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Geneva, 28 September – 2 October 1992

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1. Introduction

The WHO Expert Committee on Drug Dependence met in Geneva from 28 September to 2 October 1992. The meeting was opened on behalf of the Director-General by Dr Hu Ching-Li, Assistant Director-General, who stressed the long-standing close relationship between the work of the Committee and that of the United Nations in the international effort to control dependence-producing drugs. Since an Expert Committee first met in 1949 to consider habit-forming drugs (*1*), the Committee had been given the task of evaluating individual psychoactive substances and recommending appropriate control measures. WHO, with the advice of the Committee, had always played an important role within the international drug control system of the United Nations.

Dr Hu explained that, during the 1960s, the title of the Committee had been changed from the "WHO Expert Committee on Dependence-Producing Drugs" to the "WHO Expert Committee on Drug Dependence". At its thirteenth meeting (*2*), the Committee had decided to abandon the terms "drug addiction" and "habituation" in favour of "drug dependence" and its terms of reference had been expanded to include all technical matters related to drug dependence. Subsequently, at its twentieth meeting in 1973 (*3*), the Committee had discussed a wide range of topics concerning problems related to the non-medical use of psychoactive substances.

Since 1973, the international drug scene had changed dramatically. The use of illicit drugs such as heroin and cocaine had increased by a factor of ten and there had been increases in the harmful use of licit drugs and alcohol, especially in developing countries. Dr Hu requested the Committee to look at the various strategies and approaches for reducing substance use and its harmful consequences in the light of the changes that had occurred since the twentieth meeting. Regarding the traditional task of reviewing individual substances, the Committee was requested to carry out a pre-review to identify substances to be critically evaluated at the next meeting, which would be held in 1994.

Mr H. Emblad, Director of the Programme on Substance Abuse, referred to the prestige that the Committee had enjoyed in the United Nations Commission on Narcotic Drugs over the years and the responsibility which this entailed. He explained that the report of the twentieth meeting had been used as a basis for preparing the agenda for the current meeting, which would allow for both continuity and adaptation.

2. Concepts and definitions

2.1 Changes in terminology and terms of reference of the Committee

Many of the concepts and terminology used at the time of the twentieth meeting are still valid. However, there have been some subtle shifts in the terminology, reflecting recent research findings and a global sharing of

information. The basic focus of the twentieth meeting was "actions taken in an effort to prevent entirely or reduce the seriousness of the individual and social problems associated with the use of various types of dependence-producing drug" (*3*), and this focus was adopted by a WHO Expert Committee on Problems Related to Alcohol Consumption (*4*). At its present meeting, the Committee also adopted this broad frame, addressing a variety of problems related to the harmful use of psychoactive substances. In the *International Statistical Classification of Diseases and Related Health Problems (ICD-10), Tenth revision* (*5*), "harmful use" is defined as "a pattern of psychoactive substance use that is causing damage to health ... physical or mental". The Committee's main concern was to identify ways of reducing or eliminating the actual or potential harm to health and social functioning resulting from use of psychoactive drugs. For clarity, the term "drug-related problem" has sometimes been used to refer to a specific type of harm.

Although there have been subtle shifts in the definition of "dependence" since the twentieth meeting, drug dependence remains the primary concern of the Committee. A conceptual clarification in recent years, however, has distinguished between the specific problem of dependence and the broad range of problems or disabilities related to drug use, among which dependence is included (*6*).

At its twentieth meeting, the Committee organized its discussion of the range of strategies for reducing drug-related problems in terms of primary, secondary and tertiary prevention, as defined below. At its present meeting, the Committee also emphasized the need for integrated policies covering all these strategies, but decided to consider them under the headings of treatment and prevention.

- *Primary prevention* is aimed at ensuring that a disorder, process or problem will not occur.
- *Secondary prevention* is aimed at identifying and terminating or modifying for the better a disorder, process or problem at the earliest possible moment.
- *Tertiary prevention* is aimed at stopping or retarding the progress of a disorder, process or problem and its sequelae even though the basic condition persists.

The Committee considered the different types of drug use and drug-related problems in the population as a whole, including the total range of patterns of use and the associated health risks. It is now well established that the level of consumption of alcohol in a population relates to rates of liver cirrhosis mortality and various other chronic health problems. These findings have encouraged a reconceptualization of alcohol consumption levels in the population as a continuum, with no natural dividing point between heavier and lighter drinking, and have supported the idea that alcohol-related problems – including dependence – are related to alcohol consumption patterns. This idea is now seen as applicable to all

psychoactive drugs and implies that, in order to reduce the risk of harm, preventive strategies must be directed not only to those with the highest levels of consumption but also to those with less heavy patterns of use.

