WHO/MSD/MSB/00.3
Original: English
Distribution: General

Guide to Drug Abuse Epidemiology

DEPARTMENT OF MENTAL HEALTH AND SUBSTANCE DEPENDENCE
NONCOMMUNICABLE DISEASES AND MENTAL HEALTH CLUSTER
WORLD HEALTH ORGANIZATION

ABSTRACT

This Guide to Drug Abuse Epidemiology is the product of a collaboration between the World Health Organization (WHO), the United States National Institute on Drug Abuse (NIDA) and substance use epidemiology and other experts from more than twenty countries.

It has been produced in response to the need for valid, reliable and timely information on the prevalence, trends, and patterns of drug use related problems. This information is needed for planning, implementing and evaluating, effective prevention, treatment, policy response and other interventions for substance use related problems.

Since the 1980s there have been major changes in trends and patterns of drug use including: global increases in the production and use of drugs; new forms of old drugs (eg. smokeable Acrack@ cocaine); changes in way drugs are taken (eg. transitions from opium smoking to heroin injection); and the introduction and proliferation of new drugs (eg. MDMA Aecstasy@ and other amphetamine-type stimulants). Of particular importance is the fact that drug injection has become a major transmission route for HIV.

These changes have presented new challenges to public health. These challenges are being met by scientific advances in drug abuse epidemiology, including: improved techniques to assess the extent of drug related behaviours and problems; and the introduction and development of methods which aim to understand drug using behaviours as much as measure them.

This Guide seeks to provide technical guidance to countries and communities in all aspects of drug abuse epidemiology in order to address emerging and changing problems associated with drug use. The Guide provides practical guidance on internationally comparable, yet locally appropriate and culturally adaptable measures and methods. The Guide is designed to be suitable for countries and communities at all levels of health development, including those with limited resources and experience in drug abuse epidemiology.

ACKNOWLEDGEMENTS

US National Institute on Drug Abuse (NIDA)

This Guide was developed with the support of the US National Institute on Drug Abuse (NIDA) under Contract No. 291-92-2009.

Moira O Brien, M.Phil., Division of Epidemiology, Services, and Prevention Research, Epidemiology Research Branch, served as NIDA Project Officer and provided guidance in the development and implementation of the project.

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This Guide to Drug Abuse Epidemiology draws extensively on material previously published by the World Health Organization. Some of the original text from these publications (which are listed below) has been included in the Guide. The following people contributed to these earlier WHO publications. Their contribution is gratefully acknowledged.

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This Guide to Drug Abuse Epidemiology draws extensively on material previously published by the World Health Organization in the following publications:

Hughes P.H., Venulet ., Khant U., Medina More M.E., Navaratnam V., Poshyachinda V., Rootman I., Salan R. And Wadud K.A. *Core Data for Epidemiological Studies of Non-medical Drug Use*. WHO Offset Publication No. 56, 1980.

Johnston L.D. *Review of General Population Surveys of Drug Abuse*. WHO Offset Publication No. 52, 1980.

Rootman I. and Hughes P.H. *Drug Abuse Reporting Systems*. WHO Offset Publication No.55, 1980.

Smart R.G., Arif A., Hughes P., Medina Mora M.E., Navaratnam V., Varma V.K. and Wadud K.A. *Drug Use Among Non-student Youth*. WHO Offset Publication No. 60, 1981.

Smart R.G., Hughes P.H., Johnston L.D., Anumonye A., Khant U., Medina Mora M.E., Navaratnam V., Poshyachinda V., Varma V.K. and Wadud K.A. *A Methodology for Student Drug-Use Surveys.* WHO Offset Publication No. 50, 1980.

QUALITATIVE FIELD ASSESSMENT OF THE MODEL CORE QUESTIONNAIRES

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The model core questionnaires and annotated guide in this Guide are the product of a qualitative field assessment described in Chapter 10. Six centres conducted field assessments. We gratefully acknowledge the substantial contribution of the following Centres and investigators to the project.

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Many other people contributed to the field assessment, participated in focus groups and contributed to the field assessment. We gratefully acknowledge their contribution to the project.

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Geneva, Switzerland, 16 November 1992

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CHAPTER 1

INTRODUCTION

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1. Background

Whilst alcohol, tobacco and other drugs are used in most countries of the world, the extent, patterns and consequences of use differ from country to country and from time to time. The effective prevention of health problems and other consequences of substance use requires information on the prevalence, characteristics and patterns of use, together with information on the problems associated with that use. The World Health Organisation (WHO) has been providing technical assistance in the systematic collection of this information and meaningful utilisation of these data in prevention and treatment programmes for some years. A series of guides was published by WHO in 1980 and 1981 (Johnston, 1980; Rootman and Hughes, 1980; Smart et al., 1980; 1981).

These publications reviewed drug epidemiology methods in general and the use of these methods in some specific populations. They described how these methods can be used to collect information necessary for the planning, implementation and evaluation of prevention and treatment programmes. Until the publication of these guides, there had been no international agreement from a public health perspective on the type of drug use data that should be collected by countries nor had there been any systematic exchange of information about drug abuse reporting systems utilised in different countries. It was hoped that if the guidelines proposed were widely adopted, it would help to improve the international comparability and scientific quality of the epidemiological data generated. The guidelines were .found to be valuable and a number of studies on drug use epidemiology were conducted in many regions of the world following the methods suggested.

Since the publication of the guidelines in the early 1980s, there have been important changes in trends and patterns of drug use, which present new challenges to public health practitioners and program planners. There has been a sizeable increase in the production and use of illicit drugs throughout the world. The United Nations International Drug Control Programmes (UNDCP) estimate that the global production of coca leaf has more than doubled and that of opium poppies more than tripled since 1985 (UNDCP, 1997). Moreover, new forms of existing drugs, (e.g. smokeable "crack" cocaine), changes in the modes of administering these drugs (e.g. transitions from opium smoking to heroin injection in South East Asia) and the introduction and proliferation of new synthetic drugs (e.g. MDMA "ecstasy", other amphetamine-type stimulants and so called designer drugs (see for example WHO, 1997a), all create new or exacerbate existing substance related problems. Of particular importance is the fact that drug injection has become a major transmission route for HIV (Stimson et al., 1998). As a result of scientific and public health efforts to address these new issues, significant advances in drug abuse epidemiological research methods have been achieved. These advances have included improved techniques to assess the extent of drug related behaviours and problems, but also the introduction and development of methods which aim to understand behaviours as much as measure them.

In the early 1990s, in recognition of the changed global drug abuse situation, methodological advances, and the need in many countries for technical guidance to address emerging and changing drug abuse problems, it was proposed to update the guides with the following aims: to be consistent with current drug abuse epidemiology methods; to address issues related to new drugs and modes of administration; and to address public health concerns such as injection drug use. It was further proposed to consolidate the guidelines into a single volume. WHO sought the help of the United States National Institute on Drug Abuse (NIDA), National Institutes of Health (NIH), to accomplish the proposed project. The project is consistent with the mission of NIDA, to bring the power of science to bear on drug abuse and addiction through the strategic support and conduct of research across a broad range of disciplines, and through the rapid and effective dissemination and use of the results of that research to significantly improve drug abuse and addiction prevention, treatment, and policy. This Guide was developed by WHO in collaboration with and with support from NIDA. International experts from around the world, including some of the authors of the original guides, took part in meetings held in 1992 and 1994 to discuss issues in substance abuse epidemiology and to prepare the material which is included in this guide. These participants are acknowledged at the beginning of this guide. Selected material (including text, tables and figures) from the earlier publications (Johnston, 1980; Rootman and Hughes, 1980; Smart et al., 1980; 1981) has been directly incorporated into this guide. Much of the earlier material has required revision and updating and new material has been added, particularly with regard to qualitative methods and studies of special or hidden populations. This Guide seeks to provide comprehensive technical guidelines for countries and communities for undertaking drug abuse epidemiology.

As part of the process of preparing this guide, a model core questionnaire on the nature and extent of drug use was constructed using relevant questions from existing questionnaires used in a variety of studies in different countries. This model core questionnaire in self-completion and interviewer administered formats (Chapter 10 Annex 6 and 7) results from the qualitative field assessment described in that chapter. This is intended to be a multipurpose model instrument, with core standardised questions relating to substance use that can be administered with minimal training and supervision to a range of different target populations (general populations; students; street youth; drug and other substance users seeking treatment) in a range of different settings (schools; prisons; drug and other substance treatment and advice centres; in the community; and on the streets). The intent of including a model questionnaire is to provide a guide to the construction of culturally and locally appropriate questionnaires, which can be used to generate core data on substance use which are consistent with current recognised international standards. In a carefully designed population-based survey, the model questionnaire, properly adapted for the social and cultural context, can be used to derive population estimates of the characteristics and patterns of drug use. It should be noted that this model questionnaire is not a diagnostic instrument. In view of the diversity of drugs used, the populations using drugs and socio-cultural and linguistic settings, qualitative field trials were conducted at six sites across the world to assess the applicability of the core questionnaire. These trials used qualitative methods and provided rich data on the suitability of the questionnaire in various settings, as well as a framework for further modifying the questionnaires in any particular setting before its use. This process (also described in Chapter 10) is

likely to be particularly useful in planning fresh epidemiological work in new settings.

The task of drug abuse epidemiology is to better understand patterns and trends in drug use, some of which are briefly outlined below. To this end this publication provides guidance on the systematic collection, interpretation and dissemination on the prevalence, nature and consequences of substance use. The guide provides practical guidance on internationally comparable, yet locally appropriate and culturally adaptable, measures and methods. This information is likely to assist countries and communities when planning, implementing and evaluating prevention, treatment, policy responses, and other interventions for substance use related problems. The guide is designed to be suitable for countries at all levels of health development, including those with limited resources and experience in substance abuse epidemiology.

Although alcohol, tobacco and other drugs differ in many important respects, including their legal status, they nonetheless share important characteristics: they are all psychoactive substances with the potential for creating dependency and they can cause very significant public health problems and widespread social harms. Approaches to prevention, and to some extent treatment, are broadly similar for all of these substances, and epidemiological research to support and inform policy responses and other interventions, should ideally address all psychoactive substances. This publication, however, focuses largely on psychoactive substances other than alcohol and tobacco. A separate WHO publication on monitoring the tobacco epidemic is available (Guidelines for Controlling and Monitoring the Tobacco Epidemic, WHO, 1995). Guidelines are also being prepared by WHO for monitoring the public health consequences of alcohol use.

2. Global Spread of Substance Abuse

Many social, economic and political factors have contributed to the global spread of alcohol and other drugs. In the nineteenth century drugs tended to only be available where they were produced, or very close to the source of production. However, the growth of transportation, tourism, and communications in the twentieth century has made it possible to transport goods and people quickly to any part of the world. Drugs too, are being transported to distant places. Given the economic rewards of producing and transporting drugs, it is not surprising that they are available almost all over the world. It has been estimated that the illegal market for drugs is worth between US$ 100 billion and US$ 500 billion world-wide (Reuter, 1996). These figures are of course no more than estimates, but even at the lower end represents a substantial and lucrative market. Global trends in drug production, transportation and consumption are difficult to describe and assess because of the complexities of the issues involved and the lack of accurate information on what are clandestine activities. There is enough evidence however to indicate certain trends in the globalization of drug use and the cyclical nature of drug epidemics. The spread of drug use is often described as an epidemic, with similarities to epidemic disease. This implies a disease model for a complex set of social behaviours, with notions of social contagion and disease carriers. These notions are probably not useful in the context of substance abuse

and it is not the intention to use epidemic in this sense. It is useful however to consider some of the broad epidemiological trends in drug use. Some of these trends in the epidemiology of global drug use are outlined below.

Globally cannabis is probably the most widespread and commonly used illicit drug. The United Nations International Drug Control Programme have estimated the number of cannabis users word-wide to be 141 million people (UNDCP, 1997). Reported rates of cannabis use are highest in some developed countries. In the United States national household surveys indicate that approximately one-third of the adult population have tried cannabis and 10% have used the drug in the previous twelve months (DHSS, 1997). Similarly high rates of lifetime and more recent use amongst the general population are reported in Canada 28% lifetime and 7.4% in the previous twelve months (Adlaf et al, 1995). In most countries rates of cannabis use are generally higher in younger adults, and higher amongst males than females. In the United States in 1996 45% of 12th Graders (ages 16-18 years) reported ever using cannabis and 36% reported recent use (in the previous twelve months) of the drug (Johnston et al., 1997). Prevalence rates of cannabis use among young people in the United States have continued to rise since the early 1990s. These increases followed a period during the 1980s in which rates stabilised and later declined. In western European countries data suggest that rates of cannabis use are generally lower than those reported in the United States, Australia and Canada. In the United Kingdom lifetime prevalence of 14% is reported for adults, with rates of 24% in younger adults. Rates of use in the previous 12 months are 5% and 12% respectively (EMCDDA, 1996). Reported prevalence rates of cannabis use in some northern European countries are lower. In Sweden lifetime use is reported at 8%, and in Finland at around 5% (EMCDDA, 1996). In both these countries higher rates (around 11%) in the younger population are reported (EMCDDA, 1996). Cannabis use is reported at lower levels in developing countries, although data from many developing countries is limited. Seizures of cannabis have been made in many African countries, including: Algeria, Kenya, Lesotho, Malawi, Morocco, Nigeria, Senegal and South Africa (UNDCP, 1997). In some northern and sub-Saharan African countries (e.g. Egypt, Kenya, Morocco, Nigeria and Tanzania) there is a long tradition of cannabis use for culinary, medicinal and ceremonial purposes. Even in African countries where cannabis is traditionally used the reported lifetime prevalence of use is comparatively low (5% in Egypt and 8% in Morocco). Elsewhere in Africa data are relatively scarce. Data from Nigeria show that 7% of university students had ever used cannabis (Adelekan et al. 1992) and lower rates are reported in the general population. In the Cape Province of South Africa a survey conducted in 1990 found that 7.5% of high school students had ever smoked cannabis (Flisher et al. 1993). Since the survey in 1990, changes in the political situation, the opening of trade and the movement of people have been associated with increase use of cannabis (Parry and Bhana, 1997). In Latin America reported lifetime prevalence of cannabis use is variable. In Brazil three national school based surveys conducted in 1987, 1989 and 1993 found increasing rates of lifetime prevalence of cannabis use, from 2.9% in 1987, to 3.4% in 1989 and 5% in 1993 (Carlini et al., 1990). In Colombia in 1992 rates of 5% of lifetime use in the general population are reported. In Ecuador, also in 1992, a rate of 4% is reported. In Central America reported lifetime prevalence of cannabis use amongst students in 1994 ranges from less than 1% in the Dominican Republic to 5% in El Salvador (Carris). There is little reported data on the prevalence of

cannabis use in the middle-eastern countries, Asia or south-east Asia. Relatively large seizures of cannabis have been made in India, Jordan, Lebanon, Pakistan and Thailand and smaller, but significant seizures, in Nepal and Laos.

Studies in India have shown lifetime prevalence of cannabis use of 3% (Sharma, 1996). Lifetime prevalence of cannabis use in Rajasthan (India) among males was higher (7.2%) (Sharma, 1996). WHO has recently reviewed and summarised knowledge about cannabis use and health effects (WHO, 1997b).

Cocaine and its derivative "crack" cocaine provide an example of both the globalization of substance use and the cyclical nature of drug epidemics. Traditionally coca leaves have been chewed by people in the Andean countries of South America for thousands of years. The main alkaloid of the coca leave, cocaine, was isolated relatively recently in about 1860. Cocaine was then used in patent medicines, beverages and "tonics" in developed countries in Europe, North America and in Australia until the early 1900s. Laws restricting the availability of cocaine saw a decrease in consumption in these countries until the 1960s. From that time cocaine use became popular among certain groups of young people in some developed countries and in the producer countries of South America. Cocaine became widely available in North America in the 1970s and Europe in the 1980s. In Canada, for example, admissions of people to treatment with cocaine related problems increased by a factor of five (Smart and Adlaf, 1990). Coca paste or “basic”, a by-product in the production of cocaine hydrochloride is available in producer and neighbouring countries such as Bolivia, Columbia, Ecuador and Peru. “Basic” smoking had been associated with severe health problems. Prevalence rates for lifetime use of cocaine are typically 1% 3% in developed countries, with higher rates in the United States and in the producer countries. "Crack" or smokable cocaine was being used in Peru in the 1970s but came to the United States in 1985 (Washton et al., 1986). Crack cocaine appeared in Canada in 1986 (Smart, 1988) and in European countries somewhat later (Strang et al., 1990). Whilst the threat of widespread "crack epidemics" in Europe have, as yet, proved to be unfounded cocaine and crack are available in most European cities. There are few prevalence estimates of cocaine use in European countries, although available evidence suggests some modest increases in use (WHO Regional Office for Europe, 1997). Cocaine use is also gaining in popularity in some developing countries outside of the producer countries and in Central and Eastern Europe. In Mexico City use of cocaine among high school students shows a slow but steady increase from 0.9% lifetime prevalence in 1976 to 1.66% in 1993 (Castro and Valencia, 1978; Medina-Mora et al., 1993).

At the time of writing there were some indications that cocaine use had begun to stabilise in the United States, where in the late 1980s and early 1990s the use of cocaine, and in particular, crack cocaine had become a major illicit drug problem. The apparent stabilisation, and in some places decline, in levels of crack use in the United States may demonstrate the cyclical nature of drug epidemics (Hamid, 1992). Similar cycles of increase, stabilisation, and decline (sometimes followed by further increases often after a period of many years) have been observed for different drugs in many countries. Understanding the developmental cycles of drug epidemics is important for drug policies, prevention

and other interventions, and may be illuminated by drug abuse epidemiology.

It is acknowledged that accurate information on the prevalence of heroin and other opioid use is difficult to obtain. The available evidence shows that there has been a global increase in the production, transportation and consumption of opioids, mainly heroin (Childress, 1994; Gossop and Grant, 1990; UNDCP, 1997). Heroin use has become increasingly common in North-America and Europe since the 1960s. Increases in heroin use are often cyclical in these countries. In the United Kingdom, for example, there was a well reported "heroin epidemic" in the mid-1980s, following a period in the 1970s when the heroin using population was generally stable and ageing (Power, 1994). The UK epidemic in the 1980s was in part the result of the availability of cheap, high purity heroin from South-west Asia notably Pakistan. This form of heroin could be smoked and became attractive to young non-injecting users (Pearson, 1987). Evidence, at the time of writing, suggests that the use of heroin had become increasingly common in the United States. Unlike an earlier epidemic of heroin injecting from 1964 to 1972 (Boyle and Brunswick, 1980) these increases in heroin use were associated with new young users taking the drug intra-nasally (snorting) rather than injecting (National Institutes of Health, 1997). Increased tolerance or declining purity of the drug may eventually lead to injection as a favoured route of administration. The estimated world-wide production of heroin has more than doubled or even tripled since 1985 (Childress, 1994; UNDCP, 1997). Evidence from national surveys and other data sources suggests that the prevalence of heroin use in general populations is relatively low. The use of heroin is, however, causing widespread health and social problems in many countries. In Europe heroin injectors who regularly consume large amounts of different drugs, face a risk of death which may be 20 or 30 times higher than non-drug users in the same age range (EMCDDA, 1996). Since heroin is commonly used by injecting, the health risks including that of HIV and hepatitis transmission, are substantial.

The shared use of injection equipment has played a critical role in fuelling a number of local, national and regional HIV-1 epidemics. HIV-1 prevalence is high in drug injecting populations in southern Europe, the north east of the United States, parts of Asia and parts of South America (Donoghoe and Wodak, 1998; Stimson et al., 1998). HIV epidemics among drug injectors have more recently been reported in central and eastern Europe. Drug injection in many developing countries is a relatively new phenomenon. Reasons for the spread of injecting are complex and differ from country to country. Certain factors are involved however, including changes in the availability of drugs and the location of countries in relation to drug production and transportation. By 1995 the injection of illicit drugs had been reported from 121 countries and by 1996 HIV infection among drug injectors had been reported in 82 different countries world-wide (Stimson et. al., 1996). Drug injection has become widespread in some countries of south east Asia where earlier patterns of opium smoking have been replaced first by heroin smoking and then by heroin injection (Stimson et. al., 1996). In west Africa the injection of illicit drugs is a relatively new phenomenon in countries which have no tradition of injection. Understanding new and changing drug use practices and how transitions to drug injecting occur is another task for drug abuse epidemiology.

The use of volatile solvents and inhalants occurs in all regions of the world and is a problem in

many countries (Kozel, Sloboda and De La Rosa, 1995). Since these substances are often used by children and adolescents and the health consequences of their use are particularly significant, inhalant abuse has attracted considerable attention in many countries world-wide (Sharp, Benvais and Spence, 1992). The use of these substances is not a new but one that has been observed for decades in many countries (Kozel et al. 1995). In some countries inhalant abuse has a long history while in others it is a more recent or emergent phenomenon. Information on the epidemiology of volatile solvent use is, however, limited and there is a need for systematic and comparable data on the extent, patterns and consequences of inhalant abuse.

A number of drugs used commonly for their therapeutic efficacy in health care are also being abused all over the world. These include barbiturates, benzodiazepines, other sedatives and some stimulant drugs (Idanpaan-Heikkila and Khan, 1982; Gossop and Grant, 1990). The epidemiology of this use is difficult to study, because of difficulties in distinguishing medical and non-medical use.

The use of amphetamine-type stimulants (ATS) is a global and growing phenomenon, typically involving amphetamine and methamphetamine, but also amphetamine analogues of the MDA-type including MDMA or ecstasy (WHO, 1997a). In recent years there has been a pronounced increase in the production and use of ATS world-wide (UNDCP, 1997). Historically patterns of illicit amphetamine use have been reported in several countries after the second world war. For example in Japan (1945-54); the United States (late 1960s); Sweden (1940s, 1950s and 1960s) and the United Kingdom (late 1950s and again in the late 1960s). Patterns of ATS use in these countries appear to have been cyclical, with increasing trends of use and related problems accumulating to a critical level that results in widespread awareness of those problems and a consequent dramatic drop in usage (WHO, 1997). The dynamic growth in the use of the MDA-type drugs (including MDMA "ecstasy") is a particular problem in some European countries and in Australia. Typically lifetime prevalence of ATS use in these countries ranges from 1-3% of the adult population. Prevalence is higher in specific populations in some countries. Among 16-29 year olds in the United Kingdom rates of 14% for amphetamine and 6% for MDMA have been reported. As with other drugs, patterns of ATS use cannot be considered outside the social context. Several patterns of ATS use can be identified including: occupational use by certain professions (for example long distance lorry drivers in South East Asia); instrumental use (for example by students during examinations); medicinal and pseudo-medicinal use (for example in the treatment of attention deficit disorder in children in the United States and as a treatment for obesity in Brazil and other south American countries) and recreational use (for example within youth subcultures). To understand these patterns further epidemiological research is necessary, including the standardisation of indicators and the development, testing and improving of research methods tested. Amphetamine-type stimulants provide a good example of drugs which, because of the variety of social contexts in which they are used may best be understood by using a range of ethnographic and qualitative methods as well as the more traditional survey methods (WHO, 1997a).

Next to tobacco, alcohol is the most widely used and abused substance and is available in all but the most isolated areas of the world or in a few countries with strict religious prohibitions. Although

alcohol consumption has recently declined in many developed countries (Smart, 1991, Edwards et al, 1994), its use has been increasing in developing countries (Saxena, 1996). This increase is often occurring in countries with no tradition of alcohol use and few methods of prevention, control or treatment. Alcohol problems are now occurring in places where they did not exist before (WHO, 1992). For example, alcohol was not traditionally used in many Asian and Western Pacific countries. However, it now constitutes a serious health problem. In Sri Lanka, for example, 10% of all hospital admissions are alcohol-related (WHO, 1992). Between 1970 and 1980 alcohol consumption increased by about 3.6% world wide. However, it increased by 22% in Asian countries where alcohol is not used traditionally (Smart 1991). Also, rates of liver cirrhosis increased in wine producing countries such as Hungary, Romania and the countries of former Yugoslavia, contrary to the situation of declining rates in many North American and European countries (Smart and Mann, 1992). Dogan (1982) has described how beer consumption has increased in Turkey because of multinational beer companies. Some Islamic countries such as Saudi Arabia, Yemen, Kuwait and Iran have banned alcohol. However, in Egypt alcohol is readily available and is used by about 34% of the student population (Okasha, 1985). In northern Nigeria, traditionally a Muslim area, 17% of all new patients admitted to a psychiatric unit were treated for alcohol or drug problems (Ifabumuyi, 1986). Also, cases of alcoholism and alcoholic psychoses have been described in persons admitted to hospitals in Malaysia (Dass, 1981).

Tobacco continues to be the substance causing the maximum health damage globally. The extent and pattern of tobacco use is described in detail elsewhere (WHO, 1995). According to WHO estimates, there are around 1.1 thousand million smokers in the world, about one-third of the global population aged 15 years and over. Substantially fewer cigarettes are smoked per day per smoker in developing countries than in developed countries. In the early 1990s, average adult per capita consumption in developed countries was 2590 vs 1410 in developing countries. However, the gap in per adult cigarette consumption is narrowing. Unless effective tobacco control measures take place, daily cigarette consumption in developing countries is expected to increase as economic development results in increased real disposable income. If current trends continue, per adult consumption in developing countries will exceed that of developed countries shortly after the turn of the century. Tobacco is estimated to have caused around three million deaths per year in the early 1990s, and the death toll is steadily increasing. Unless current trends are reversed, that figure is expected to rise to 10 million deaths per year by the 2020s or the early 2030 (by the time the young smokers of today reach middle and older ages), with 70% of those deaths occurring in developing countries. The chief uncertainty is not whether these deaths will occur, but exactly when.

3. Need for Drug Abuse Epidemiology Data

Epidemiological studies help to answer a number of key questions that enable a public health response to a particular problem. These include:

1. What is the extent of drug abusing behaviours?

2. What are the nature and pattern of the drug abusing behaviours?
3. What are the characteristics of persons abusing drugs?
4. How do drug abusing trends look over time and what impact do the characteristics of drug abusers and drug abuse patterns at any point in time have on these trends?
5. What factors are associated with abuse of drugs and influence the onset of drug abusing behaviours and continued abuse of drugs?
6. What protective factors are associated with not using drugs?
7. What are the social, behavioural, biomedical, psychological, psychiatric, and economic impacts of drug abusing behaviours on individuals, families, communities, and society?

