug policies, especially in the fields of prevention, health promotion and harm reduction (see Table 1). While responses that take account of individual and environmental factors are still important, in the salutogenic approach, higher priority is given to comprehensive and holistic approaches that promote a positive concept of health and aim to strengthen the resilience and capacities of both individuals and communities through co-ordinated strategies at different levels, from encouraging self-help groups through to confronting issues of social exclusion and access to services.

Sociological and economic paradigms

Sociological interactionist and "deviance" models

Examples include labelling and deviancy-amplification theories, in which the drug phenomenon is shaped by social reactions to it, and the "deviant" behaviours of individuals and the characteristics of drug-using groups (sub-cultures) are seen mainly as a consequence of policy rather than as intrinsic to drug use per se.

Market models (supply, demand and consumer choice)

A rather different example comes from economic theory, where market analyses of supply and demand may examine the consequences of different regulatory approaches on availability, price and consumer choice of products. In this economic model drug use is a "rational" consumer choice within the wider market of available commodities. This choice is both influenced by the market, and in turn has an important impact on it.

Interactive models in which perceptions play a central mediating role

A third example is provided by paradigms where interactions between situation and responses are mediated by perceptions (variously called cognitive, social-constructivist, phenomenological approaches). In these perspectives, drug policy is not a mechanistic response to the drug phenomenon, but is based on how society perceives different sorts of drug use and drug users (or on how policy makers perceive public opinion on drugs). Similarly, drug users do not respond either as individuals or groups directly to the effects of drugs or to attempts to control or treat them, but in terms of the meanings that they attribute to drug use and to their relationship to society. This is essentially a triangular paradigm involving two-way interactions between the drug situation, responses (drug policy) and perceptions (public, policy makers, drug users, professionals).

Implications

This heading covers a diversity of models, each implying rather different research approaches and responses. A selected example is given in Table 1.

Table 1 – Policy implications of three paradigms

Paradigm	Legalistic/repressive (new and old models)	Public health (Ottawa Charter model)	Sociological/economic
Problem definition	Substance use seen as deviant and/or pathological, or sometimes as just "wrong" ("old" model – restricted to illegal drugs).	Drug use seen in terms of individual and social behaviours (lifestyles) that can pose risks for individual health and the environment.	Policies such as prohibition stimulate illegal markets, cause criminality and aggravate other problems.
Overall goal	Control substances and suppress use (goal re alcohol and tobacco more similar in "new" model).	Strengthen resilience, promote health, minimise health and other damage (individual & population).	Normalise drug use to reduce crime, stigmatisation and other damage.
Emphasis on	Any substance use (more distinction of legal/illegal drugs in "old" model).	Problematic substance use (legal & illegal drugs).	Changing social attitudes, policies and legislation.
Approach	Authoritarian, paternalistic. Implies coercion, exclusion, stigmatisation, incarceration.	Stress on equal partnership, human rights, social inclusion, empowerment, responsibility.	Egalitarian, laissez-faire. Drug use seen as consumer choice of products in market.
Legislation	Criminalise drug supply, use. Maximise prices. Reduce availability ("new" model includes alcohol, tobacco, prescription drugs).	Some regulation seen as necessary, e.g. to protect the young, consumer protection but models vary (relative risk is key concept).	Legalise drug consumption. Regulate supply through general consumer and youth protection legislation. Tax sales as other products.
Prevention policy	All illegal drug use and non-medical use of prescription drugs unacceptable. Restrict possibilities to use alcohol and tobacco. Promote anti-drug attitudes ("say no to drugs").	Preferable not to use drugs but if use minimise risks. Promote healthy behaviour, lifestyles and environments.	Part of normal health and social education.
Treatment policy	Abstinence-oriented. Medicalisation of addiction may allow substitution treatment. May be linked to repressive measures.	Pragmatic (range of approaches). More distance from repressive measures.	Provide treatment services as part of general health and counselling facilities.
Harm-reduction	Often seen as condoning drug use.	Central concept in policy.	Avoids harm from prohibition. Other harms reduced by education and information.
Information needs	Prevalence of use, profile of users, risk factors for use, anti-drug attitudes, deaths, drug-related crime. Measure reduction in drug supply, drug use prevalence and illegal behaviour markets. "New" model, also alcohol and tobacco.	Prevalence of problem drug use (legal or illegal) and health consequences, individual and environmental risk factors, lifestyles and risk behaviours, knowledge and health beliefs. Measure improved health behaviour and reduction in burden on health.	Monitor health and other adverse consequences, treatment and counselling needs, access and use by the young. Product information and quality (consumer protection). Production and sales data (taxation purposes).

Legalistic paradigms

Table 1 outlines the legalistic/repressive paradigm in comparison to selected public health and sociological/economic paradigms. The "old" model here refers to a strictly legalistic definition of "drugs" in the sense that only illegal drugs controlled under the UN conventions and national legislation are included. The term "old" is used since in many countries, social attitudes and policies have treated, and in some cases still do treat, the use of alcohol and tobacco as a normal and acceptable aspect of their culture, in contrast to illegal drugs that have alien and threatening associations.

"New" models refer to approaches that have become more predominant in recent decades that increasingly treat alcohol and tobacco as substances to be controlled and restricted in ways similar to illegal drugs, even if full prohibition is not feasible.

Implications

Legalistic/repressive approaches have fundamental tensions with the public-health model, are compatible with disease models, and incompatible with many sociological models, especially those that stress labelling and "deviancy amplification", as well as with market models that treat drugs as products and drug use as consumer choice.

Underlying moral perspectives

Moralistic perspectives

The notion that substance use and addiction is a moral weakness and not a disease is a moral perspective founded in the Protestant work ethic or puritanical disapproval of "undeserved" or "unearned pleasure" that enters to a greater or lesser extent in many aspects of the discourse on drugs. Users are not considered victims but offenders, and are condemned rather than supported, except in clear cases of mental illness. Responses tend to be authoritarian. While this perspective is most visible in legalistic/repressive paradigms, it may also co-exist with traditional disease models and public health policies based on concepts of pathogenesis. The underlying assumption that drug use is "wrong" often closes the door on any other perspective and allows acceptance of evidence only if it confirms prior beliefs.

Hedonistic perspectives

Hedonism attributes positive values to the pleasures derived from drug use. In this sense it is the opposite of the ascetic orientation found in moralist reactions. Examples include advocacy of the consciousness-

expanding characteristics of hallucinogenic drugs, the empathetic effects of ecstasy or the relaxing and sociable use of cannabis.

Social attitudes towards hedonism are often ambiguous, reflecting ambivalent attitudes to pleasure. It is not uncommon to find people endorsing the drugs that they use (a good glass of wine) while condemning drugs used by others (filthy smokers).

Humanitarian perspectives

Humanitarian perspectives are based on principles such as equality, democracy, pluralism and human rights. Responses are developed according to utilitarian concepts of what works best to achieve the goal of improving well-being and reducing suffering both individually and collectively.

Libertarian and free-market perspectives

Recent decades have also seen the emergence of the free market as the dominant economic orthodoxy. This change has been more marked in some countries than others, and has occurred particularly rapidly in some countries of central and eastern Europe. This change has been accompanied by increased emphasis on individualism and the rights of the individual as a consumer. Associated with this are quite marked shifts in social attitudes and political consciousness. Thus alongside moral perspectives that either condemn or appreciate drug use, there are also positions based on libertarian and free-market perspectives that may be indifferent to drug use per se but yet have important implications for the role of the state in regulating personal behaviour and in intervening in the market, especially in legal markets for alcohol and tobacco but also potentially in currently illegal ones. There may also be important implications for the sorts of public health and prevention policies that gain support, with further implications for the role and usefulness of epidemiological and social research (see Martin Büechi's chapter in the publication: *Connecting research, policy and practice: lessons learned and challenges ahead,* proceedings of the Pompidou Group's Strategic Conference, 2004, Strasbourg, Council of Europe Publishing).

Concepts and definitions of epidemiology

Since "epidemiology" has been the predominant paradigm in many countries as well as in work programmes of the PG and the EMCDDA over the past twenty years, it is worth reflecting on how epidemiology is defined as applied to the drug field. Sometimes the meaning has been "stretched" to cover a wider range of approaches than is usual in traditional or contemporary epidemiology. Whether this is still epidemiology is a moot point (Hartnoll, 1993).

Definition of epidemiology

One possible definition, adapted from the early years of the Pompidou Group expert epidemiology group, is as follows:

> The term "epidemiology", as used in the drug field, refers to a broadly defined area of inquiry, reporting and analysis. The goal is to study the occurrence, pattern and development of drug phenomena in populations. The phenomena being studied are not seen in terms of diseases or symptoms in the biological sense, but as patterns of behaviour, as well as the social and psychological conditions associated with or contributory to, those behaviours. The aetiology of those behaviour patterns, the analysis of the processes involved, the study of their consequences, and the monitoring of the impact of interventions and policies are also encompassed under the epidemiological rubric.

> There is a wide range of methodologies available in this general field of enquiry: surveys of general populations, surveys of special populations (such as students), longitudinal cohort studies, surveys of populations of known users, information systems based on data from treatment agencies, ethnographic studies of drug-using groups or high-risk populations, systems reporting medical consequences (medical emergencies, overdoses, infectious diseases), law enforcement reporting systems (seizures, arrests, price and purity) and so on.

> *(Multi-city drug study, 1987)*

Epidemiology in relation to other research traditions

There is much overlap between epidemiology and related disciplines in the drug field (sociology, criminology, anthropology, social psychology, economics, social policy). This reflects the multi-dimensional and multi-sectorial nature of drug phenomena and responses to them. There has also been much diffusion of methodology across traditional disciplinary boundaries.

This publication adopts a pragmatic definition of drug epidemiology as a practical science for informing public health policy and interventions. This allows inclusion of a wide range of research approaches and methods, even if there is overlap with territory claimed by other disciplines.

Types of epidemiological activity

Different types of epidemiological activities can be distinguished, depending on their purpose.

Descriptive studies

These cover measures of the prevalence and distribution of drug use in a population (e.g. by age groups and gender). They provide a picture of the level and basic characteristics of the drug phenomenon that can be useful for needs assessment or as a baseline for tracking changes over time.

Monitoring systems and surveillance

This involves tracking trends over time through specific indicators (e.g. HIV prevalence in drug injectors entering drug treatment).

Analytical epidemiology

These approaches are concerned with questions of "why" and "how". They cover predictors, risk and protective factors (individual and population level), analysis of processes and mechanisms (individual and contextual).

Evaluation and services research

This is concerned with formative and summative approaches, process, outcome and impact evaluation, cost-effectiveness and burden on health. Formative evaluation is an important part of the process of developing new programmes or strategies (see Scriven, 1991).

Forecasting trends

A range of methodologies can be applied, e.g. constructing dynamic models, qualitative assessments through historical material, interviews, analysis of social trends, or market analysis.

Indicators

The term "indicator" is used (e.g. by EMCDDA) for both monitoring and descriptive studies. An indicator is a proxy measure that is assumed to bear a predictable relationship to a particular dimension of the drug phenomenon and that may be used to describe the situation or monitor changes. For example, the profile of clients seeking treatment for the first time is sometimes used as an indicator of the characteristics of the wider population of problem drug users. Tracked over time, it may also reflect changes in that population.

Indicators are not necessarily causally related, and are often influenced by other factors (e.g. treatment demand indicators also reflect treatment services capacity as well as treatment policy). Further, they should not be interpreted causally in the policy context, through assuming that modifying an indicator will produce a corresponding effect on the phenomenon. For example, in weather forecasting, a falling barometer is an indicator of bad weather. Does it make sense to pump air into the barometer (or even into the atmosphere) to prevent the bad weather?

Methods used in epidemiology

Different questions require different methods. Table 2 gives some selected examples summarising methods against key questions. Various manuals give more comprehensive overviews of methods.