In the past decade the concept at the heart of the twentieth meeting, that of "preventing problems associated with the use of psychoactive dependence-producing drugs", has been put forward by some sectors of the research, prevention and treatment communities as "harm minimization" or "harm reduction". This approach has sometimes been contrasted with a singular focus on reducing drug use *per se*. Examples of harm reduction strategies include the provision of methadone and needle-exchange programmes for heroin users to reduce the risk of HIV infection, the provision of nicotine patches for tobacco users and attempts to reduce alcohol intoxication or its potential consequences by changing the environment in which people drink.

In the harm minimization approach, attention is directed to the careful scrutiny of all prevention and treatment strategies in terms of their intended and unintended effects on levels of drug-related harm. A concern often expressed about harm reduction strategies is their potential for communicating a message condoning drug use. Such concerns have been expressed, for instance, concerning mass media programmes that encourage drinking groups to nominate a non-drinking "designated driver", since this message might seem to condone drunkenness in the other group members, and concerning those that provide information about methods of solvent inhalation that reduce the risk of fatalities and other harm. Often these concerns can be alleviated by targeting the message to those already involved in hazardous drug use. In considering such strategies, it should be kept in mind that the public health sector has always been in favour of preventing or reducing the immediate drug-related harm, even if this involves some risk of a more distant hazard or can be seen as condoning drug use.

Since the twentieth meeting, patterns of repeated use of and dependence on non-psychoactive drugs have also become prominent. Media attention has focused on the use of steroids and other performance enhancers in competitive sports, but such drugs have also become widely used among amateur body-builders. The potential for serious health harm from repeated use has motivated some countries to place steroids under the same regulations as medicinal psychoactive drugs. Future years may well see the development and use of new medicinal drugs which enhance other aspects of individual performance, such as intellectual capacity. These developments suggest the need for future consideration of the advisability of expanding the terms of reference of the Committee beyond the scope of psychoactive drugs, to include habitual non-medical use of other drugs, regardless of the motivation for use. The Committee noted that dependence on psychoactive drugs may also arise where use is not for subjective pleasure or to relieve distress, as with the use of amfetamines by long-distance lorry-drivers and others to ensure wakefulness. The habitual

non-medical use of steroids and other non-psychoactive drugs is covered in ICD-10 under category F55, "Abuse of non-dependence-producing substances" (*5*).

2.2 Use of terms

Until the 1960s, the Committee used the terms drug abuse, habituation and addiction to describe the various states associated with drug use. Indeed, the term drug abuse is contained in the laws of many countries and in the international conventions. At its present meeting, however, the Committee decided to use the term "harmful use" rather than "abuse" (see section 2.2.4). Until the 1960s, the term addiction was widely used to refer to the presence of both psychic and physical dependence, whereas the term habituation was used to describe the presence of psychic dependence on a drug. During the 1960s, the Committee made several attempts to clarify the difference between these two concepts; however, at its thirteenth meeting, the Committee decided to abandon these terms in favour of the term "drug dependence" (*2*).

2.2.1 *Dependence*

At its sixteenth meeting, the Committee defined drug dependence as: "A state, psychic and sometimes also physical, resulting from the interaction between a living organism and a drug, characterized by behavioural and other responses that always include a compulsion to take the drug on a continuous or periodic basis in order to experience its psychic effects, and sometimes to avoid the discomfort of its absence. Tolerance may or may not be present. A person may be dependent on more than one drug" (*7*). This definition has been widely accepted and was reaffirmed at the twentieth meeting.

Focusing on the clinical aspects of drug dependence, WHO has developed diagnostic guidelines for the various mental and behavioural disorders due to the use of psychoactive substances. *The ICD-10 Classification of Mental and Behavioural Disorders. Clinical descriptions and diagnostic guidelines* (*8*) provides a clinical description of dependence syndrome and guidelines for diagnosing this disorder.

The Committee compared the above definition of drug dependence with the clinical description of dependence syndrome in the ICD-10 diagnostic guidelines (*8*), and concluded that there were no substantial inconsistencies between the two, since:

- both define a strong desire or a sense of compulsion to take the drug, as manifested by drug-seeking behaviour which is difficult to control, as the essential component of dependence; and
- both consider withdrawal syndromes (or physical dependence) and tolerance merely as consequences of drug exposure which, alone, are not sufficient for a positive diagnosis of drug dependence.

The Committee also noted that the distinction between physical dependence and psychic dependence, as described in the report of the twentieth meeting (*3*), was difficult to make in clinical situations. Furthermore, the Committee felt that this distinction was not consistent with the modern view that all drug effects on the individual are potentially understandable in biological terms. The Committee also noted that the term physical dependence had been found confusing because clinicians often interpreted the manifestation of withdrawal syndromes as evidence of both physical dependence and drug dependence, as defined at the sixteenth meeting (*7*).