Drug using behaviours are dynamic, with emergent patterns changing depending on many factors including: the availability and purity of drugs; the introduction of new drugs; the rediscovery of "old" drugs by new groups of users; the introduction of new modes of administration. Countries and communities need an up-to-date picture of what is happening. This requires both current information on types of drugs used and patterns of use, as well as some method of assessing what changes are occurring. It is also important to know which new drugs or new methods of use are appearing for the first time. This information is important as a background for national and local strategies for prevention, treatment and control. These strategies involve drug control procedures such as customs investigations and enforcement of drug laws. However, national strategies are increasingly focused on demand reduction, which must be based on reliable and valid epidemiological information. Demand reduction encompasses a range of activities and interventions including prevention, education and health promotion, harm reduction, treatment and rehabilitation. Interventions, whether designed to control supply, reduce demand or both, should be based on assessments of needs and resources both prior to as well during the development and implementation of the strategy. The impact or success (as well as limitations) of the intervention should be assessed through monitoring and evaluation and mid-course or follow-up corrections made. Epidemiological methods help by providing data for the initial assessment as well as continuous monitoring.

Planning for treatment programs must also take into account the substances being used, the type and extent of health and other problems that users are experiencing or are likely to experience, and some estimates of the numbers of people likely to need and want treatment. Of course, not all users will come into treatment but many will need some help during the course of their drug use. Without some ongoing assessment of trends and new developments it is likely that prevention and treatment programmes will be unable to recognise and respond to new problems. An example of this is the rapid development of HIV/AIDS among injection drug users. Many countries had little information on how many drug injectors were affected and how to respond to emerging HIV epidemics for some time. The response in some countries was to establish surveillance systems and epidemiological research studies (Stimson et al., 1998).

4. Collection of Internationally Comparable Data

There is a need for internationally comparable data on patterns and trends, and health and social

consequences of substance use. However this need should also be seen in the context of local applicability and cultural appropriateness. Drug use is a global problem with drugs moving easily from one country to another. International treaties govern enforcement and other supply side efforts to control drug abuse. These treaties make reference to the need for prevention and treatment programs but there is no standardisation in such programs. Health planners often make comparisons of drug use trends in different countries. The United Nations International Drug Control Programme (UNDCP) collects data from many countries (UNDCP, 1992). This programme collects data on drug use trends and trafficking as well as on drug-related deaths, treatment programmes and social and economic costs. Reports are made by individual countries where existing data are reported and new studies of drug abuse are not required for this programme. The emphasis however, is not on health-related data relevant to drug use although some data of these data are collected. The IDAAS system is currently under review and more details are given in chapter 8.

During the late 1970's and early 1980's the World Health Organisation Reporting Project on the Epidemiology of Drug Dependence was established. It developed a methodology and standardised questionnaires for measuring drug abuse among students (Smart et al., 1980) and non-student youth (Smart et al., 1981). The project also reviewed general population surveys (Johnston, 1980) and drug abuse reporting systems (Rootman and Hughes, 1980) and promoted models of treatment evaluation research (Arif et al., 1987). The methods and questionnaires developed in this project were widely used in different countries. In fact, they became the standard instruments for studies in many developing countries which did not have their own instruments. Despite their usefulness these questionnaires are now somewhat dated. They do not include questions on newer drugs such as "crack" cocaine, or the new amphetamine analogues, such as MDMA ecstasy. Much research has been done since they were produced which would allow them to be improved. For example, much more is now known about social and demographic characteristics of users, and about the aetiology of drug use and its natural history. The original project did not assess other types of methodologies and studies such as qualitative methods and studies of special or hidden populations. The primary purpose of this guide is to revise and update the material of earlier guides and epidemiological instruments so that it is better suited for national, international, and local needs and provides a better chance for establishing and maintaining comparability in substance abuse research.

5. Drug Abuse Epidemiology: Methodological Challenges

Drug abuse epidemiology is one of the more challenging areas of epidemiology. One of the basic reasons for this is the nature of substance use and the circumstances around it. Use of some substances is illegal world-wide, while others are only illegal in some countries. The distinction between legal and illegal substances is in itself a problematic concept. The legality of a substance is neither a temporal nor a universal constant. Heroin was freely prescribed in the United States till the Harrison Act of 1916, while tobacco has been an illegal drug in several countries in earlier times. Certain designer drugs and amphetamine analogues remain outside of legal control. Alcohol remains an illegal substance

in some Islamic countries. Even if the substance is legal, its use may be associated with social disapproval and stigma. These reasons often result in substance use becoming a hidden activity. This poses significant problems in substance abuse epidemiology, since individuals do not like to report their use of substances and even if they do, the extent of the use and the associate problems may not be reported accurately.

There is also the problem of defining the boundaries of substance abuse. Many substances (like volatile inhalants) were not recognised as substances of abuse till they were shown to cause definite psychoactive effects and a pattern of use very similar to other substances. The boundaries between use, abuse, harmful use, non-medical use and dependent use were also not clear for a long time. Definitions and criteria evolved as a part of international classification system (ICD-10) have helped considerably in this area, but often it is not possible for epidemiological studies to collect enough information to characterise the use pattern into these categories. Varying definitions used in epidemiological studies have resulted in difficulties in comparing the findings across studies. This has been one of the major limitations of substance abuse epidemiology, and it is hoped that this guide will help investigators in collecting and presenting data in a comparable manner.

The guide focuses on the entire spectrum of drug use, from the occasional use to regular and heavy dependent use. Unless otherwise specified, the term drug use and abuse refer to this wider spectrum of use and not to the narrower definition of dependence used in clinical settings following the ICD-10 criteria. The time frame of drug use should always be referred to, when reporting epidemiological findings. This should, as far as possible, be as suggested in the model questionnaire developed as part of the preparation of this guide (See Annexes 6 and 7 - Chapter 10).

Substance use is not distributed evenly in any population. There are groups where drug use is relatively common and others where it is uncommon or even absent. Different substances are commonly used by different groups. This needs to be taken into account when planning epidemiological investigations. A single study, using one method may not be appropriate for investigating all the groups of population for all the substances used. A combination of methods are often necessary to get a comprehensive picture of the substance abuse problems in a community. For this reason the guide not only describes a variety of epidemiological methods but also discusses the strengths and weaknesses of each one of them. These must be taken into account when planning epidemiological studies in any country or community. A compromise needs to be arrived at between whether to cover only some or all substances, to undertake rapid or longer-term studies, to implement less resource-intensive or more resource-intensive studies and also between covering the whole country or only a region, looking at the whole population or targeting only parts of it. The guide is intended to assist prospective investigators in carefully selecting these options to get the best out of their research efforts.

One of the common errors in drug abuse epidemiology is to ignore the information that is already available in favour of new studies. It is much preferable to use the existing information to the fullest extent possible before launching new studies. The guide provides details of how the existing information can be utilised optimally and also to suggest what (if any) further epidemiological studies may be necessary. In some countries, existing information may be sufficient for formulating some basic policy options as well as initiating prevention and intervention programmes. In these countries, the scientific and financial resources may be better utilised running these programmes and monitoring their impact than in carrying-out further detailed epidemiological studies.

6. Drug Abuse Epidemiology in Developing Countries

Developing countries roughly cover two-thirds of the worlds area and have approximately three-quarters of the worlds population. With large populations, but considerably fewer resources, many of these countries are in urgent need of substance abuse prevention and treatment policies and programmes based on epidemiological data. The guide has been prepared keeping the needs of developing countries in mind. The individual chapters consider at appropriate places, the methods that are preferable for the developing countries as well as how the results obtained need to be interpreted and used in the setting of a developing country. However, a few general points need to be made here.

Many developing countries already have substantial problems associated with substance use, but among the number of other competing health priorities, these problems often do not get enough attention. One of the uses of epidemiological studies in this situation is to show the extent of problems substance use may be causing, so that adequate attention can be given to these. Epidemiological data also helps in directing this attention to the type of substances and the population groups where more harm is being produced or is likely to be produced. Epidemiology assists in, and is essential to, targeting resources. In absence of scientific data, many myths and misconceptions arise regarding substance use. These may be long-standing myths such as illegal drugs doing more harm than legal substances like tobacco or sudden and recurrent fears in the society regarding particular drug-taking behaviour. Examples of the latter include sudden public concerns and moral panics over drug epidemics among young people and drug users indulging in violent and sexual crimes. When these fears arise, epidemiological studies are needed to determine the true extent of drug use as well as the associated problems among various populations. These studies may allay unrealistic fears, but should also suggest the need to develop a policy on prevention and treatment of substance use problems that is appropriate in the given setting. Even in the absence of public fears about drug problems, epidemiological studies should be helpful in collecting baseline information and its use in developing appropriate policy responses and in monitoring the situation over a period of time. Epidemiological studies must be seen in a continuum of time rather than as a one-time exercise.

Poverty and lack of resources are generally more pervasive in developing countries. Where resources are scarce, it is extremely important to select the most appropriate epidemiological methods in a given situation. A careful search for the existing data must precede new studies. It is almost always more cost-effective to collect and interpret the existing data on substance use and associated problems, than to launch new studies. Careful interpretation of the existing data also points out gaps in information which can then be filled by appropriate new studies. Special care should be taken in developing countries to ensure that scarce health, education and other personnel are not diverted from their routine duties to satisfy the needs of epidemiological research. A balance between the needs of research and interventions must be struck, particularly in developing countries where resources are scarcest.

Individual chapters of this guide give details of epidemiological methods that are sometimes complex and exhaustive. They often are resource-intensive in terms of technical expertise and finances. However, it should be emphasised, particularly in the context of developing countries, that large and complicated research designs are not always essential to give necessary information for policy planning. Simple studies are often quite adequate to provide the basic information needed to plan prevention and treatment programmes. Close interaction between epidemiological research and prevention/ treatment programmes is necessary. It may be more effective to use the available resources to try building a policy initiative and to monitor its impact rather than to conduct large and complex epidemiological studies. This is always an iterative process where research generates policy options, which when translated into policy initiatives need more research to study their impact. In practice, it seldom happens quite this way, but attempts must be made to achieve as close an interaction between epidemiological research and policy, as possible.

7. Ethical Considerations in Drug Abuse Epidemiology

Issues pertaining to ethics in the conduct of research and the "protection" of human subjects from research risks, including data confidentiality, must be carefully considered in substance abuse epidemiology. All epidemiological research must conform to the ethical standards prevailing in the society and the country where it is conducted. Although finer details may vary from country to country (and indeed from time to time), the broad ethical principles remain the same and must be followed explicitly in all work on epidemiology of substance abuse. The overall guiding principle in all research should be to do no harm to the subjects, nor the researchers, taking part in the studies. Specific international guidelines for ethical review of epidemiological studies are available from the Council for International Organizations of Medical Sciences (CIOMS, 1991). These guidelines include a description of the ethical principles that should be applied, together with an ethical review procedure which should be undertaken prior to initiating the research.

Study subjects must freely consent to participate in any research project. Sufficient information must be presented to enable each person to voluntarily decide whether or not to participate as a research subject. The study's purpose, benefits, risks, duration, procedures, and alternatives should be described to potential subjects in easy to understand Allays language; scientific or legal jargon should be avoided. Potential subjects must also be informed that they have the option of not participating in the study. This information should be provided in writing for all subjects and should be provided verbally also for non-literate subjects, or where necessary. Written agreement obtained in this manner is referred to as An informed consent. Particular care should be taken in countries or among populations with limited experience of surveys and other types of research. Some developing countries will have limited experience of surveys and many respondents will be unfamiliar with this form of research. In these situations explaining the concepts of confidentiality and informed consent is especially important. Where studies involve the collection of biological samples (e.g. urine, blood, and saliva), it is very important that all subjects are fully informed about specimen collection procedures, the option to decline participation, and provide voluntary consent for this part of the study. The following paragraphs elaborate further on various aspects of informed consent and issues pertaining to the protection of human subjects from research risks.

Essentially, epidemiological research involves collecting information from individuals that may not, and often does not, benefit them directly. Collectively, these pieces of information from individuals produce data that directly or indirectly benefit the larger group of people about whom the information was collected. Respondents should be informed of any benefits from the study that they may expect to encounter. There may be none other than a sense of benefiting the community. Sufficient information must be presented to enable those from whom information is to be requested to decide whether or not to participate. Failures to provide this information clearly, or to inform potential participants that they have an option of not taking part in the study, are unethical practices.

Confidentiality of the information collected is another ethical aspect that needs attention. Studies on substance abuse epidemiology collect information that is strictly personal and can be damaging to the respondents if traced back to them. The study design and method must incorporate enough safeguards so that personal information cannot be accessed by unauthorised persons or agencies. All participants should be informed as to the extent that identifiable or personal information will be held in confidence. Information should not be given to governmental agencies responsible for control and regulation, since it may be used, for example to trace, monitor and prosecute these individuals for drug-related criminal charges. Even if charges are not brought upon formally, the fact of this information being in the hands of police authorities can cause significant distress to the respondents and is unethical on the part of the researchers. Researchers may, however, require formal protection from prosecution, for example, for non disclosure of information regarding a criminal activity.

Care should be taken to inform potential participants what they can and cannot expect from participation in the research. If no recompense for their participation is to be made, this should be clarified from the outset. Rules regarding recompense for participation in research studies vary from country to country and the nature of the studies but generally should not be an amount which would coerce otherwise reluctant participation. It is generally acceptable to recompense travel and other expenses. Although participants can be motivated to take part no undue influence or pressure should be applied to encourage participation. Equally no unfair disadvantage, for example refusal of treatment, should be incurred by those who elect not to take part in the research. Agreement to participate in a study should not be binding. It should be explained that a participant has the right to withdraw from a study at any time, or to decline to answer specific questions. Undue pressure on a person to answer a particular question is both unethical and, in many cases counterproductive because of the likelihood of an untruthful answer.

An important ethical consideration is to ensure that any findings or results are fed back to the individuals, groups or communities taking part in the research. Wherever possible results which have a bearing on public health and interventions should be made available quickly to those agencies and individuals responsible, in an appropriate and comprehensible way. Research protocols should make provision for reporting and applying results (see also Chapter 9). In general epidemiological data on substance abuse is pooled and unlinked to individuals to ensure confidentiality. One disadvantage of this approach is that findings may indicate the need for specialist care or attention to individuals in the studies.

Individuals taking part in such studies should be informed whether or not personal and individual diagnoses or assessments of risk will be available. Participants requesting such information should be given details of agencies providing such services where possible. Epidemiological studies of drug use may inadvertently expose individuals and communities to stigmatisation, marginalization or other negative consequences. Care must therefore be taken in the conduct of the research and the reporting of results to protect not just the respondents but also the broader community, including drug users.

Research methods and tools used in substance abuse epidemiology have often been developed in, and for particular developed countries. Epidemiological research should be conducted in such a way that is sensitive to different cultures and respectful of local ethical values, customs, religions and social norms. This may be of particular relevance in developing countries. Chapter 10 of this guide provides a detailed description of the research protocol used to produce examples of cross-culturally applicable model core questionnaires that could be used in drug abuse epidemiology. An annotated guide to the translation and adaptation of model core questionnaires for different social and cultural contexts is also included.

Longitudinal and follow-up epidemiological studies pose significant ethical problems, since some identification data must be collected at the initial interview so that further contact can be made and the data from the same individual matched. Complete anonymity is impossible in such studies, but caution must be exercised in designing these studies so that the personal identification is not accessible by unauthorised persons. Consent for repeat contact using specified methods must be obtained at the initial interview, since attempts made by drug researchers to contact individuals may itself be socially embarrassing or even damaging.

The most important ethical consideration in the conduct of any epidemiological research is that it should be scientific, objective and free from subjective or moral judgement. This is of particular relevance with regard to the study of drug abuse because of the powerful emotive and moralistic reactions that drug use often provokes.

8. Contents of the Guide

This guide aims to provide practical guidance to organisations and individuals to conduct drug abuse epidemiology at the national and local levels. Towards this aim, the individual chapters have been written and arranged by the kind of methods currently used in epidemiology. The chapters of the guide follow a sequence in which drug abuse epidemiology could be conducted, from an initial assessment through the use of existing information, to the generation of new data through both qualitative and quantitative methods. Each approach provides improved precision of assessment, beginning with the use of existing data.

The analyses of existing information will suggest where additional research is needed, which

groups or areas need to be targeted, and, what questions need to be answered for both policy and programmatic decisions. Other methods discussed in the guide address next steps in the research process, to better refine and to give more depth to the accumulated information base. Each of these methods requires additional resources and expertise. Each method is useful only in addressing specific issues and questions or populations.

Chapter 2 describes the advantages and limitations for each assessment procedure used to determine the situation regarding drug abuse in any country or community, and helps prospective researchers and policy makers answer the questions as to which technique is the most appropriate given the existing knowledge about the problem. The chapter emphasises the efficiency of utilising existing data sources, how best to collate them, and to interpret the findings within the context of the experiences of key informants who are close to the problem, such as treatment providers, police officers, or researchers. It also discusses the advantages of integrating these data with qualitative approaches, focusing on specific outcomes of the analysis of the data.

Chapter 3 describes the kinds of existing information that may be available and how it can be used in drug abuse epidemiology. This chapter is likely to be useful for obtaining and compiling relevant existing information which often gives a fair idea about substance abuse and also helps in identifying areas for further research. The Annex of Chapter 3 summarises the sources for existing information in tabular form for easy reference and provides some examples of data collection forms currently used

Chapter 4 gives details regarding qualitative research methods. These methods are helpful in exploring complex issues in depth and are particularly useful in providing a more thorough understanding of the social context in which drug using behaviours take place. They can also be used to identify and develop methods and instruments to collect information through more quantitative approaches, and for assessing the most advantageous approaches to recruit subjects that are representative of the population of interest to the researcher.

Chapter 5 focuses on general population surveys. This has been the most commonly used method in drug abuse epidemiology and has stood the test of time. The chapter gives technical details for planning and carrying out all but the most complex surveys and discusses the necessary scientific aspects on sampling procedures and data collection instruments. This chapter is likely to be useful to organisations and individuals planning a general population survey on substance abuse. However, the chapter should be read in conjunction with chapter 6 (Selecting Variables and Measures) and also Chapter 10 which describes the field assessment of a model core questionnaire so that areas of assessment can be selected and appropriate changes can be made in the questionnaire in the context of the setting where the study is planned to be carried out.

Chapter 6 discusses the variables and measures that are usually assessed in epidemiological studies and the strengths and limitations of each of these. All studies need to make a compromise between including too much and too little information and this chapter provides suggestions on how this compromise can

best be made.

Chapter 7 focuses on studies designed to get epidemiological information from special or hidden populations. These populations are often not represented fully in general population studies, hence it is important to carry out studies to get data on these populations. Surveys on student populations have been conducted in many countries and have been described here in some detail. A number of other vulnerable populations (e.g. street children, institutionalised individuals, indigenous people, users of particular drugs (such as heroin and cocaine), injecting drug users) are attracting widespread attention with regard to their substance use and related problems. This chapter describes the methods appropriate for these populations.

Chapter 8 describes reporting systems, which are being increasingly used for gathering systematic information on substance use in different countries and regions. Since planning and implementing reporting systems can be a technically complex task, these issues have been discussed in detail and practical guidance regarding strengths and weaknesses of different types of systems is also provided. The chapter gives examples of existing reporting systems to illustrate the options available to countries and regions desirous of starting their own reporting systems.

Chapter 9 brings the specific epidemiological methods described together, in the context of reporting and application of results obtained. This is an area that in spite of its importance is often not given due attention by researchers. This chapter suggests ways in which the results of studies can best be presented to different target groups and what can be done to maximise the application of results into prevention and treatment policies and programmes.

Chapter 10 provides a detailed description of the research protocol used to produce examples of cross-culturally applicable model core questionnaires that could be used in drug abuse epidemiology. An annotated guide to the translation and adaptation of model core questionnaires for different social and cultural contexts is also included.

9. Links with other WHO Activities

The World Health Organisation Programme on Substance Abuse seeks to develop and test a range of epidemiological and qualitative guidelines, methodologies and instruments to strengthen country capacity to assess the nature and extent of psychoactive substance use and its consequences. Such an assessment is essential to the planning, implementation and evaluation of treatment, prevention and policy response at both national and international levels. WHO/Mental Health and Substance Dependence Department collaborates with established epidemiology networks and supports in the planning, implementation and development of sentinel surveillance sites in Member States. Equally, the department promotes the development and use of rapid assessment and other innovative methods including the collection and interpretation of qualitative data. WHO is therefore actively involved in supporting and

strengthening data collection and epidemiological information as a key element underlying prevention and treatment responses to substance use world-wide. Standardised protocols and guidelines for project monitoring and evaluation produce cross nationally comparable data on the extent of substance use and on the effectiveness of interventions. This Guide will hopefully provide detailed guidance to Member States to reliably assess and monitor their own substance use situation and thereby improve the focus, relevance and effectiveness of national and international policy responses.

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CHAPTER 2

DEFINING THE PROBLEM (INITIAL ASSESSMENT OF THE SITUATON)

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CONTENTS

1. Introduction

Drug abuse is creating major health and social problems throughout the world. These problems are becoming better understood as methods for assessing them have been tested and developed in more countries. However, there are few countries where data collection methods have been systematically utilised for drug abuse assessment.

The spread of HIV/AIDS among injection drug users has raised special concerns about the importance of drug use and drug injection in public health and prompted some assessment of the situation in a number of countries (WHO, 1994). However, other consequences of drug use including: i. physical diseases such as hepatitis, liver cirrhosis, tuberculosis, cardiovascular problems and endocarditis; ii. neuropsychiatric problems such as depression, brain damage and strokes; and iii. accidents, homicides, overdose deaths, injuries and suicide, have been relatively neglected (Donoghoe and Wodak, 1998; WHO, 1997). In addition, problems associated with alcohol and other drug use are costly for society and can seriously affect the national and local economy, family stability and community organisation. Whilst some deaths can be directly attributed to drug use (e.g. some overdose deaths (WHO, 1997)) for many others, drug use is only one of several causes in a complex network of effects.

Despite the seriousness of problems arising from drug and alcohol use many countries do not have a detailed, comprehensive picture of these problems. National strategies, and plans to implement them, require information on drug-specific patterns of use, trends in those patterns as well as a knowledge of the characteristics of drug users. This guide aims to provide the means by which program planners, health researchers and other interested individuals and organisations in all countries can undertake the assessments necessary to develop a comprehensive picture of drug use. This chapter focuses on the initial assessment of the situation and is intended to help researchers and other interested individuals and organisations answer one of the basic questions: What is the nature and extent of drug abuse?

2. Initiating an Inquiry

An inquiry into drug-related problems in a country or community may be initiated for a number of reasons. Drug abuse problems may have been present for some time, but their extent, pattern and the type of substances used may have changed. It may be the perceived effects of substance use on the economy or the overall law and order situation that triggers concern and inquiry. The emergence of Anew drugs sometimes prompts investigation. Health issues are uncommonly the main reasons for initiating an inquiry, with the exception of the relationship between HIV infection and injecting drug use, which has generated great concern and a number of investigative studies (WHO, 1994).

When professionals, health and social planners or other interested groups perceive the problem, the need to initiate prevention/intervention programmes is expressed. Before doing so, it is important to

initiate an inquiry or do a situation assessment. If these problems exist at the local level, it is important to conduct the preliminary inquiry to examine data/information which probably exists only at the local level and not at national levels. A preliminary assessment using existing information sources should be carried out before deciding how much more new information will be needed. Similar assessment should be carried out at each local level and this must be recognised in adopting suitable methodologies. The key questions to be addressed in an initial inquiry or situation assessment are:

1. What is the extent of drug and alcohol abuse?
2. Who are the persons involved in such use (e.g. age and sex of users)?
3. What is the nature of the abuse problem (e.g. types of drugs being used; frequency of use; route of administration, etc.)?
4. Why has such drug abuse occurred? Are there changes in availability of drugs, lower prices, or socio-economic changes, e.g. increased urbanisation, unemployment?
5. What are the possible factors initiating and supporting this drug use?
6. What are the resulting social, psychological and health related problems? Are they acute or chronic? How are such consequences affecting family, work and community institutions?
7. What are the social and other factors associated with alcohol and other drug use?

When an inquiry is needed at the country or community level it should ascertain whether or not the perception that drug and alcohol abuse has become problematic is real or not before a formal programme of assessment is developed. To validate these perceptions those involved should examine information already being gathered by specialised agencies, e.g. law enforcement agencies, medical services, social and welfare institutions. Chapter 3 provides an in-depth discussion on how one could go about getting this information and the type of information that should be examined. The information gained from the initial situation assessment should be examined systematically. Does available evidence support the opinion that there is a drug abuse problem in the community or country? Is the information adequate for planning and designing of intervention strategies and programmes? The preliminary information gathered should provide guidance as to how much new data gathering is required; the groups that are involved or may be at risk; the types of health and social consequences being observed and the socio-behavioural factors that may be associated with drug use.

It should be emphasised here that in most societies, the abuse of drugs is highly stigmatised. For this reason, users of drugs may not be forthcoming about their behaviour and either may not admit to their use or will attempt to hide it. Furthermore, the very nature of drug use makes it a dynamic behaviour reflecting the availability of drugs, their cost, their purity levels and other factors which in turn impacts the mode of administration of the drug (i.e., intra-nasally/snorting, smoking, taking orally, or injecting) and the potential combinations of drugs that can be taken. The combination of these situations challenges those conducting epidemiological studies and has encouraged them to use multiple approaches to address the problem. This publication provides a guide to those in policy or research positions, to better understand the many approaches that can be taken to assess the problem of drug abuse, their

advantages and their limitations. It also suggests the type of training and resources needed for the conduct of each approach and provides some practical guidance for those who wish to undertake epidemiological studies of drug use.