Table 2 – Different questions, different methods

Question	Type of research activity	Methods
1. Understanding the drug situation		
How many?	Descriptive study	Survey Statistical estimate
HIV trends in injectors	Monitoring	Reporting systems Sentinel surveillance
Risk factors for drug use	Analytical study	Case-control design Longitudinal study
Risk of mortality among addicts	Descriptive study	Cohort study
2. Understanding the responses		
Extent of the treatment offer	Descriptive study	Inventory of treatment centres
Impact of interventions to reduce drug-deaths	Analytical evaluation	Quantitative dynamic modelling Qualitative analysis of causes of death
Outcome of treatment	Analytical study	Randomised control trial

Dynamic modelling

The notion of describing and explaining drug use as a process evolving over time through interaction of different factors and feedback loops, including the impact of policies, points to a need for analyses using a dynamic systems approach. Dynamic modelling is a quantitatively based approach to handling such demands. These sorts of techniques are extensively used in economics, for example to model the economy and forecast growth, inflation and unemployment. Different approaches have been explored for drugs, though their potential has yet to be realised.

Qualitative as well as quantitative

While epidemiology is often thought of as a quantitative discipline, qualitative methods offer valuable information and insights that complement statistical data collection and analysis. Qualitative research can help with:

– understanding processes and meanings;
– interpreting statistical information;

– coping with complexity;

– generating hypotheses ("rich points").

Some see qualitative research as a poor relation to quantitative methods. Another view is that qualitative approaches are more than what you do when you can't get good statistical data (even though they can be very useful in these circumstances). They offer alternative ways of analysing and understanding a phenomenon, even when (and perhaps especially when) there is a lot of quantitative information.

Interpretation – the big "so what?" question

Data per se is no more than data. To be useful, it needs to be interpreted. Some fundamental methodological aspects of epidemiological concepts and data interpretation need to be stressed.

Prevalence – what measures for what purpose?

"How many drug users?" is a misleadingly simple question, and interpreting the answer can easily give rise to serious misunderstandings, especially when prevalence figures are used in public, political or media debate.

In general terms, prevalence is a measure of how many drug users exist in a given time frame in a specified population and of how they are distributed in the population.

However, there are many different measures of prevalence, some referring to the time period (current, recent, lifetime, total lifetime) and some to patterns of use (any use, frequent use, cocaine use, problem use, injecting use). Related to prevalence is incidence (the rate at which new cases occur). All measures can apply to different populations (general population, youth, prisoners, workforce). This is more than a technical issue. The definition of prevalence and the data needed depend on the purpose and policy context of the question. For example:

– *Primary prevention* – current/recent prevalence of use and in particular incidence, possibly an estimate of expected total lifetime prevalence.

– *Harm-reduction* – current prevalence and incidence of risky use, especially injecting.

– *Treatment* – current prevalence of problem drug use (most definitions reflect concerns of the 1990s, especially heroin and drug injecting, which may need to be reviewed in light of increased cocaine, cannabis and poly-drug use).

– *Methadone treatment* – current prevalence of opioid dependence.

– *Estimating the size of drug markets* – current/recent prevalence of use of specified drugs (plus quantity and frequency).

– *Estimating financial expenditure* – money spent on drugs.

A common error is to use lifetime prevalence to monitor trends. However, lifetime prevalence is a cumulative measure of the total number of people who have ever tried drugs up to a certain point and including many in the distant past. Lifetime prevalence tends to rise, regardless of trends in current use, since older people, who were young before the growth in drug use over the last thirty years, pass the upper age limit of the defined population, say 15-64, and are replaced by younger generations with higher rates of use.

This means that lifetime prevalence in the general population cannot fall quickly, no matter how many people stop using drugs or are prevented from starting. Any sharp fall is likely to be due to methodological factors rather than a fall in prevalence.

While valuable for other purposes, lifetime prevalence should not be used to monitor drug-use prevalence in the general population. A more appropriate indicator is one that reflects current levels of use – for example, in the last year or month. Incidence rates are an even more relevant indicator of change.

Another common error is to treat lifetime prevalence across different age groups as an indicator of drug popularity, since children and youths who have not used a drug up to a certain point in their lives may well start to do so later and older cohorts with low drug-use lifetime prevalence are not representative of current trends. In order to interpret lifetime prevalence figures sensibly it is essential to give specific values for different age cohorts. It is particularly useless to compare rates of different age groups pooled together, like 10-15 year olds versus 14-18 year olds.

Comparing countries

  Example: prevalence of cannabis use

The prevalence (last 12 months) of cannabis use among young adults (15-34 years) is 15% in country A and 25% in country B. So what? What might be the reasons for the difference?

A closer look reveals that in country B, prevalence is much higher in urban areas (30%) than in non-urban areas (10%). Three-quarters of the population live in urban areas, so the national average is 25%. Country A is predominantly non-urban, only one-quarter live in urban areas. Given the same urban and rural levels of drug use as in country B, national average prevalence is 15%. The differences in prevalence can be accounted for by demographic differences.

In practice, it is unlikely that one simple difference such as this explains all of the differences in prevalence. However, many surveys show that there are important differences between different social and demographic groups. For example, cannabis use by single people under 40 without children can be twenty times more common than among couples with young children. Demographic factors such as the proportion of the population aged 18-29 (where highest prevalence rates are often found) or economic factors such as disposable income can have a substantial impact on reported prevalence rates. Unless these factors are analysed, it is not possible to know how much of the difference remains to be explained through other hypotheses, such as drug availability or differences in policy.

Correlation and causality

Take a hypothetical example of drugs and driving. An epidemiological study shows that 25% of drivers involved in traffic violations or accidents test positive for cannabis. This is interpreted to mean that cannabis adversely affects driving and increases risks, leading to proposals for greater control and roadside testing, as for alcohol, that would in turn lead to more convictions for driving under the influence of drugs.

In this example, it is assumed that testing positive for cannabis equals driving under its influence. Most tests, however, detect any cannabis use in the past week and in some cases past three or four weeks. How many of the 25% were intoxicated at the time of the incident is not known, but the figure is likely to be considerably lower. Many studies of this kind also find that a proportion of drivers testing positive for cannabis also test positive for alcohol, making it hard to know the contribution of cannabis.

Drivers stopped for alleged traffic violations or involved in accidents are usually disproportionately drawn from young age groups (which is why insurance premiums are much higher for young drivers). This is also the group where cannabis use is most common. To an unknown extent, the figure of 25% reflects the wider prevalence of cannabis use in a predominantly youthful population.

Laboratory-based studies indicate that cannabis reduces performance on cognitive tasks such as short-term memory, attention and reaction times, especially in naive users. In vivo studies of how people actually drive after smoking cannabis find that they are often aware of the effects and try to compensate by driving more carefully.

While it may be thought prudent to discourage driving under the influence of cannabis, and while it is likely that the implicit assumption behind the question in the first place was that cannabis must impair driving and cause accidents, the evidence suggests that the causal link between cannabis and a significantly increased risk of traffic accidents is

not so clear. It remains possible that overall, cannabis use does not increase road traffic accidents. While the proposed controls would increase costs for enforcement and increase the number of people convicted, it is not so obvious they would reduce traffic accidents.

In the above study correlation does not imply causality. Such reasoning would only be justified if a comparable group of drivers not involved in traffic violations or accidents, in comparable situations and at comparable times of the day showed a significantly lower rate of positive tests. Such an elaborate design is very expensive and has never been done for cannabis, though it has for alcohol. The famous Grand Rapid Study, the scientific basis for the blood alcohol concentration (BAC) limits in many western countries, showed that the accident risk increases continuously with higher BAC levels (Borkenstein et al., 1974). However, it also found that the accident risk among abstainers is four times higher then for sober individuals who regularly drink some alcohol and that the latter become as dangerous as abstainers only when they reach very high BAC levels of around 0.1 percent – twice as high as the legal limit in most western countries (Hurst, 1973).

Evaluation of interventions or policies

An historical example based on experience in a European country illustrates issues that can arise when using epidemiological data to evaluate interventions or policies (Hartnoll, personal observation). In country X, heroin use among young people had been increasing for some time. Warning signs were at first played down by the government, which had other priorities such as reducing public expenditure and improving efficiency in public services. Police and customs warned that seizures of heroin were increasing but yet the price was still falling and that they could not cope with the "flood" of heroin entering the country. This was deflected as an attempt to obtain funding, and it was pointed out that recently they had claimed that large seizures of heroin represented important progress against drug trafficking. At the highest levels of the police, too, there were other priorities and a reluctance to divert resources to drugs. Reports from various NGOs and harrowing media accounts of heroin use among young people in inner-city areas were dismissed as "alarmist", and increasing numbers of young heroin users entering treatment were interpreted as improved monitoring.

Although news of increasing heroin use was not welcome at political level, some officials in the relevant ministries recognised that patterns of drug use were changing and commissioned some epidemiological research. This research confirmed that heroin use had been increasing for several years and was still increasing. In the meantime, the issue was taken up by the national media and it became increasingly difficult for

the government to ignore it. The threshold was reached when a national newspaper published a story (which turned out to be untrue) about drug dealers distributing heroin-laced sweets in primary schools. Once the political trigger was pulled, heroin became a priority, the research was used to justify increased treatment funding, and the government announced a mass media campaign to warn young people of the dangers of heroin.

By the time funding had fed through into actual treatment provision (about seven or eight years after prevalence had started to increase) the prevalence of heroin dependence was stabilising, while the incidence of new cases had been declining for some time. This meant that more treatment was available to deal with the aftermath of the increase ("epidemic") so the numbers entering treatment continued to rise, but the proportion of younger users decreased.

The prevention campaign too was launched seven to eight years after the increase in heroin had begun. The campaign targeted heroin and young people and included evaluation of changes in knowledge and attitudes before and after the campaign. The evaluation showed that following the campaign, young people were more aware of the risks of heroin and the proportion saying they would refuse it if offered increased. The minister announced that the government was "winning the battle for the hearts and minds of young people". Evidence that the increase in prevalence was slowing down and that fewer young users were entering treatment was used to support this claim.

So was the prevention campaign a success? A closer look at the evaluation revealed that the positive changes in attitude occurred among the (majority) who did not know anyone who used heroin. Among the minority who did know heroin users, the changes tended to be in the opposite direction – the proportion saying they would try heroin if offered increased. While the campaign appeared to strengthen resistance amongst the majority (who were mostly negative about heroin before the campaign) it lacked credibility amongst the minority who were most at risk. Set in the context that the incidence of new heroin use was already decreasing anyway, it becomes hard to know if the campaign had much effect at all. Qualitative research among young drug users carried out at the time suggested that informal social processes among young people were more important in shaping perceptions of drugs and influencing drug use, especially in higher prevalence areas, than government-backed media campaigns.

In this example, alternative, more plausible explanations for observed changes were ignored, probably because they undermined claims about the success of the campaign.

Conclusion

Interpretation of data is the key to understanding. Five dangers of interpretation need to be reiterated:

– naive empiricism and ad hoc induction with no theoretical basis;
– interpreting indicators causally;
– reductionism;
– implicit assumptions;
– looking for self-confirmation.

Only then can the big "so what?" question of what the data really mean be tackled.

Chapter 3 – Evolution of epidemiology and drugs research in Europe

European research on illegal drugs, and in particular drugs epidemiology, has evolved over the last thirty to forty years. The way in which it has evolved and the concerns that have been addressed at various stages should be understood in relation to the development of drug use and perceptions of the problems posed, the information needs of policy makers and practitioners, the major actors who have been involved, and wider historical developments in concepts and thinking about social phenomena and social "problems".

The main focus here is on developments in the past twenty years in Europe. However, these developments did not take place in a vacuum, and it is important to recognise the contribution to epidemiological work in other regions, especially North America, and in international bodies such as WHO.

Various reviews of epidemiological research on drugs in Europe have been carried out from the 1980s to the present: Berridge (1989), Hartnoll (1994), Kennis (1996), CREST (1996), Fountain and Griffiths (1999), Hartnoll (2003). In addition to EMCDDA's annual reports, several reports cover data collection and drug trends in Europe, for example reports by the WHO's Regional Office for Europe (1997), the Pompidou Group's multi-city study and publications based on the COST A6 EU Concerted Action on evaluation of action against drugs in Europe (e.g. Waal, 1998).