For these reasons, the Committee was of the opinion that it would be less confusing to follow the ICD-10 diagnostic guidelines (*8*) in not making a distinction between physical dependence and psychic dependence. Furthermore, it felt that the following definition of drug dependence, which is compatible with that used in the report of the sixteenth meeting (*7*), would be more readily understood for the purposes of this report:

> A cluster of physiological, behavioural and cognitive phenomena of variable intensity, in which the use of a psychoactive drug (or drugs) takes on a high priority. The necessary descriptive characteristics are preoccupation with a desire to obtain and take the drug and persistent drug-seeking behaviour. Determinants and the problematic consequences of drug dependence may be biological, psychological or social, and usually interact.

It should be emphasized that both dependence and harmful use (see section 2.2.4) often interfere with the functioning of the individual in society, but the type and extent of this interference depend upon the social, cultural and religious context.

2.2.2 *Withdrawal syndrome*

The Committee recognized the importance of the term physical dependence in pharmacology, but felt that its inclusion in this report might lead to confusion with the general term drug dependence. It therefore decided to use the term "withdrawal syndrome", described in terms of its relevant consequences as follows:

> After the repeated administration of certain dependence-producing drugs, e.g. opioids, barbiturates and alcohol, abstinence can increase the intensity of drug-seeking behaviour because of the need to avoid or relieve withdrawal discomfort and/or produce physiological changes of sufficient severity to require medical treatment.

The Committee also adopted the following definitions and usages for the purposes of its report.

2.2.3 *Tolerance*

Tolerance is a reduction in the sensitivity to a drug following its repeated administration, in which increased doses are required to produce the same

magnitude of effect previously produced by a smaller dose. This increase in dose may be necessitated by changes in the metabolism of the drug, or a cellular, physiological or behavioural adaptation to the effects of the drug.

2.2.4 *Harmful use and abuse*

At its sixteenth meeting, the Committee defined the term drug abuse as "persistent or sporadic excessive drug use inconsistent with or unrelated to acceptable medical practice" (*7*). The Committee felt that this term was ambiguous and should be replaced with the term "harmful use" in this report, except in section 10, where individual psychoactive drugs are discussed in the context of their international control. Since the conventions on which the international control of dependence-producing psychoactive drugs is based use the term "abuse", the same term is used for the sake of consistency.

Harmful use is defined as a pattern of psychoactive drug use that causes damage to health, either mental or physical. The Committee noted that harmful use of drugs by an individual often has adverse effects on the drug user's family, the community and society in general.

2.2.5 *Dependence-producing drug*

A dependence-producing drug is one that has the capacity to produce dependence, as defined in section 2.2.1. The specific characteristics of dependence will vary with the type of drug involved. The existence of a state of dependence is not necessarily harmful in itself, but it may lead to self-administration of the drug at dosage levels that produce deleterious physical or behavioural changes constituting public health and social problems. ICD-10 recognizes the following psychoactive drugs, or drug classes, the self-administration of which may produce mental and behavioural disorders, including dependence (*5*):

- Alcohol
- Opioids
- Cannabinoids
- Sedatives or hypnotics
- Cocaine
- Other stimulants, including caffeine
- Hallucinogens
- Tobacco
- Volatile solvents
- Other psychoactive substances, and drugs from different classes used in combination.

It should be noted that, although the dependence-producing properties and public health problems caused by tobacco were recognized at the time of the twentieth meeting, they were not included in the report since its acute effects on behaviour were minimal. At its present meeting, the Committee felt that the evidence for the dependence-producing properties

of nicotine and the severe health consequences of tobacco and other forms of nicotine use warranted their inclusion in its report. Furthermore, it recommended that WHO should consider expanding the Committee's terms of reference to include substances such as steroids, which are used not because of their psychoactive properties, but because of their performance-enhancing effects. This form of use is described in ICD-10 under category F55, "Abuse of non-dependence-producing substances" (*5*). The development of other performance-enhancing drugs may present a new type of drug use problem in the future.

The Committee welcomed the publication of *The ICD-10 Classification of Mental and Behavioural Disorders. Clinical descriptions and diagnostic guidelines* (*8*) for general diagnostic use by clinicians. It deals with a wide variety of disorders due to the use of psychoactive drugs, including tobacco, and provides guidelines for the diagnosis of dependence, harmful use, withdrawal syndromes, acute intoxication and other clinical states. The Committee also endorsed, for use in clinical research, *The ICD-10 Classification of Mental and Behavioural Disorders. Diagnostic criteria for research* (*9*), which is due to be published at the end of 1993.