The following table gives a brief overview of the methods used to undertake drug epidemiology, what types of research questions they can best address, and some of their advantages and limitations.

OVERVIEW OF METHODS FOR DRUG EPIDEMIOLOGY

Research Question	Methods	Advantages	Limitations
Extent of the Problem	General Population Surveys	Broad coverage Trend data if repeated Precision Scientific standardised methods	Validity and representativeness Expensive and training needed May miss users of some drugs May miss some "hidden" populations
	Special Population Surveys	Targeted coverage Information on users of particular drugs Information on "hidden" populations	Validity and representativeness Expensive and training needed Sampling difficult
	Rapid Assessment Methodology (RAM)	Rapid, inexpensive and multi-method. Relevance to interventions	Validity and representativeness Training needed

OVERVIEW OF METHODS FOR DRUG EPIDEMIOLOGY (cont.)

Research Question	Methods	Advantages	Limitations
Characteristics of Persons Involved	General Population Surveys	Broad coverage Trend data if repeated Precision Scientific standardised methods	Validity and representativeness Expensive and training needed May miss users of some drugs
	Special Population Surveys	Targeted coverage Information on users of particular drugs	Validity and representativeness Expensive and training needed Sampling difficult
Nature of the Problem	Existing data	Inexpensive Available	Validity and representativeness "Known" users only Subject to collection bias (policy changes etc.)
	Key informants, focus groups and other qualitative methods	Inexpensive "Hidden" populations	Validity and representativeness some training needed
	Rapid Assessment Methods (RAM)	Rapid, inexpensive and mufti-method. Relevance to interventions	Validity and representativeness Training needed
Factors & Processes Associated with Initiation & Maintaining Drug Use	Longitudinal studies	Identifies factors associated with risk and protection	Very expensive and time consuming Training needed

OVERVIEW OF METHODS FOR DRUG EPIDEMIOLOGY (cont.)

Research Question	Methods	Advantages	Limitations
Consequences and Other Factors	Longitudinal studies	Health and social consequences trend data	Very expensive and time consuming Training needed
	Existing data	Inexpensive Available	Validity and representativeness "Known" users only Subject to collection bias (policy changes etc.)
	Natural history studies	Trend data	Very expensive and time consuming Training needed
	Special studies	Trend data Link use and consequences	Very expensive and time consuming Training needed

The following sections briefly describe each of the approaches discussed in more detail in the guide and how each approach can be used to inform the others which are more labour and resource intensive but which provide more in depth and precise information that can assist the planning of longitudinal and special studies.

3. Methods for Initial Assessment

3.1 Identification and Secondary Analysis of Existing Data.

Existing data usually consists of routine records and statistics from agencies that provide the types of services most often utilised by drug abusers (such as drug treatment programs, hospital clinics and emergency rooms, social service and welfare organisations) and law enforcement and other criminal justice agencies. The natural history of drug abuse within the given philosophy of the society will help identify which services will most likely have this type of information. Such data are not only rich resources for those communities or countries which do not have an assessment of the drug abuse problem but also, if standardised, can serve as a surveillance system that can assist in identifying

emergent drug abuse patterns and problems.

The best way to start such assessments is with what is easily available. Some literature and other documents may be available, published or unpublished. Data collected for other purposes such as hospital records, drug-related death reports (e.g. from medical examiner and coroner reports), arrests and drug seizure data may also be helpful. Of course any records from specialised drug treatment centres also will be very useful.

During the first phase of an initial or situation assessment (see below) existing sources of data should be identified and analysed. Most of these sources represent agencies that deal with the consequences of drug abuse (e.g. hospitals, treatment and welfare services, and the criminal justice system). At an early stage and before any new investigations are begun it is important to review existing systems and sources of information for drug abuse reporting. It may be that new systems and sources of information are not required as what exists is already adequate. Existing information systems may need only to be strengthened or to provide more frequent or better reports. Some existing systems do not make their information available or do not report on it in a useable way. The type of existing systems will be those from (for example) hospitals, specialised treatment agencies, social welfare agencies, pharmacy records, surveillance systems for HIV/AIDS cases or sexually transmitted diseases, customs and drug enforcement officers, the criminal justice system, and vital statistics, such as death records. Some assessment will be needed as to how good the systems are on the national and local levels. Only when the existing systems have been reviewed and assessed should new ones be devised. The systematic use and limitations of existing sources of information are described in Chapter 3. Reporting systems are described in detail in Chapter 8. Sources of existing data can include:

Routinely collected and collated data from a range of organisations including: law enforcement (police, specialised drug enforcement units and customs records); the criminal justice system; drug treatment, emergency rooms, general and psychiatric hospitals and other health and welfare services; transmissible disease surveillance systems; coroners' records; and other government and non government services which routinely collect information.

Trade production and distribution data (for licit drugs such as alcohol and tobacco). Possible sources include: tax revenue records for alcohol and tobacco; production, statistics for alcohol, tobacco and psychoactive substances; import and export statistics; wholesale and retail records of drug purchases and sales; and prescription and dispensing monitoring systems.

Policy and legislative documents (specialised drug policy, general health policy documents etc.).

Research reports (academic and ad hoc, published and unpublished) including: general population (household) surveys; school surveys etc.
Ephemera (including media and newspaper reports etc.)

Such data will have been collected for a range of different purposes, by a range of different agencies. Comparing these different data will often be difficult and the reliability and validity variable. These data will often be difficult to access and not collected centrally.

3.2 Qualitative Methods

The review of a collation of existing data without information from "key informants" or "gatekeepers" (i.e. people who work with or in the drug abuse field and people who are close to the collection of these data) is useful but quite limited. Many artefacts such as a push by police to arrest drug abusers, the closing of drug treatment facilities, or the contamination of the existing drug supply, will have differential effects on the number and type of cases who appear in these data sets. Furthermore, even with the helpful interpretation of those close to the “drug scene” many unanswered questions will emerge upon review of the data, questions that can be answered through both qualitative and/or quantitative methods.

The difference between these approaches is primarily related to techniques of sampling, data collection methodologies, and data analyses. Qualitative approaches can be used for exploratory purposes, either to examine issues for which no information is available or to “flesh out” information of a more quantitative nature that the researcher wishes to understand better. The quickest assessment is often obtained from interviews with "key informants" or "gatekeepers", those people who see large numbers of alcohol and drug users in their daily work. These are likely to include heads of specialised treatment agencies in countries with large, developed programs. If there are no such agencies it may be workers in health centres, emergency wards, psychiatric hospitals or primary care physicians. In some countries social or community workers in regular contact with drug abusers are the best choice. Police, prison officials, customs officers and magistrates may also have valuable information. It is worth remembering, however, that these informants have a limited view of the drug abuse world and can talk only about their part of it. It is necessary to have informants from several sectors, e.g., primary care, emergency care, psychiatric care and enforcement. Also, informants in different geographic regions may have different views if the drug abuse trends vary significantly across these regions. For example, in North America crack cocaine use first appeared in a few large cities and it was several years before it came to smaller cities and towns.

Informants who know the “drug scene” or have privileged access to the places in which drug users gather, such as drug users themselves, can add or provide a different perspective to these studies and observations. More sophisticated and longer term anthropological participant observation can also be conducted with drug users. Examples of these include ethnographies of: street heroin users in the United States (Agar, 1973; Hansen et al., 1985); injecting drug users in the Netherlands (Grund et al., 1991); cocaine users in the United States (Waldorf et al., 1977); and cocaine users in Spain, the Netherlands and Italy (Bieleman et al., 1993). For some key informants it may be advantageous to conduct group discussions in the form of focus groups. In this group format it is possible to suggest a theme and have people closer to the issue exchange their experiences and views. Other qualitative methods that evoke open, less structured communications have been designed to assist certain subpopulations, such as children, or to assist in the discussion of certain topics that may be highly stigmatised or difficult to articulate.

These approaches provide information and understanding difficult to achieve through surveys. Qualitative and ethnographic methods have been extensively and successfully used in drug use and HIV/AIDS prevention research (Lambert et al., 1995). Qualitative methods are also described in more detail, in Chapter 4. The two qualitative approaches most commonly used are key informant studies and focus group discussions. Because these approaches are usually open-ended, it is important to be well prepared with a guide or series of questions to prompt the collection of information. Also, careful attention should be paid to the specific characteristics of the population being approached as well as the special nature of the questions or issues being addressed and the appropriateness of the method selected.

3.2.1 Key informant studies.

Key informants may be interviewed informally or with specially developed interview guides or questionnaires. In New-Delhi India, for example, key informant interviews were conducted with community leaders to identify geographical areas where the prevalence of drug use was high (Mohan, 1993). Other types of informants are drug users themselves. They may be interviewed informally in treatment centres or social agencies, or at the time when they are appear in court (Erikson, 1980), provided it is clear that there is no police involvement or influence on the study. It is increasingly common to involve drug users, or others with access to drug users, in the collection of data. This is particularly important for reaching "hidden populations" of drug users. This may involve drug users recommending other drug users through the "snow ball" sampling methods (Erikson et al., 1987; Council of Europe, 1997). See also Chapter 4 for more information on key informant studies.

3.2.2 Focus group discussions.

Focus groups are an excellent method to use to ascertain more qualitative information about a topic, particularly on a topic for which there is very little available information. For instance, focus groups are helpful in providing information on such things as street names of drugs and in reviewing the content or format of a standardised data collection instrument. They are also helpful in reviewing data that has been collected. However, the usefulness of information coming from focus group discussions depends greatly on the expertise of the person to create groups with appropriate characteristics and to stimulate, without influencing, open conversation among the group members focusing on a particular topic or topics. To have a well-formed and effectively run focus group requires training. Although such groups appear to be simple and straight forward, it takes expertise in group processes and group dynamics to achieve the desired goal for having convened the focus group.

3.2.3 Other Qualitative Methods of Initial Assessment

There are a range of other qualitative methods or tools available to researchers that build on the findings from these earlier assessments. These include a wide variety of approaches such as free listing, pile sorts, triads tests, sentence frame techniques, consensus theory development, network analyses, site observations, and others that are presented in detail with references in Chapter 4. Narrative research, for example, is a technique that is especially designed to study the sequence of events that are involved in a behaviour. Projective assessment methods allow participants to express themselves in an unstructured and creative way. Such methods are particularly useful with children. Cognitive maps of locations and communities are useful to contextualise information. This type of contextual mapping may

for example map the social characteristics of a defined area in terms of dominant ethnic or religious group. A case study is a detailed description of one person's or one group's experience with an issue. The selection of which of these approaches to use depends greatly on the research issue or question being addressed. These methods should not be considered replacements of more complex ethnographic approaches but as techniques that can be used to explore more fully the content and context of the issue as it occurs in the world of the target population. Furthermore, again, as mentioned above, all of these approaches require varying degrees of training. Of particular importance is to remember the closer one is to the A street the more caution should be employed for personal safety and to protect the anonymity of respondents.

3.3 Structured Questionnaires and the Survey Method

Population surveys are specialised studies of drug use patterns and problems in some defined, representative group of people; special population studies focus on some part of the population and may not be representative. These surveys may already be available or can be planned as an initial assessment. In some cases information from analyses of existing archival data and qualitative studies, can inform the development of studies using the survey or questionnaire method. These approaches tend to include larger numbers of people and usually more structured and standardised approaches to collect information. Population surveys are conducted within a well defined group of people. These surveys may be conducted so that their findings are representative of the whole population are of some specific segment of that population. If the population is small, it may be possible to survey everyone. Such is the case of Archibald's study of students in Bermuda (1985). However, most populations we want to study are too large and only samples of people from them are actually included. The key to these studies is the selection of people who are considered by some predetermined criteria to be representative of the whole population. The number of people selected for study depends greatly on the major issue of interest to the researcher. Because of the rarity of drug abuse among many populations, general population surveys may not be economical or efficient techniques to use to better understand the drug abuse problem. It is often difficult to find many heavy users of drugs in a general population survey. Illicit drug use, and in particular drug injecting, is a stigmatised and often illegal activity, so such use is often hidden. The overall rates of the use of certain drugs in the general population are extremely low. Even in large samples few heroin users or drug injectors for example would be found. However since population surveys are based on known population characteristics, when standardised, they have the potential of providing accurate prevalence and incidence rates of drug abuse (which require precise and stable denominators) and may more accurately reflect trends over time than other techniques.

To enhance the efficiency of the research effort, investigators may focus their efforts on the drug using population. Many limit their studies to the drug abusers in treatment. However, not all drug abusers avail themselves of drug abuse treatment or there may be limited availability of drug abuse treatment or drug abuse treatment may be limited to people who abuse only certain types of drugs. It is therefore important to conduct surveys with drug abusers in several settings including the community. Many of these studies are done by special interview procedures and questionnaires tailored especially to the group being studied. These studies must be designed to sample the type of user required and be targeted to them alone. Some of the drug using groups studied involve school drop-outs, street youth, and adolescent drug users. Student drug use surveys have been used for many years in some countries, notably the United States, to monitor trends in drug use over a number of years. The ways of studying some of these groups are dealt with in Chapter 7 of this manual.

If it is decided to do surveys, then instruments utilising standardised measures of the type suggested in Chapter 6, will be needed. The instruments must be pre-tested on a few people and pilot tested before being put into final form. Interviewers must be trained and the data collected. Chapters 5 and 7 give information on these procedures. Chapter 10 provides a detailed description of the research protocol used to produce an example of a cross-culturally applicable model core questionnaire that could be used to develop a drug abuse epidemiology survey instrument. An annotated guide to the translation and adaptation of the questionnaire for different social and cultural contexts is also included.

3.4 Initial Assessment Using Rapid Assessment Methods

While the population-based survey has been held up as the "Gold Standard" against which other methods are compared, when information is needed quickly the initial assessment can often be undertaken as a mullet-method, mullet-source, rapid situation assessment. A rapid assessment is considered appropriate for problem identification because of the lack of adequate data and the need for timely and accurate information on the extent and types of substance use and problems related to this use in communities and countries. A rapid assessment methodology (RAM) correctly applied, provides information of direct relevance to interventions, rapidly and at relatively low cost, and serves the dual purpose of both assessing a situation and the ability to respond to that situation.

Timely and accurate information on the extent and types of substance use and problems related to that use is essential in order to respond to those problems. To formulate effective policies, target prevention and education and to plan treatment and intervention we need to know: which communities are potentially directly or indirectly at risk from substance use (alcohol, tobacco and other drugs); which people are already using what substances and to what extent; how they are using these substances; and what problems they are experiencing, or likely to experience, by using them.

If prevention and treatment activities are to be effective we also need to know about the attitudes and motives of those using or likely to use the substances. Most importantly we need to know something about the context in which these substance users and potential substance users live their lives. Economics, culture and education all influence substance taking behaviour. These and other structural factors (for example: the legal and political system; economic factors and priorities; the capabilities of the health and welfare system; the strength of community networks) can determine what sort of interventions will be the most effective. These factors can also be major constraints on interventions.

The researcher or epidemiologist has a range of tools or methodologies to help answer these questions. Rapid assessment is one such tool. In addition to providing answers to epidemiological questions the method can also be viewed as a tool to develop local capacity, at the community level, for developing intervention responses. Whilst its use in the substance use field is relatively recent, rapid assessment has been used in rural development projects for a long time. It has also been used for agricultural marketing, nutrition (Scrimshaw 1987) and primary health-care studies, social forestry and irrigation projects, water supply and sanitation projects. More the rapid assessment method has been

used in drugs and HIV/AIDS intervention. The World Health Organisation, in collaboration with the Joint United Nations Programme on HIV/AIDS, is developing guidelines which describe how to undertake Rapid Situation Assessments of drug injecting and its health consequences, and of substance use and sexual behaviour. These guides are designed for investigators who wish to assess the current situation regarding the extent and nature of drug injection, and of substance use and sexual behaviour, and who wish to use this information to develop interventions to reduce the adverse consequences of drug injection and sexual risk behaviour, in particular HIV, hepatitis B and C and drug overdose (WHO, forthcoming; WHO & UNAIDS, forthcoming). Several variants of rapid assessment have been applied to the study of substance use often with different methods, different outcomes (of variable quality) and often under different labels (rapid assessment, rapid situation assessment, rapid appraisal, rapid needs assessment etc.). Such assessments have been conducted in Belarus, Cameroon, the Czech Republic, Kazakhstan, Lebanon, Ukraine, and Nigeria.

Common to most rapid assessments are a combination of various factors, applied to varying degrees. The method is characterised by its: speed, it is designed to provide quick answers in dynamic situations; relative low cost, it is cheaper than other methods (such as the survey) and provides more extensive data in terms of scope; multi-method and multi-source approach, it draws upon a wide range of qualitative and quantitative research methods and data sources (including examination and triangulation of existing data sources; structured and unstructured interviews, focus group discussion; observation and other techniques in the anthropological or ethnographic tradition); dual purpose, it assesses need/situation and the ability to respond (resources); relevance to interventions, ideally it provides information to inform practical decisions about need for further assessment as well as short and longer term interventions and policies, including prevention, education, treatment and care (oriented to action rather than contemplation).

4. Planning Field Assessment

4.1 Strengths and Weaknesses Initial Assessment Methods

Each of the approaches presented in this guide has both strengths and weaknesses. Rapid assessment methods are quick and relatively inexpensive methods of getting information, but that information may be limited. In situations where information is limited and needed quickly, this method is to be strongly recommended as an initial exercise. Population surveys have the advantage of a reliable, standardised methodology. They can give comprehensive information on large numbers of people for their use of drugs. However, they can be expensive and time-consuming. Large surveys may take a year or more to plan, conduct and analyse the data and prepare a report. Also, general population surveys typically miss marginal groups which may contain many drug users.

These include people in hospitals, prisons, specialised addiction treatment centres, hostels and halfway houses and the homeless. Of course, specialised studies are needed to get information about

these groups. Such studies are difficult to do well as standard methodologies are difficult to apply and sampling may be difficult. However, these studies can often give essential information on the more problematic drug users. Reviews of existing reporting systems are essential to any assessment of the drug abuse situation. They, too, can be time-consuming and may give information that is of limited use if systems are inadequate or subject to policy changes where biases in who is reported in the systems are likely to occur. Such reviews may point to the need for much further work which however may be difficult to plan and finance. Of course, surveys or surveillance systems are most useful where they are repeated over time so that trends in drug use can be seen.

4.2 Selection of Assessment Procedures

The development of an assessment plan depends greatly on one's aim. If there is an emergent problem (for example a rapid transition to injecting drug use in a community), the initial approach would be quite different from the situation in which there is no such problem. Although the initial plan would vary greatly, in both cases it will be important to build both a surveillance and a monitoring program. Monitoring systems which make cross-sectional, direct measurement studies with periodic data collection points over time, provide the best estimates of drug use behaviours and consequences among the general population of households and school children. Surveillance systems provide ongoing, systematic, and timely collection, analysis and interpretation of data about emerging drug abuse patterns and trends over time. Health-related surveillance systems generally include indicator data sets that capture information about groups of people most likely to be affected in various institutional settings. For a problem such as drug abuse, these settings deal with the consequences of drug using behaviours such as those mentioned above. Together, these systems offer a comprehensive, though overlapping, description of the drug abuse problem and of those who are involved in the problem. How extensive and frequently the data elements for these systems would be collected determines the amount of resources required in terms of trained manpower, equipment, and funding.

Changes in drug abuse patterns, including initiation to use and transitions to injection, depend greatly on the availability of drugs, their purity level, and on the availability of consumers. Those situations that require immediate, short-term responses are usually related to some health or social consequence, for example: increases in the number of overdose deaths (particularly amongst the young), transitions to drug injection, emerging HIV or hepatitis epidemics, increases in drug related crime and other threats to community safety. In these cases, both targeted investigations and rapid assessment within the geographic areas of concern are warranted to determine the extent and nature of the drug use behaviour in question. The information collected will enable policy and programme managers to develop appropriate strategies and focused action plans for treatment, prevention, law enforcement and other interventions.

However, these occurrences are often geographically and time-limited. In many cases, there is growing concern about drug abuse in a community, perhaps first felt by treatment or other health and social service providers. They will want to collect information to demonstrate that there is a problem to policy makers and the public at large and may enlist the help of the media. In demonstrating the nature and extent of the problem a number of issues must be considered. The first issue is resources, in terms of expertise in surveys or other methods as well as people to actually carry out the surveys and special

studies. Sometimes, volunteers or students can do the interviews or data collection for free or at very low cost. Expertise in survey work or epidemiology may be specifically allocated to the study. However, if not, part-time skills in survey methodology and sampling may be available from government departments dealing with the census, vital statistics or other health areas such as nutrition and family planning. Statistical analysts in the same areas or in universities or colleges may also provide consultation free or for a small fee. Often a well planned study of drug abuse is seen as an exciting and socially relevant task. It may therefore be possible to get free help and advice if necessary. Generally expertise is needed in four areas: survey methodology (e.g. questionnaire design), sampling, statistical analysis, and report writing. Of course, it is unwise to plan a study for which the relevant types of expertise cannot be found.

The ideal situation is to have a well-financed study with paid experts and sufficient hired staff to do all the work. A well planned study of drug abuse may attract more funds after a detailed plan has been made than when it is only a vague idea. Whichever approach is taken, it is essential that the study or studies be conducted within a set budget using available financial support. It would be unfortunate to initiate a large study without initial financial support only to have to abort the effort abruptly before all the data are collected or before the data can be analysed.

Finally, the availability of appropriate equipment to produce data collection instruments and to process the collected data also must be consider when planning and implementing the research plan. Because of the dynamic nature of drug abuse patterns, it is important that once the results of the studies are available, they should be disseminated. The rapid dissemination of the findings depends on the development of a dissemination plan early in the research process. Questions regarding: how the findings will be summarised; who will receive them and in what form will they be presented, need to be considered in this planning process. There may be several audiences for the findings and therefore crafting appropriate and meaningful materials for then will require careful attention.

5. Data Management and Analysis

5.1 Data Management

Data management is generally important in epidemiology but particularly so in initial situation assessments. Data management includes a number of tasks for reviewing, collating and processing the data that are collected. The two main goals of data management are to assure high quality data that are accurate and complete and to prepare the data for analyses. How these tasks are carried out, whether by "hand" or by computer requires guidelines. What constitutes accurate and complete data needs to be decided upon in the initial planning phases of the research and documented. Consistency checks or cross-referencing within and across data sets will assure reliability of the data being collected and to some extent their validity. Decision rules need to be developed for those instances when there are discrepancies between data items. These rules should be documented in a manual and a log kept when such decisions have to be made. Software for these checks and rules can be developed when computers serve to manage and process the data. Hand processing of data should be limited to small studies and to clinical case histories.

All large drug use assessment studies should include careful attention to data management. Any large studies will require access to computer facilities and someone with experience in running statistical programs and preparing tables. Since such facilities are becoming widely available even in developing countries, hand processing of data should be left only for the smallest studies. It may be appropriate for clinical case histories or studies with a few cases and a few variables (e.g. less than 10 of each). Getting the data processed in a timely fashion depends on carefully planning of data management issues. These are discussed in the individual chapters depending on the kind of data that is produced by the studies.

The management of qualitative data presents its own challenges. Some guidance in reviewing, collating and processing such data is included in Chapters 4 and 10.

5.2 Data Analysis

In designing a study, researchers need to carefully define the study objectives and identify appropriate methods of data collection and analysis to achieve these objectives. In many cases simple analyses such as overall percentages of drug users and cross-tabulations by age, sex and other demographic characteristics will be sufficient. Usually health planners need only descriptive statistics which are easily derived from packaged statistical programs. More detailed analytical statistical work using multivariate techniques is more difficult to do and requires the advice of statisticians or at least those well acquainted with those techniques. Again the analysis of qualitative data presents its own challenges. Some guidance in reviewing and analysing such data is included in Chapter 4.

5.3 Reporting and Application of Results

Any drug use assessment must have a written report to be of much use. The report must be designed for the most likely potential readers. It should contain the results of most interest to them and should be written at the level that is appropriate to the readers. Often it is useful to have a short written summary report containing the major findings and longer, detailed reports which contain more detailed analyses. Having a short rather than long report as a goal often means that the main results can be made available at an earlier stage. Often the impact of a report on drug abuse is greater if it is ready quickly and at a time when decisions about programs are being made. Chapter 9 gives more suggestions about how reports should be structured and how the results can be applied to improve ongoing programmes or to initiate new programmes or policies.

6. Plan of Action

Once a report on drug abuse has been prepared some plan is needed on how to make the report have the impact it deserves on decision making. It is important to make health planners and government officials aware of the report. Often a short summary is helpful as such people may not read long reports. Press releases or press conferences may be appropriate to give the results wide distribution in the mass media. Also, special lectures or seminars for addiction specialists or others likely to use the report may be helpful to disseminate the results. Scientific journals are also a good resource but publication lags can be very long. In addition, if possible, it would be helpful to hold a meeting of key decision makers representing appropriate agencies and organisations to review and interpret the data to decide what course of action is required.

6.1 Are the Findings Adequate for Policy or Intervention Development?

All drug abuse assessments should be planned to be useful in policy and programming decisions. Whether they are or not depends on many factors such as:

i. the reliability, validity and credibility of the results;

ii. how well the results are explained to planners;
iii. how willing and able planners are to incorporate assessment results in their planning.

Planners use a variety of sources of information in making decisions and study results are only one of them. Others will be financial, political and feasibility considerations. The best hope for a report on drug abuse to have impact comes if it is well planned, well done and timely with results that can be directly used in developing prevention and treatment programmes.

6.2 Recommendations for Research

Most reports of initial assessment will raise as many questions as they answer. Those questions will often require specific epidemiological studies to be planned. It is important in any assessment report to point out its limitations. A natural result of this approach is to suggest what further work needs to be done. The effort in carrying out the initial assessment of the situation will enable more appropriate epidemiological work to be planned and carried out which will enable suitable prevention and treatment programmes to be developed.