Broad themes

The nature of research activities, their focus, paradigms and methodological approaches developed over this period of time. This process in part reflected the development of drug research as a body of knowledge, in part the evolution of drug use and perceptions of it, and in part much wider changes in the role of social research and in research approaches to social issues and social policies in general.

Research perspectives

Although the issues addressed arose out of concerns about perceived changes in drug use, the way in which researchers approached these issues depended on pre-existing traditions of research in the countries

concerned and the extent to which different professions and disciplines (social, criminological, medical...) were involved in drug issues or saw drugs as an area of interest.

Clinical and biomedical perspectives

The biomedical perspective was the primary paradigm in many countries from the beginning of the twentieth century through to the 1960s and beyond. Drug use (especially addiction) was seen as a behavioural or clinical disorder. More strictly biological explanations such as metabolic imbalance, which underpinned the introduction of methadone, also enjoyed a renaissance over the 1960s, especially in the USA, as biochemical and psychopharmacological advances offered greater understanding of the mechanisms of action of drugs on the nervous system.

This perspective often did not really acknowledge the phenomenon of drug use as distinct from dependence. This was reflected in problems of terminology and finding a neutral word for drug use in various languages that did not have associations either of disease (dependence) or disapproval ("abuse"). The term "drug abuse" is still often used for any illegal drug use and official terminology of the UN Commission on Narcotic Drugs and UNODCP still does not acknowledge "use".

Public health and epidemiological perspectives

Epidemiological approaches became increasingly important from the 1960s and the early 1970s onwards when drug use started to be seen as a social phenomena among young people, and not just as the behaviour of "disturbed" individuals. Often researchers came from social science backgrounds rather than medical epidemiology (though in some countries they were psychiatrists). The emergence of AIDS brought more medical epidemiologists into the picture, as well as medical sociologists (risk behaviours).

As mentioned earlier, the understanding of public health as set forth in the Ottawa Charter is quite different from the traditional approach. Much epidemiological research on drugs reflects the older concept, as does the approach of many leading US and northern European alcohol researchers.

Sociological, cognitive and interactive perspectives

The perception of drug use as a social phenomenon was also associated with the increased interest of social scientists in youth culture (also from the 1960s and the 1970s). For example, it led to interactionist and sometimes oppositional paradigms that analysed deviance such as drug use and drug subcultures in terms of labelling, deviancy amplification, value conflict and so on. This happened more in countries influenced by the

US sociology of deviance and criminology, such as the United Kingdom and the Netherlands and among some Scandinavian researchers.

Market and economic perspectives

An increasing and quite varied amount of research has been carried out, especially over the past ten years, from an economic perspective. Some has concentrated on illicit drug markets, for example on price and purity as potential indicators of drug availability, on how illicit drug markets develop and operate, or on estimating the size of the market and the economic dimensions of supply and demand. Other approaches have examined public expenditure or the social costs of illegal drug use, along the lines of research on tobacco, alcohol and various diseases. This development was not surprising in the wider context of increasing emphasis on accountability and the application of market principles to public services and policy.

Social policy research (including historical analysis)

Likewise, in the area of social policy, a diverse but quite substantial body of research has evolved over the past ten years or so. Some have looked at the historical origins of the drug situation in particular countries, others at the evolution of the political responses at both national and European level. Some are primarily descriptive while others have attempted to analyse the social and political interests involved, and in the case of legal substances (alcohol, tobacco, medicines) the economic interests.

Research on legal substances

As noted in Chapter 1, research on illicit drugs, alcohol, tobacco and psychoactive medicines have often developed as separate fields involving different researchers and in some cases different paradigms and methodologies. For example, the Kettil Bruun Society focuses on alcohol (though recently included drugs), while in parallel, the European Society on Social Drug Research (ESSD) concentrates on drugs. At European level there is the EMCDDA and national focal points for drugs, but nothing comparable for alcohol or tobacco, and the same is true at the United Nations. This reflects wider historical processes that led to substances being seen and dealt with in very different ways. A parallel separation is found in political, administrative, legal and professional responses, as well as in how production and distribution of various products are regulated. Thus in some administrations, alcohol is the responsibility of the department of health while drugs fall under justice or home affairs.

Evolution of drug research in different countries

Research on drug use evolved in different ways and at varying rates in different European countries. This reflected differences in research traditions and structures in general, as well as in how and when drugs came to be seen as a topic requiring attention.

For example, in the UK research into social conditions, social problems and public health dates back over a century, enabling the growth of well-established traditions in the fields of epidemiology and public health, social problems and policy. In parallel, there was also a tradition in psychiatry and addiction. This meant that when drugs became an issue in the 1960s, theoretical frameworks and methodological tools already existed. Most epidemiological research on drugs was carried out by social scientists – with a few exceptions, medical epidemiologists did not get involved until later, when HIV/AIDS emerged.

Research traditions in other northern European countries, for example the Nordic countries or the Netherlands, have some features in common with the UK, for example exposure to US sociological and criminological perspectives. There are also differences. Partly as a result of alcohol prohibition and the role of state monopolies in alcohol distribution, there is a long tradition in Nordic countries of alcohol research and policy studies. The Nordic Council for Research on Alcohol and other drugs and the Kettil Bruun Society are the heritage of this tradition.

Very different traditions are found in France, where both sociology and psychiatry have been strongly influenced by psychoanalytical perspectives. Until recently, there was very little tradition in epidemiology and public health research on drugs. There is an empirical tradition in demography, but this did not get involved in drug issues.

In Germany and Austria, there is also little tradition in epidemiology and public health in general. Psychiatry has been more influenced by functional classifications and diagnostic structures, and psychological approaches have often been more dominant than sociological.

In Italy and Spain, research generally reflects more medical/organic traditions in research on mental illness/crime (e.g. from Lombroso onwards, conditions such as epilepsy were seen as a major cause of many social problems). The situation in Portugal appears to have been similar, with the influence of French psychoanalytical sociology as well.

Drug research evolved relatively early in some countries (e.g. the Nordic countries, the United Kingdom) and much more recently in others (Portugal, Greece, some central and east European countries).

In the countries of central and eastern Europe, research on drugs reflects a different tradition, reflecting in part the period of Soviet influence.

History

Early developments (pre-1980)

Drug use did not become a significant topic in Europe until the 1960s, though during the nineteenth and early twentieth centuries, specific issues arose from time to time, for example concerning opium, cocaine or the treatment of addiction, and there were some clinical investigations, for example investigations of alcoholism or opiate addiction. Generally, however, social research, epidemiological studies and systems to describe or track drug-taking did not start to develop in Europe until the 1960s and early 1970s when the emergence of youthful drug scenes provoked concern, principally though not exclusively in northern Europe.

National developments

Social research in the 1960s and 1970s focused mostly on cannabis and to some extent LSD. These were either studies of small groups of drug takers, or surveys of local or sometimes national samples of adolescents or students. In Sweden and Norway, regular surveys have continued to the present day.

There were also concerns about opiate addiction, reflected in clinical studies of treatment or other institutional populations, studies of mortality and morbidity in addict populations, treatment evaluation and treatment policy, sociological cohort studies, epidemiological studies, and criminological studies based on police or forensic data or drug users in prison.

Clinical studies reflected two populations – an older, predominantly female group of patients dependent on barbiturates, morphine or other drugs of medical origin, and a smaller but increasing group of younger, often male clients who were consuming a variety of drugs including opiates, amphetamines and/or cannabis in more peer-oriented, non-medical contexts.

In a few countries, for example Sweden and the United Kingdom, amphetamines had been studied in the 1950s or early 1960s, before cannabis became an issue.

Several epidemiological studies of heroin were carried out in the late 1960s and early 1970s. The first attempts to estimate prevalence also date from this period based on nomination techniques, multipliers, case-finding and capture-recapture. There were also sociological studies describing drug-taking groups or analysing the interactions between changing patterns of drug taking, societal perceptions and responses.

European level

At European level, following a proposal by the French president Georges Pompidou, a 1972 Ministerial Conference of the six members of the European Economic Community (EEC) and the United Kingdom adopted a joint, multidisciplinary co-operation programme on drugs covering health, education and information, enforcement and legislation. This programme became known as the Pompidou Group and included co-operation with interested non-EEC countries, for example Sweden. The Public Health Division of the Council of Europe also noted the need for epidemiological studies and reviewed drug dependence in European countries. This was followed in 1973 by a Resolution by the Committee of Ministers of the Council of Europe that included a call for closer co-operation in exchanging information on drugs and related public health and social problems.

1980-1995

Many developments in this period were in response to changing patterns of drug use, in particular increases in heroin across much of western Europe, (also cannabis in some countries) and, from the mid-1980s to AIDS. During the 1980s epidemiological studies developed and the concept of drug indicators was elaborated and applied in Europe, both at national level in some countries and at European level. Social research on patterns of risk behaviours among drug injectors also expanded rapidly.

National developments

The early 1980s saw development in several countries of indicators for assessing and monitoring drug use and related problems. Some applied a combination of indirect indicators such as treatment demand, deaths or market indicators, prevalence estimates, snowball sampling and ethnographic research at local level, for example in London or Amsterdam. Similar ideas were being explored in other countries such as France, Germany, Italy and Sweden. Over the 1980s, initiatives to develop indicators further extended, for example in Denmark, Greece and Ireland. Regular surveys of youth continued in Norway and Sweden and were introduced in Germany. From 1987, Spain set up a national reporting system based on three indicators to monitor heroin- and cocaine-treatment demand, non-fatal emergencies and drug-related deaths.

Alongside these developments, the 1980s saw a growing interest in methods for studying hidden populations and patterns of drug taking that were not reflected in health or criminal justice indicators nor adequately covered by population surveys. These included snowball studies

of cocaine users or behavioural studies of risk behaviours and HIV infection among out-of-treatment drug injectors.

In some cases the focus was on national level, in others local. In many cases, important elements in this process were the enthusiasm of a relatively small number of drug researchers, combined with a slowly emerging interest by national or local authorities in information on the emerging drug phenomenon. This interest arose from a growing awareness of changing patterns of drug taking in some countries, in particular heroin and problems related to AIDS.
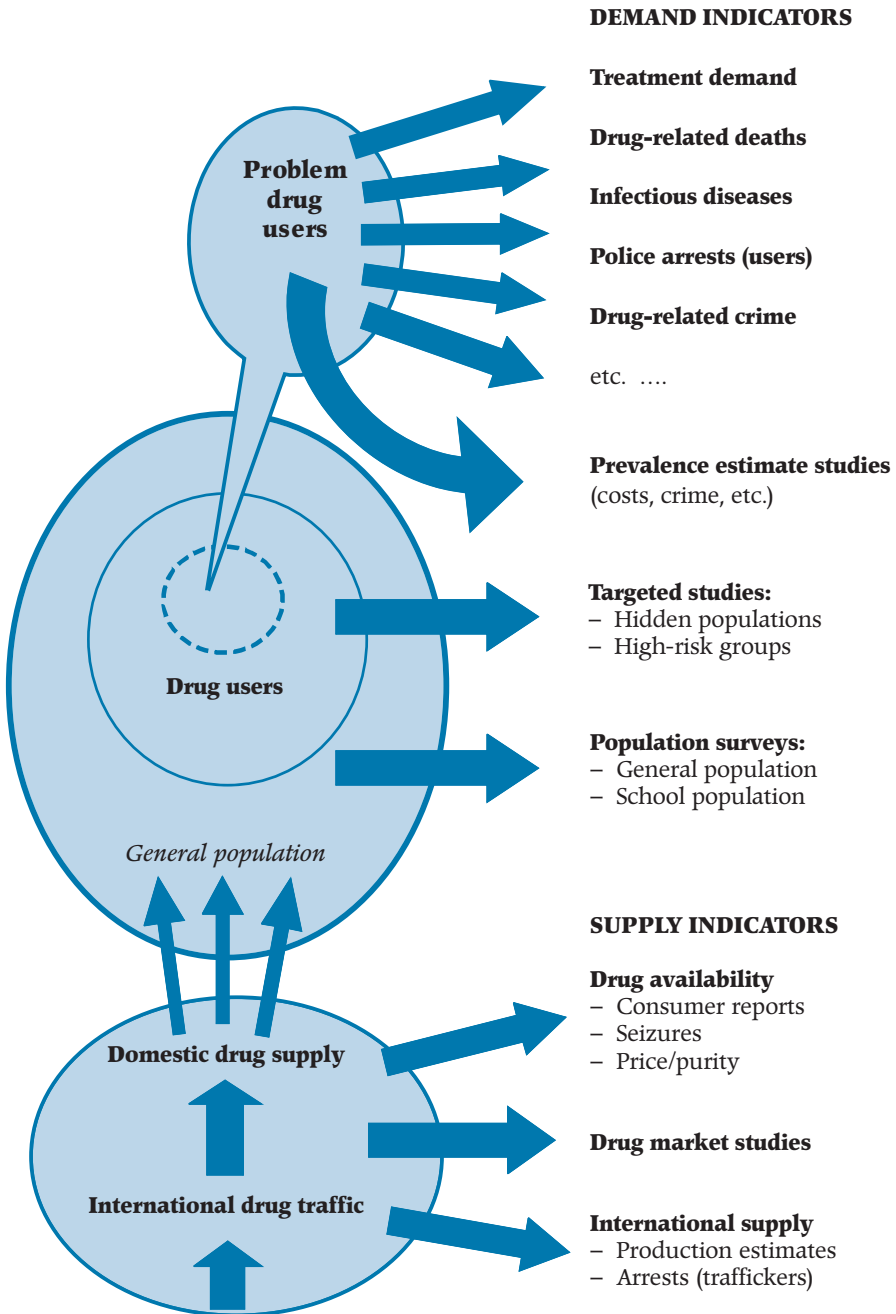
European developments and the Pompidou Group