3. Changes in the world situation in the last two decades

3.1 WHO activities in drug dependence

The principal objective of WHO's Eighth General Programme of Work, covering the period 1990-1995, is "to promote, coordinate and support the efforts of Member States individually and collectively in implementing the Global Strategy for Health for All by the Year 2000" (*10*). Reduction of the health and social problems caused by use of psychoactive drugs is an essential part of that objective. The WHO Programme on Substance Abuse aims to provide leadership on the health aspects of harmful use of drugs and alcohol, and to focus attention on the need for a new approach to the problem of drug use in general.

Within the overall response to harmful use of psychoactive drugs, the health sector is particularly important, since it can play a key role in mobilizing, supporting and sustaining effective action to reduce demand at international, national and community levels. Through its Collaborating Centres, experts, regional offices and country representatives, WHO is uniquely placed to bring together the experience of the medical, health, scientific and social sectors, in a global effort to deal with the causes as well as the consequences of harmful use of psychoactive drugs.

WHO's mandate for working in the area of harmful use of drugs derives from the general definition of "health" in its Constitution and has been explicitly reinforced in the case of drugs that fall within the provisions of the Single Convention on Narcotic Drugs, 1961 (as amended by the 1972 protocol), or the Convention on Psychotropic Substances, 1971. These

conventions assign specific responsibilities to the WHO Expert Committee on Drug Dependence in respect of changes in the control of drugs and of placing them in appropriate schedules. The Committee studies the medical and scientific characteristics of drugs in order to assess their therapeutic usefulness and dependence liability and then evaluates the public health and social problems relevant to their harmful use. To make these assessments, WHO relies on collaboration with its Member States.

In part because of the large number of drugs requiring evaluation in the context of the Convention on Psychotropic Substances, 1971, the Committee has recently confined itself to assessing their therapeutic usefulness and dependence liability (*11-17*). However, at its present meeting, the Committee adopted the broader agenda of its twentieth meeting (*3*).

The purpose of the twentieth meeting of the WHO Expert Committee on Drug Dependence was not only to make recommendations on the scheduling of particular psychoactive drugs, but also to consider the prevention of problems associated with drug use and assess current and possible future public health approaches to drug dependence.

At its present meeting, the Committee first considered some of the trends in psychoactive drug use and related problems in the past 20 years, and the changes that lie behind these trends and affect the ability of governments to influence them. The Committee discussed both licit and illicit psychoactive drugs, including tobacco and alcohol. For the purposes of this report, the word drug (unless otherwise specified) is used to refer to all psychoactive substances, that is "any substance that, when taken into a living organism, may modify its perception, mood, cognition behaviour or motor function". This includes alcohol, tobacco and solvents. It excludes medicinal, non-psychoactive drugs.

3.2 Patterns of use and responses to drug-related problems

3.2.1 *Consumption of psychoactive drugs*

There has been a considerable increase worldwide in the production and consumption of psychoactive drugs since the time of the twentieth meeting. For some drugs, e.g. cocaine, the increase has been dramatic. Against this, there are a few classes of drugs, e.g. barbiturates, where there has been a considerable decline in usage in many countries.

Besides the variation between drug classes, there is substantial variation between countries and regions in consumption. While the prevalence of tobacco smoking has now declined in many developed countries, it has continued to rise with increased incomes and with increased marketing and promotion in many developing countries. Similarly, while alcohol consumption has started to fall in some developed countries, it has increased dramatically in many developing countries.

For medicinal drugs, there has been a growth in the number of psychoactive drugs available on the market. New medicinal drugs have included many synthetic opioids, and new benzodiazepines and other anxiolytics. The number of doses prescribed increased during the 1970s, mostly because of the increase in benzodiazepine prescribing, but has declined subsequently in many developed countries.

With respect to illicit drugs, the overall picture is of an enormous growth in world supply, which has affected developing and developed countries alike. The most dramatic instance of this has been the growth of illicit cocaine traffic in the Americas, and now also elsewhere. Changes in preferred routes of administration of cocaine and opioids have also had implications for public health. Another change has been the increased marketing in some countries of illicitly produced medicinal psychoactive drugs, as well as new "designer drug" analogues of existing drugs. Overall, shifts in both the licit and illicit drug markets mean that many countries that originally only produced illicit drugs now also consume them, and those that were originally only consumers of licit psychoactive medicinal drugs are now also producers.

Gradually, more sophisticated control measures have been introduced in the industrialized countries that constituted the principal markets in illicit drugs some decades ago. This has prompted the traffickers to locate laboratories for production of both cocaine and heroin in the developing countries that provide the raw material. The availability of refined drugs of high purity and at low prices has expanded the markets for these drugs in these and neighbouring countries.

Changes in the status and traditional roles of women have influenced the drug-related norms and behaviour of many women. In some regions of the world, the integration of women into the economy as workers outside their homes has meant an increase in the harmful use of drugs. Role conflicts, greater expectations, and increased social and economic stresses have also influenced current patterns of use.