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CHAPTER 3

EXISTING INFORMATION SOURCES

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CONTENTS

1. Introduction

1.1 Objectives

This chapter provides an overview of the various sources of data and indicators pertaining to substance abuse which may be available in a country (the term "indicator" is commonly used to refer to data which serve to indicate the nature and extent of substance abuse and related consequences). Some data sources mentioned are covered more comprehensively in other chapters in this volume. For example, drug abuse surveys are described in Chapter 5, and Chapter 8 provides a detailed review of drug abuse reporting systems and includes recommendations for their development and implementation. The objective of this chapter is not to instruct the reader on how to develop a new reporting system, but rather is to advise the reader on how to systematically identify, collate, review, and interpret data pertaining to substance abuse which already exists. The results can be applied to two questions:

- Are the data adequate for developing, and later evaluating, policies and interventions?
- Are existing responses and facilities sufficient and appropriate to the nature and extent of the problems?

It should be emphasised that the list of indicators and methods described in this chapter is an ideal model of what may be useful. It is rarely possible, nor is it necessary, to include all of them. There is no blueprint that applies to every situation. Rather, the suggestions given below should be treated as examples to be adapted according to local needs and resources.

In most countries, even if there is no specific information system, a variety of data usually exist on drug use and its consequences. This is because at different times some users, especially those with more severe or problematic patterns of use, come into contact with treatment, welfare or law enforcement agencies. It is important to collate and analyse these existing data in depth, since they can provide useful information on:

- Patterns of substance use (major drugs involved, basic demographic characteristics of users, etc.);
- consequences associated with substance use;
- different types of problems seen by different agencies; and
- trends over recent years.

Since the data have already been collected, they can be collated relatively quickly and at low cost.

As an early step, it is recommended that planners and decision-makers review existing sources of information to see if they are sufficient for assessing the pattern and extent of substance use and related problems in their country. In countries where resources are limited, developing a high-cost comprehensive reporting system for substance use may not be justified. In these cases, it may sometimes

be sufficient to utilise existing non-specialised information systems, after testing and improving their reliability and validity. In all countries, it is worth developing a network of local "key informants" who can provide insight into current trends and help to interpret the data provided by different indicators.

It must be emphasised that existing data were often collected for administrative or other purposes. This may limit the extent to which they can be used to assess patterns of drug use. Furthermore, while the indicators described below are assumed to have a relationship with drug taking and drug problems, the exact nature of that relationship is often unknown. Thus indicators should be viewed as relative and indirect rather than as direct measures. The limitations of existing data and indicators are discussed below in section 3 of this chapter.

1.2 Sources of Information.

Different sources of information reflect different aspects of substance use. Reliance on only one source (e.g., hospitals or police) will give an incomplete and misleading picture. It is essential to cover as wide a range of sources as possible.

Sources of information can be considered under four headings:

- Existing literature and documentation;
- routine statistics;
- information available at agencies; and
- local information from groups and individuals.

Existing literature and documentation

This includes research studies, reports and other compilations of information on substance use and problems in the country. It is important to include unpublished documents as well as published material. Published materials may be found in medical, social science as well as legal journals. There are also many specialist drug and alcohol journals. A comprehensive such of these sources is helpful. Lay press and other media reports may also contain useful information, but are of course subject to bias. A review of local press cuttings may provide some indication of drug issues that are of interest but are highly selective and cannot be taken as representative of drug problems in the community.

Routine statistics

These can include:

- Hospital discharge diagnoses;
- police arrests for drug offences, drunk-driving and public drunkenness;
- seizures of illicit drugs;

- court convictions for drug offences;
- mortality statistics;
- infectious disease notifications (e.g. HIV, hepatitis B and C, TB etc.);
- reported AIDS cases;
- production and distribution of licit substances; and
- a wide variety of other data from health and social agencies.

Routine statistics have the advantage that they are readily available. If they have been collected consistently, then they can provide indirect indicators of trends over the years. However, they often provide only basic, aggregated information on a small number of variables. A more important limitation is that information systems which are not specifically concerned with drug use are very likely to under-record drug-related cases. For example, court statistics give the number of people convicted of offences against the drug laws but not the (usually larger) number of drug users convicted of other offences. Even specialised systems understate the true number of "known" drug users, since not all agencies may be covered, not all drug users may be recognised as such, and the relevant information may not be recorded or transmitted to the system.

It may sometimes be possible to ask the agencies involved in routine data collection if they could include a small number of specific questions or categories, or perhaps to set aside drug-related reports, either on a regular basis or for a limited period of time. However this may not be feasible if the number of agencies involved is large.

Thus it is very likely that the figures which emerge from this filtering process represent often only a fraction of the total picture, and an unknown fraction at that. Moreover, the data are in a raw numerical form and, by themselves, difficult to interpret. It is therefore necessary to seek information from agencies and other sources which are more directly in contact with substance users.

Agencies

It is important to cover:

- Treatment, rehabilitation, counselling and advice agencies (specialised centres and, as far as possible, non-specialised services which provide treatment to people with substance use problems);
- medical services which deal with various consequences of substance use (emergency rooms, public health units, virology laboratories, toxicologists etc.);
- welfare and social agencies providing care to people with substance problems; and
- law enforcement agencies (police, customs, forensic services etc.).
- Governmental, non-governmental and private agencies should be included.

Some of these agencies may already have internal documentation on their caseloads and client profiles, including information on substance-related problems. However, others may not, and those

which have will probably record and present the data in their own way. This makes it very difficult to collect and collate information that is comparable between agencies. It is therefore necessary to organise a more systematic review of data that are available at different agencies. This is discussed below in section 4 of this chapter. It is essential to appreciate that this will involve devoting a substantial amount of time to making contacts and discussing the issues with a wide variety of agencies and colleagues.

The extent to which agency data reflect patterns of drug use depends not only on the nature and extent of drug taking, but also on the availability of services and on their priorities and policies. However, even where services exist, only an unknown proportion of all people who use drugs ever go to them because of their drug use. At any given point in time, the proportion of drug users in contact with agencies is considerably smaller.

Usually, it is individuals with heavier patterns of drug use, who experience more serious problems, and who have fewer alternatives who are known to agencies. Even then there may well be a time lag of months or often years before people become known as drug users.

This means that data gathered through agencies (including routine statistics, which usually depend on data reported by agencies) do not only reflect the nature and extent of problematic drug use, but also:

- Reflect the type and availability of services;
- cover only a minority of all substance users;
- cover a larger, but unknown proportion of problematic users or problematic consequences of drug use;
- give a time-lagged indicator of trends.

Local groups and individuals

It is at local community level that substance use and especially problems related to substance use are first experienced. Since it takes time for changes to filter through into agency-based indicators or statistics, it can be valuable to tap sources at local level, including community organisations, key individuals and drug users. However, data at this level are even more disparate and hard to collect systematically than at agencies. Although specific research methods can deal with this problem, they may be more expensive and limited to a few local communities. One alternative is to develop networks of local key informants. This is discussed later in this chapter.

Identifying future information needs

The review of existing information is useful not only for assessing recent trends and the current situation, but also identifying future information needs. These include:

- Improvements in the quality of existing indicators and development of other data sources;
- more systematic and routine collation of data from different sources;
- specific areas requiring special investigations; and
- data collection strategies that will help to evaluate the impact of interventions and policies.

2. Development of Indicators

2.1 Consumption Data

Estimates of consumption in the population can be based on:

- Production and distribution data;
- representative surveys of the population; and
- extrapolations from indirect indicators.

Estimates based on production and distribution data

This approach is discussed below in section 2.9. It is valuable for legally produced substances such as alcohol, tobacco and other legal psychoactive drugs such as benzodiazepines (as long as good data are available) but less reliable for illegal drugs.

Estimates based on surveys

When looking at the results of surveys of alcohol use, it should be noted that they imply estimates of total alcohol consumption that can be substantially (even 45-60%) lower than those based on production/sales, suggesting that population-based surveys give underestimates. The same is likely to be true, perhaps even more so, for illegal drugs. Recent or current use of the more disapproved of drugs such as heroin or cocaine may be under-reported in general population surveys. Even if overall consumption, and sometimes prevalence, are underestimated, population surveys are valuable because they provide information about the demographic, social and personal characteristics associated with different patterns of consumption of substances such as alcohol, tobacco, cannabis, and more commonly used psychoactive agents.

When using survey data from the general population for planning or policy making, information on recent (last 12 months) or current (last 30 days) use is more useful than lifetime prevalence, unless

the survey was particularly concerned with cessation of drug use. In youthful groups such as school children, lifetime prevalence may be useful as well. General population surveys are usually less appropriate for estimating certain drug using behaviours, for example heroin or cocaine use or drug injecting, because of their low prevalence in the general population and high prevalence in marginalised populations, such as people in prison, street children and homeless adults. Chapter 5 of this guide discusses general population-based surveys in more detail and Chapter 7 considers issues relating to the study of specific or special populations.

Ethnographic and other qualitative research methods can also contribute information that is relevant to consumption estimates, since observational studies and interviews of groups such as heroin users and drug injectors can provide data on drug use patterns amongst populations that are often missed in general population surveys. Chapter 4 of this guide discusses qualitative methods in more detail.

Estimates based on indirect indicators

Various attempts have been made to estimate the total consumption of drugs like cocaine or heroin based on information such as production estimates, assumptions about distribution and dilution, back-estimates of consumption from estimates of prevalence, and assumptions about average doses used by consumers. Such speculation should be avoided unless there are sufficient data and reasonable grounds for the assumptions that are made.

2.2 Treatment Demand

Possible sources of treatment demand data include:

- Specialised drug or alcohol treatment centres;
- programmes for drug and alcohol users in general services;
- primary care services, general health and social services; and
- voluntary and non-governmental social agencies.

Data on treatment demand can provide:

- A direct measure of the demand for treatment by people with drug and alcohol problems (mainly dependence); and
- indirect indicators of wider trends in problem drug and alcohol use;

Coverage of treatment demand data

Although "treatment" is sometimes understood mainly in terms of medical interventions, a broader view is recommended that includes a wide range of activities aimed at ameliorating the psychological, medical and social state of individuals who seek help for their drug or alcohol problems.

Thus treatment can be based within structures that are medical or non-medical, governmental or non-governmental, public or private. These include outpatient clinics, inpatient detoxification, drug substitution, therapeutic communities, counselling and advice centres, crisis centres, treatment programmes in prison, self-help groups, and programmes for drug users provided within general health or social care facilities.

If few specialised services exist, or if primary care and general services play an important role in the treatment and management of substance-related problems, then they should be covered. They could include: health centres, general practitioners, community nurses, social workers, youth workers, non-governmental organisations, psychiatrists, pharmacists, probation officers, prison medical officers etc. Data collection can pose practical difficulties, since there are usually no centralised structures for collating information, and substance-related problems often constitute only a small proportion of the total caseload.

In some countries, non-governmental agencies and informal groups are a major source of help and support for drug users who are unwilling to go to treatment centres or hospitals. It may be difficult to obtain precise statistical data, but they can be valuable sources of information on emerging patterns of drug use or on populations of drug users who are not often reflected in more official sources.

Direct measure of demand on services

The number and profile of people demanding treatment for drug or alcohol problems gives a direct measure of the uptake of services. This offers planners and treatment providers insight into what sorts of clients use which services, and provides a basis against which to evaluate attempts to attract particular subgroups into treatment. In particular, data on first treatment demand, that is to say on people who are demanding treatment for their drug or alcohol use for the first time ever, can provide a sensitive indicator of the relative attractiveness of different services, especially if data are recorded on how long such clients have been using drugs or drinking heavily prior to their first treatment demand.

Indirect indicator of trends in problematic substance use

First treatment demands can also be used as an indirect indicator of changing patterns of more severe, problematic drug or alcohol use in the communities served by the treatment centres involved. To achieve this, *it* is important to record information that distinguishes clients who are seeking treatment for the first time from those who have previously received treatment. If this is not done, then it is difficult to identify new populations who are coming to treatment for the first time from the (usually older) "revolving door" population of more chronic drug users who repeatedly go in and out of treatment over several years.

The ratio between first treatment demands and demands by people who have been treated previously can be an indicator of the incidence rate. The incidence rate refers to the rate at which new

cases are appearing in the population of the catchment areas covered by the treatment centres concerned. When incidence is high, the proportion of first treatment demands may increase. As incidence falls, the proportion of first treatment demands may also fall, indicating that the problematic drug using population is increasingly dominated by longer term users.

Limitations and advantages of treatment demand data

Whilst treatment demand data can provide a sensitive indicator of service attractiveness and drug misuse trends, there are important limitations. It is a lagged indicator, in the sense that there is a delay, sometimes of several years, between first drug use and the first demand for treatment. The type, availability and accessibility of treatment can also have an important impact on the demand for treatment. For example, if services are primarily concerned with alcohol or opiates, then problems related to other drugs such as stimulants or solvents will be underestimated. It is essential to consider these when interpreting the data.

Treatment reporting systems

A good database on treatment demands provides an excellent basis for more detailed investigations. This added value increases over time if data are collected consistently through a treatment reporting system. Guidelines for treatment reporting systems have been developed and tested in both western and eastern European cities by the Council of Europe's Pompidou Group. The form for collecting core data for this particular drug treatment reporting system is in Annex 2 of this Chapter. Many countries have national or regional treatment monitoring systems. Spain's State Information System on Drug Abuse (SEIT) operates nationally and collects treatment demand data, as well as non-fatal drug related emergency data from hospitals and drug related death data. Other European countries, such as Germany, Italy, the Netherlands and the United Kingdom have a long tradition of collecting drug treatment data so have relatively sophisticated reporting systems (EMCDDA, 1996; 1997). In the United States the Treatment Episode Data System (TEDS) collects information on admissions to alcohol and drug treatment programmes. The Epidemiological Surveillance System of Addictions in Mexico (SISVEA) has since 1991 systematically collected treatment data. Chapter 8 of this guide deals in more detail with reporting systems, including treatment reporting systems.

If a treatment reporting system does not exist, then it may be possible to collect data retrospectively from existing records. However, it is likely that some information will be missing or recorded in non-comparable fashion. Data on hospital admissions are dealt with below in section 2.4.

Minimum data set

The minimum data should include: primary drug for which treatment was sought, age of first use of primary drug, other significant drug use, route of administration, age, gender, area of residence and previous treatment (ever previously treated for drug problems at any treatment centre). Other core variables are described in Chapter 6 of this guide. The model form tested in the Council of Europe's Pompidou Group treatment demand study is appended to this chapter, as an example.

2.3 Emergencies

Possible sources of data on drug related emergencies can include:

- hospital emergency rooms;
- ambulance service;
- crisis centres;
- health centres;
- poison centres.

Data on drug related emergencies can provide:

- a direct indicator of the demand on emergency services arising from certain consequences of substance use;
- an indirect indicator of trends in selected patterns of problematic drug use.

Coverage

Hospital emergency rooms (ERs) may be particularly useful sources of information in countries with limited primary care or specialised treatment facilities. In some countries, data are collected via the ambulance service; in others, health centres or crisis centres may be appropriate sources. If it is not possible to cover all emergency services, then include the major ones plus a cross-section of other services.

Direct indicator of drug-related emergencies

Monitoring hospital ERs or emergency services can provide a direct measure of drug-related emergencies such as overdoses, other acute intoxication's and adverse reactions, organic and acute psychiatric complications, withdrawal symptoms, injuries and requests for information or treatment. The population attending ERs overlaps with, but is not coterminous with, the population seen in treatment centres. Data from ERs may thus point to subgroups who experience problems but who are not in treatment.

Indirect indicator of trends in problematic drug use

Drug-related emergencies seen at hospital ERs also provide a useful indirect indicator of trends in problematic drug taking in some countries. To do this, it is important to distinguish drug-related emergency room episodes arising in the course of nonmedical drug-taking or associated with drug dependence, from accidents or deliberate self-harm unconnected with "drug abuse". ER data mainly reflect patterns of opiate or multiple drug use, injecting and heavy use of alcohol and/or sedatives.

In some situations, they may also be useful for monitoring some of the health consequences of other drugs such as cocaine, volatile inhalants or heavy use of cannabis. They are not useful regarding less intensive drug use. Use of ER data for alcohol-related casualties is described by Cherpitel and Rosovsky (1990).

Data recording

Since ER personnel are primarily concerned with the immediate emergency, only limited information is available on other aspects of the patient. In particular, in accident cases, data on whether drug use was involved are often lacking. It is recommended that data collection focus on overdoses and other acute reactions, drug and alcohol related complications, and withdrawal symptoms. If alcohol involvement in accidents is routinely recorded, then include this as well.

Data can be collected prospectively using a special reporting form, though in a busy ER, compliance is a major problem. It may therefore be necessary to collect data retrospectively through reviewing ER records. However, the quality of the information that is recorded can be highly variable, and the ease with which records can be reviewed depends on the record-keeping system. It is thus essential that the medical personnel are persuaded of the importance of good record-keeping, and it is useful to identify a key person who is willing and able to review records on a regular basis (e.g., weekly or monthly). This may require some payment. It is important to use consistent guidelines.

Basic data should include: reason for attendance, main drug(s) involved in the episode, probable motive for episode (nonmedical drug-taking or drug dependence, accident, self-harm etc.), age, gender, area of residence, treatment given and disposal. Data collection forms used for non-fatal emergency by the Council of Europe's Pompidou Group and used by the Drug Abuse Warning Network in the United States to collect data on drug abuse-related emergency department episodes are appended to Chapter 8 which considers reporting systems in more detail.

2.4 Hospital Admissions

Possible sources include:

- Psychiatric hospital admission or discharge diagnoses;
- psychiatric registers (ideally covering outpatients); and
- general hospital admission or discharge diagnoses.

Hospital statistics can provide:

- A direct indicator of trends in psychiatric hospital admissions with a primary diagnosis of drug or alcohol dependence or abuse; and
- an incomplete indicator of organic diseases occurring in drug and alcohol dependent/abusers admitted to general hospitals.

Drug and alcohol users may be admitted to hospital either because of dependence and other psychiatric complications (usually to psychiatric hospitals) or because of organic complications related to the drug use (usually to general hospitals).

In some countries, discharge diagnoses are recorded using either the International Classification of Diseases (ICD-9 or ICD-10) or the Diagnostic Statistical Manual of Mental Disorders (DSM-III-R, or DSM-IV). Copies of ICD-10 (WHO, 1992) can be obtained from WHO and of DSM-IV (APA, 1994) from the American Psychiatric Association.

Psychiatric hospitals

Hospital inpatient data should be interpreted cautiously. Psychiatric hospital data on primary diagnoses of drug or alcohol dependence may reflect psychiatric hospital admissions, but these do not always reflect wider trends in drug dependence, since the availability of beds may determine admission rates, younger drug misusers may be reluctant to accept inpatient psychiatric treatment, and attitudes towards psychiatric care (both amongst practitioners and in the population) can have a significant impact on hospital-based statistics.

Where possible, it is recommended that data on treatment demand described in section 2.2 above are of more value than hospital statistics. However, where there are psychiatric registers which include outpatients as well as inpatients, then these too can be useful, as long as data gathering has been consistent and is considered to be of good quality.

General hospitals

Data from general hospitals may give a profile of the types of organic diseases occurring in heavy drug or alcohol users, but should be viewed even more cautiously than data from psychiatric hospitals,

since the primary diagnosis usually refers to the organic condition, and drug or alcohol abuse or dependence may not be recorded as a secondary diagnosis.

2.5 Infectious Diseases

Possible sources include:

- Notifications to public health authorities;
- infectious disease hospitals or units;
- hospital statistics on discharge diagnoses;
- public health laboratories;
- sentinel surveillance records; and
- national AIDS prevention and control programmes.

Data on drug-related infectious diseases can provide:

- an indicator of trends in the prevalence of drug-related infectious diseases, mainly amongst injecting drug users; and
- at times, an indirect indicator of drug-injecting incidence.

Injecting drug use is a known risk factor for certain infectious diseases such as hepatitis B and C, endocarditis and HIV (Donoghoe and Wodak, 1998). Data on the prevalence of these conditions or their markers amongst populations of injecting drug users (IDUs) are useful for identifying the need for prophylactic measures, such as hepatitis B vaccination or risk-reduction education, and for monitoring the impact of these measures.

Acute hepatitis B and C

Data on trends in the incidence of drug-related cases of acute hepatitis B have also sometimes been used as an indirect indicator of the incidence of new drug injectors. Data on hepatitis B, however, need to be interpreted with caution for the following reasons: 1. in some countries there may be widespread prevalence of hepatitis B which is unrelated to injection drug use, 2. hepatitis B vaccination campaigns and important changes in risk behaviour on the part of drug injectors in response to HIV AIDS, may make the interpretation of this indicator is difficult in some countries, 3. interpretation is confused by the increase in hepatitis C in some drug-injecting populations, and 4. information on the risk factors involved is often lacking.

If data on risk factors are available (drug injection versus other factors such as homosexual activity or blood transfusion) then epidemic increases in drug-related cases of hepatitis B and C, may point to an increased incidence of drug-injecting amongst previously unexposed populations. The converse however, is not true. A low number of drug-related cases of hepatitis does not necessarily

mean a low incidence rate of injecting. Hepatitis A is not a good indicator of drug injection whilst Hepatitis C probably is. It should also be recognised that these indicators may reflect lifetime rather than current injecting behaviour.

AIDS and HIV

The rate of HIV-seropositivity amongst injecting drug users varies greatly between different countries as was found, for example, in the WHO Multi-City Study on Drug Injecting and Risk of HIV Infection (WHO, 1994). Similarly, rapid changes in rates of HIV prevalence over time are sometimes observed. This means that data on HIV cannot be used as an indicator of trends in drug injection, though of course they are very relevant to identifying the need for interventions aimed at limiting the spread of HIV.

Data on infectious diseases can be obtained through public health surveillance systems and laboratories, and through hospital discharge statistics, though they may be unreliable due to missing information on risk behaviours. Data become more helpful if these are divided into drug injectors and other work groups. National AIDS reporting systems may be more reliable for HIV positive and AIDS cases.

2.6 Deaths

Possible sources include:

- Mortality statistics;
- police records (drug-related deaths, road traffic deaths involving alcohol, criminal offences involving drug or alcohol-related fatalities);
- forensic and toxicology departments;
- coroners or medical examiners;
- death certificates; and
- hospital records.

Data on drug and alcohol related mortalities can provide an:

- Indicator of patterns and trends in drug-related deaths (drugs involved, socio-demographic characteristics etc.);
- indirect indicator of trends in drug dependence (sometimes);
- indicator of trends in alcohol-related deaths (cirrhosis, road deaths); and
- indirect indicator of trends in heavy alcohol consumption.

Data on deaths are important since they represent the most serious outcome of drug use. Drug and alcohol related deaths include direct causes such as overdose, and indirect causes such as accidents

under the influence of drugs or alcohol, or organic disease such as cirrhosis. The distinction between direct and indirect drug-related deaths is important, since the former are more likely to be recorded as drug-related, whilst the latter are very often missed.

The feasibility of using this indicator depends on how well deaths are investigated (including toxicological investigation) and on whether information is available on the circumstances of death as well as on the underlying and immediate causes. Care is needed when choosing criteria for identifying cases. Mortality statistics based on causes of death recorded in death certificates usually understate the number of drug-related deaths. For example, acute drug deaths may be recorded as cardiac insufficiency, and records of traffic accident deaths may not mention drugs or alcohol. Similarly, vital statistics on deaths by poisoning do not include drug-related deaths occurring from other causes and do not differentiate the individuals concerned according to their prior pattern of drug taking. Many of the difficulties in using this indicator are discussed and illustrated in a study undertaken by the Danish National Board of Health on behalf of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) which investigated the quality and comparability of data on drug related deaths fifteen European countries (Danish National Board of Health, 1997).

Drug-related deaths

The number of drug-related deaths may in part reflect the prevalence of problematic drug use, but other factors are also important, such as the type and purity of the drugs that are available, the route of administration, and the personal and social characteristics of drug-using populations. Some of the difficulties in defining and recording drug overdose are discussed in a WHO publication (WHO, 1997). Drug-related deaths are more likely, but not exclusively, to reflect heavy use of substances such as opiates or solvents, multiple drug use (particularly concurrent use of alcohol and benzodiazepines), and injecting drug use. They are not a reliable indicator of cannabis use or occasional drug use.

Alcohol-related deaths

Acute deaths arising from alcohol intoxication or poisoning are rare in comparison to the number of alcohol consumers, and do not accurately reflect the prevalence of heavy or problematic drinking. It is more useful to examine indicators such as cirrhosis deaths. The figures for drunk-driving deaths indicate not only the prevalence of drinking but also the behaviour of people after drinking, hence may have limited value as indicators of alcohol use.

Data recording

The best sources of data on drug-related deaths depend on the legal and administrative procedures in each country. It is important, if possible, to try to distinguish deaths of "drug misusers" from deaths such as suicides or accidents occurring in people who were not "drug misusers". With deaths of young people involving illicit drugs such as heroin, it is reasonable to assume that the deceased

were misusers. With commonly available medicines such as benzodiazepines, it is often impossible to know whether the person was, for example, a heroin addict who accidentally overdosed when using other drugs as a substitute or a psychiatric patient who committed suicide, unless circumstantial evidence is available or the underlying cause of death is recorded as drug dependence.

It may be useful to review all available sources of data for the past one or two years, and not just rely on mortality statistics and figures provided by the police. This could include: a review of all death certificates involving adolescents and young adults (if all ages were included, the task would be much more onerous unless a random sample were selected); a review of coroners' records; a review of autopsy records; and any other relevant records that are available. The data should be extracted using standard criteria, for example:

- Deaths arising directly from intentional or accidental intoxications involving (a) illicit drugs, (b) alcohol, (c) other psychoactive substances (distinguish all substances involved);
- deaths due to long-term drug or alcohol use (e.g., AIDS, cirrhosis);
- suicides and other violent deaths related to drug/alcohol dependence;
- fatal accidents under the influence of drugs or alcohol.

The distinction between direct and indirect deaths should be maintained. If resources are limited, then concentrate on deaths that are directly drug-related. For further discussion of these issues see the WHO publication on opioid overdose (WHO, 1997).

2.7 Arrests

Possible sources include:

- Police and customs records; and
- specialised drug enforcement units.