At European level, the main developments in epidemiology in the 1980s took place through the Council of Europe's Pompidou Group. Although the Pompidou Group arose as an intergovernmental co-operation group on drugs involving countries from the European Economic Community, from 1980 it became a "partial agreement" attached to the Council of Europe.

In December 1982, the Pompidou Group organised an expert meeting in Strasbourg on the "development of administrative monitoring systems for the assessment of public health and social problems related to drug abuse". This led to the setting up of an expert epidemiology group that met regularly and laid the basis for a two-track approach, one focusing on school surveys, the other on a multi-city study of drug indicators. The school survey group developed an instrument that was tested in six countries. However the instrument itself was not applied at European level until 1995.

The multi-city study developed a framework for using multiple indicators to describe and compare the drug situation at city level. The emphasis was on interpreting indicators as a package in the local context so that cities could be compared on the basis of an understanding of what the indicators signified in each city (Figure 1). It is harder to achieve understanding at national level, not only because drug situations vary between localities, but also because it is difficult to evaluate the significance of indicators at national level. This is a fundamental but often overlooked point – regardless of whether indicators are standardised or not, it is only possible to make sense of them, to make comparisons and draw conclusions if statistical data are combined with other, often more qualitative research as well as with broader information on context, including societal attitudes and responses. Initially the study involved seven cities, subsequently expanding to thirteen and then to over twenty.

Figure 1 – Drug indicators model

DEMAND INDICATORS

Treatment demand

Drug-related deaths

Infectious diseases

Police arrests (users)

Drug-related crime

etc. ....

Prevalence estimate studies
(costs, crime, etc.)

Targeted studies:
– Hidden populations
– High-risk groups

Population surveys:
– General population
– School population

SUPPLY INDICATORS

Drug availability
– Consumer reports
– Seizures
– Price/purity

Drug market studies

International supply
– Production estimates
– Arrests (traffickers)

Apart from regular collection and synthesis of city data from the early 1980s until 2003, the main achievements of the Pompidou expert epidemiology group were: a model for routine collection and analysis of multiple indicators; a standard protocol for the "first treatment demand indicator"; a standard instrument for school surveys; a review of methods for estimating prevalence of problem drug use; a manual on snowball sampling methodology; and feasibility studies of indicators of drug-related deaths, non-fatal emergencies, police arrests, heroin seizures, price-purity of illicit drugs, and general population surveys. A Pompidou Group training programme in drug epidemiology in the early 1990s disseminated methodology to countries of central and eastern Europe and led to extension of the multi-city network, including a Russian city network, as well as epidemiological activities in the Mediterranean.

1995-present

National developments

It is not possible to give a comprehensive overview. In the early 1990s research mostly continued to reflect the concerns of the 1980s, especially heroin and related problems and drug injecting and AIDS. Over the decade, increasing attention was given to cocaine and especially to synthetic drugs. More recently, cannabis-related research has become more important.

Other developments can be seen in changing priorities for research in different countries, depending on issues that have dominated the political agenda. In some, crime and public order have become an important driving force. In others, the creation of interministerial policy plans and targets have led to increased epidemiological research and monitoring. Growing emphasis on accountability and efficiency has given higher priority to evaluation and cost analysis. Increasing acceptance of harm-reduction has seen a corresponding growth in research.

European developments and the EMCDDA

At European level, the most important development was the emergence of the EMCDDA. Until now, the major work of the EMCDDA regarding epidemiology and social research can be seen as the consolidation and implementation of developments that were seeded from 1980-95. These included projects on key epidemiological indicators of prevalence and health consequences, statistical and dynamic modelling and on qualitative research, emerging trends, new synthetic drugs, preliminary studies on drug markets and law enforcement indicators, establishment of databases on interventions in the field of demand reduction and reviews and manuals on evaluation in demand reduction. On policy, most work has

aimed to describe policy goals and structure in the member states and establish a legal database.

Establishment of the Reitox network was a significant factor in providing a structure for disseminating methodology to harmonise epidemiological data collection and a channel for collecting information on the European situation.

Alongside national research and the information collected and synthesised by the EMCDDA, other European level research activities included:

– Pompidou Group projects and the continuing multi-city study;

– European School Survey Project on Alcohol and other Drugs (ESPAD);

– COST A-6 funded by the European Commission;

– WHO projects (school surveys, HIV-sero-prevalence studies);

– projects funded by the Public Health Directorate of the European Commission (in particular under the Drug Prevention Programme).

Other European research institutes and networks include:

– European Society on Social Drug Research (ESSD);

– European Addiction Research;

– Nordic Council on Drug and Alcohol Research (NAD);

– Kettil Bruun Society (KBS);

– IREFREA;

– European Association of Professionals working with Drug Dependencies (ITACA);

– European Association of Substance Abuse Research (EASAR).

Current settings for drug epidemiology and drug research

Epidemiology and drug research in Europe mostly falls under three headings:

– monitoring and analysis of trends in drug situation, interventions and policies (local authorities, national focal points, EMCDDA);

– applied ad hoc research or information gathering for immediate needs (usually funded by public authorities, local, national or European, often carried out by contractors);

– research at universities, institutes and research centres in fields such as epidemiology, medicine, sociology or criminology (funded by research councils, governments, private foundations, industry or European bodies).

International research links

The development of drug epidemiology and social research in Europe has taken place in the context of increasing co-operation between regional and international organisations as well as individual researchers and research institutes. The 1970s saw important methodological developments in the USA and Canada that influenced European work on epidemiological surveys and drug indicators in the 1980s. A series of epidemiological manuals produced by WHO in 1980 and 1981 also made an important contribution to the wider dissemination of these methodologies.

The Community Epidemiological Working Group (CEWG), based on regular reporting of drug trends from a network of cities, was developed as a complementary approach to national surveys and reporting systems. Several European researchers attended these meetings, establishing important links that fed into the evolution of epidemiological indicators and information systems in Europe.

International connections were facilitated by the International Epidemiology Work Group (IEWG), which has been an especially valuable mechanism for information exchange between researchers, international organisations and regional or sub-regional drug epidemiological networks.

While the focus of this publication is on Europe, the evolution of drug epidemiology in Europe is part of wider developments occurring in the international arena. Co-operation and information exchange may be time-consuming but they are essential for cross-fertilisation of ideas and stimulation of innovation.

Conclusions

Some of the lessons from this brief history may be summarised as follows.

– The time between sowing the seeds of a new idea to fruition can be quite long. In the example of drug indicators, it took twenty years from the initial conception and exploratory work in the early 1980s to the formal adoption of selected indicators in the early 2000s.

– Continuity is essential for moving forward, in terms of stable political framework and structures and individual researchers and research centres.

– The emphasis has shifted over the past twenty to thirty years from local to national to European and international levels. There is now some move back towards greater acknowledgement of the importance of the local level and diversity.

Chapter 4 – What do we know and what lessons have we learned?

This chapter gives an overview of what is known about the drug phenomenon from a research perspective and examines what has been learned about how this research knowledge can be useful for informing policy and practice.

Who are "we", what does "known" mean and who has learned?

- A fair amount of research has been carried out in a field, but is not well known outside the professional circle concerned (e.g. some sociological and qualitative research).
- There is a reasonable amount of research and knowledge on a topic in a few countries, but this is unknown in others (e.g. on local drug markets and enforcement strategies).
- Research on a topic exists in several or many countries, but is not on the agenda of the EMCDDA, PG or European Commission, and does not appear to be "known" at this European level (e.g. co-morbidity).
- Information exists at European level but is not widely accessible (e.g. "risk assessments" of drug markets and trafficking carried out by Europol).
- Research was carried out some years ago that still has validity today (especially as a paradigm or methodology) but is only known to researchers (e.g. research on labelling theory and deviancy amplification in the 1960s and 1970s, or research on cocaine snowball sampling in the 1980s and 1990s).
- Research exists outside Europe (e.g. in the US on evaluation of treatment, or economic models of the cocaine market and impact of different strategies).

In these circumstances, it is not easy to answer the question "What do we know?". Concepts that might be useful here are those of "critical mass" and "threshold of awareness". "Critical mass" means that a body of knowledge on a particular topic has reached such a level of development and maturity that it is no longer possible to dismiss it. "Threshold of awareness" means that it has gained wide enough acceptance to enter into the consciousness of circles beyond the confines of the scientific context in which the knowledge was produced. It is not easy to specify

the dividing lines that both these concepts imply, nor does scientific consensus necessarily correlate closely with acceptance in political or popular consciousness. The conditions under which scientific knowledge informs policy has been examined, for example using historical examples (Berridge, 2003).

The emphasis below is on what is available at European level in terms of:

– comparative information and research on drugs at European level;

– information disseminated or accessible across European countries;

– information included in European documents, reports, research agendas.

Understanding the drug phenomenon – what do we know?

This section gives a brief overview of current knowledge about the drug situation and about responses to it. Under each heading, descriptive and analytical (explanatory or evaluative) knowledge are distinguished.

Thematic policy areas

Drug demand and drug-demand responses

At the level of basic description of the drug situation in Europe, quite a lot is known about the prevalence and distribution of drug use in the population, the characteristics, attitudes and behaviours of various groups of drug users, and about problematic patterns of drug use and their major health consequences. Tools (indicators) exist, though are not always implemented, for measuring and monitoring drug demand, but there is room for further work, for example on incidence, emerging trends and diffusion of drug use, and systematic description of demographic, cultural and socio-economic correlates of different patterns of drug use and consequences.

Over time the comparability of indicators of prevalence and health consequences has improved, though it is not perfect, and while there are gaps, it is now possible to have a basic overview of the drug situation across Europe. It is also possible to monitor general trends based on a reasonable number of countries.

At the level of explanation analysis of the drug situation is less advanced, for example in explaining differences between areas or countries, or reasons for observed trends. Research has identified risk factors associated with drug use at individual level and to a lesser extent at population or environmental level, but causal relationships are often not well established. As well as dedicated research to test different hypotheses, there is much potential for better exploitation of existing data.