3.2.2 *Enforcement efforts*

In many countries, both developed and developing, there has been a strong reaction against growth in the illicit drug market. Declaring national campaigns against controlled drugs was a popular political move in a number of countries in the 1980s, and it resulted in increased resources being directed to law enforcement and sometimes also to treatment. In many countries, frustration with a perceived lack of success in such campaigns has resulted in a stiffening of penalties for drug selling or possession, including imprisonment.

The result has been in many countries that prisons have become overcrowded. The high cost of imprisonment, including the need to build and staff new prisons, has now become a factor influencing drug control policies. The threat of imprisonment is also tending to lose its deterrent

value to drug users and drug dealers. In some countries, high rates of drug-related arrests have affected the nature and quality of treatment for drug dependence, with treatment services increasingly subordinated to the criminal justice system and regarded as a low-cost alternative to imprisonment. In other countries, the quality of treatment does not seem to have been affected, and emphasis is put on the public health benefit of drug-dependent persons undergoing treatment rather than going to jail.

3.2.3 *AIDS/HIV infection*

The last decade has seen the emergence and rise of the human immunodeficiency virus (HIV) pandemic. The use of psychoactive drugs has facilitated the spread of HIV infection in several main ways. The most direct way is by transmission of HIV through needles shared by intravenous drug users. Accordingly, some public health authorities have attempted to halt the spread of infection among drug users by exchanging or providing needles and syringes.

Another common mode of HIV transmission is through sexual contact, and many drug users have engaged in prostitution in order to enable them to purchase psychoactive drugs. Alcohol and other psychoactive drugs are regarded in many cultures as disinhibitors, and under their influence many engage in sexual and other high-risk behaviours that they might otherwise avoid. Some psychoactive drugs may also hasten the onset of the acquired immunodeficiency syndrome (AIDS) by depressing immune functions.

3.2.4 *The "combined approach"*

Public health approaches to all psychoactive drugs, including alcohol and tobacco, are increasingly being viewed in a common frame. In many countries, treatment services are now located in a single administrative structure, although the services may retain their specificity. In addition, patients using those services often require treatment for more than one drug-related problem.

In the past 20 years, there has been increased recognition in many countries of the severity of health and social problems associated with alcohol use. Many countries have taken active countermeasures against drink-driving; in some, drunk drivers are now sent to prison. There has also been increased recognition of the health toll from long-term heavy drinking in countries with high per-capita levels of alcohol consumption. The reduction of harm from alcohol consumption is now on the public health agenda in many countries, although action has often been limited.

Experimental and clinical studies have highlighted the severity of tobacco dependence among heavy smokers. While the importance of tobacco smoking as a public health problem was recognized at the twentieth meeting, the Committee did not regard it as a serious form of dependence at that time.

With the growth of international and national agencies and organizations involved in drug control under the Convention on Psychotropic Substances, 1971, recent years have also seen a closer coordination between mechanisms and agencies for the control of illicit and licit drugs.

All these factors have pointed to a convergence in issues and policy-making about psychoactive substances. In Australia, for instance, a national drug offensive which initially focused almost solely on illicit drugs now puts its strongest emphasis on alcohol and tobacco, because of their greater health burden on the Australian population.

3.3 Factors affecting drug use and drug-related problems

3.3.1 *Transportation, migration and communication*

In the past 20 years, vehicles have become more widely available, and transportation networks have proliferated, with a side-effect of facilitating smuggling of illicit commodities. Populations have been brought into contact with each other's customs and behaviour through tourism, which has enabled people to experiment with psychoactive drugs that might not be available at home. Alcohol and tobacco are the main commodities in the growing network of tax-free shops, further associating travel with psychoactive drug use and often weakening national control policies.

The strengthened network of transportation has also facilitated migration. Those going abroad for professional training have often stayed on, sometimes for a lifetime. In affluent societies, "guestworkers" have filled many of the unskilled jobs, and stayed on to become permanent residents. Elsewhere, migrations of seasonal workers from outside or within a country have increased the swell of displaced populations. Driven by war, oppression or famine, entire villages and sometimes entire populations have also migrated. Traditions of hospitality to refugees have been increasingly strained by large-scale population movements. While in itself migration has not been an important mechanism for drug transportation, it has contributed to the increased contact between cultures with very different norms and understandings of psychoactive drug use.

The greatest increase in cross-cultural contact has been through the growth in long-distance communication, in particular by means of the electronic media. Television programmes from a small number of affluent countries predominate, building desires for often unattainable lifestyles. Drinking and drug use often figure prominently in these portrayals, and even if the tone is disapproving, the dominant message received by the viewer may often be the attractiveness of the lifestyles and behaviours portrayed.