Enforcement sources can provide:

- Direct measures of trends in arrests for (a) use or possession of illegal drugs, and (b) supply or trafficking of illegal drugs;
- indirect indicators of trends in (a) use, & (b) supply of illegal drugs;
- information on (a) the profile of known illegal drug users, and (b) on drug and alcohol involvement in other offences; and
- trends in arrests for drunkenness and drink-driving incidents.

Police statistics on arrests involving illicit drugs can be useful to complement health sources as indicators of patterns and trends in illicit drug use, but only if police policy and resources devoted to drug enforcement are taken into account. Thus increased police attention to drugs will almost always increase

the arrest statistics, even if there is no change in the level of illicit drug use. The value of data on alcohol-related arrests depends on cultural attitudes and legal responses.

Although similar considerations apply to seizures of illicit drugs (see below), the advantage of arrest data is that they also provide basic information on the people involved, as well as the drugs. However, some groups (e.g., street users or known criminal groups) may be more vulnerable to arrest than others (e.g., middle-class users). As long as biases are recognised, and the possible effect of other factors such as changes in police policy are considered, large changes in the pattern of police arrests for drug offences can be a useful indicator of trends over time.

Data collection

It is important to distinguish drug arrests according to:

- Whether they are use-related or supply/traffic-related;
- the drugs involved, and demographic characteristics of arrestees (particularly distinguishing juveniles from adults); and
- whether the data refer to arrests or persons (who may be arrested several times).

Often, data are only available for arrests involving alleged offences against the drug laws (possession, supply etc.). In some countries, the police also keep records of other drug-related offences (e.g., thefts committed by addicts), or a register of "known" drug users or "addicts". It is very important to examine closely the criteria used to record cases and the procedure used to collate the data.

2.8 Court and Penal Data.

Possible sources include:

- Court statistics on convictions and sentences;
- penal institutions' records; and
- prison medical officers records.

Court and penal data can provide:

- Direct measure of convictions for offences against the drug laws;
- direct measure of sentencing patterns for drug law offences;
- direct measure of drug law offenders in the prison population; and
- indirect measure of drug users/dependents in prison populations.

Court statistics

Court statistics are less useful as indicators of illegal drug use, partly because the data often become available only after a long delay, and also because they are one stage further removed from the original event and are thus further biased by procedural processes. They are useful for examining sentencing policies.

DRUG USERS/ADDICTS IN PRISON

This can include two different groups: i. people sentenced to imprisonment for drug offences. This provides little information on their drug-using status, since they may include nonusers. These data are strongly influenced by sentencing policy. Thus it should not be used as an indicator of illegal drug use trends (police arrests are a better indicator in this respect); and ii. prisoners who, regardless of their offence, are identified as drug users (or, more commonly, drug addicts).

This is also affected by sentencing policy, as well as by arrangements within prisons for identifying and reporting such cases. If diagnoses are reliable, then this indicator may reflect a population of drug users who are often not seen at treatment centres and can thus contribute to the overall picture.

2.9 Legal Production and Distribution

Possible sources include:

- Tax revenue records for alcohol and tobacco (for a more detailed description of these data for examining tobacco use see (WHO, 1995);
- production statistics for alcohol, tobacco and psychoactive substances;
- import and export statistics;
- wholesale and retail records of drug purchases and sales;
- prescription and dispensing monitoring systems.

Production and distribution data can provide:

- indicators on trends in the overall consumption of alcohol, tobacco and psychoactive drugs.

Information on production and distribution can provide useful indicators of overall consumption and trends in the population as long as good data are available, for example through taxation on alcohol and tobacco, or through monitoring the production, distribution and sale or prescription of psychoactive drugs. It is important to take account of imports and exports when examining the data. The data can also be used in econometric models to examine the impact of factors such as price on consumption levels. In countries where there is a significant level of home production, illicit production, smuggling or

tax-free importation, then consumption estimates become unreliable. It may be possible to estimate the likely degree of error by using information from other sources.

Alcohol

Estimates of per capita consumption of alcohol are a useful indicator of alcohol consumption and trends over time and between countries, especially if different types of alcohol (beer, wine, spirits) and distribution (on-premises, off-premises) are distinguished. Per capita consumption is also considered a useful indicator of trends in heavy drinking, and correlates with specific alcohol-related problems such as cirrhosis. However correlation's between overall consumption and accidents, violence and drunkenness offences are much more weak and variable, being strongly influenced by cultural norms and situational factors.

Tobacco

This approach has also been used to monitor trends in tobacco, though overall sales are not always a sensitive indicator of changes in smoking patterns. Thus relative stability in sales can conceal a decreasing proportion of smokers in the population while the average consumption by smokers increases. Further information can be found in the WHO Guidelines for Controlling and Monitoring the Tobacco Epidemic: WHO, Tobacco or Health Programme (1995).

Prescription drugs

Prescription statistics in themselves give no indication of whether drugs are used for bona fide medical reasons or not. Large increases in the number of prescriptions for specific drugs (e.g., codeine derivatives or benzodiazepines) may suggest increased demand for non-medical purposes. They can also be used to monitor attempts to control the prescribing of specific preparations. Data on forged prescriptions and thefts from pharmacies may provide interesting pointers, but may be of more value to monitor security measures.

2.10 Illegal Production and Supply

Possible sources include:

- Police records;
- customs records;
- forensic laboratories; and
- specialised drug enforcement agency.

Data on illegal supply can provide:

- Direct measures, for different drugs of (a) the number of seizures and (b) the amounts seized;
- indicators of the price and purity of different drugs at different levels of the illicit market (use, supply, traffic, production); and
- indirect indicators of the supply and availability of different illegal drugs at (a) local consumer level, and (b) production or traffic.

As with arrests, data seizures are influenced by police priorities and practices. Interviews with specialised drug units may help to interpret the data and can also cast light on the characteristics of the illicit drug scene and supply structures.

Quantities of illicit drugs seized

The quantity of illicit drugs seized is sometimes used as an indicator of the supply side of the illicit market. However, this is very difficult to interpret, especially in producer and transit countries, unless it is possible to make reliable distinctions between seizures destined for domestic distribution and those intended for another destination. Even then, one particularly large seizure can distort the figures for a whole year. However, if there is a consistent change, both in the total quantities seized on the domestic market, and in the number of larger seizures (on the domestic market), then this would probably point to a changing situation regarding the availability of illicit drugs.

Number of seizures of illicit drugs by the police

Numerically, most seizures made at local level by the police usually involve small quantities seized from users or user-dealers. Other things being equal (e.g., police policy) the more widespread illegal drugs become, the more likely it is that the police will come across them at some point.

Seizure of production facilities

Police raids on production facilities may give some information on the type of raw material used, the process of production and the purity and quantities of the final product. This may confirm earlier assumptions about drugs never being produced locally, different processes being used in production and the scale of these operations.

Price/purity of illicit drugs

Data on the price and purity of an illicit drug supplement information on seizures. Thus decreasing street price without a decline in purity, in conjunction with an increase in the number and quantity seized is consistent with rising rather than falling availability of the drug concerned. Conversely, in the same situation, rising prices would suggest that seizures were having a significant impact on the

availability on the illicit market. Changes in the differences in price and purity at import (wholesale) level and street (retail) level can also point to changes in the structure of the illicit supply system. Some forensic laboratories are also capable of carrying out sophisticated analyses on the contents of the street samples of drugs to determine the geographic source of the drugs. This may be helpful in mapping the route, the drugs are taking and in reinforcing control efforts.

Data collection

It is useful to distinguish data on seizures according to:

- The quantities of different drugs;
- the numbers of seizures (per drug) of (a) small, user-level amounts, (b) larger, supply quantities, and (c) production-level seizures;
- the price and purity of different drugs at different levels.

Particular care is needed regarding prices. For example, it should be specified whether user-level prices of heroin refer to the cost of 1 gram, or to estimates of the price per gram based on the cost of a small street bag. The latter will usually give a price that is two or three times the cost of 1 gram.

2.11 Other Sources of Information.

Depending on local circumstances, other sources of information may be useful. These include the following.

Pregnancy and drug-using parents of young children

Possible sources include:

- Prenatal care services;
- midwives and obstetric ward records; and
- antenatal clinics.

Positive testing at the workplace

Possible sources include:

- Employers; and
- urine, blood or hair testing of employees.

Drug use in the military

Possible sources include:

- Interviews or urine screening of conscripts;
- medical records of drug or alcohol problems; and
- military records of drug violations.

3. Limitations of Indicators

3.1 Reliability and Validity

How far can the indicators summarised above be taken as reliable and valid measures of the nature and extent of problematic substance use in the population? Issues relating to reliability and validity of the indicators are summarised below. These issues are how however complex. The degree of reliability and validity will vary for indicator to indicator and will be subject to many factors, including the nature of the reporting system. The limitations of reporting systems are discussed in more depth in Chapter 8.

Reliability of the data (internal validity)

Most indicators reflect various problematic cases or events that come in contact with different agencies. They thus depend on whether cases are reliably identified and recorded by those agencies. If the data are unreliable, then the validity of any inferences made on the basis of those data is compromised.

Validity of inferences drawn from the data (external validity)

Good reliability is a necessary but not sufficient condition for external validity. The question of external validity arises when inferences are drawn about the meaning of the data as *indirect* indicators of the extent and pattern of problematic drug use in the wider community. This can be approached by examining factors other than changes in problem drug use which may influence indicators.

Institutional responses

Changes in the resources allocated to agencies can have a major impact on an indicator. For example, expansion in the number and variety of treatment centres can dramatically increase the number of people seeking treatment. Likewise, increasing police resources often produce a sudden rise in seizures.

Changes in policy can have similar results, even without a change in resources. For example, a decision to start prescribing methadone at a treatment centre may result in an upsurge in the demand for treatment. Conversely, a police decision not to arrest people found in possession of small amounts of illegal drugs may reduce the arrest statistics. A shift in police priorities, for example from users to higher-level dealers, may likewise have a marked effect on the relevant indicators.

Reporting system characteristics

The coverage of sources on which indicators are based is also important. For example, a treatment reporting system may cover only specialised facilities. If there is a rise in the incidence of new cases, and those who experience problems decide to go to general practitioners (GPs) rather than specialised facilities, then the treatment demand indicator would fail to reflect this.

An episode-based indicator may show more change than one based on persons. For example increased police activity may increase the number of arrests, though not the number of persons, by arresting the same people more often.

The reporting behaviour of agencies ("compliance") is also important.

Characteristics of the drug-using population

Changes in the profile of the drug-using population can influence indicators. For example, over a period of several years, an ageing cohort of drug users may experience fewer acute problems such as overdose, but manifest more chronic problems such as AIDS. The socio-economic profile of the drug-using population is also likely to affect the probability of becoming known to various agencies. Changes in drug-using behaviour, for example from injecting to other routes of administration, or vice versa, will likewise have an effect.

Time lag

There is often a time lag between "true" incidence, when people start to use drugs, or when they first become dependent, and the point when they become known to an agency. Thus indicators reflect changes in incidence and prevalence which actually occurred some time, perhaps years, before. This time lag can vary over time as services or the characteristics of the drug-using population change.

External (environmental) circumstances

There is a wide range of external factors related to the social, legal, political and economic context which can affect indicators such as treatment demand. For example, a legal clampdown on certain types of drug use may affect the numbers coming in to treatment, and it may also lead to increases in the use of other drugs, resulting in a changing pattern of treatment demand. Other factors include the

availability and price of drugs, and the attitudes and reactions of significant others (families, local communities etc.) to drug use.

Local variability

Many of the above factors which influence the validity of indirect indicators can vary from one area of city to another.

3.2 Minimising Problems of Validity

Knowledge of context

Data from indicators cannot be taken at face value, but must be interpreted in the light of a range of other factors. The first step is an understanding of the context in which the data are collected including the services, their policies and priorities, the way in which the data are recorded and reported, as well as any particular circumstances or changes that may be important. Given local variability, it is often easier to do this on a local (e.g., city) level than nationally. National data can only be interpreted to the extent that regional variations are understood.

Evaluation of the reliability of the data

The reliability of the data can be checked in various ways. Depending on specific circumstances, these include checks for internal consistency, checking samples of records against more extensive information, expert panel reviews of samples of cases to assess diagnostic consistency) or comparing notifications from agencies with agency records.

Assessment of bias

The next step is to try to assess the bias that may arise from confounding factors. This involves identifying possible sources of bias such as the examples given above, and then attempting to estimate the likely direction, and possibly degree, of the bias (Is it likely to be an over- or under-estimate, and by what order of magnitude?). There are a wide range of possible techniques, and much depends on the particular indicator and on specific circumstances.

The basic principle is to formulate hypotheses concerning the likely nature and direction of bias and then to test those against available data, including data derived from sources other than the indicator concerned. This may be evidence from other indicators or from research studies. This usually requires that data collected on the indicators includes more than just crude numbers. It is very useful for this purpose that the indicator data are broken down by basic socio-demographic categories (age group, sex) and main drug(s) involved, as well as by certain key categories relevant to specific indicators.

Cross-validation between different indicators and validation against other methods

Even if the validity of a particular indicator is doubtful, greater confidence can be placed if several independent indicators all show the same trends. It is also important to emphasise the value of using indicators in combination with other available sources of information. Fitting information together in this fashion is rather like doing a large and complicated jigsaw puzzle - the result is a picture that makes sense, the individual pieces may make very little sense. Multi-city based reporting work groups have been developed at national, regional, and international levels for the purposes of reporting, reviewing, and interpreting drug abuse related data from multiple sources of information, including indicator data. These groups meet periodically and are composed of individuals from agencies which contribute drug abuse related data and information. The Community Epidemiology Work Group of the United States National Institute on Drug Abuse (NIDA), has been meeting twice a year since 1976 to report and review multiple sources of drug abuse related data from twenty US cities in order to assess and monitor drug trends. A comprehensive report of each meeting is produced and rapidly disseminated (NIDA 1997a). A guide for the development of local community epidemiology work groups is available from NIDA (NIDA 1997b).

Another example are the reports of a multi-city study of indicators of drug use in western and eastern European cities carried out by the Council of Europe's Expert Epidemiology Group (Pompidou Group). The Asian Multi-City Epidemiology Work Group also produces a report on drug trends (available from the Centre for Drug Research, University Sains Malaysia, Penang, Malaysia). The South African Community Epidemiology Network on Drug Use (SACENDU) was established in 1996 and produces six monthly reports on alcohol and drug use trends in a number of cities in South Africa. Similar substance abuse epidemiology working groups exist to collate and cross validate data in Canada, Central America, and Mexico. Since 1994, an International Work Group on Drug Abuse Epidemiology consisting of representatives of all of these national and regional work groups has met annually to review and discuss international drug trends. More information on these various epidemiology groups is included in Chapter 8.

4. Review And Collection of Information

4.1 Planning the Review

The collection of information will depend on the particular interest of each country or community. The steps described below represent an ideal model and are given as an example that can be adapted according to local needs and resources. It is recognised that in many cases resources will not be available to cover all the steps. For example the steps to be taken could include:

Preparation

(1) Discuss the suggestions regarding sources of data and development of indicators in this chapter with advisors, including experts in (for example) epidemiology, public health and social science research methods.

(2) Review existing literature and documentation. This should be done both in terms of content, and to identify key people to help with the review.

(3) Determine the broad objectives and possible scope of the review.

(4) Refer to section 2 above, and draw up a list of possible sources of information and contacts in the area to be covered.

(5) Contact all sources on the list, explain the review and ask:

Are they or their colleagues aware of drug and alcohol problems;

- what data do they already have;
- would they be willing to take part in the review;
- are there any problems which the review might pose for them;
- what important questions do they think the review should include; and
- can they recommend other (local) people who might be helpful.

(6) Obtain routine statistics (see section 2 above), ideally, for the last five years.

(7) Identify people from the list to form a small working group to assist in carrying out the review. The group should include the following expertise:

- Experience of drug and alcohol use from a variety of perspectives (governmental, non-governmental, medical, social, enforcement); and
- research experience in epidemiology and/or social science.

Whilst ideally the working group should cover all these areas of expertise, it is recognised that this will not always be possible.

(8) Discuss the preliminary information obtained through steps 1-6, and write a summary of what type of information is available, what sources should be covered, and what specific objectives the review should aim to achieve.

(9) Identify who will co-ordinate the review and where the data collection will be based. This could be "in-house" or contracted to a university.

(10) Ensure that the resources are available to carry out the review:

- Secretarial and administrative needs;
- arranging data collection protocols with agencies (time consuming);
- data collection;
- information management; and
- data analysis and report writing.

(11) Confirm the commitment of agencies and other sources, and clarify the basis of their participation. This is important (see 4.2 below).

Review of agency records

The precise components of the review will depend on local circumstances. However it is very likely (and advisable) that a major element will be a review of substance-related problems known to different agencies.

This involves asking agencies to provide (anonymous) information on all cases involving substance-related problems that they have seen over a given period of time. As noted in section 1.2, different agencies often record data in different ways using different criteria. It is necessary to use a standard form and definitions of which cases are to be included. Developing forms is discussed in 4.3 below. While it is desirable that data collection covers all cases seen, this will not always be possible where resources are limited.

From a methodological point of view, it is better to do this prospectively, since it is easier to achieve standard criteria. This is essentially a prospective case-finding study. It can also be done retrospectively, though it is harder to maintain comparability between agencies. The time period to be covered depends on what is feasible (number of agencies, numbers of clients, ease and method of obtaining data from existing records, availability of staff time etc.) and on what method is chosen. There are three possibilities.

(1) Ask agencies to provide retrospective aggregate data on clients seen over the time period, tabulated according to categories such as:

- Primary drug;
- age and gender distribution;
- route of administration; and
- major problems.

This is affected by how agencies keep records. Data should refer to the last 12 months or calendar year, and if available, each of the past five years.

(2) Ask agencies to review their records and complete a standard anonymous form for each client meeting the criteria of "substance user" in the period concerned. This is retrospective case

finding, and makes more demands on agency personnel's time. If resources are available, employ a research assistant to do this at all agencies. It may only be possible to cover a short period (e.g., past three months) though six or 12 months are better.

(3) Carry out a census of clients currently in contact with agencies using a standard form and criteria. One drawback is that it produces a total that is much lower than the number who contact agencies over the course of a year, and also gives greater weight to longer-term (often older) clients.

The advantage of options (2) and (3) is that analysis of data based on individuals offers more insights than ecological analysis of aggregated data. If the major agencies can readily provide data on the number and basic profile of their cases over the past few years, and are willing to participate in a prospective or retrospective case-finding study covering six or 12 months, then it is possible both to describe trends and to examine the current "known" population in more depth.

Double-counting

An important issue in case-finding concerns double-counting the same person, either within or between agencies. At a minimum, count each client only once at the same agency in a given year. Ideally, duplication between agencies should be minimised, since this provides a more accurate measure of known prevalence and indicates the overlap between agencies. However this raises ethical (and practical) questions of how to identify individuals who account for two or more contacts.

It may be possible to use an anonymous code based on initials and date of birth, but problems remain.

4.2 Co-operation of Agencies

The success of any review depends crucially on the Cupertino of the agencies who have the data. It is essential to have both high-level political commitment to making data available, and the support and trust of ground-level staff in the agencies. This requires paying attention to several key issues.

Confidentiality

Explicit guidelines on confidentiality are essential. These should guarantee that:

- The rights and confidentiality of individuals (both drug users and agency staff) will be protected;
- the concerns of individual groups and agencies will be respected, especially if the results may be interpreted as critical;
- data will be kept secure, with access limited to designated persons;

- any reference to identifiable persons will only be made with their prior and explicit permission;
- the data will only be used for the stated purposes of the review; and
- no harm will result to individuals and communities.

These guidelines are especially important when the review:

- Includes gathering data which refer to individual cases;
- involves law enforcement as well as medical and social agencies; and
- takes place in countries with traditions of authoritarian surveillance.

"What's in it for us?"

Assessment of the nature and extent of substance-related problems in a country or region does not automatically appear to be of direct relevance to the primary tasks of individual agencies. Although staff may find the topic interesting, they cannot be expected to give data collection priority over their day-by-day work.

This question may also hide a variety of other concerns, for example that:

- Their clients and their work will be reduced to a set of statistics ("You can't quantify quality");
- the results will be used against them or their clients in some way;
- the information will disappear into a centralised system and be of no benefit to them;
- data collection will interfere with the relationship with their clients;
- data collection will take up too much time.

Many of these concerns are natural and reasonable. It is essential discuss these issues openly. There are several steps which help to minimise these concerns and motivate agencies and their staff to participate.

(1) Trust and communication are vital for active collaboration. Keep in contact with agencies and allow time for discussion before and during the review.

(2) Specify clear objectives, discuss how the data will be used and what benefits are to be gained. Chapter 9 (Reporting and Application of Results) deals with this issue in more detail.

(3) Be willing to discuss and provide resources, even if they are modest, for data collection which places an unreasonable burden on agencies.

(4) *Provide feedback to the participating agencies*. This is one of the most important points. Organising a conference for participants to discuss the results and their implications can also be very constructive. This is further discussed in Chapter 9.

Quality control

Ensure that the data are as comprehensive and accurate as possible.

(1) Specify clear criteria and instructions for data gathering. Make sure that these are clearly understood.

(2) Ensure that responsibilities for collecting and submitting data to the central collation point are clearly defined. It is useful to select a key person in each agency to oversee data collection and reporting.

(3) Check data submitted by agencies for missing or contradictory responses.

4.3 Developing the Forms

It is recommended that forms used to collect data for the indicators should where possible be based on existing instruments, especially those recommended by international organisations, since this improves the possibility of making comparisons.

It will of course be necessary to adapt the forms to local circumstances. It is suggested that the forms are tested in pilot study *before starting data collection*. This will help to prevent misunderstandings in the use of terms and may also suggest more appropriate pre-coded responses and more convenient formatting of the forms. It is also suggested that experienced researchers are involved in the design and testing of the forms.

It is advisable to limit the amount of data requested to essential core items. This entails clear thinking from the outset about the primary objectives of the review.

Examples of forms that have been used are provided in Annex II. Comments on key items that should be included for particular indicators were included in section 2 above. Chapter 6 of this guide includes a data set of core and optional items.

4.4 Data Management and Analysis

It is important to plan how the data to be collected will be managed and analysed, and to anticipate the time, expertise and resources that will be required. If this is not done before starting the review, there is a serious risk that major problems will arise when it comes to analysing the data and writing the report.

Data management

It is essential to involve someone with experience of data management and analysis in the planning and execution of the review. It is not necessary that they have knowledge of the drug field, though it is helpful if they are acquainted with health and social information systems or research. Such a person might be found through departments of epidemiology and public health, university departments, or units dealing with health or social statistics.

A desktop PC is adequate for storing data and carrying out almost any analysis that will be required. Existing records often include inconsistencies and missing values. It is important to check and clean data before data entry.

Databases

The first important database contain information on all the sources to be covered, together with contact names, addresses, telephone and fax numbers. A mail-merge package makes much easier to circulate letters, reminders etc.

For the individual indicators, unless the basic data are very limited, it is usually worth entering the data into a database which allows the data to be manipulated and presented graphically (e.g., moving averages, percentage changes, trends and distributions by age, gender, main drug etc.).A review of cases known to different agencies (section 4.1) requires a separate database which also allows data manipulation (cross-tabulations etc.).

Data analysis and reporting

When analysing and reporting the results, it is important to relate the data to population base concerned (e.g., known cases per 100,000 population). This is especially necessary when comparing different regions or cities. However this may be difficult if the reporting agencies provide services to a wide and undefined area or to a high proportion of migrant population like seasonal workers or tourists.

The key components of the analysis should include patterns and differences by:

- Regions and urban/rural areas;
- age and gender;
- age at first use;
- main drugs used;
- routes of administration; and
- major problems reported.

The first step is to analyse the different sources or indicators one at a time. It is important to note any circumstantial factors which affect interpretation.

The pattern and trends reflected in each individual indicator should then be compared (multiple indicator analysis). This can include:

- Comparing the profiles of drug users between indicators (age, gender, drugs etc.); and
- comparing trends over time between indicator.

The review of cases known to different agencies should aim to give:

- A profile of clients, overall and by agency type; and
- relevant cross-tabulations (e.g., major problems by age and gender, or drugs and route of administration by region).

It is sometimes possible to apply more sophisticated analytic methods (e.g., capture-recapture) to give estimates of the total size of the "hidden" population of problematic drug users. This is beyond the scope of this chapter, but is described briefly in chapter 5.

Reporting results

The results should be thoroughly and systematically presented. The following is given as an example.

(1) Summary of main findings, conclusions and recommendations.
(2) Description of the review:

- Background and objectives;
- sources of information;
- methods (design, data collection and analysis); and
- problems of data gathering.

(3) Results:

- indicator by indicator;
- multiple indicator analysis;
- multi-agency review (case-finding); and
- synthesis of findings - trends and current situation;

(4) Discussion:

- limitations of results;
- possible reasons for trends and patterns;
- implications for planning and service development; and

- future information needs.

(5) Conclusions and recommendations.

Graphical presentation of key findings can help make the results more accessible. Detailed statistics should be presented in appendices rather than in the main body of the report. Further aspects concerning the reporting and application of results are covered in Chapter 9.