Regarding responses, quite a lot of basic descriptive data exist on demand reduction policies and interventions (prevention, harm-reduction, treatment and rehabilitation, drug users in the criminal justice system) and how widely they are distributed in different countries. These range from accounts of individual programmes to national overviews, and include qualitative descriptions, surveys of practitioners and agency practices, statistical profiles of clients, details of structures or costs, as well as local and national policy documents on intervention strategies. A variety of databases, inventories, reports and overviews provide information at both national and European level. How much of this material can be deemed research is a moot point, but there is no shortage of information if you know what you want and where to look. Rather less exists in terms of describing and monitoring how policies and responses are implemented in practice, how different components of policy function as a "package", and on the range of local variability.

Regarding analysis of responses, contrary to some perceptions there is accumulating evidence (process and outcome evaluation) on "what works?" for some specific interventions in treatment, prevention and harm reduction, though there are also gaps. Much less is known about more complex questions regarding the impact of different drug demand reduction policies on prevalence or health consequences.

Drug-related crime and law enforcement

Descriptive studies and statistical data give an overview of trends and patterns of drug offences, drug offenders and drug use among arrested or imprisoned populations. While there are studies of drug-related crime and drug-related public nuisance, analytical research on crime that is causally attributable to drugs is rarer.

Similarly, descriptive statistics and research exist on responses of various sectors of the criminal justice system (police, courts, penal system), though compared to demand reduction responses, less is known about enforcement policies and practices. Much less exists in terms of outcome evaluation or analytical research on the impact of policies aimed at reducing drug-related crime and public nuisance. There are descriptions and process evaluations of community-based crime and drug prevention programmes, but again much less analytical research on the impact attributable to the interventions.

Drug markets and supply reduction

There is a range of descriptive information and statistics on drug markets (for example, production sources, trafficking routes, seizures, price/purity, arrested traffickers and dealers) but reliable indicators to measure and monitor total supply and actual availability of different

drugs are not well developed. Relatively little research exists on the organisational and economic functioning of drug markets or on supply reduction strategies and interventions (though there are assessments carried out by enforcement agencies) and even less analytical research evaluating the impact of supply reduction strategies and policies.

Cross-cutting topics

In several areas a reasonable amount of descriptive information exists, both on situation (for example, attitudes and opinions, new synthetic drugs, co-morbidity, risk factors) and on responses (e.g., legislation, national policies, structures and co-ordination mechanisms). In other areas there is some research (for example, demographic correlates, lifestyles, public expenditure). However, substantial challenges remain, especially on understanding mechanisms and processes of change, identifying and forecasting trends, measuring social and health costs attributable to drug use, analysing the impact of demographic, social and economic context factors on the drug situation or the relationship of drug policy to broader social policies. There is little research on the policy-making process itself and its consequences (intended and unintended).

Drugs, drug policy and the wider context

Many of these broader topics not only cut across specific thematic policy areas but also involve issues that extend far beyond the drugs field, forming part of the wider context for drugs and drug policies. Context is not just "something out there" but the wider framework that shapes what happens in the box called "drugs" and all that is done in the name of responding to "the drugs problem".

Conclusions

Descriptions of the drug situation, interventions and policies in Europe, and tools for monitoring them, have improved considerably over twenty years, though gaps remain.

Progress has been made to clarify factors associated with different patterns and trends, though causal relationships are not well established. Understanding of some drug-use patterns, processes and contexts has been enriched through qualitative research and dynamic modelling, but the value of this has yet to be fully realised.

Some specific types of intervention have been evaluated and a number of reviews of legislation and different policy approaches carried out, but much remains to be done in terms of assessing the effects attributable to drug policy or analysing situations/interventions/policies as a dynamic process or interactive system in a wider context.

How has this progress been useful to policy and practice?

Research can be useful directly (e.g. resource allocation according to prevalence, evidence used in decisions to expand substitution treatment) or more diffusely (e.g. reducing uncertainty and anxiety, bringing new perspectives and paradigms).

Models of research-policy relationship

Several authors have written on this subject, for example Virginia Berridge (2003), Gerry Stimson (1997), Peter Cohen (1997) and Peter Reuter (1993). There are different models of the research-policy relationship.

Rational

Research is used by policy makers as a basis for developing evidence-based policies, planning interventions, allocating resources, targeting responses, amending legislation and so on. An example from the 1980s was the research-based model for drug policy in the city of Amsterdam. A very recent example is the decision of the UK government to reclassify cannabis on the basis of a review of the evidence by the Advisory Council on the Misuse of Drugs.

Enlightenment

Research influences policy in a more diffuse manner. For example, the predominant paradigms reflected in the scientific research community may, via a "trickle" effect, influence over time the way the drug phenomenon is perceived and thus contribute to a shift in policy paradigm. An example is the contribution that epidemiological and sociological perspectives have made to broadening policy paradigms beyond disease-based or repression-based approaches.

Legitimation

Research is used selectively to legitimate existing policies and justify decisions that have been made. Conversely, research that does not fit existing policy constructions is not heard (e.g. single mothers and the role of smoking in helping them "take a break" – Berridge).

Economic: who benefits?

In this model, economic and commercial interests influence the impact (or lack of it) of research on policy. This is a tricky area. The alcohol, tobacco and pharmaceutical industries fund all kinds of research in prevention and treatment, with a more or less subtle influence on research

processes and results. Researchers who accept funding risk their reputation – even if they are independent.

Stakeholder partnership

This model, proposed by Martin Büechi in a discussion paper for the PG conference (see reference page 34), suggests a three-way collaboration between government, science and the marketplace as a basis for exchange of knowledge and development of policy.

Useful for what?

Getting beyond emotion

Good information can play an important role in clarifying the picture, reducing anxiety and uncertainty and enabling all involved to move on beyond subjectively founded and often repetitive emotional arguments and tackle more important questions.

A composite example, based on events in two European countries undergoing similar processes of coming to terms with increasing opiate use, illustrates this (Hartnoll, personal observation). In country X, there were various reports of increasing "drug addiction". At first these claimed that there were 100 000 "addicts". A well-known psychiatrist published a newspaper article reporting research that suggested 150 000, but gave no details of methods or how "addict" was defined. This was followed by figures of 200 000 to 300 000 heroin addicts from NGOs, parents and self-appointed experts. The government said there was no evidence of such numbers and insisted that their figures showed less than 20 000 addicts and that the number of known cases showed only slight increases. The police estimated that there were 50-80 000 "addicts". These claims and counter-claims only raised the emotional temperature of the debate and increased anxiety.

Eventually, more systematic research indicated that there were around 40 000 regular heroin users, that prevalence had increased but was now rising more slowly, and that there were in addition at least as many intermittent or casual users of heroin. It also transpired that the psychiatrist's research had mostly referred to patients dependent on barbiturates and tranquillisers.

Establishing consensus around prevalence and the drugs involved can help to create conditions that allow more rational discussion of what steps are necessary.

Planning services and resource allocation

Mapping the drug situation and the range of responses not only opens the door to more rational discourse but is an important first step for needs assessment, planning responses and allocating resources.

For example, prevalence estimates suggest around 1-1.5 million problem drug users in the EU, mostly dependent on heroin or other opiates. It has also been estimated that 3-400 000 people receive substitution treatment (at least at some point). This implies that coverage of substitution treatment could be around 35%. Equivalent estimates for CEEC, although not precise, suggest that apart from one country, coverage is under 5%. There are also large differences between member states.

As a first step, this helps by pointing to a possible gap between treatment offer and demand for substitution treatment. The next step is to ask whether 35% coverage meets the need for this sort of treatment, and whether this is similar in all countries.

Understanding similarities and differences

Although there is much room for improvement in data comparability, we now have a better idea of similarities and differences between countries in terms of levels and patterns of drug use and some of the main health consequences. This offers the possibility to move discussions of policy beyond arguments based on subjective opinions about "who has the most/least" towards discussion of possible reasons and provides a basis for more systematic assessment of lessons that can be learned.

Monitoring and forecasting trends

In many countries and at European level it is now possible to monitor broad trends in drug use and some major consequences. This has pointed, for example, to changing profiles of treatment demand (stable or diminishing heroin, increasing poly-drug use, cannabis, cocaine). However, analysing and forecasting trends is still a primitive art.

Evidence concerning what works

Evidence on the effectiveness of some interventions has played a role in their acceptance in countries where they did not exist or existed only to a limited extent, for example substitution treatment or syringe exchange.

Evidence has also helped modify expectations of what can be achieved (e.g. through in-patient detoxification or general prevention) and to develop more differentiated approaches (e.g. targeted prevention activities for high-risk groups and settings).

The development of drug strategies in many countries has drawn on a variety of data on the nature and extent of drug use and its consequences, as well as on evidence on different policy options, even if overall objectives and priorities are determined mainly by political considerations. Increasingly, these strategies specify targets that require monitoring through appropriate indicators. At the same time, using indicators to monitor policies without understanding the causal relationships between drug situation, policy and indicator, makes it hard to know what the impact of policy is.

There are also examples, for example in some central and east European countries, where multiple indicator and multi-factorial public health paradigms have encouraged inter-sectorial co-operation and helped move policy thinking away from single-factor approaches (e.g. repression) towards a more balanced approach.

Quantifying costs, identifying priorities

Figure X gives a schematic picture of the importance of drug injecting for costs to health in terms of drug-related deaths and infectious diseases in the EU. Similarly, research in the UK showing that over 90% of drug-related crime was committed by heavy users of heroin and crack cocaine contributed to a policy decision to give priority to reducing dependence on heroin and cocaine.

Measuring costs and expenditure is popular, since people are more willing to support actions (prevention, therapy and repression) if they believe that they pay indirectly for the problem. Mere suffering of others gives less motivation to invest taxpayers' money.

Conclusions

Epidemiology and social research can be and have been useful for informing and shaping policy and practice across many aspects of the drugs field. However, it is clear that decision-making is influenced by many other considerations and that in politicised contexts decisions may well fly in the face of evidence, and the more it appears that policies are counterproductive, the more is invested in them.

While reasonable progress has been made in terms of mapping the drug situation and some progress in terms of identifying correlates and possible causal factors, this knowledge raises at least three further questions that are often not elaborated.

– Which of the explanatory factors are, or might be, amenable to modification?

– What would modifying those factors entail for policy/interventions?

– What impact can be attributed to policy?

Lessons learned

Three interrelated key words sum up the lessons learned and underlie challenges for the future: complexity, process, interaction.

Complexity, process, interaction

The drug situation is complex. It is made up of overlapping but differentiated phenomena that are caused by multiple factors ranging from individual preferences for specific drug effects, through social factors such as lifestyles, drug availability or legal responses and societal attitudes towards drugs, to broader factors such as social exclusion. Both the drug situation and many of these causal factors evolve over time in an interactive, dynamic process.

Responses and policies are also complex and influenced by many factors. Some are related to the drug situation but others are not. Ideological traditions, social policies and organisational structures for responding to social "problems" in general (crime, mental illness, alcohol, youthful rebellion) may have a profound effect on responses to drugs in particular. Even over a relatively short period, policies and responses on an issue such as drugs are not static and may, as in several European countries, go through a rapid process of development.

Analysis of drug phenomena, policies and interventions must take account of this complexity. Increasing scientific knowledge, for example in medicine, neuroscience, epidemiology or prevention, only increases complexity.

Interpretation of research, especially in the political and policy-making arena, is further influenced by values and ideology. The implicit assumptions flowing from these have an important impact on how knowledge is or could be translated into action. Examples have indicated how understanding the impact of underlying paradigms and assumptions is part-and-parcel of the lessons to be learned from the history of drug research.

Implications

To get a good picture, researchers need to be creative in finding divergent hypotheses to explain their observations, to try unorthodox perspectives, to question assumptions and established convictions, to accept that often they cannot (at least for the time being) rule out conflicting hypotheses and that we all may have to live with much more uncertainty than we would like.

The public, and many policy makers, expect clear, simple answers. If researchers nourish the idea that most of the time this is possible, they put themselves in the awkward position of taking on impossible tasks,

thus becoming their own victims. Where "drugs" are politicised and research is seen as providing answers, there is serious risk of over-simplification, both by researchers and by those who ask for research, with the inevitable result that expectations often are not met. Policy makers and researchers need further to acknowledge that positive outcomes at one level often have negative or unintended consequences at other levels.