The above changes make the present and future drug situation more difficult to control than in the past, when most societies had only one or a few dominant psychoactive drugs that caused problems. They had also been used for a long time, which had allowed the societies to develop informal norms of acceptable and non-acceptable use. Such norms often at least partly control harmful use; however, the absence of these informal

buffering mechanisms for psychoactive substances that are new in a culture makes formal control efforts by national governments more important than before.

3.3.2 *Free markets, free trade, and their implications for public health*

Many countries, both developed and developing, have abandoned the model of state socialism, where the state aimed at a detailed control and direction of the whole economy. The transition from state socialism has often proved difficult, resulting in increased unemployment and other social problems, including use of both alcohol and illicit drugs.

At the same time, the view that almost all activities should be undertaken by private enterprise operating in a free market has become dominant in many countries. Privatization of state enterprises has also served as a temporary source of state finances. Public health considerations have often been overridden in these changes. State monopolies have generally acted under greater constraint than private entrepreneurs, for instance in promoting alcohol consumption, yet such monopolies are increasingly threatened with privatization. The concept of individual entrepreneurship has also been unofficially extended to illegal markets; among economically marginalized populations, local drug dealers, with their relatively affluent lifestyle, have served as a role-model for many young people.

Increases in social insurance and entitlements have been restrained by reductions in government spending and government budgets, and in many places prevention and treatment programmes for drug users have been discontinued and eligibility rules tightened. As a result, some of those no longer covered by the social system have become homeless and many of them have developed mental illness and drug dependence.

In some parts of the world, the majority of the population remains poverty-stricken, and destitution has increased. In some places particularly affected by famine and warfare, government functions have essentially ceased and illicit drug production has flourished. In others, the economic power of the illicit drug market has become a threat to the stability and ability to function of the government.

The ideal of the free market has also been greatly extended supranationally. Through the General Agreement on Tariffs and Trade (GATT), and through regional common markets such as the European Economic Community, national trade barriers have been lowered and protected markets have been opened up. GATT and other trade agreements have enabled tobacco and alcohol interests to enlist governments in forcing open markets for their products in other countries. Developing countries are especially vulnerable to these pressures, as their markets are volatile, their populations are less experienced in handling high-powered advertising, and there are few restrictions to prevent explosive increases in drug use. Ensuring that public health is taken into account in trade agreements is a matter of priority for psychoactive drug control.

3.3.3 *Some successes for regulation*

The wide growth of concern about ecology, often in the wake of ecological disasters with public health significance, has brought increasingly active government regulation of private enterprise with regard to the environment. These activities have often been supported by nongovernmental organizations. The network of support for environmental concerns is often stronger than that for public health interests, and might well provide a model for psychoactive drug control.

Another aspect of government regulation that has been relatively successful is the system of controls on medicinal psychoactive drugs. Through such controls, along with education of doctors and pharmacists, the use of barbiturates has been largely replaced by the use of medicinal drugs with less potential for harm, and prescriptions of amfetamines as anorectics have been greatly reduced. In terms of controls on the markets for alcohol and tobacco, there have also been some successes. High tax policies have contributed in many countries to a reduction in tobacco consumption, and enforcement of minimum age limits has restricted the supply of alcohol and tobacco to children. Experience has shown that the adoption and enforcement of effective regulations to limit the harm from alcohol and tobacco is crucially dependent on support from the public.

3.3.4 *The growth of community involvement*

A feature of recent years has been the growth of community involvement in public health. Grassroots action has played a particularly important role. Some community groups have been primarily concerned with encouraging governments to take action, while others have been directed towards self and mutual help. Alcoholics Anonymous, a long-standing mutual-help group for those dependent on alcohol, has expanded its activities to many parts of the world. Al-Anon, for family members of alcohol-dependent people, has similarly expanded and provided a model for groups for family members of those dependent on other drugs. In many countries, other indigenous mutual-help groups have been formed, such as Nicotine Anonymous and Narcotics Anonymous for those dependent on tobacco and other drugs.

Professional thinking and action in the illicit drug field have also moved towards involving the community, family members and drug users themselves in responding to drug-related problems. In many countries, drug-free "therapeutic communities", often involving both state and private action, are an important part of the treatment system for drug dependence.

4. Drug-related problems and patterns of use

4.1 Types of drug-related problems

While the main emphasis of this section is on the problems associated with drug use, it should also be noted that, from the perspective of the drug user, psychoactive drug use usually has an initial association with pleasure or euphoria, or at least with relief of pain and anguish. The pleasure may derive as much from the circumstances associated with the use – the occasion and the companionship – as from the drug use itself. Of course, for those who become dependent on or experience other problems from drugs, dysphoria may eventually outweigh any pleasure.

If use of caffeine is included, use of certain psychoactive drugs has been an accepted part of social custom in nearly all cultures. Similarly, use of certain psychoactive drugs is legal in all countries. Governments have frequently recognized and benefited from the attractiveness of licit psychoactive drugs such as alcohol and tobacco by taxing their use as a considerable source of revenue.