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ANNEX 1: INDICATORS AND SOURCES OF DATA

Indicators of Drug Use	Sources of Data
Treatment Demand (1) All treatment requests or starts (2) New treatment requests or starts (patients who have never previously received treatment for drug use)	Treatment reporting system, or Records of demand for treatment from: (a) Specialized agencies (b) Programmes for drug users in general health & social services (c) Non-governmental agencies (d) Non-specialised agencies
Drug Users Known to Other Agencies (1) Social welfare clients (2) Education welfare clients (3) Probation clients (4) Pregnant drug users (5) Babies with drug-using mothers (6) Primary care patients	Welfare agency records Education welfare service records Probation service Prenatal care services Obstetric ward records **Health centres and general practitioners**
Hospital Admission or Discharge Diagnoses	Psychiatric hospital records Psychiatric registers General hospital records
Drug-related Emergencies	Hospital emergency rooms Ambulance services Crisis centres Health centres Poison centres
Drug-related Infectious Diseases (1) Hepatitis B & C (drug-related) (2) HIV infection amongst IDUs (3) Drug-related AIDS cases (4) Other (endocarditis etc.)	Infectious disease surveillance programmes Infectious disease hospital units Hospital diagnosis statistics Public health laboratories Sentinel surveillance records AIDS prevention and control programmes
Positive Drug Tests at the Workplace	**Employers**
Drug Use by Conscripts	Regular surveys/screening Military medical service records
Drug-related Deaths (1) Direct (overdoses etc) (2) Indirect (accidents etc)	Mortality statistics Coroners or medical examiners Police records Forensic and toxicological services Public health services Death certificates **Hospital records**
Police Arrests for Drug Use/Possession	Police records/statistics
Convictions for Drug Use/Possession	Court statistics
Imprisonment (1) For drug law offences (2) Addicts in prison population	Penal institutions records Prison medical officers records Court statistics Prison medical service

Indicators of Drug Availability	Sources of Data
Arrests for Drug Supply/Traffic	Police records/statistics Customs records/statistics
Convictions for Drug Supply/Traffic	Court information system
Seizures of Illicit Drugs (by drug) (1) Number of seizures of small amounts for local consumption (2) Number of seizures of larger amounts for traffic (3) Total quantities of drugs seized	Police records Customs records **Forensic laboratories**
Price/Purity of Illegal Drugs (1) At user level (2) At larger supply & traffic levels	Police laboratories Forensic toxicology laboratories etc.
Drug Sales/Prescriptions to Drug Users	Pharmacy records Prescription monitoring system
Indicators of Alcohol Use	**Sources of Data**
Per Capita Consumption	
Alcohol Treatment Admissions	Treatment reporting system, or Records of patients admitted to: (a) Specialised alcohol units (b) Non-specialised centres
Problem Alcohol Users Known to Other Agencies (multi-agency review)	(1) Social welfare agencies (2) Probation services (3) Primary care
Hospital Admission/Discharge Diagnoses	Hospital records
Cirrhosis	Hospital records
Alcohol-related Cancers	Case registries and hospital records
Alcohol-related Emergencies	Hospital emergency rooms
Alcohol-related Deaths	Mortality statistics Coroners or medical examiners Death certificates
Arrests or Convictions (1) Drink-driving offences (2) Drunkenness (3) Other alcohol-related offences	Police records Court statistics
Traffic Incidents (1) Accidents (2) Breathalyser tests	**Police records**
Non-traffic Accidents and Injuries	

Indicators of Alcohol Availability	Sources of Data
Production	Ministries of agriculture or industry

Indicators of Alcohol Availability	Sources of Data
	Central statistical office, Industry sources
Import and Export	Ministries of commerce or trade
Alcohol Distribution (1) Number of outlets (licences etc.) (2) Alcohol sales	Local government offices Excise department
Price	Retail outlet surveys, Ministry of finance, Industry newsletters and journals

Indicators of Tobacco Consumption	Sources of Data
Consumption	Sample Surveys
Treatment Demand	Smoking clinics Health centres
Hospital Admissions/Discharges	Hospital records Cancer registers
Tobacco-related Diseases (1) Cancers (2) Other diseases	Hospital records Cancer registries
Deaths	Mortality statistics

Indicators of Tobacco Availability	Sources of Data
Production	Ministry of Agriculture, USDA data
Import and Export	Ministry of Commerce, Finance
Distribution (1) Number of outlets (2) Licences	Governmental or industry sources Local governmental sources
Price	Tax data/ Consumer expenditure data Effective price index data International comparisons by - minutes of labour to buy 20 cigarettes - per cent of per capita GDP spend on tobacco.

ANNEX 2: SAMPLES OF INDICATOR DATA COLLECTION FORMS

Pompidou Group: Core Data for Drug Treatment Reporting System

1. City [ ][ ] **2. Treatment Centre** [ ][ ][ ]----[ ][ ] **3. Client No.** *City-specific internal code*
centre code number *type of centre*

A. TREATMENT CONTACT DETAILS

4. Date of Treatment Demand
[ ][ ]-[ ][ ]-[ ][ ]
day *month* *year*

5. Type of Contact with This Centre *(circle)*

1. new client 2. old client 9. not known

6. (a) Ever Previously Treated, at Any Treatment Centre *(circle)*

1. never treated 2. previously treated 9. not known

(b) If Previously Treated, When Last? [ ][ ][ ]

Number of months since left last treatment
(or enter code) 888. never previously treated 999. not known

7. (a) In Contact with Other Treatment Centres *(specify & circle)*

_____

1. yes 2. no 9. not known

(b) Source of Referral *(specify, and circle code)*

_____

1. self/family/friends
2. other drug treatment centre
3. general practitioner
4. hospital/other medical agency
5. social services
6. court/probation/police
8. other
9. not known

B. SOCIO-DEMOGRAPHIC INFORMATION

8. Sex *(circle)* 1. male 2. female 9. not known

9. (a) Age [ ][ ] years

(b) Date of Birth [ ][ ]--[ ][ ]--[ ][ ]
day *month* *year*

10. (a) Current Living Status *(circle)*

1. alone
2. with parental family
3. with friends
4. with partner
5. institution
6. temporary/homeless
8. other
9. not known

(b) Living with Drug Misusers *(circle)*
1. yes 2. no 9. not known

11. (a) Resident of City *(circle)* 1. yes 2. no 9. not known

(b) Area of Residence Within City *(specify)* [ ][ ]

12. (a) Nationality *(specify & circle code)*_ [ ][ ][ ]

1. national of this country
2. national of other country
9. not known

(b) Ethnicity *(specify)* _____[ ]

13. Employment Status *(circle code)*

1. regular employment
2. unemployed/casual work

8.other (specify)

_____

9. not known

14. (a) Highest Educational Level *(specify)* [ ]

(b) Age Left School [ ][ ] years
(or enter code)

01. never went to school 88. still at school 99. not known

C. PROBLEM DRUG USE

	a	b	c	d	e
	Drug Name (write in)	Route of Administration (enter code)	Frequency Past Month (enter code)	Age at first use (Years)	**Duration of regular use (years)**
15. Primary Drug					
16. Secondary (1)					
17. Secondary (2)					
18. Age 1st Used Any Drug					
(b) Route 1. inject 2. smoke 3. eat/drink 4. sniff 9. not known					
(c) Frequency 1. 1 per week or less 2 2-6 days per week 3 daily 4 not used past month 9. not known					

D. RISK BEHAVIOUR

19. (a) Currently Injecting *(circle)*

1. yes 2. no 9. not known

(b) If Injecting, Shared Past Month *(circle)*

1. yes 8. not applicable (not injecting)
2. no 9. not known

20. (a) Ever Injected *(circle)* 1. yes 2. no 9. not known
(b) If Ever Injected, Age 1st [ ][ ] years
(c) If Ever Injected, Ever Shared *(circle)*

1. yes 8. not applicable (never injected)
2. no 9. not known

21. HIV Status *(circle)*

1. tested - positive 4. never tested
2. tested - negative 9. not known if
3. tested - results unknown tested

E. INITIAL OUTCOME

(22) Treatment Started *(specify & circle)* _____

1. detoxification/short term reduction 2. longer term substitution/maintenance 3. medicament-free/longer term psychosocial therapy
4. advice/counselling/support 5. referred to other centre 6. treatment not started
8. Other 9. decision pending/not known

E. INITIAL OUTCOME

(23) Treatment Started *(specify & circle)* _____

1. detoxification/short term reduction
2. longer term substitution/maintenance
3. medicament-free/longer term psychosocial therapy
4. advice/counselling/support
5. referred to other centre
6. treatment not started
8. Other
9. decision pending/not known

Pompidou Group: Non-Fatal Emergencies Indicator

2nd Pilot Study

V.2.0 HP4

Data Collection Form v.2.0Data Collection Form v.2.0Collection Form v.2.0Form v.2.0Form v.2.0Form v.2.0Form v.2.0Form v.2.0Form v.2.0Form v.2.0

1. City ~~
2. Hospital ~~~
3. ID ~~~

4. Date of treatment in emergency room ~~)~~)95 (day month)

5. Age of the patient ~~)9=Unknown
   or
   Date of birth of the patient ~~)~~)~~ (day month year))9=Unknown

6. Gender 1 ~ Male; 2 ~ Female; 9 ~ Unknown

7. Place where the patient live 1 ~ City; 2 ~ Outside; 9 ~ Unknown

8. Regular contact with treatment facilities previous month 1 ~ Yes; 2 ~ No; 9 ~ Unknown

9. Diagnosis
   1 ~ Overdose
   2 ~ Other acute reaction or unspecified acute reaction
   9 ~ Unknown

10. Emergency Outcome
    1 ~ Medical discharge
    2 ~ Referred to another care facility
    3 ~ Patient left against medical advice
    4 ~ Hospitalization
    5 ~ Death
    7 ~ Other
    9 ~ Unknown

11. Name of the drugs directly related to the present episode: Drug code
1. Drug name:.....~~
2. Drug name:.....~~
3. Drug name:.....~~
4. Drug name:.....~~

12. Route of administration

Drug 1	Drug 2	Drug 3	Drug 4
1 ~ Oral	1 ~ Oral	1 ~ Oral	1 ~ Oral
2 ~ Smoking	2 ~ Smoking	2 ~ Smoking	2 ~ Smoking
3 ~ Inhalation	3 ~ Inhalation	3 ~ Inhalation	3 ~ Inhalation
4 ~ Sniffing	4 ~ Sniffing	4 ~ Sniffing	4 ~ Sniffing
5 ~ Injection	5 ~ Injection	5 ~ Injection	5 ~ Injection
7 ~ Other routes	7 ~ Other routes	7 ~ Other routes	7 ~ Other routes
8 ~ Not applicable	8 ~ Not applicable	8 ~ Not applicable	8 ~ Not applicable
9 ~ Unknown	9 ~ Unknown	9 ~ Unknown	9 ~ Unknown

Drug Abuse Warning Network (DAWN) Medical Examiner Report

FORM NUMBER
5591667

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
SUBSTANCE ABUSE AND MENTAL HEALTH SERVICES ADMINISTRATION

FORM APPROVED
OMB NO. 0930-06
Expires 3/31/97

DRUG ABUSE WARNING NETWORK (DAWN)
MEDICAL EXAMINER REPORT

1. PROVIDER NUMBER

2. CROSS REFERENCE *(Facility Use Only)*

3. DATE OF DEATH — Month | Day | Year

INFORMATION ON DECEASED

4. AGE *(Must be 05-97 yrs.)*

5. SEX
1 ☐ Male
2 ☐ Female

5. RACE
1 ☐ White, not of Hispanic Origin
2 ☐ Black, not of Hispanic Origin
3 ☐ Hispanic
4 ☐ American Indian or Alaskan Native
5 ☐ Asian or Pacific Islander
6 ☐ Unknown
7 ☐ Other *(Specify)* _____

7. DECEDENT'S HOME ZIP CODE
(Otherwise mark [X] one response)
1 ☐ Unknown 2 ☐ No Fixed Address

8. CAUSE OF DEATH *(See reverse side)*

A. Was this a **DRUG-INDUCED CASE** (e.g., the drug[s] directly caused the death as documented in County records such as the death certificate and/or autopsy findings)?
1 ☐ Yes ☐ No

B.1 If not drug induced, please select one of the following **DRUG-RELATED CASE** categories:
2 ☐ Drug Abuse in Combination with Physiological Condition
3 ☐ Drug Abuse in Combination with External Physical Event
4 ☐ Drug Abuse-Caused Medical Disorder (Whether abuse is past or present)

B.2 Please mark [X] confirmed if the drug-related case in B.1 is based on a documented conclusion in County records (e.g., death certificate states that drug abuse contributed to the death but was not the primary cause):
☐ Confirmed
Please mark [X] **presumed** if the drug-related case in B.1 is based on positive toxicology (e.g., presence of illicit substances or legal drugs exceeding therapeutic levels) — **OR** — on other documentation of past or present substance abuse that may be related to the cause of death.
☐ Presumed

9. MANNER OF DEATH
1 ☐ Accidental/Unexpected
2 ☐ Suicide
3 ☐ Homicide
4 ☐ Undetermined
5 ☐ Natural

10. FACTORS SUPPORTING DAWN CASE DETERMINATION
(Mark [X] for all that apply.)
1 ☐ Death Certificate
2 ☐ Toxicological Laboratory Report
3 ☐ Autopsy
4 ☐ Inspection of Scene of Death
5 ☐ External Physical Signs
6 ☐ Statement of Hospital/Family/Friends
7 ☐ Other *(Specify)* _____

DRUG/SUBSTANCE INFORMATION

11. ALCOHOL INVOLVED *(Mark [X] one response)*
1 ☐ Yes (If YES, please note concentration _____) 2 ☐ No

12. LIST EACH DRUG/SUBSTANCE NAME IN ONE OF THE SPACES BELOW

	SAMHSA USE ONLY
1	
2	
3	
4	
5	
6	

For each non-alcohol substance listed above, mark [X] one response in each data item below.

13. ROUTE OF ADMINISTRATION		SUBSTANCES 1	2	3	4	5	6
Oral	01						
Injection	02						
Inhaled	03						
Smoked *(Includes Freebase)*	04						
Sniffed, Snorted	05						
Unknown	06						
Other	07						

14. LAB TEST USED TO IDENTIFY DRUG

DRUG #	FINDINGS *(List test methods, specimen, and findings for each drug listed)*

15. CODED REMARKS
(If case involves an IV drug user with HIV+/AIDS, please write "HIV+" or "AIDS" in the first four spaces below)

SMA 100-2
REV. 4/94

Drug Abuse Warning Network (DAWN) Emergency Department Report

SELECTED REPORTING GUIDELINES AND INSTRUCTIONS
DRUG ABUSE WARNING NETWORK (DAWN)
EMERGENCY DEPARTMENT REPORT

I. General

The following abbreviated guidelines and instructions highlight critical reporting items. Please refer to the detailed instructions found in the Instruction Manual for Emergency Departments for further information.

II. Reporting Guidelines

Report data on all patients seen in the emergency department for problems induced by or related to drug abuse. For DAWN, drug abuse is defined as the use of any illegal drug or the *nonmedical use* of a legal drug where the reason for taking the substance was for: psychic effects, dependence, or suicide attempt or gesture.

Detailed discussion of the "nonmedical" use definition and other case selection criteria can be found in Chapter II, Case Identification Guidelines, of the Instruction Manual for Emergency Departments.

III. Abbreviated Instructions for Completing Selected Items

Data Item #8 - Patient's Home Zip Code

Use *"no fixed address"* for the homeless (even if staying at a shelter) and for prisoners brought into the hospital.

Data Item #9 - Reason for Taking Substance(s)

The response categories are: Dependence, Suicide Attempt or Gesture, Psychic Effects: "Recreational Use," Other Psychic Effects, Unknown, and Other (Specify). The definitions are as follows:

1. *Dependence* - A physiological or psychological condition characterized by a compulsion to take the drug on a continuous or periodic basis in order to experience its effects or to avoid the discomfort of its absence (i.e., to avoid withdrawal).

2. *Suicide Attempt or Gesture* - Successful or unsuccessful actions(s) taken for the purpose of self-destruction or to gain attention.

3. *Psychic Effects: "Recreational Use"* - Use of drug(s) for experimentation or to enhance social situations or conditions. Examples of common patient responses are: "just wanted to know what it felt like," "wanted to have fun," or "to get high."

4. *Other Psychic Effects* - Use of drug(s) to improve, enhance, or make better any mental, emotional, physical state. Examples of common patient responses concerning this self-applied medication are: "needed to relax," "wasn't feeling well," "to stay awake," "depression," "anxiety," "lose weight," "fight with boyfriend/mate."

5. *Unknown* - Should be used only if information is unobtainable or unavailable.

6. *Other* (Specify) - Should be used only when the *Reason for Taking the Substance* cannot be classified into the categories above. Write the appropriate reason in the space provided.

Data Item #10 - Reason for Present Contact

This data item has two parts, parts A and B. Part A requires a selection of "YES" or "NO" to indicate whether the case is an Overdose/Toxic Ingestion. If the response to part A is "NO," part B requires a response.

3. *Chronic Effects* - Includes Hepatitis, Abscess, Cellulitis, Tremors, and AIDS contracted by IV drug abuse (see manual for additional examples).

8. *Non-Toxic Ingestion/Other* (Specify) - Should be used only when *Reason for Present Contact* cannot be classified into the categories above. (For example, police bring patient in for toxicological testing related to commission of a crime or parents force a child to come in to be checked because of strange behavior.) If *Other*, write reason in space provided.

Data Item #17 - Coded Remarks

Please be certain to write "HIV+" or "AIDS" in the first four blocks if the patient is a confirmed IV drug user.

SMA 100-1 (BACK)
REV. 4/94

*U.S. GPO: 1994-386-345/00239

Emergency Department Report

FORM NUMBER

5429223

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
SUBSTANCE ABUSE AND MENTAL HEALTH SERVICES ADMINISTRATION

FORM APPROVED
OMB NO. 0930-0078
Expires 5/31/97

DRUG ABUSE WARNING NETWORK (DAWN)
EMERGENCY DEPARTMENT REPORT

1. PROVIDER NUMBER

2. CROSS REFERENCE (Facility Use Only)

PATIENT INFORMATION

3. DATE OF VISIT — Month / Day / Year

4. TIME OF VISIT — Hours / Minutes (Mark [X]) 1. ☐ am 2. ☐ pm 3. ☐ military

5. AGE (Must be 06-97 yrs.)

6. SEX
1 ☐ Male 2 ☐ Female

7. RACE
1 ☐ White, not of Hispanic Origin
2 ☐ Black, not of Hispanic Origin
3 ☐ Hispanic
4 ☐ American Indian or Alaskan Native
5 ☐ Asian or Pacific Islander
6 ☐ Unknown
7 ☐ Other (Specify) _____

8. PATIENT'S HOME ZIP CODE
(Otherwise mark [X] one response)
1 ☐ Unknown 2 ☐ No Fixed Address (See reverse side)

9. REASON FOR TAKING SUBSTANCE(S) (Mark [X] one response)
1 ☐ Dependence
2 ☐ Suicide Attempt or Gesture
3 ☐ Psychic Effects: "Recreational Use" (e.g., to get high, relax)
4 ☐ Other Psychic Effects (See reverse side)
5 ☐ Unknown
6 ☐ Other (Specify) _____

10. REASON FOR PRESENT CONTACT
A. Was This an Overdose/Toxic Ingestion?
1 ☐ Yes ☐ No
B. If "No," mark one response
2 ☐ Unexpected Reaction
3 ☐ Chronic Effects (See reverse side)
4 ☐ Withdrawal
5 ☐ Seeking Detoxification
6 ☐ Accident/Injury
7 ☐ Unknown
8 ☐ Non-toxic Ingestion/Other
(Specify) _____ (See reverse side)

11. DISPOSITION FROM EMERGENCY DEPARTMENT
1 ☐ Treated and Released or Referred
2 ☐ Admitted as Inpatient to This or Any Hospital
3 ☐ Left Against Medical Advice
4 ☐ Died

DRUG/SUBSTANCE INFORMATION

12. ALCOHOL INVOLVED (Mark [X] one response)
1 ☐ Yes 2 ☐ No 3 ☐ Unknown

13. LIST EACH DRUG/SUBSTANCE SEPARATELY (Generic, Trade, or Street Name) IN ONE OF THE SPACES BELOW (Do NOT list alcohol)

	SAMHSA USE ONLY	Mark [X] confirmed toxicology tests
1		☐
2		☐
3		☐
4		☐

For each non-alcohol substance listed above, mark [X] one response in each data item below.

14. FORM IN WHICH DRUG WAS ACQUIRED

		SUBSTANCES 1	2	3	4
Tablet/Capsule/Pill	01				
Aerosol	02				
Liquid (oral)	03				
Powder/Crystal	04				
Paper (e.g., LSD/Acid)	05				
Pieces/Chunks (e.g., Crack)	06				
Injectable Liquid	07				
Cigarette	08				
Plant Material	09				
Unknown	10				
Other	11				

15. ROUTE OF ADMINISTRATION

		SUBSTANCES 1	2	3	4
Oral	1				
Injection	2				
Inhaled (e.g., fumes)	3				
Smoked (Includes Freebase)	4				
Sniffed, Snorted	5				
Unknown	6				
Other	7				

16. SOURCE OF SUBSTANCE

		SUBSTANCES 1	2	3	4
Patient's Own Legal Rx	1				
Street Buy	2				
Other Unauthorized Procurement (e.g., stolen, gift, etc.)	3				
Unknown	4				
Other (Includes Over-The-Counter [OTC])	5				

17. CODED REMARKS
(If case involves an IV drug user with HIV+/AIDS, please write "HIV+" or "AIDS" in the first four spaces below)

SMA TOD-1
REV. 4/94

SELECTED REPORTING GUIDELINES AND INSTRUCTIONS
DRUG ABUSE WARNING NETWORK (DAWN)
EMERGENCY DEPARTMENT REPORT

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Data Item #8 - Patient's Home Zip Code

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2. *Suicide Attempt or Gesture* - Successful or unsuccessful actions(s) taken for the purpose of self-destruction or to gain attention.

3. *Psychic Effects: "Recreational Use"* - Use of drug(s) for experimentation or to enhance social situations or conditions. Examples of common patient responses are: "just wanted to know what it felt like," "wanted to have fun," or "to get high."

4. *Other Psychic Effects* - Use of drug(s) to improve, enhance, or make better any mental, emotional, physical state. Examples of common patient responses concerning this self-applied medication are: "needed to relax," "wasn't feeling well," "to stay awake," "depression," "anxiety," "lose weight," "fight with boyfriend/mate."

5. *Unknown* - Should be used only if information is unobtainable or unavailable.

6. *Other* (Specify) - Should be used only when the *Reason for Taking the Substance* cannot be classified into the categories above. Write the appropriate reason in the space provided.

Data Item #10 - Reason for Present Contact

This data item has two parts, parts A and B. Part A requires a selection of "YES" or "NO" to indicate whether the case is an Overdose/Toxic Ingestion. If the response to part A is "NO," part B requires a response.

3. *Chronic Effects* - Includes Hepatitis, Abscess, Cellulitis, Tremors, and AIDS contracted by IV drug abuse (see manual for additional examples).

8. *Non-Toxic Ingestion/Other* (Specify) - Should be used only when *Reason for Present Contact* cannot be classified into the categories above. (For example, police bring patient in for toxicological testing related to commission of a crime or parents force a child to come in to be checked because of strange behavior.) If *Other*, write reason in space provided.

Data Item #17 - Coded Remarks

Please be certain to write "HIV+" or "AIDS" in the first four blocks if the patient is a confirmed IV drug user.

SMA 100-1 (BACK)
REV. 4/94

CHAPTER 4

QUALITATIVE METHODS

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CONTENTS

1. Introduction

Psychoactive substances cause problems that result from complex interactions between: i. substances with diverse, toxic, psychotropic and addictive properties; ii. individuals with varied vulnerabilities and resiliency; and iii. complex sociocultural environments. These interactions produce variations in drug use and drug abuse across cultures, and within different sociocultural groups across time. One consequence of this complexity is the need to explore both local and global patterns of drug use, to monitor changes in drug abuse patterns, and to explore drug abuse in previously unstudied populations.

No single research method, by itself, is sufficient to study all aspects of these conditions; multiple methods, supported by multiple social science theories, are necessary. Room (1992) has identified some of the primary approaches used for drug abuse research including: i. ethno-graphy; ii. surveys; iii. psychosocial experiments; iv. studies of social and health indicators; and v. history, cultural and policy studies based on documents. Traditional epidemiology, informed by social science theories, can be added to this list, as well as studies that combine biological and behavioural research. Originally, many of these methods were associated with particular disciplines, (i.e. anthropology, sociology, psychology, demography, public health, and history). Nowadays, there is a strong emphasis on combining methods and theories that are informed by both qualitative and quantitative analytical techniques, in order to address the intricate interactions of drug use, health, and public policy.

The ethnographic and other qualitative methods discussed in this chapter are ideal tools for exploring many facets of drug use and drug abuse cross-culturally and within special populations in a single culture (see also Chapter 7). These methods tend to be used as exploratory techniques: for identifying and exploring complex behaviours within their natural context, approaching hidden or difficult to reach populations, addressing sensitive issues, gaining knowledge of new or not sufficiently understood problems and conducting formative analysis of the sociocultural and the psychosocial context in which drug use is taking place. These techniques are invaluable in the identification of emerging issues such as changes in the substances used, the circumstances of use, routes of administration, the subgroups using drugs, and for discovering information that would be ignored in previously formatted (and potentially out-of-date) surveys. In addition to this valuable contribution, ethnographic and other qualitative techniques are also being used to conduct on-going monitoring of drug use patterns and their epidemiological consequences, to generate new paradigms for drug abuse interventions (e.g. social network and social diffusion interventions, as well as cultural marketing of intervention programmes), for programme evaluation (especially in the area of process and performance evaluation and quality control), and as a method of bridging between the strengths of quantitative (survey and experimental) data collection and the in-depth contextual findings of qualitative research. Qualitative approaches often help explain the important humanistic elements of the numbers generated by quantitative research analysis.

Qualitative methods are of special importance when substance abuse occurs in highly variable and context specific cultural environments, each of which may have a different impact on drug use and

its consequences. The global configuration of drug users today is very complex. Increasingly, they are often poly-drug users who adopt increasingly dangerous forms of administration, use more potent or purer drugs, use drugs for longer or more intensive periods, and simultaneously engage in other forms of high risk behaviour in addition to their drug use. The consequences of drug abuse are often related to the type of substance used, the route of administration, frequency and amount consumed, and to the vulnerability of the individual to the drug. The local context and personal situation of drug use allows some of these individuals to remain functional for some time, while others are rapidly devastated by their drug use. These patterns are also affected by cultural context, such as the meaning the drug has in that culture, its view as normative or abnormal, social tolerance or social rewards for its use, social environment issues such as the availability of sterile needles, and of the way the individuals drug use affects others. As the scientific literature abundantly notes, the individual and social consequences of opium, marijuana, cocaine and other product use vary across a wide geopolitical spectrum. These trends are locally affected by contextual, social and personal/ individual factors such as changes in the demographic composition of populations (i.e. modifications in the numbers and the age or gender of potential users); in the presence of risk factors (i.e. genetic conditions, fads and fashions, global travel patterns, knowledge and awareness of adverse consequences; in socio-economic conditions); and in the ethical, enforcement and other policy related factors that exist around the world such as legal drug availability, societal tolerance of use, prevention and treatment efforts, availability of services, and drug enforcement laws. Qualitative methods are particularly sensitive to variations in those conditions.