Research should be seen not as a magical hat from which answers can be pulled, but as a process that progressively clarifies in a step-by-step process. This starts from simple description, leading to differentiation, which in turn raises further questions that lead to preliminary hypotheses, testing, rejection or refinement of hypotheses, and so on. Throughout this process, results from other researchers and other related fields are incorporated and often modify the direction and interpretation of any given study. One research project rarely answers more than a few limited questions and usually raises more questions in the process.

Researchers need to be open about complexity and what can be achieved in the short term, despite the demands of policy-driven research. Policy makers and research funders also need to acknowledge complexity, despite its unpopularity with politicians, and meet researchers half-way to discuss what is realistic and what is not. This means confronting implicit assumptions about simplicity and causation and resisting the tendency to reductionism.

Analysing drug situation and responses involves understanding them as an interactive system rather than as separate elements. Splitting situation, interventions and policies makes it more difficult to link them and hinders understanding of the dynamic processes involved and of the likely consequences of different policy approaches. Multidisciplinary teams working on thematic topics have become more common in many research fields and the same is important in the drugs field.

While multidisciplinarity is vital, it only works if all involved learn from each other and work jointly on all key elements of the research process – from conceptualisation and design through implementation to final analysis and interpretation. Very often multidisciplinarity means that specialists from different fields take responsibility for one component without having to understand the others – the classic example is a doctor doing clinical research and a statistician the analysis without either appreciating the other's trade. That way rationality and coherence evaporate in the border zones between professions who do not understand each other.

The research-policy relationship also needs to be understood as an inter-active process of questions, research, discussion, refinement of questions, research, and so on involving both researchers and policy makers. This entails identifying structural mechanisms that allow ongoing interaction to take place.

All this implies that research should be seen as a long-term process of building knowledge in a framework that allows critical scientific scrutiny, theory development, integration and interpretation of results, as well as ongoing information exchange with policy makers and other key stake-holders. This can only be accomplished if some researchers can work in an area over several years, have sufficient time to think about it, to read what others do in the field and to provide expertise to young researchers, policy makers and persons working in the field. Unfortunately, current trends in funding and contracting out go in the opposite direction.

Chapter 5 – What don't we know (but need to) and why don't we know it?

The previous chapter gave an overview of what we know regarding the drug situation and responses. In so doing, it highlighted some gaps, and more generally identified a lack of cohesion between analysis of situation and response. This chapter examines these gaps in terms of thematic policy questions and asks: Why is this missing knowledge important? Why don't we know it?

What don't we know (but need to)?

The question here is: What are the main sorts of gaps in knowledge and why are they important? This is handled at a general level with some examples, since listing everything we do not know is potentially without limits. What we don't know also depends on the paradigm within which questions are asked. Changing the paradigm opens up a new range of questions. We cannot know what the important questions will be until after we start looking at the world from a different perspective. For example, earlier in the twentieth century, the dominant clinical paradigm of addiction meant that little was known or asked about occasional or "recreational" use of heroin or cocaine. It was assumed that cases described in clinical textbooks represented the "true" pathological and compulsive nature of heroin or cocaine use. It was only when epidemiological and sociological perspectives were adopted that questions were asked about "hidden populations", "self-regulated drug use" or the limitations of the concept of "addiction".

In the five thematic areas

Drug use, prevention and early intervention

Why do some people use drugs and others not (individual and situational risk factors)? When is drug use a risk and for what? There is a relatively substantial literature on risk factors and drug use, but most is correlational and little is embedded in sound theory. Some risk factors are indicators – others possible points of intervention.

What influences prevalence? Why and how do differences arise between different localities – drug availability, demographic profile of population, socio-economic situation, lifestyles, social attitudes, perceptions of risk

or norms re use among peers? Would trend analysis based on long-term epidemic or economic market cycles give different answers?

What is the impact of different prevention strategies on prevalence? While there is evaluation research on the effects of particular programmes on specific target groups, and especially on short-term changes in for example knowledge, attitudes, much less is known about how different policies and strategies influence incidence and prevalence at population level and in the longer term.

More broadly, how much is due to policy, how much to other factors? What would happen to prevalence under different legal and regulatory approaches? At face value, there is little correlation between policy and prevalence in different European countries. This needs to be examined in detail. It is quite possible that drug policy has limited impact on drug-use prevalence. And policy is also driven by prevalence.

We often do not use the right indicators for measuring incidence, prevalence and the impact of prevention. Most drug use is experimental and does not develop into longer-term or intensive use. Basic prevalence data give little insight into processes of initiation, continuation, possible intensification and cessation of use. Incidence, continuation rates and natural history of drug use may be more appropriate as these indicators may point to when, with whom and how interventions may be useful, especially when combined with knowledge gained from research on risk factors.

National prevalence figures are bland averages concealing large local variations. This prevents understanding geographical diffusion of drug use over time and does not help develop differentiated and targeted responses that take account of social and geographical differences. It is important to improve knowledge of how drug use correlates with demographic and socio-economic indicators, for example through greater use of geographical information systems (GIS), combined with research on the impact of contextual risk factors. The relative lack of systematic and comparable data broken down by area and population group hinders progress.

Risky drug use, health consequences and harm-reduction

Prevalence estimates of problem drug use are mainly based on techniques developed for heroin or drug injecting. These work less well for other patterns of problem drug use, for example involving cocaine, synthetic drugs, cannabis or poly-drug use with alcohol and/or medicaments. This partly concerns definition, partly data sources and methodology. Similarly, less is known about risk factors and natural history for other patterns of problem drug use. This is important because

patterns of problem drug use, and perceptions of what constitutes problem drug use, are changing. A shift in perspective to a global concept of problem drug use covering illegal drugs, alcohol, tobacco and medicines introduces new demands on research.

Research has identified factors correlated with problem drug use at individual level and to a lesser extent at population or environmental level, but causal relationships are often not well established. This makes it hard to know where to target responses.

What is the relationship between drug use and problem drug use? Does changing moderate use automatically alter problem use – or is it possible to influence one without the other? (This is a key topic in the alcohol field.)

What influences problem drug use prevalence in a community, and what explains differences between different places? How much is due to policy and how much to other factors? How similar or different are they to factors for drug use?

Why are different patterns of problem drug use observed in different places (e.g. more amphetamines in Nordic countries, less injecting among heroin users in the Netherlands and Spain)? Does influencing one type of problem drug use reduce the overall level or just move it to other drugs (e.g. heroin drought in Australia and rising amphetamine and cocaine use)?

Why are there differences in mortality rates between different groups of problem drug users? Does it make sense to measure mortality due to substance use – or are other approaches (years of life lost or QALYs) more sensible? Why are there such large differences in the prevalence of HIV infection between different populations? What explains the different trends?

Priority has been given to the most serious health consequences – HIV/AIDS, hepatitis B and C, and drug-related deaths. Other health correlates and consequences have received less attention in the drug field (e.g. tuberculosis, endocarditis, local infections) though these have been studied in a general public-health context. Similarly, there is less systematic research on social consequences, for example for families, local communities or the economy.

While there is accumulating evidence (process and outcome evaluation) on "what works?" for specific drug demand-reduction interventions, much less is known about more complex questions of the impact (positive and negative) of different harm-reduction policies and strategies on prevalence, health and social consequences. Can policies influence the level and pattern of harm even if they have little impact on prevalence?

Problem drug use, treatment and rehabilitation

As noted above, estimates of problem use of drugs other than heroin or injecting are limited, as is information on what sorts of treatment needs are implied. This means that it is hard to know if the treatment offer is sufficient or appropriate.

Incidence measures are limited (apart from retrospectively for heroin via back-calculation from questions on year of first use).

Quite a lot is known about the effectiveness of some specific treatments for heroin dependence (also alcohol and smoking) but less for other drugs and poly-drug use.

Drug-related crime, enforcement and the criminal justice system

While there are studies of drug-related crime and drug-related public nuisance, analytical research on crime that is causally attributable to drugs is rarer. Commonly, the implicit assumption is that criminality is caused by drug use and would vanish if drugs were not available. However, there are good reasons to expect that people who tend more to criminality tend more to extreme forms of drug use as well. If so, only a part of what we now call "drug-related crime" would vanish.

Compared to demand-reduction responses, less is known about enforcement policies, strategies and practices. Trajectories of drug users through the criminal justice system (police, prosecution/diversion, court disposal, imprisonment and alternatives) are not well described. There are descriptions and process evaluations of community-based crime and drug prevention programmes, but much less analytical research on the impact attributable to the interventions.

Even less exists in terms of outcome evaluation or analytical research on the impact of policies and different strategies aimed at reducing drug-related crime and public nuisance. Broader questions such as the relative effectiveness of harm reduction and repression in reducing drug-related crime have yet to be adequately addressed.

Drug availability, drug markets, interdiction and other responses

Reliable indicators to measure and monitor total supply and actual availability of different drugs are not well developed. Relatively little research exists on the organisational and economic functioning of drug markets (actors, organisational structure, drug and money flows) or on the implementation of supply reduction strategies and interventions (though there are assessments carried out by enforcement agencies).

Understanding of how context influences the development of drug markets is limited (e.g. geopolitical location relative to production, traffick-

ing and transit routes, political and economic conditions, socio-economic position of groups involved and alternative economic possibilities, relationship to other criminal activities and structures).

Little analytical research evaluates the impact of supply-reduction strategies and policies on actual supply, availability, prices or prevalence and pattern of drug use. For example, there is evidence (Reuter) that trying to reduce drug availability and increase drug prices by repression has failed, but only vague theories about why.

On cross-cutting topics

Perceptions of drugs, attitudes and opinions

Quite a lot of information is collected through surveys and public opinion polls. It is assumed that opinion surveys tap what people really think and can guide policy. But attitudes are usually highly correlated with behaviour, since individuals try to reduce dissonance between what they do and what they believe. More often beliefs are adjusted to behaviour than the other way round. The reasons people change their behaviour is very complex. One problem is that attitudes are often inadequately assessed. If people with no particular interest or strong opinion on a topic repeat like a parrot what they hear through the media or prevention programme, then content is largely irrelevant.

It is sometimes assumed that changing attitudes can change behaviour, but the evidence for this is contentious. Take the example of long-term trends and drug prevention in the US.

Drug use in the US, predominantly cannabis, rose from the mid 1960s and over the 1970s, reaching a peak around 1979. It then declined over the 1980s until 1993, when the trend reversed and use increased again over the rest of the decade.

School surveys showed that increases or decreases in cannabis use are accompanied by decreases or increases in negative attitudes to cannabis and by parallel changes in perceptions of cannabis as a risky drug. Some argue that changes in attitudes and risk perception precede changes in drug use by a year or two, that attitudes and perceptions therefore "determine" behaviour, and so prevention should aim to change attitudes and perceptions in order to reduce drug use. How does this stand up?

The 1980s were the period when "say no to drugs" gained currency and when prevention programmes such as DARE (police-led school prevention) emerged and expanded to cover millions of children across the US. Decreases in drug use among school students in the 1980s were attributed by many political leaders (and some researchers) to prevention campaigns and programmes. However, it is not obvious why, after more

than ten years of drug education and prevention, falling trends in prevalence reversed in 1993.

Accumulating evidence from evaluation studies suggest that DARE, the largest of the prevention programmes, had no impact on drug use, even though those promoting the programme continue to insist it does.

An alternative hypothesis might consider the wider context. The 1980s were the Reagan years. They were also a period of increased church attendance, a revival in public discourse on family values and religion, growing anti-abortion sentiment, decreased student protest and increased conformity. Perhaps changes in attitudes to drugs, changes in behaviour, and the type of prevention programmes all reflected these broad shifts in "the spirit of the times". This would make them all consequences. The assumed causal relationship between expressed attitudes and behaviour would be no more than an indication that changes in attitude are picked up a little earlier than changes in behaviour.

It is not easy to test hypotheses such as this, but in the absence of good evidence that prevention campaigns and programmes reduce prevalence via changing attitudes, assertions of effectiveness remain wishful thinking and it is essential to examine alternative hypotheses.