The major drug-related problems for the user can be regarded as having two dimensions. One dimension is the pattern of use: the problem may be associated with a single drug-using event – for instance an overdose of heroin or a drink-driving casualty – or rather with a sustained pattern of use – for instance tobacco-related lung cancer or barbiturate dependence. It is possible for both a single drug-using event and a sustained pattern of use to contribute to a problem; for instance, a suicide may involve both acute intoxication and a history of alcohol-related depression.

The second dimension is the type of problem. Major types of problems include physical health consequences such as death due to a drug overdose, drink-driving casualties, cirrhosis of the liver and oesophageal cancer; mental health consequences such as "bad trips" and depression; and social consequences such as arrest and family or work difficulties. Such problems may be classified as acute, for instance the physical health problems of drink-driving casualties, or chronic, for instance cirrhosis of the liver. Acute problems tend to be related to drug-use events and chronic problems to sustained drug use; however, a drug-use event may result in a permanent impairment (e.g. due to HIV infection), and a sustained pattern of use may culminate in a medical emergency.

Different drugs tend to be associated with particular problems. Some types of problem are rare or unknown for particular drugs; for instance, tobacco smoking is not usually associated with casualties (except for casualties from fire), and chronic adverse health effects of oral opioid use are rare. However, the range of problems associated with a drug is influenced by other factors, such as the mode and pattern of use. For example, variations in the dose taken on a single occasion will greatly affect the likelihood of overdose and of casualties, and use of a needle in administration will increase the risk of HIV infection. In addition, a pattern of intermittent use

is less likely to be associated with chronic health problems than a pattern of sustained or frequent use.

Modes and patterns of use vary greatly from one culture to another, and between different groups within a culture. As a result, profiles of problems can vary dramatically for the same drug. For cocaine use, for example, different effects are observed in people who chew coca leaves in the Andes and in those who inhale purified cocaine in its free base form in North America. The health consequences for the user are strongly related to the characteristics of the drug itself, and to the mode and pattern of use. Even so, social and environmental factors can also play a role. For example, where cars are widely used and roads are well designed, the profile of traffic casualties related to drink-driving will differ from that where traffic is more intermittent and pedestrians and vehicles share the roads.

The social consequences of drug use are largely determined by social and environmental factors, such as the legal status of the drug. The possibility of imprisonment or other penalties only arises where a pattern of purchase or use is defined as illegal. The legal status of the drug will also affect the pattern and mode of administration, with illegality tending to push a drug into more concentrated forms and its use into more health-threatening modes of administration. Criminal law may also be used to influence the patterns of use of a licit drug, as with drink-driving and public drunkenness laws, and this will also affect the profile of drug-related problems at the individual level.

More broadly, the social consequences of drug use (and many other drug-related problems) are determined not only by the behaviour of the user but also by the reaction of those in the social environment. The existence and extent of social problems associated with a given drug-using behaviour will depend on the extent to which the behaviour is tolerated or sanctioned by others, whether family members, colleagues, friends or strangers. This tolerance or intolerance, in turn, will be strongly affected by cultural norms and the public's perception of the drug use and its consequences.

There are potentially also problems for non-users associated with drug use, which must be taken into account in constructing a profile of drug-related problems. Studies suggest that people who are exposed to tobacco smoke (including unborn children) are at increased risk of developing a variety of health problems. Heavy drinking may be associated with violence, so that there is an alcohol-related burden of casualties and crime. The family of the drug user may be adversely affected by the time and money spent on drug use. At a broader societal level, drug use and problems related to drug use may affect productivity, although this is difficult to measure realistically in economic circumstances of less than full employment. Drug use and associated problems will also affect health care costs, welfare costs, and costs associated with the criminal justice system. Results of studies to quantify the costs to society of alcohol, tobacco and other drug use will vary considerably according to the assumptions made,

but there is no doubt that the costs can be very large, particularly for drugs with serious health consequences that are widely used. From the perspective of governments, such studies would also consider the tax revenue from sales of licit drugs, the revenue from fines for drug-related offences and even the reduction in pension costs resulting from early mortality of drug users.

Rational policy-making about drugs, whether at the international, national or community level, requires a detailed knowledge of the profile of problems for the user and for others associated with particular drugs. The profile will vary from place to place, as well as over time, and a programme of epidemiological monitoring, both of patterns of harm and of patterns of use, will be an important part of the process. Monitoring is needed, not only to establish the extent of the need for services and for prevention programmes, but also to identify ways in which particular kinds of drug-related harm can be reduced. Prevention programmes may involve measures to discourage use, measures to discourage particularly hazardous patterns of use or measures to reduce the drug-related problems directly. For example, harm from passive smoking can be reduced by requiring separate non-smoking sections to be provided in restaurants, and casualties related to drink-driving can be reduced by requiring cars to be equipped with airbags or seat-belts to be worn in cars. The transmission of HIV infection can be reduced by educating intravenous drug users about sterilizing needles. Although such measures may be controversial, they should at least be considered for implementation as part of a broad public health approach for reducing the burden of drug-related harm.