This chapter describes the basic parameters of qualitative research methods and suggests a number of ways in which this approach complements traditional epidemiological methods, such as the survey, and other forms of drug related research. It describes several different qualitative methods that have been successfully used in the study of drug use among different target populations and sociocultural contexts. It describes techniques that can be used for rapid assessment as well as methods that require a longer term presence in the community, and discusses the advantages and limitations of qualitative research within the overall context of drug studies. The use of rapid assessment and qualitative methods for initial situation assessment are also discussed in Chapter 2. Chapter 10 provides a description of the use of qualitative methods for assessing the cross-cultural applicability of a model core questionnaire for use in drug abuse epidemiology.

1.1 The Function and Objectives of Qualitative Methods

Ethnographic and other qualitative research emphasises gaining and interpreting an insider's perspective on a particular cultural frame. These frames or points of reference can be as large as a whole culture or society or as focused as a subcultural fraction of a society (Room, 1992, Trotter 1991). Qualitative methods link the observer and those being observed. They fundamentally differ from social surveys by engaging respondents in relationships that are relatively longer lived and emotionally consequential for the researcher, the respondent, and the community at large (Johnson, 1990, Bernard 1988). In its various forms, qualitative research becomes a form of collaboration between social researchers and those being studied with the purpose of exchanging information (Johnson, 1990). Diaz,

Barruti & Doncel (1992), who equate qualitative techniques with anthropological field work, note that qualitative approaches consist of methods that allow researchers to have direct contact with the situation under study for an extended period of time, during which they record the perception of social agents about themselves, ideally using the social agents own categories definitions and values, and contrasting it with their position as outside observers. These and other authors frequently quote an illustrative definition of the ethnographic research process provided by Whyte (1971), "what people told me helped me to explain what had happened, and what I observed helped me to explain what people had told me".

Qualitative methods of research are neither new nor in any way less scientific than other methods (Carlson, Siegal and Falck, 1995). Qualitative research methods are designed to improve our comprehension of the meaning of key elements or domains within cultures, to develop a definition of on-going cultural processes, and to explain the values and judgements that people make in their daily lives. On the one hand, ethnography and other qualitative methods are an important part of the phenomenological tradition of social sciences that searches for individual signification's and seeks to obtain understanding of social phenomena from the actor's perspective. Simultaneously, there is a very strong positivist and empirical tradition in qualitative research that grounds both social science theories and methods within the tradition of basic sciences.

This combination of approaches and methods, developed from many different theoretical perspectives in anthropology, sociology, psychology, political science, and epidemiology, have proven valuable for the study of a wide variety of populations such as mainstream cultures, cultural minorities and specific marginalized group, (Bieleman, Diaz Merlo and Kaplan, 1993). Kirk and Miller (1986) note that qualitative research fundamentally depends on watching people in their own territory and interacting with them in their own language, on their own terms.

Qualitative research methods can be used to investigate drug use as both an individual and small group activity, as well as placing it within the wider social and cultural spectrum. These methods allow for a strong localisation or cultural specificity of analysis by investigating the local environment for the user's relationships with other users, friends, family, suppliers, in addition to the media and the wider society that bears it's costs. Edwards and Arif (1980), state that it is important to learn about how society and culture determine who takes which drug, how the users perceive themselves and are perceived and responded to by others, the awareness of susceptibility of treatment and how these aspects relate to help seeking, and to demand control. Thus, they conclude that in designing prevention guidelines, it is absolutely necessary to maintain a consistent relationship between policies and programme and the sociocultural setting for which it is planned. Ethnography and other qualitative research techniques are one of a number of approaches that assist in keeping programmes and policies culturally relevant and culturally competent.

1.2 The Role of Qualitative Methods in Drug and Alcohol Use Studies

Two different but related approaches are part of the qualitative research contribution to drug and

alcohol studies. Some research programmes incorporate full scale ethnography and participant observation, which are longer term efforts, while others, such as rapid assessment projects, take on a focused topic in a short amount of time. The full scale studies are exemplified by ethnographies of drug use and abuse, such as those of Michael Agar (Agar 1973; 1977) or Philippe Bourgeois (Bourgeois 1995). On the other end of the continuum, the utility of specific and focused short term qualitative research is illustrated by Kozel (1993) using a study conducted by the National Institute on Drug Abuse of the United States. The study was triggered by a statistical observation of a sharp increase in marijuana related morbidity data. The field study was conducted by Feldman, Agar, and Bescher in four cities of the United States using non-structured interviews and participant observation over a short time period. This study demonstrated that marijuana was not the reason for the increase in drug related morbidity. Instead, it was the relatively new practice of impregnating marijuana with phencyclidine (PCP), as a new drug abuse practice. This finding allowed more appropriate policy development and intervention strategies than would have been possible using the statistical data alone, which missed the PCP introduction.

Rapid assessment studies are also valuable in co-morbidity conditions. For example, a project in the United States (Trotter et al. 1995b) is assessing the utility of integrating qualitative and quantitative research and intervention approaches in a multicultural HIV prevention programme. The Flagstaff Multicultural AIDS prevention programme is demonstrating that HIV transmission, linked to drug abuse and sexual risks related to drug use, can be successfully reduced by means of an approach that takes into consideration the social context in which the individual is immersed, using psychological theories, ethnography and social network approaches to harm reduction. These methods assume a social system that involves other actors who are significant reference points for another's decisions, in these cases using drugs and getting involved in behaviours that have a high risk for the transmission of HIV.

These examples illustrate the fact that qualitative research can be used separately for its own strengths in developing knowledge about drug use in various cultures or it can be used to complement quantitative research approaches. There is a growing body of culture theory derived from ethnographic studies. Some of this information has generated hypotheses for experimental and statistical testing, while in turn statistical data has also suggested conditions and processes to be studied through targeted qualitative approaches (Kozel, 1993). This type of information exchange can allow a better understanding of the meaning of the data derived from statistical approaches. In addition, since many drug problems start at the community level, sometimes within a small drug subculture, accurate and complete diagnosis of local problems require observations of the full range of issues derived from qualified cultural consultants. Without an adequate understanding of the way drug users and the community perceive the problem and are affected by it, prevention programmes tend to be limited and policy derived from inadequate data will normally not have the desired effect.

2. Ethnographic Sampling Designs

Qualitative research tends to focus on well defined communities, ranging in size from whole cultures and subcultures within a larger society, to special populations that need exploration in terms of specific beliefs, behaviour, or relevance to the larger group. Populations which benefit from qualitative approaches, best reached or studied through qualitative methods include hidden populations (groups engaged in illegal or socially unacceptable activities), groups usually not detected thorough the traditional household or students surveys (small cultural groups or individuals engaged in infrequent or rare behaviours), and those that do not commonly participate in health, welfare, or justice institutions (including elite populations or protected classes). A number of studies have been successfully conducted with these groups, as described in the following sections (see also chapter 7 on Special Populations).

2.1 High-risk Groups and Hidden Populations

Qualitative research approaches provide an effective method for dealing with many different special population categories. New drugs or new forms of existing drugs periodically appear and draw new groups into the drug scenario (Kozel 1993). This trend tends to occur most frequently in high risk groups or groups that are also engaged in other risky behaviour. Such trends include the use of: so called "designer" drugs, particularly amphetamine-analogues of the MDA type such as MDMA ("ecstasy"); new preparations of substances such as crack or bazuco; existing diffusion of drugs traditionally used in specific geographical areas to other areas or even countries, for example of heroin use and injection to countries in Africa; and changes in the mode of administration, for example from smoking to injecting. Besides these relatively new groups of drug users, other high risk groups, such as indigenous populations or street children, may be studied through this approach. Many of these groups can be considered "hidden" populations, with special research needs. Wiebel (1990) defines hidden populations as a "subset of the general population whose membership is not readily distinguished or enumerated based on existing knowledge and/or sampling capabilities". For further discussion of these "special" or "hidden" populations also see Chapter 7 of this guide.

Ethnographic and other qualitative methods are valuable for studying special age groups within the wider population, such as youth, both in and out of school. In some situations, school surveys or observations can gather data from the majority of the youth population. Elsewhere, the majority of adolescents and young adults in the age of highest risk of use do not attend school, or have dropped out of school and are not included in-school studies. Findings from ethnographies of these youth indicate that drug use among non-students is higher than among those attending school. For instance in a study that compared these two groups, it was found that cannabis use was 2.5 times higher among non-students from Chandigarh, India and 1.4 times higher in Durham, Canada (Smart, et al., 1981). These populations are important to understanding the overall configuration of drug use globally.

Another special population that has received attention from qualitative researchers is the group called street children. Both ethnographic and survey data indicate that drug use among street children is extremely common (Carlini, 1988, Leal et al., 1977; Medina-Mora et al., 1982; Gutierez et al., 1992; WHO, 1993b; DDF, 1992). In 1991, the WHO Programme on Substance Abuse (PSA) made a

commitment to develop a project focusing on the issue of substance use among to street children in various cultures. The presence of difficult economic conditions in many societies has forced increasing numbers of children to work in the streets and to become one of the main sources of financial support for their families. Ethnographers have been establishing a better description of these children's lifestyles on the street, from their risks to the ways that they cope with everyday problems. For example, Leal and his colleagues (1977) described how street children would take care of the children of adolescent prostitutes while they were working and in turn received in affection from these girls, forming a type of substitute family.

Drug use has also long been associated with homeless adults and groups that are highly mobile. This ranges from the famous "skid-row" studies of alcoholics in the United States, to transient and migrant farm worker populations around the world. Not all, or probably not even the majority of homeless people are drug users, but the level of drug use among these populations is higher than in comparable populations who have a stable residence. In some societies a deinstitutionalisation of psychiatric patients has occurred on a culture-wide basis, which has resulted in an increase of homeless persons and in an increase in a co-morbidity between drug abuse/dependence and psychiatric disabilities. These populations have commonly become the object of qualitative studies to determine the services and other appropriate responses that will be most effective with this population.

Qualitative approaches are also proving useful in the description and analysis of specific drug use lifestyles. These approaches study the use of single drugs, such as heroin, cocaine, or methamphetamines and are excellent for obtaining information on the natural history of abuse, service utilisation, means of drug acquisition, and consequences (including dependence) of these drugs, all of which are of special utility for prevention and treatment planning. Qualitative techniques allow for the identification of users, in many instances, who are significantly different from the ones studied in clinical populations and social welfare services. This allows researchers to fill in the gaps in the overall analysis of abuse, including clinical as well as not-in-treatment populations. Medina-Mora and collaborators (1980), report an example of this approach. In attempting to identify all drug users in a urban Mexican community using intensive case finding techniques, they were able to identify only the more severe drug users, those known to other serious users (members of drug using groups or gangs) who were willing to reveal themselves and accept contact with researchers through snowball sampling techniques (see below). Three types of users were not captured and interviewed; those that were not visible because they were only experimenting with drugs or were infrequent users, those that used socially acceptable drugs such as medications or prescriptions, and female drug users who remained hidden due to the considerable social stigma attached to their drug use and consequently did not use in groups so only their closest friends were aware of their use (Medina-Mora, 1979)

Drug abuse occurs in elite populations as well as disadvantaged groups. Ethnography has predominantly been used to study groups with limited social status and power, but also has the potential to provide valuable insights into the values, beliefs, and drug use patterns of more powerful groups as well. Diaz and his colleagues (1992), demonstrated that the prevailing use pattern among elite cocaine

users in Spain is similar to their use of alcohol in at least three aspects: i. it is prevailingly used by these groups for social-recreational use; ii. there is a gap between the ratio of occasional users to individuals who are cocaine dependent; and iii. many of the longer term users are both socially integrated into the wider society and remain (to date) functional in their occupations. As another example, direct observation of an "elite" was used by Hopkins and Frank (1991) in an intensive study of the Wall Street area of Manhattan, New York, an area where direct interviewing would have been very difficult. They identified a bounded set of geographical areas to study, and carefully selected the sites for direct observation.

The study was conducted during work hours for a three week period. Drug dealing was observed in 12 of the 15 sites selected for observation, with marijuana being the drug most often observed being sold or used, followed by cocaine. The majority of the dealers were males that worked in the area as messengers, stock clerks, etc., and most of the clients were female clerical workers, although approximately 40% were males executives. A remainder of the buyers were office workers or messengers. These types of studies provide very important evidence of both the epidemiological characteristics of drug abuse, and the characteristics of drug users, and also provide information for the formation of drug control policies and their implementation.

The basic qualitative research approaches, from classical and general to focused and specific, each involve the appropriate selection (qualitative sampling) of individuals to be interviewed and observed. In a thorough exploration of the similarities and differences between the types of probabilistic sampling used in surveys and experimental designs, compared with the purposive sampling strategies necessary for successful qualitative research, Johnson (1990) provides an important set of both prospective and retrospective design criteria for selecting ethnographic and other qualitative research informants. This work is also valuable for mixed sampling designs that link qualitatively sampled data with probabilistic samples. Drug abuse research poses special issues in sampling, given the illegal or morally opposed nature of many types of drug use. Drawing epidemiological and policy conclusions from both qualitative and quantitative data sets must be done carefully, within the range of the best possible approaches (Brodsky 1985). The most common methods of qualitative sampling in drug using populations are described below.

2.2 Snowball Sampling

Diaz, Barruti and Doncel (1992) describe snow ball sampling as an important case of chain analysis, which allows the researcher to strategically build a sample of individuals sharing one common characteristic, such as their condition as drug users, within a large universe of individuals who may or may not share this behaviour. Snowball sampling was originally used by Coleman in 1958 to study social structures within society. He defined the method as sociometric type due to the fact that it takes into account the social environment (Bieleman, Diaz, Merio and Kaplan, 1993). It has been used in other countries to study other types of drug subcultures such as cocaine users (Bieleman et al., 1993) in the Netherlands, and poly-drug use (Medina-Mora et al., 1980) in Mexico. In the latter case, drug users

served as case finding agents, introducing the researchers to a growing sample of other users. This method can be successfully used when drug users are known to other users, or tend to use drugs in groups (Hughes et al, 1982a). While the most common use of this approach is to find drug users who can be observed or interviewed, it can also be used to gain insights into relationship structures of the drug using groups (Bieleman et al., 1993; Trotter et al. 1995). The snowball sampling method is described and analysed in some detail in a handbook produced by the Council of Europe's Pompidou Group (Council of Europe, 1997).

Bieleman and his colleagues (1993) define snow-ball sampling as a chain starting from the first (index) individual. These individuals are asked to name their acquaintances who have a particular characteristic (drug use, sex partner, etc.), who will constitute the second wave of interviewees. The same questions asked of the index individuals are asked of the second wave in order to construct the third wave and so on. Goodman (1961), and Frank and Snijders (1994) provide a statistical basis for analysing this method and comparing it to probabilistic samples or for estimating the size of hidden populations. For qualitative research purposes, such as interviewing to redundancy or extinction of new issues, the purpose is to provide a sufficiently large sample to assure that all of the key cultural issues will be thoroughly explored. However, where this data is to be linked to quantitative data the initial sample (phase zero) must be a random sample of individuals from a defined population, with an equal number of individuals expected from each respondent, and sample numbers that must be kept constant in each sampling phase. According to Bieleman (1993), snowball sampling must fulfill the following requirements in order to ensure statistically valid estimates:

i. The initial step (phase zero) must be a representative sample of users, or as close to one as possible, otherwise the selection of cases may be biased. In order to analyse the data without violating statistical assumptions, it is necessary to consider the probability of selection of individuals in each step and weight the data base accordingly.
ii. The initial groups must be big enough to ensure accuracy. Factors such as the network structure and the willingness to provide information on other users, and on providing information when contacted, affect the final sample size. Snijders (1992) states that the initial sample size of one-way snowball sample should not be much smaller than the square root of the population size.

Sudman et al. (1988) suggest a third condition be controlled in snowball sampling in order to ensure unbiased samples: the size of the population must be stable during the period through which the observations are carried out. This last requirement is difficult to control in the case of a dynamic and continuous change of the drug scenario. This supports the recommendation of reducing the field work to the shortest time possible when estimating size of the population. The research can then be extended to gain more knowledge on the meaning of drug use within that subculture, without the instability produced by change over time. However, the time needed to select a sample may be affected by the relative secrecy or exposure of the problem in the specific population studied.

Studies that focus on the social structure or on qualitative data within identifiable drug using groups do not impose these same restrictions on the phases or numbers of contacts, since they need a purposive, rather than a random seed in the first phase, and since they do not limit the length of any chain, but allow the researcher to continue contacting cases until the possibility of new referrals is exhausted. This is an advantage in the rapid assessment of emerging drug trends, and for the description of models of the epidemiological spread of drug use and abuse in targeted populations.

2.3 Intensive Case-finding through Geographical Sampling

There are many different settings that are ideal for observing and collecting data from drug subcultures. These locations vary according to the law enforcement and health policies of the nation, the relative tolerance towards drug users in the society, and the drug use patterns and social characteristics of the using group.

Hughes et al., (1982b) describe several methods for the identification of locations for sampling drug abusers, depending on the type of substances used and characteristics of the drug subculture. In Chicago, Hughes and Jaffe observed that users met regularly at neighbourhood drug distribution sites called "copping areas". The research team, stationed at these sites, successfully recruited former drug dealers who were either methadone patients or closely supervised drug rehabilitation programme staff. Use of this approach allowed them to contact and make a census of addicts before and after treatment outreach experiments. Westermeyer (1974) used opium dens in Laos as the focal point for case finding and other data collection, since dens served as a place where addicts socialised, as well as used drugs. In Pakistan, McGlothlin,(1972) used the drug distribution system to assist in field research. Shick, Dorus and Hughes, (1978) then extended this approach to accommodate the behaviour of multiple drug users, when they studied adolescents who gathered in parks which offered abusers a place away from adults and non-using peers. Researchers in Mexico, (Medina-Mora et al., 1980) used this approach to study marihuana and solvent users, by monitoring and collecting data when these individuals gathered in groups A on the street, even though these places were not used as a source of drug supply. In societies with a large proportion of children and adolescents working in the streets, public places are ideal for observational studies. Medina-Mora et al., (1982) found minors with inhalants (carrying obvious paraphernalia) in a relatively police free area. Leal and his colleagues (1977) found much more secretive (hidden) forms of use in a high risk area in the same city. In the latter area, children would keep an open bottle in their pants pocket and soaked their sweater sleeves through discrete jumps, then inhaling from the sweater.

In each of these cases, knowledge of geographically concentrated collection points for drug users allowed the researchers to acquire significant samples of participants in their projects by identifying the types of drug use locations in use and mapping and sampling them as intensive case finding sites. It also allowed these studies to contribute significantly to our contextual knowledge of drug abuse by conducting them in naturalistic settings, and within the natural social relationships in which the drug use behaviours actually occur and can be observed.

2.4 Targeted Sampling

There are many situations in which it is impossible to find or to utilise a pre-existing sampling frame that is appropriate to create a statistically defensible sample of a drug using population. Too many key parameters, including the need to avoid law enforcement and to remain hidden, prevent the use of traditional random sampling procedures for many of these populations. In these cases, the process of targeted sampling (Watters and Biernacki 1989) is a highly successful and appropriate substitute for strict probabilistic sampling designs. Targeted sampling is a systematic technique for creating a proxy sampling framework that assures that the major divisions or categories of the population being studied are systematically sampled, in the theoretically correct portions.

The US National Institute on Drug Abuse has used this technique in its Co-operative Agreement Program (Weatherby et al. 1994), which assembled a sample of more than 14,000 (linked pre-post test) cases of active drug users across 23 sites, to study HIV transmission among street (not-in-treatment) cocaine and heroin users in the United States. Each site uses locally available data on drug treatment, detoxification programmes, ethnic and economic demographics, arrest records and any other available records (including ethnographic studies) to select geographically representative locations for conducting outreach programmes that will draw in drug users in the correct proportions for the study.

Bieleman et al., (1993) successfully used a modified application of this technique to assess the extent and nature of cocaine use in three European cities (in Holland, Spain, and Italy). Their approach to targeted sampling was to deliberately identify respondents whom they had good reason to believe formed a reasonable cross section of the cocaine subculture (in terms of subgroups and settings where use took place) utilising all of the secondary data (arrest data, treatment data, baseline ethnographies) that was available to them. For example, in Barcelona, targets were defined by setting, type of use and economic status: i. elite: fashion, business and art world; ii. new urban middle class: professions, jobs linked to night life, middle ranks in the fashion, business and art world; iii. young people; iv. illegal circuits and opiate addicts; v. middle status and middle low status. In Rotterdam targets were based in sociocultural considerations, with eight categories of users recruited: i. hard drug world: heroin and poly-drug users; ii. youth circles, gathering in clubs, community centres, shops selling cannabis; subgroups were hooligans and homeless people; iii. art, culture and music world; iv. world of fast money: people working in advertising fashion and other modern professions; v. circles of cannabis users; vi. illegal and semi-legal circles: juvenile delinquents, prostitutes and drug dealers; vii. higher education and university users; viii. and the sport and fitness world. In the process of the investigation new groups were targeted as the ethnographic data collected by the project made it apparent that they fit, but were missing from, the original targeted sampling groups.

2.5 Nominative Technique

The nominative method is an estimation technique based on information provided by individuals

(in a sample) about others who are known to the respondent to have a specific attribute or behaviour. This technique was used by Smart in Canada and Castro in Mexico (1987), to study the extent of community drug use based on original random samples of students. Due to the small prevalence of drug use observed among Mexican students (Castro, et al., 1986) it was felt that this technique would elicit more information and thus improve the assessment of the problem. Respondents were asked the question "How many of your friends do you know are using drugs?" Hartnoll and his colleagues (1985), used the technique to estimate opiate addicts, when they asked known users to name the acquaintances they had who were users of this substance, and who had been in contact with the health system. They used this approach to estimate how many addicts had not been captured in the samples of in-treatment drug users, to help improve estimations of the actual size of the problem, modified from the original estimates made based on statistics from the health system. This technique can provide important additional demographic and other information about hidden groups.

2.6 Group Identification and Network Analysis

Network analysis strategies can be used to create sampling frameworks for local studies of drug use and can be used to refine the definition of drug using groups and their risk patterns (Trotter, Bowen, Potter 1995; Trotter et al. 1994; Needle et al. 1995). Social network samples focus on specific relationships (e.g. drug use, needle sharing, sexual partnerships) as well as their intensity, directionality, and frequency. A network sample is designed to describe a larger segment of a community or group that is tied together by some common relationship. This approach allows the researcher to make inferences about the type and quality of the relationships, about core versus peripheral participation in the group, about roles and statuses in the group, and about dynamic interactions (e.g. HIV transmission, initiation of injection, etc.) that occur in the overall network of drug users. Network sampling is also designed to increase the amount of information that can be obtained from an interview, based on known relationships. The respondent is asked to provide information both about himself/herself and about all of the members of the social group to which he or she belongs (Diaz et al., 1992). Network analysis captures emergent properties of social systems that cannot be measured by simply aggregating the attributes of individual members and that may affect both the system performance and the behaviour of network members (Knoke et al., 1982). This method enables the researcher to simultaneously consider the attributes of individuals and the relationships among those individuals. The attributes are characteristics intrinsic to people that persist across the various contexts in which the actor is involved (i.e. age, sex, genetic background, etc.). However, persons with their attributes are also involved in relations that are context specific and alter or disappear upon the actor's removal from interaction with other parties (i.e. the user/ drug supplier relationship can vanish upon the rehabilitation of a user or incarceration of a supplier).

3. Basic Qualitative Methods

Qualitative research typically uses observational methods, (direct and participative), interviews

(open, semi-directed, in-depth), broad or focused life histories, discussion groups (key informant interviews, focus groups), and the analysis of social networks, and cultural decision modelling to gain detailed knowledge about situations and behaviours. Instead of emphasising random selection of large numbers of participants, qualitative researchers usually focus on selecting a broad range of people with good knowledge of the problem of interest in order to describe it in-depth in its natural context. This section of the chapter summarises some of the different types of qualitative research that can be applied to drug research and evaluation issues, depending on the problem being studied and the policy needs for the analysis.

3.1 Ethnography and Participant Observation

Ethnographic research, originally developed and used by anthropologists and qualitative sociologists, is now widely used by researchers from many different disciplines. It allows researchers to conduct in-depth explorations of key issues and concepts across cultural boundaries, and to advance theory and practical application of the qualitative sciences. In its widest sense, research comprises all of the processes, procedures and techniques that allow a researcher to select, collect, record, manage and analyse ethnographic data within the framework of a theory (Trotter, 1991, Bernard 1988, Werner and Schoepfle 1987).

Ethnography has been simultaneously viewed as a means and an end, or both a process and a product (Johnson 1990). As a process, ethnography constitutes a set of strategies for data collection, rather than a single methodological approach. As such, the approaches may include both qualitative and quantitative methods and involve data that are from both primary and secondary data sources. The ultimate aim or product of ethnography is a written representation all of the key aspects of a society, culture or social scene. Intensive field research provides the ethnographer the opportunity to observe, record and ask questions about ordinary events from the time people get up when they turn in at night. It allows the researcher to capture cycles of daily, monthly and annual life. While field work should be long enough to ensure that major cultural beliefs and behaviours are identified, shorter sessions are often possible when important cultural parameters are better known or when the research focus is a specific area of behaviour (Trotter, 1991).

Room (1992), describes the place of drug and alcohol studies within classical ethnographic projects as one dimension of the holistic description of the culture, often without specific emphasis on this cultural dimension over any other. In some cases, this approach creates a de-emphasis on the problematic aspects of drug abuse by limiting their importance or prominence within the overall description of a culture. In other cases this approach strongly identifies the global parameters of drug abuse as a cross cultural problem. The classic ethnographic approach can be contrasted with more recent use of this methodology to focus on the place of drugs in a culture or on particular subcultures of drug users.