We should also be aware that when one party acts to alter attitudes and behaviours this provokes reactions from other parties. For example, the most important effect of an anti-smoking campaign may not be the direct effect on the target audiences but the multitude of reactions from smokers, the tobacco industry and persons who oppose this form of intervention. The overall impact may easily be a boomerang effect much larger than the immediate intended effect of the campaign.

Understanding change, early warning, forecasting trends

There are various ad hoc analyses of trends in specific settings or countries, most carried out with the benefit of hindsight, that allow identification of relevant factors and processes in each case.

There is less work on developing more general analytical concepts and tools for understanding mechanisms and processes of change, and perhaps anticipating trends. Some preliminary work has been carried out by the EMCDDA and the PG. However as noted in the example given in Chapter 1, the conceptual framework for thinking about trend analysis and early-warning needs further consideration. Social and market research on social attitudes, fashion and consumption patterns may offer valuable insights.

Co-morbidity, risk and protective factors, vulnerability

Although quite a lot of research on co-morbidity exists, most is in the therapy field and concerns approaches and resources appropriate for dual-diagnosis patients. The question of how far co-morbidity causes secondary addiction and how far primary addiction causes secondary co-morbidity is not investigated thoroughly. For epidemiology the causal relationship is essential. If addiction is primarily caused by co-morbidity, reducing drug use will not reduce many problems. If drug use causes co-morbidity it makes much sense to focus on drug use.

Demographic, social and economic context factors, culture and lifestyles

Here again the relationship between drug use and demographic, social and economic factors needs a better understanding. If drug problems are caused by bad socio-economic factors, any successful policy must change these factors. If the opposite is true it makes more sense to target drug use. As with co-morbidity and individual risk factors, it is not clear how far these factors are amenable to modification and what difference this would make in practice.

Social costs, burden on health, public expenditure

Social cost estimates should be treated sceptically. The empirical basis is often inadequate and the logic behind the approach is questionable. For example, the social costs of substance abuse are used to justify measures against the problem and the costs for the measures are then added to the social costs. That way, the expenditures are justified in a circular fashion by themselves.

On evaluation

Monitoring and evaluation of interventions

Figure 2 shows that some levels of evaluation are not feasible for many projects and programmes, though some basic documentation always is. The pressure to evaluate everything with limited resources leads to pseudo evaluation and rarely to expansion in knowledge. The tendency to evaluate anything regardless of whether sensible or feasible could be named "evaluopathy", now an epidemic in the research field (Uhl, 2000). A small number of high-quality evaluations are much more valuable to establish evidence of what works.

A second problem is the relationship between project "owner", funder and evaluator. Under most conditions none of them can afford a negative evaluation outcome – they are often all in the same boat, regardless of whether evaluation is internal or external.

Figure 2 – Monitoring and evaluation priorities for interventions
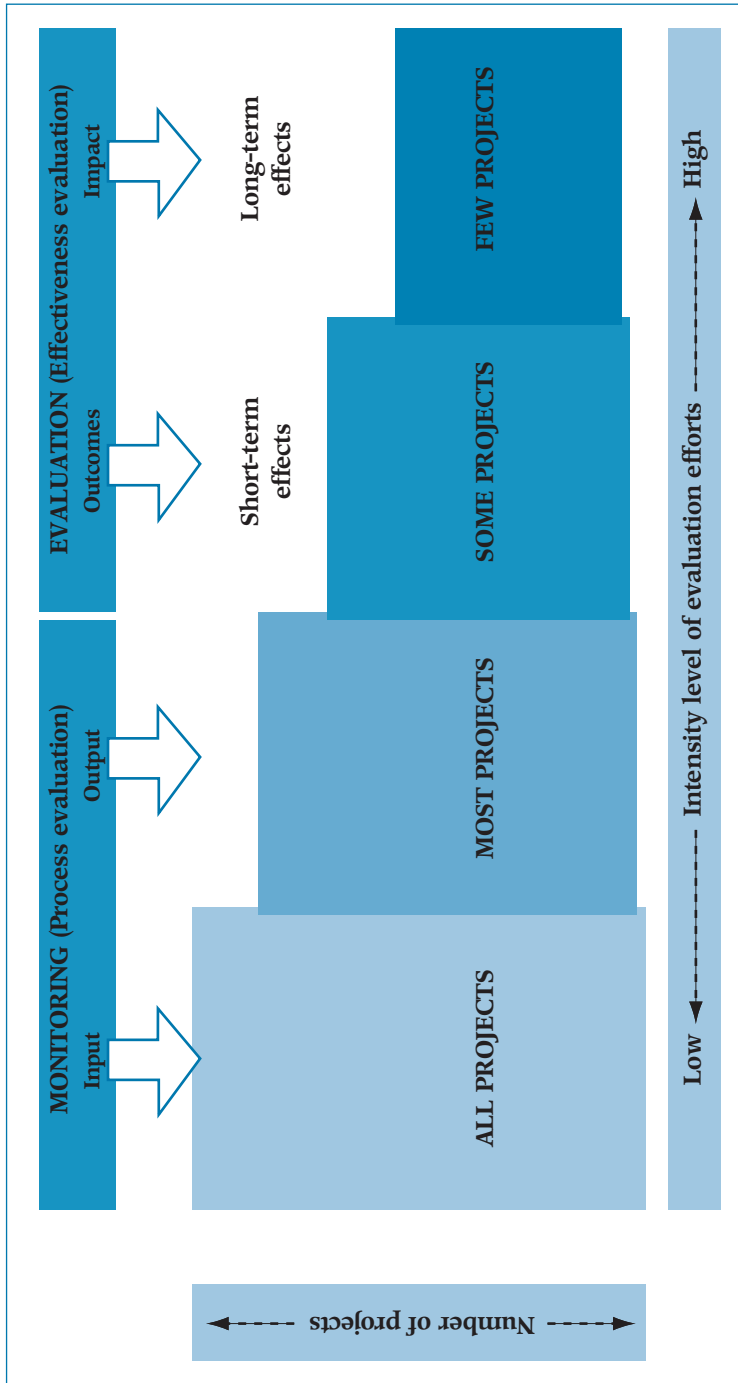
Adapted from *Strategies for an expanded and comprehensive response to a national HIV/AIDS epidemic*, Family Health International (FHI) 2001.

Global analyses of situation, responses, policies, legislation

"Holistic" accounts and analyses of local or historical drug situations are valuable for those willing to reflect on broad lessons to be learned on how the drug situation and policies can interact, and there are a fair number of examples. However, much remains to be done in terms of describing and monitoring how policies and responses are implemented in practice, how different components of policy function as a "package", on unintended consequences, and on important elements in local variability.

More in-depth analysis of the relationship of drug policy to broader social policies and organisational structures for social issues such as crime, mental illness, alcohol and youth might help us appreciate both the possibilities and limitations of drug policy approaches.

Some historical and organisational research exists on the policy-making process itself and the conditions under which research and knowledge are or are not incorporated. This could be extended and exploited to improve use of knowledge.

Impact of the wider context

There is less analysis of the impact of wider demographic, social and economic context and of broader trends in social policy in general. For example, over several decades, levels of drug consumption (including alcohol) can show long-term cycles in prevalence and use patterns, similar perhaps to long-term cycles in fashion or architectural style. There is much potential for research to investigate the role of wider context factors (political, social, economic) on what happens inside the box called "drugs".

Why don't we know it?

Barriers in the research arena

There are many reasons for gaps in knowledge. Some things are unknown simply because no one thinks of them, perhaps because they fall outside the governing paradigm. In other cases, research may be proposed but is not supported because it threatens established structures or important vested interests. Sometimes research has not been done because it appears too difficult and complicated, or because it would cost too much or take too long. In other cases research is not feasible for ethical rather than technical or economic reasons.

Possibly more common is that research has been done but few have heard of it, or if they have, they do not find it relevant. This too can arise for many reasons. Much research is published in specialised professional

journals with limited audiences. Even when researchers do write for others – policy makers, practitioners or the public – they do not communicate their findings well in terms of presentation and language. Often they have little contact with the worlds of policy or practice, do not understand how they operate and fail to appreciate what they might need. This makes it difficult to translate science into meaningful policy or practice. In more severe cases of ivory tower syndrome, one gets the feeling that some researchers do not really understand the world at all.

Some of this lack of understanding comes from narrow, professionally specific views about knowledge. In other cases, possibilities to acquire such understanding are limited owing to high staff turnover, lack of methodological experience and limited time to reflect, all of which may reflect short-term contracts and insufficient funding, especially core funding. Researchers may of course have other priorities, including academic careers, scientific publications and personal research interests.

Some researchers often hesitate about committing themselves to definitive conclusions, knowing that research findings are uncertain (cf. earlier comments on complexity). Others are keen to draw sweeping conclusions on limited evidence and create unrealistic expectations to attract funding, gain status or perhaps because they are naive.

Barriers in the policy arena

Policy makers (and their officials) may not understand the scientific method and how research works, so they treat statements about research as a process merely as bids for more funding.

Even if they do understand, administrations work on annual budgets and may not be willing or able to justify long-term commitments. Lack of interest in long-term analysis can also reflect short-term daily politics and high turnover of politicians and advisers.

Policy makers may not really want research anyway since it complicates decision-making, so they go through the motions to appear evidence-based. Alternatively, commissioning research is a way of postponing action (like setting up a committee to review the situation), so any results are incidental. In some cases, policy makers only want to confirm their own policies or views.

In structural terms, policy responsibilities are often divided departmentally and horizontal co-ordination structures may have very limited budgets. This makes research on cross-cutting topics more difficult.

An important obstacle in research funding is the idea that the public interest is best served by quality standards requiring that institutes are paid per project, provide the product as cheaply as possible, and demonstrate their reputation by publishing in high-ranking journals. This har-

vests "quick and dirty" results from hectically working researchers who have no time to reflect on what they are doing and no time to develop real expertise from a project because they have started work on the next.

Barriers in the practice arena

There are many barriers to research and practice. Practitioners may find research threatening (evaluation or resource allocation) or unnecessary (what's the point of prevalence estimates? etc.). They resent spending time collecting data for someone else for unclear or questionable reasons. Some are terrified of statistics and feel research cannot achieve "real understanding" (they know what's best for clients). Others express (justifiable) concern about confidentiality and the uses of data.

Many individuals and agencies benefit from inadequate procedures and bad quality and know that good research will make life harder for them. Further, when a project that has already received public funding is evaluated, then key stakeholders (projects, funders) may want positive rather than negative results. Evaluators, usually paid by funders, put their future at risk if they are too critical. If all main stakeholders have an interest in positive results we should not expect critical outcomes.

Implications

There is quite a lot we don't know, which weakens the basis for implementing evidence-based policies. Some of the main obstacles are as follows:

– Giving priority to cheap symbolic projects that can be sold politically rather than to expensive quality that is hard to sell to the public or justify formally.

– Short-term project funding for specific, current policy questions acts against understanding dynamic processes, and often prevents accumulation and transmission of knowledge and experience.

– European projects facilitate collaboration and information exchange but often fail to realise their potential to deliver results that can inform policy, because of lack of sustainability and weak links to the policy process.

– Much information and research exists that is not known or not used. A strategy is needed to enable this "hidden knowledge" to be exploited in future research.

– Resistance to different paradigms for asking new questions and looking at old ones in a new light is an underlying theme. There is no point collecting more and more data without parallel investment in good analysis and thoughtful reflection on what it all means and what the important questions are.

– A common language and framework for communication between research, policy, practice and the public is often lacking and hinders development of research and practical application of knowledge.

Overcoming barriers and strategies for moving forward is the focus of Chapter 6.

Chapter 6 – Challenges for research, policy and practice

Challenges for epidemiological and other social research on drugs

Eleven challenges for researchers (and funders) can be summarised as follows (one more than the ten commandments, one short of the twelve-step pathway to salvation).