An example of the focused approach has been described by Hopkins and Frank (1991), in which their Street Research Unit provides complementary information to the data derived from traditional

epidemiological methods. The New York City based Unit consists of a supervisor with training on ethnographic techniques and several researchers with a history of substance abuse. The authors state that the researchers knowledge of street language and drug behaviour enables them to capture information that would escape most observers. This allows the Unit to gather the following information on an on-going basis: kinds and amounts of drugs being sold, offered and used; number of sellers and users; costs and variability on prices; location of sales; shifts in the drug scene; labels and other identifying marks on illicitly sold drugs; information on the sale and use of drug paraphernalia; general characteristics of sellers/ users and attitudes and opinions among sellers/ users on the drug scene.

3.2 Direct Observation

It is often necessary and important to conduct direct observations of risky behaviour in order to understand the social and behavioural context of drug abuse. This technique has been widely used to establish data on drug use practices that are complex and difficult to understand from interview data alone. Some examples include data on how drug exchanges and needle sharing patterns occur, or how the exchange of sexual favours is important in crack houses. It is an important method for determining the similarities and differences between what people say they do (their ideal model of culture) and what actually happens when they use drugs (real culture in context). These types of studies have been invaluable in developing empirically based, in addition to theoretically based, intervention programmes. One example of this is the Needle Hygiene Project, conducted by the National Institutes on Drug abuse Co-operative Agreement Program (Needle et al.1995; Koester and Hoffler, 1994). Direct observations of injection drug use were conducted at five sites around the country. The behaviours being observed included needle cleaning practices, sharing of injection equipment, and all of the processes associated with preparing drugs for injection. One of the important results of the study was the discovery that overall needle sharing had gone down among injection drug users, as a result of the HIV epidemic. However, the process of sharing drugs amongst people who had to pool their resources to purchase drugs by transferring the prepared drugs (heroin and cocaine in particular) from one syringe to another occurs at an alarming rate in these groups, and has been identified as a major potential source of HIV infection, regardless of the use of separate needles by the drug users.

Approaching the issue of street drug use from another perspective, Leal, et al., (1977), applied participant observation techniques to understand the drug using career of street children and their maturation toward adulthood. Leal was able to gather data which started with the initial phases of children working in the streets, dropping out from school and leaving the family, through all of the stages of development in this street culture. The authors report the social interactions that enabled children as young as eight years of age to survive in very violent environments, noting that prostitutes were providing affection and a substitution for the mother role, while the young adults were teaching them how to get drugs, run away from the police, and to use local welfare institutions to fulfil their basic needs. This type of life cycle research can produce very useful information based on observations alone, or on observations combined with ethnographic interviewing techniques.

3.3 Ethnographic-Qualitative Interview Methods

Once a projects basic research questions have been determined and an appropriate qualitative sampling frame has been created, there are two major areas of data collection that are advisable when using qualitative research approaches. One is the direct observation of drug use behaviour (described above), and the other is in-depth qualitative interviewing using either exploratory or systematic data collection methods. The intensive and extensive combination of these two approaches is called "participant observation" in anthropology. Bernard (1988) states that participant observation is the core element in ethnographic research. It involves establishing rapport in a new community and learning to act in a way that people will perform their normal activities regardless of the ethnographers presence. Once this level of trust is established, Bernard notes that there are four advantages of participant observation. i. it is not only a method for gathering qualitative data, but also a strategy that facilitates any form of data collection on the field; ii. it reduces the problem of reactivity, i.e. people changing their behaviour when they know that they are being studied; iii. it helps to formulate sensible questions in the native language; and iv. it facilitates an intuitive understanding of what is going on in a culture.

3.3.1 Key Informants Approach

Qualitative research depends heavily on repeated interviews with cultural experts who can describe, evaluate, reflect upon, and summarise key aspects of their own culture. These individuals, called key informants in the anthropological and sociological literature, provide the basic knowledge that is necessary to understand the culture being studied. Thus, every ethnography and most other qualitative research projects depend heavily on the ethnographer being able to select and interview (in depth and over time) an extensive sample of key cultural consultants (Bernard, 1988; Trotter, 1993; Medina-Mora 1980).

Several variations of key informant approaches have been used in drug abuse research. The method developed by Jellinek to study community perception of alcohol use, and later used to addressed other substances, is an example of this approach. It includes interviews with gatekeepers or key societal representatives who are in contact with the target population. For drug users, these types of key informants might be drawn from occupational groups, such as health workers, teachers, school authorities, priests, ministers and other religious leaders, bar tenders, or police, each of whom can provide one type of window into societal interactions with drug users. These individuals would be considered key informants about the social response to the drug problem. They may also provide demographic information about the number of cases contacted in their institution, and trends on type of substances, user subgroups, and patterns of use they come in contact with. Applied ethnographic projects commonly collect data on these viewpoints in order to create a systematic view of drug use, from inside and outside the drug using world.

These views must be balanced by choosing key consultants from among the drug users themselves, since it is the individuals who are directly involved in that lifestyle who are most likely to have

the greatest depth of knowledge and understanding about the intimate details of drug abuse. This type of informant will provide information that is not available from outsiders, such as the actual criteria used for making decisions about attempting treatment, barriers to behavioural change, and other issues known only (or known best) to insiders. Even with drug abusers as informants, some specialisation of knowledge and experience must be anticipated. The specific characteristics of each drug using subculture may differentially affect the general knowledge patterns that each informant will have about specific drug use. Individuals who exclusively use marijuana may have little intimate knowledge of injection drug use. In addition, there may be differences of viewpoint between current or former drug abusers, or users actively in treatment. In each of these cases, these persons may be excellent cultural guides who can introduce the research staff to the principal copping (drug distribution or drug using) areas, they can aid the researcher in gaining access to specific and difficult to reach population segments (i.e. high class cocaine users), and can assist in explaining peculiarities of events and subcultures to the research staff (Goldstein, et al, 1990).

An interesting variation on this approach is the key informant network known as the Community Epidemiology Work Group (CEWG), co-ordinated by the US National Institute on Drug Abuse (NIDA). The CEWG is a nation wide network of researchers who are involved with key informants at locations around the United States. They meet semi-annually to discuss drug use patterns and trends in selected metropolitan communities in the United States, and in other countries. The key informants report and discuss special emerging problems, risk factors and negative health and social consequences in their own communities using both quantitative and qualitative sources mainly survey data, indirect indicator data and anecdotal information.

WHO has used the key informant interview technique in its initiative on cocaine (WHO, 1993). This study used professionals (treatment, law enforcement), mass services providers (e.g. taxi drivers) and users.

3.3.2 Focus Group Approach

Focus groups are group interviews, rather than individual one on one interviews. They have been used in qualitative research for some time. Kozel (1993) notes that this technique appeared in the 30's as an alternative to direct interviews, then became popular as a means of qualitative research in marketing. More recently focus groups have been used to study knowledge, attitudes and beliefs in a variety of social situations They have an advantage over individual interviews, in the fact that they allow the researcher to record and analyse peoples reactions to ideas and to each other. They have the disadvantage of potentially only providing information on subjects that people are willing to discuss in public, so that some parts of intimate subjects may be avoided or modified from their actual behaviour patterns when they are being discussed in the group. Even with these limitations, focus groups are an important qualitative research technique within all of the different types of qualitative interviews.

Focus groups are one means of obtaining a considerable quantity of data in a relatively short

period, from a larger number of people than would be possible with the same number of individual key informant interviews. The interviews tend to produce very good “natural language discourse” which allows the researcher to learn the communication patterns in the community rapidly. Morgan (1988) notes that the hallmark of focus groups is the "explicit use of the group interaction to produce data and insights that would be less accessible without the interaction found in a group" (Morgan 1988, p.12). Focus groups are normally lively and create back and forth discussion between the participants, based on topics and broad questions that are supplied by the researcher, who typically takes the role of focus group moderator. However focus groups are still extremely useful even where this technology is not available, see for example WHO Street Children: Training for Street Educators.

The interactions may be audio recorded, or in some cases where analysis of nonverbal communication is important, they may be recorded on video tape. The fundamental data produced are verbatim transcripts of the discussions which are subsequently analysed either through qualitative summary or through systematic coding and content analysis. The questions used are normally designed to extract a maximum range of relevant topics and as specific data as possible, to foster interaction that explores the participants feelings in some depth, and takes into account the personal context that participants use in generating their responses to the topic.

Focus groups are useful for orienting oneself to a new field of study; for generating hypotheses based on informants' insights; for evaluating different research sites or study populations; for developing individual questions for interview schedules and questionnaires; and for getting participants' interpretations of results from earlier studies (Morgan 1988). An interesting example of the use of this technique was reported by the CEWG in a 12 city study conducted to understand an apparent inconsistency coming from statistical information on indicators of price, purity and seizures of heroin.

The available information suggested that an increase in the use of heroin was occurring, although there was no significant evidence of large groups of new users. Focus groups were conducted among known heroin users and the discussions were directed at exploring changing patterns of use and hidden populations of new users. These discussions did identify some new groups of users, although they were limited. However, it became apparent that it was former addicts who were responsible of the significant increase of heroin consumption, as a result of concern over the Human Immunodeficiency Virus (HIV). Many of these addicts were changing their route of administration from injecting to snorting heroine, which necessitates higher levels of consumption of the drug. (Kozel 1993).

Focus groups were extensively used in the qualitative field assessment of the cross culturally applicable “model” core questionnaire that is included in this guide. The research protocol and summary findings resulting from that assessment are included in Chapter 10 of this guide. Chapter 10 also includes the focus group protocol and guide questions used in the field assessment, together with the questionnaire which was the product of the assessment.

In terms of general methodological issues for focus groups, Khan, et al. (1990), suggest that a

least two focus groups for each variable must be conducted in order to insure that most aspects related to the subject of inquiry have been captured. Thus if only 4 variables are considered such as age (2 groups), sex (2 groups), use of substance (2 groups) caste (3 groups) are considered, 24 focus groups are required (2x2x2x3=24) for each research issue or area. These authors state that if more than one issue is included, the number of focus groups required multiplies accordingly.

3.3.3 Systematic Ethnographic Interview Approaches

A number of new qualitative data collection techniques have been developed which are extremely useful in qualitative research projects (Trotter 1991, Weller and Romney 1989). These methods do not replace the need for classical ethnographic or other qualitative data collection, but they enhance the possibility of confirming basic findings and make possible a more in depth analysis in a number of cultural dimensions. These methods provide techniques for the analyses of culturally defined cognitive systems, the development of cultural models of diseases, and exploration of cultural consensus on drug abuse related beliefs and issues.

The methods for defining culturally constructed cognitive systems can be classified as developments that: i. assist in determining the content and limits of domain (i.e. free listing); ii. analyse the structural element of cultural domains (i.e. pile sorts); and iii. portray a domain from a consensual framework (i.e. consensus theory approach).

3.3.3.1 Determining the Content and Limits of Health Domains

The free listing technique is a common process used to explore cultural domains such as drug use and abuse. In one form or another, the technique has been used by every ethnographer who discovered an important cultural concept or area of interest and wanted to explore the limits of that knowledge, belief or behaviour. The most basic format for this approach is to ask a set of cultural experts to list and describe all of the things that are part of a particular cultural domain. For example, Trotter et al. (1993) used the technique to establish baseline data on drug and alcohol terminology that could be incorporated into a prevention programme aimed to the reduction of risks from drug and alcohol abuse and AIDS on the Navajo reservation. Other examples include asking individuals to tell us about the ways they try to beat urine screens using folk medical concepts, and exploring the labels for different types of sexual partners and how these labels affect risk taking behaviour, such as lack of condom use when people are high.

Free listing can be used as a rapid scanning technique in groups, or can be used as an interview exercise, one-on-one. Free lists are important because they provide natural language information that can be used in questionnaire construction or in educational materials which are culturally appropriate for a specific group. It is useful to record unexpected responses in free listing exercises, words and phrases that we subsequently need to be described and discussed in greater ethnographic detail, since these labels provide a window into unknown behaviours or into previously unexplored elements of the culture.

Free lists also make it possible to differentiate between key subdivisions in the populations, since the lists produced describing cultural domains often differ significantly by gender, ethnicity, age, and sexual orientation. For this reason, information on demographic characteristics of the informants is collected, in conjunction with the free listing. This creates the opportunity to use the data to analyse relationships between drug use domains and other variables such as: cultural orientation; intra cultural variation; gender differences in knowledge; or economic and educational differences, since it would be expected that the answers to free listing questions might differ based on the sex, age, income, educational level and other culturally significant factors. Free listings can also be used to generate ethnographic questions and to suggest the wording for questions in quantitative survey instruments.

Free listing was used in the qualitative field assessment of the cross culturally applicable "model" core questionnaire that is included in this guide. Chapter 10 includes the free listing protocol and questions used in the field assessment. Free listing was extremely useful in identifying the different drugs used (and their local street names) at each of the six sites. Drugs were identified that had been previously unknown to the researchers.

Some of the more sophisticated uses of free listing data treat these nominal or categorical data as variables which can be used in statistical procedures, to provide more extensive explorations of the relationships among informants or among the elements in a cultural domain. The advanced techniques for analysing free listings are described in Systematic Data Collection (Weller and Romney 1988). Finally, there are techniques similar to free listings, such as exploratory open ended questions, Spradley's domain analysis techniques (Spradley 1979), or sentence completion processes which can also be analysed using the approaches described for free listings.

3.3.3.2 Techniques to Define and Analyse Structural Relationships in a Cultural Domain

The methods that allow a researcher to explore relationships among the elements of a cultural domain include pile sorts (Boster 1986; Weller and Romney 1988:20-31), triads tests (Weller and Romney 1988: 31-37), and sentence frame techniques (Weller and Romney 1988:55-61). Each of these techniques begins where free listings leave off. They start with the elements of a well defined cultural domain, and they allow the researcher to explore the relationships of elements within that domain. Data collection is accomplished by asking informants to make judgements about the similarities and differences of the domain elements to one another using one of these techniques, such as a pile sort.

A pile sort is a qualitative technique that uses visual aides to allow informants to create unconstrained classifications of items within a cultural domain. The most common method is to place pictures, real objects, written labels, or combinations of these on cards. Each card represents one element in the domain being studied. The informant is asked to classify all of the elements by placing the cards into piles. The respondents are allowed to form as many or as few piles as they want, based on any similarities or differences they perceive among the elements. The final groupings represent their

individual typology of the domain. This information can then be stored as a simple computer data base and analysed by one of several ethnographic programmes which create a numerical comparison of the variables called a distance matrix. Distance matrices can be analysed using statistical techniques which transform the numbers into a visual representation of the relationships of informants to other informants, or of variables to other variables. The two most common statistical techniques associated with the use of these methods are cluster analysis and multidimensional scaling (Kruskal and Wish 1978). The cluster analysis technique can be used to create and explore cultural typologies of the domain. It allows a researcher to identify hierarchical structural relationships in a complex data set. The multidimensional scaling (MDS) analytical technique is used to uncover the "hidden structure" or underlying relationships within complex data bases (Kruskal and Wish 1978). MDS allows a researcher to analyse an extremely complex set of data for underlying conditions, principles, or associations. Both of these techniques are complimentary to the qualitative and descriptive approaches common in ethnography. As an example, Trotter and Potter (1993) conducted an HIV risk pile sort with Navajo teenagers, using a list of risks which had been generated in focus groups and ethnographic interviews with Navajo people. They were interested in the ways that the teenagers related the risks in their lives (including alcohol, drug, and HIV related risks) to each other. The results of the project demonstrated that the students were linking risks within bounded risk areas (e.g. drug risks, school risks, violence risks, etc.), and that the linkages between those areas were weakly associated. Two works (Weller and Romney 1988; Bernard 1988) provide detailed descriptions on how these techniques can be integrated into other types of ethnographic research.

3.3.3.3 Consensus Theory

Consensus theory is a method that allows an ethnographer to explore a consensual description of a cultural domain, while simultaneously assessing individual informants' expertise in that domain. These assumptions about the nature of "cultural truth" and informant accuracy are derived from a model of culture that is probabilistic in nature. Consensus theory models of culture are developed through a formalised set of questions about similarities and differences in shared experience and knowledge on the part of informants. Consensus theory melds ethnographic survey questions with a formal mathematical model based on approaches used by psychometricians in test construction, and influenced by signal detection theory and latent structural analysis procedures (Romney, Weller, and Batchelder 1986). One important attribute of consensus theory is that it is designed to work with a common condition in ethnography, the situation where we know the correct questions to ask, but do not know which are the correct, or the most nearly correct cultural answers to those questions. At the present time, consensus modelling can be accomplished through the use of true-false, fill-in-the-blank, and multiple choice question formats, and is being tested for use with rank order formats. Cultural knowledge that cannot be assessed through these formats cannot be tested using this process, at this time. Some recent uses of consensus theory include measuring intra cultural variation in diseases judged on concepts of contagion, severity, hot/cold treatments, consensus about the existence of a subculture of corporeal punishment (Weller, Romney, and Orr 1986), and a study of hypertension among Ojibwa Indians in Canada (Garro 1987). Recently consensus theory modelling to HIV related beliefs has been applied

in four cultures: Mexican Americans in South Texas, rural Guatemalans, Puerto Ricans in Hartford, Connecticut, and a sample of individuals in central Mexico. The test is demonstrating difference in knowledge, beliefs and awareness of AIDS in these four cultural groups. The success of this method indicates that it can be advantageously applied to consensus research on issues such as a cultural model of drug abuse, issues in the punishment of drug abusers, and the study of cultural models of drug treatment programmes, to name a few.

There are also a number of other systematic ethnographic techniques that should be mentioned. These include the cultural models approach (Quinn and Holland 1987, Price 1987), anthropological decision modelling (Gladwin 1980, 1989; Plattner, 1982), and the processes for using ethnographic interviews to create culturally competent survey questionnaires (Converse and Presser 1986). These techniques are more thoroughly discussed in Bernard (1988) and in the Sage publication series on qualitative research methods.

3.3.4 Network Analysis Approaches

Many of the issues surrounding drug abuse cannot be resolved by simply studying individuals. It is necessary to understand drug using behaviour within the context of groups, as well. Peer influence has been identified as an important risk factor for drug use. The influence of personal networks ranges from pressure to initiate drug abuse to social support systems that help in recovery for addicts. Therefore, relationships can be the building blocks for the analysis of the entire natural history of drug use and addiction.

Network theories have evolved over the past 40 years within a number of research contexts that are relevant to drug abuse research, in general (Wasserman 1993, Galaskiewicz and Wasserman 1993). More specifically, there are three primary models for network data collection and analysis in drug abuse research (Needle et al. 1995, Trotter 1995, Trotter et al. 1994). These include intensive ethnographic network mapping, a process that allows an ethnographer to thoroughly describe the participants, the behaviours, the kinship and friendship ties, and the consequences of small bounded drug using groups in the community. The second approach is an ego-centric or personal network approach. In this method, individuals are asked to list and describe the people they interact with, and the basis for those interactions, such as joint drug use, sexual relationships, trust, social support, etc. This data can be analysed as survey data, and the differences in personal networks can be analysed statistically. Finally, all of the individuals in a network can be asked to identify their reciprocal relationships with one another, allowing for full relational network analysis to be preformed on the group as a whole, identifying such conditions as network centrality, connection, influence patterns, density of relationships, roles and statuses, and measures of power in the network.

Ethnographic network mapping is accomplished through extensive qualitative interviewing at the community level. In many cases drug using networks are the primary basis for purchasing, distributing, and the social usage of drugs. The composite ethnographic characteristics of the networks can be used

to create a "drug network typology" or classification system, and can describe the individual and group context of drug use (such as crack houses, local manufacturing and distribution, etc.). Trotter and colleagues (Trotter et al. 1994, Trotter et al. 1995) have demonstrated that this type of data is extremely useful for targeting intervention and education activities for the highest risk groups, based on multiple risk criteria. The data can also provide important information about the sub-epidemics that are likely to be part of drug use in network groups.

The second approach to drug related network analysis is labelled ego-centred or personal network analysis. This approach describes an index individual (ego), and all of the individuals that he or she recognises as being connected in terms of specified social relationships. The data associated with ego networks (size, gender and ethnic composition, retrospective conditions, etc.) can be identified and described as a "typical" network profile and can be associated with other psychosocial variables. A number of policy and research uses for this type of data collection are available (Needle et al. 1995, Williams, 1993, Trotter et al. 1995). The types of key attributes that can be described for a population (or sample) includes: the number of people each ego reported "spending time" with; the ethnic composition of personal networks; the risk factors assessed for ego and companions; sexual activity in the network; the types of drugs used and drug use locations for the network; and any other risk factors that may be important clues to the local context of drug use, and differences in drug use that varies by the type of personal network of drug users.

The third approach to network based drug research is the use of full (relational) network analysis procedures (Knoke and Kuklinski 1982). This approach requires the researcher to identify a naturally occurring drug network, and to explore the relationships among all of the members of that network. This is accomplished by either observations or interviewing, or the two combined. In each case, it is important that the questions or the observations allow the researcher to explore the reciprocal actions that take place between each member of the network and each other member. All of the question asked, and the observations conducted, focus on relationship questions, such as, “who uses drug with each other, and under what conditions?”, “who attends social events with each other?”, “Who trusts whom?” and “who shares drugs, paraphernalia, etc. with whom?” These types of investigations are in the early stages for drug related issues, however they appear to be very valuable for drug research (Needle, et al. 1995). Some of the issues that they allow researchers to explore include: determining the primary sources of influence and communication in drug networks; allowing better targeting of individuals for interventions that will influence the behaviour of the remainder of the network; using the network itself to set group goals and reinforce or change group norms in relation to risk taking behaviours. Our current evaluations of this approach indicate there are numerous advantages in using a multiple method network approach drug research programmes. The advantages include: i. Network based outreach is an effective mechanism for establishing the contacts and relationships necessary to conduct effective research programmes in hidden or hard to reach populations; ii. Recruiting individuals into programmes can be done within the context of the same social group that will reinforce programme objectives, or oppose them; iii. Keeping track of network members is a natural function of the gatekeepers of the network. This can greatly assist the follow-up phase of any project; iv. Network intervention with drug groups

fits most public health models and provides a more cost effective approach to harm reduction.

On a cautionary note, Diaz et al., (1992) note that the main methodological issue facing network sampling and analysis are the difficulty in deriving a sample that correctly estimates parameters of very large populations (large cities, nations, etc.), rather than the smaller components of that society. The sampling frame for networks makes it easy to study the latter, and more difficult to characterise the social background, the causes, means and specific circumstances surrounding the problem under study for whole populations. For this reason, network analysis has generally been used in social sciences for intensive analysis of the relationships that might exist within relatively small societies or groups such as drug subcultures, neighbourhoods, or influence groups (Trotter et al. 1994, Trotter 1995). The approach is specially relevant for studying the diffusion and growth of epidemics (from non-users to drug users) and transmission of related diseases (i.e. HIV, sexual transmitted diseases, hepatitis, etc.), since the most important vectors for these conditions are interacting people (friends, partners, acquaintances, drug distributors etc.).

4. Advantages and Limitations of Qualitative Approaches

Qualitative research methods present both advantages and limitations based on the types of research questions that are being asked, and the types of answers that are expected to result from the research effort. These methods should be chosen in concert with the research context, the need for exploratory of confirmatory data, and the style of presentation of information that best fits the research subject.

The benefits of a qualitative research approach include a significant ability to explore unknown territory, whether it is culture, lifestyle or the daily behaviour of unresearched populations. Qualitative research is also an excellent choice for monitoring changing conditions, especially where the direction of change is unknown or unpredictable. Another significant benefit of qualitative research methods is that they allow people to speak for themselves. The researcher is responsible for identifying and confirming cultural patterns and presenting those findings through the words and actions of the people in the culture. But the words come from the people themselves and remain true to the culture. This process is very important in humanising social science. At its best, is avoids any regression towards a purely numeric depiction of human affairs, one that reduces the complexity of human life to a series of means and trends. This can be especially important to policy makers and to those who need to understand the results of scientific research on human beings. Good qualitative research can be understood by anyone, because it is presented in the same way that everyday life is presented in any culture, through stories, examples, descriptions, and discussion of processes.

Finally, qualitative research is excellent for localising generic findings from broader scale research, and is also excellent for contextualizing programmes for local language use, variations in values and environmental considerations. This type of local modification is particularly important in areas where regional, or broader, cultural differences exist that would make generically designed programmes and

interventions less effective. Focus groups and key informant interviewing in particular are often very valuable in this instance.

Beyond the need for pure qualitative research, there is often a need for combined qualitative-quantitative studies. These studies often benefit from having both a probabilistic sampling framework combined with statistical validity of findings, with those findings being explained and expanded by the qualitative data and analysis. There are also a number of research questions that can only be answered appropriately by quantitative methods, and qualitative data should not be applied to these situations, with the exception of the formative periods of the research problem and design. The primary conditions that demand pure quantitative design are conditions where there is a need to control variables and the presentation of options (as in experimental and quasi-experimental designs) and where there is a need for broadly representative or statistically driven data (surveys, some epidemiological studies, and demographic data). The conditions that generally apply to the appropriate application of different research designs generally fall within the general need for reliability replicability and validity. These issues are further discussed in Kirk and Mulleins (1984) work on qualitative approaches to validity and reliability, and in the extensive discussion of these issues, as well as sampling frameworks for qualitative research, in Johnson's (1990) work on selecting ethnographic informants.

5. Conclusions

This chapter has provided a brief overview of qualitative research methods and designs that are appropriate for the exploration and analysis of drug abuse within its appropriate cultural context. The methods described range from complex, multi-method and relatively lengthy ethnographic studies, through qualitative designs targeted at specific drug use conditions (complimentary to on-going quantitative data collection) to advanced methods that systematically explore cultural beliefs, values, and living processes. Correctly employed and analysed, they bring a significancy enhanced analytical power to research on drug abuse and drug use conditions, beyond those available in a purely quantitative research repertoire.

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