Think about explanation (and watch out for those assumptions)
Pay more attention to analysis and explanation of correlation, causation and process (Why? and How?). Both qualitative and quantitative approaches are important. Even more important is attention to implicit assumptions and taken-for-granted truisms.
Think of diversity, accept uncertainty
With every research step new questions arise. Researchers should admit that often they cannot give one precise and simple answer. The aim of research is not to prove a given point but to find as many divergent explanations as possible and seek evidence to reject as many as possible. A clear answer may be the ideal goal but as long as more than one option explains the data, this should be openly admitted.
Think thematically
Give greater weight to analysis and interpretation of key thematic issues (e.g. drug use and prevention) through linking situation, interventions and policy. Interactions between these components imply that research should be multidisciplinary and thematic rather than divided vertically.
Think dynamically
Assess the impact of policies within a framework that allows analysis of two-way dynamics between policies and drug trends and takes account of context such as social attitudes or lifestyles. This need not be done through complex dynamic modelling but could use alternative approaches (for example scenario analysis or historical analysis). This might be easier at local rather than national level owing to the degree of variability within a country.

Think beyond drugs

More fundamentally, analysis and interpretation of drug phenomena and policies could benefit from much greater cross-fertilisation with other areas of social policy analysis where research faces similar challenges (mental health, crime, social conditions, exclusion and poverty, and so on).

Think about what exists

Much could be done by building on research that has been carried out and through thoughtful exploitation of existing data. This also entails in-depth knowledge of the field and implies connecting to other researchers who have already tackled an issue. The fragmentation found in many parts of the research field hinders this process.

Think about quality

The quality of too much that passes as research is low. Pressure for quick and dirty information for immediate purposes and at minimal cost is partly to blame. But another reason is lack of knowledge, both of theory and methodology, limited experience in research, and a willingness to accept and disseminate results that reflect uncritical, sloppy thinking. A major challenge is to improve standards and to learn from examples that do achieve high quality. Research requires a range of specific skills as well as a way of thinking about questions that has to be learned. Practitioners do not usually make good researchers.

Think about conflicts of interests

A variety of interest groups bring their own agendas to the research field and have an impact on (implicit) paradigms and expectations of what comes from research and what the policy consequences may be. Professional, commercial, political and ideological interests are all involved.

Questions: Who benefits from research – drug users, government, local communities, professionals, ideological groups, commercial interests, researchers themselves? Not only "How can we achieve the goal technically?" but "Is the goal worthwhile and ethical?" and "Are the means to achieve it ethically acceptable?"

Think about communication

How are research results disseminated? Who are the audiences? Who reads what? What do policy makers, officials, service managers and practitioners read? Who uses the Internet? Who consults online databases?

Presenting research to policy makers or practitioners is different from writing a paper for publication in a scientific journal. A few simple thoughts: address the issue from their point of view; make it intelligible (format, language); executive summary for officials, plus, for political audience and public, main conclusions in half a page (three key points maximum); full report for advisers, other researchers; don't exaggerate.

Don't just collect data, think ...

The importance of theory-based approaches to explanation and the poverty of crass empiricism were stressed in Chapter 2. It is not sufficient just to pay a research assistant to go out and collect data and then think what it might mean. Thinking first entails in-depth knowledge of the field and of the theoretical issues involved, as well as a good understanding of methodology and scientific logic.

... and dream a little

by trying on different glasses and looking at the world and its problems from a different point of view. A major challenge is to progress by expanding our paradigms and seeking new perspectives on what currently appear intractable problems. Imagination is needed as well as science.

Strengthening the research base for policy-making

Long-term research strategy

The issues discussed in previous chapters suggest that strengthening the research base for policy-making requires investment in a long-term strategy on research and structured links to policy-making at national and European level. It is also necessary to overcome obstacles hindering policy makers from understanding the nature and value of research, and researchers from understanding the real world of policy and practice, while at the same time ensuring that research has sufficient independence to allow it to contribute creative and critical input to the worlds of policy and practice. In particular, continuity and a longer-term perspective are needed to:

- enable the research process to tackle complexity and dynamic processes;
- facilitate accumulation and transfer of experience as well as more purposeful collection of data and better use of existing knowledge and "hidden research";
- allow interaction and mutual learning between research and policy to develop in a way that allows decision makers to benefit from research input on an ongoing basis, rather than commissioning a research project and then waiting impatiently for the results.

Sustainability is a key word underlying these requirements, at national and especially European level. While funding has played an important role in enabling researchers to meet and learn from each other, many co-operative projects and networks have failed to realise their potential because they were not sustainable. A positive example was the Pompidou Group expert epidemiology group which made a substantial contribution to the development of drug epidemiology not only at European level but also in countries where it was underdeveloped. This was possible largely because of continuity both over time and in the composition of many of the core participants.

Research funding and training

This implies that research funding needs to:
- *encourage* forward-looking strategic development rather than just shoot-from-the-hip reactive short-term projects for immediate policy needs;
- *include* long-term core funding that gives more emphasis to programme- rather than project-based approaches;
- *give more priority* to secondary analysis, synthesis and thoughtful exploitation of existing data before embarking on new data collection;
- *strengthen* training possibilities to enable researchers to reach a necessary threshold of expertise and experience;
- *allow* experienced researchers time for reflection, discussion and giving considered advice beyond the day-to-day demands of research management;
- *reward* outputs that put greater emphasis on quality and relevance than on the numbers of scientific publications.

Centres of excellence

A programme-based research strategy that at the same time aims to provide ongoing scientific advice and evidence to the policy process cannot be based on disparate projects carried out by scattered researchers. Centres of excellence offer this possibility. The concept of "centre of excel-

lence" refers here to a research centre, institute or department that has facilities and resources (scientific, technical, managerial) to co-ordinate and/or carry out research with a high level of professional competence and quality, and is recognised as such in the wider scientific community. It takes time to build up a strong centre, attract high-quality staff, accumulate experience, gain recognition and establish the conditions for producing high-quality results. In a complex area such as the drug field, a certain size (hard to specify) is also needed to reach a threshold that enables the output to achieve a high-quality, multidisciplinary coherence.

Think-tanks

Alongside existing centres that actually do research, there is room for think-tanks of experienced and thoughtful professionals – academics, policy makers, practitioners – to offer detached reflection and critical questioning on what it all means in a wider context and what alternative approaches and questions might be considered.

– Complexity and diversity of questions, paradigms and approaches means that no research programme or centre covers all issues arising from drug policy, and the demands of ensuring funding and managing research means there is little time to reflect in depth on wider issues.

– At national and international level, think-tanks involving experienced researchers with broad perspectives on the field could fill this gap. In this role, they should be free of day-to-day project management and independent of direct political influence – able to think and discuss the unthinkable beyond the confines of the dominant paradigm.

– They could provide structured opportunities for regular discussion with policy makers to ensure interaction between research and policy, and maximise pedagogic possibilities with policy makers about what research offers.

– Relative independence from politics is essential. If only "appreciated results" are funded, then open scientific discussion is not possible.

Connecting research, policy and practice

Research can influence policy and practice through different mechanisms and pathways that vary from one situation to another, depending on the roles and configuration of the main actors (research, government, practice, market, public). Sometimes links are heavily dependent on a small number of key "gate-keepers", sometimes there are structures that facilitate links.

Key actors and research

There are quite a variety of actors with an interest in research, direct or indirect.

Researchers
– Academic settings (universities and independent research institutes)
– Private consultants and contractors (deliver products to whoever pays – can be government, industry, NGOs)
– Practice settings (NGOs, treatment services, criminal justice system settings, professional bodies)
– Government employees (in-house research units)
– Government advisers (bring expertise from academia, practice, industry, etc.)

Government
– Scientific advisers
– Contracted-out research
– In-house research units
– Government-funded external research centres
– Parliamentary investigations
– Standing advisory committees
– Commissions of inquiry
– Lobbies (industry, professional bodies, ideological groups)

Practice
– In-house monitoring and evaluation
– External monitoring and evaluation
– Participation in research partnerships
– Research by professional bodies and associations

Market
– Industry (alcohol, tobacco, pharmaceutical)
– Private health services
– NGOs
– Private security services
– Privately funded research (philanthropists, ideological groups)
– Management consultants, market researchers
– Insurance companies

Civic society and the public
– Media
– Public interest groups

Configuration of key actors and research links

Ivory tower approach

Some researchers think that to be independent they should maintain distance from policy. Others argue that working as advisers gives results practical relevance.

Lobbying approach

In this approach, policy-making is seen as the outcome of a struggle between different interests – professional, scientific, commercial, ideological and political.

Public opinion and media

Public opinion, especially as formed and reflected through the media, plays a key role in policy-making. Results have impact if others know about it and politicians and decision makers have to react. In applied fields "media advocacy" can help to get evidence-based policies on the way.

Stakeholder partnership

The model proposed by Martin Büechi in his paper for the PG conference (see reference page 34) argues for the need to move beyond the ivory tower and lobbying in the marketplace. It suggests a three-way collaboration between government, science and the market as a basis for exchange of knowledge and development of policy. This too would be the conclusion of this paper. The challenge, which the conference could discuss, is how to do it.

Pompidou Group

The new work programme defines the PG as a platform to stimulate dialogue between research, policy and practice and to act as a catalyst for evidence-based innovative approaches to drug policy and practice. Expert platforms cover prevention, treatment, the criminal justice system and regulatory aspects, research, ethics.

This could be an opportunity to try out the notion of stakeholder partnership. One concept in the research platform could be a think-tank of social policy scientists, historians, epidemiologists, economists, policy makers, practitioners etc. with a brief to brainstorm on how to analyse and link research and drug-policy interactions. This would not carry out original research, but work with existing information and above all develop the notion of paradigms, theoretical frameworks and how to bridge research-policy-practice gaps.

In the longer term it could also develop a pedagogical function for policy makers (intensive seminars applying the approach to concrete situations).

Conclusions: key words on connecting research, policy and practice

– Participation and ongoing interaction between key actors.
– Communication and shared language.
– Clarity on the role of science and what it can offer.
– Research as a process and how to use it.
– How to handle complexity and uncertainty.
– How to support long-term requirements and meet short-term needs.
– How to ensure scientific integrity when data enter the policy discourse.
– How to ensure correct interpretation.
– Acknowledging implicit assumptions and underlying paradigms.
– Ensuring ethical standards.
– Imagination and thinking outside current paradigms to move forward.

Source material and further reading

Introduction

Information on the work programmes, reports and publications of the Pompidou Group and EMCDDA can be found on the following websites:

Pompidou Group:
http://www.coe.int/T/E/Social_cohesion/Pompidou_Group/

EMCDDA: http://www.emcdda.eu.int

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publishing@coe.int
http://book.coe.int

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The following documents have been prepared by the Pompidou Group and can be obtained by contacting the Secretariat in Strasbourg, France, (67075) at:

e-mail: pompidou.group@coe.int
http://www.coe.int/pompidou
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How can research, policy and practice best be linked when dealing with drugs and drug dependence? This is a complicated dilemma that Richard Hartnoll, one of Europe's leading experts in the field of drugs, discusses in this publication.

Linking research, policy and practice poses major challenges to all involved. How can oversimplification be avoided while at the same time making research relevant to the practical business of deciding policy and implementing responses? How can communication and understanding be established between actors with different perspectives and assumptions about what the drug phenomenon is and how it should be approached?

Should the drug-use phenomenon be envisaged from a wider perspective outside the narrow specialised "drug experts circles"? Should it be tackled by multidisciplinary research teams working in centres of excellence and by think-tanks of experienced professionals (academics, policy makers, practitioners) critically questioning research results and considering alternative approaches?

In this publication, of interest to policy makers, drug researchers, practitioners, teachers, as well as a non-specialised public interested in the subject, Hartnoll answers these questions and calls for a strengthening of policy-relevant research on drugs in Europe by investment in a long-term strategy on research.

"As a research funder, my first response to Richard Hartnoll's paper is that I wish I had funded it. It is thoughtful, honest and makes a whole host of crucial points. Many of these strike a strong chord with me – including the issue of complexity".

Charlie Lloyd, Principal Research Manager, the Joseph Rowntree Foundation (JRF), United Kingdom

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