4.2 Indicators of drug-related problems

Indicators of the social consequences of various patterns of drug use include such measures as drug seizures, and drug-related arrests and imprisonments. These provide crude measurement of shifting trends in drug-related crime but may simply reflect the level of policing activity. Data on hospital admissions, including admissions to accident and emergency departments, drug-related deaths, and levels of hepatitis and HIV infection provide an index of the health consequences of drug use. Many of these are poor indicators, not only because of the incompleteness of the data but also because effective prevention campaigns should reduce some of these harmful consequences of drug use (such as the HIV infection rate).

Process indicators within the population making contact with a range of treatment services may provide a more accurate picture. Such indicators might include: average time between drug use (including use of intravenous drugs) and presentation at the service site; time between onset of dependence and use of service; time between first use of intravenous drugs and contact with a needle-exchange programme; and patterns of

risk-taking behaviour such as intravenous drug-taking and sharing needles and syringes.

In recent years a range of biological markers has proved to be of considerable value in detecting excessive use of alcohol, before serious health problems result. These markers vary considerably in sensitivity and specificity. Detection of serum antibodies to acetaldehyde-protein adducts or haemoglobin adducts can be used to identify 40-50% of excessive drinkers at a very early stage. Radiological evidence of old fractures serves as a useful marker of repeated intoxication that can detect about 70% of heavy drinkers among patients of primary care physicians. However, the best detection so far, with respect to both sensitivity and specificity, is provided by measuring blood levels of carbohydrate-deficient transferrin and gamma-glutamyl transpeptidase and mean corpuscular volume. Furthermore, it is expected that better markers will soon be available at low cost for routine health screening.

The situation is considerably less promising for controlled drugs than for alcohol. In part, this is the result of different objectives and purposes. Most of the markers of alcohol use are detectors of minimal, subclinical levels of damage, and their purpose is to detect excessive use before serious damage results. Similar indicators might exist that could be used to detect use of solvents. As long as the purpose with respect to controlled drugs is to detect any level of non-medical use, even levels that have not been shown to be associated with any recognizable harm, the only usable marker is the presence of the drugs or their metabolites in the blood or urine. So far, no markers of early biological effects, comparable to those used for alcohol, are available for controlled drugs.

The emergence of HIV infection and AIDS has further emphasized the importance of having reliable epidemiological data on the prevalence of injecting and non-injecting drug use in the community. There are major regional variations in the prevalence of HIV among injecting drug users in Europe. Saliva samples have been collected anonymously for HIV testing from a range of people in contact with health services as well as from others (e.g. prisoners). There is considerable risk of sampling bias in such studies, which suggest that the prevalence of HIV infection among intravenous drug users is up to 58% in France, 20% in Germany, 30-80% in Italy, 30% in the Netherlands, 40-60% in Spain and 1-5% in the United Kingdom. Reports from India, South America and Thailand indicate that the infection is spreading rapidly among certain groups of injecting drug users and among some non-injecting drug users. Such variations in HIV prevalence may be related to the level of knowledge and perceived risk of HIV, in particular, when the virus first started to spread in these countries. The factors that appear to be primarily responsible for the rapid spread of HIV among drug users are: (i) lack of awareness about AIDS; (ii) sexual contact; and (iii) sharing of needles and syringes at sites frequented by drug users.

5. Approaches to prevention

A wide variety of strategies have been used in the prevention of drug-related harm. Since the twentieth meeting of the Committee, many published reports have evaluated the effects of particular programmes or interventions to prevent drug use or drug-related problems. While these reports have enabled conclusions to be drawn about what works well under what circumstances, and what seems usually to have little effect, they have two major limitations. Firstly, they are based on experience in a relatively narrow range of developed societies, and extreme caution must be used in extrapolating from them to the likely effects in different social circumstances. Secondly, evaluation techniques measure short-term effects better than long-term effects, and the possibility of paradoxical outcomes in the long term must be kept in mind. Nevertheless, short-term effects are important in their own right, and the increased availability of data on programme and policy effects has contributed to the development of well-founded drug control policies. However, such data are no substitute for monitoring and evaluating the effects of undertaking particular interventions.

5.1 Public health regulation

5.1.1 *Forms of regulation for public health purposes*

Regulation of markets in psychoactive drugs for health purposes is an important instrument for the prevention of drug-related harm. Such regulations create and regulate a legal market for the drugs and permit producers and sellers to operate in it under certain conditions. The legitimate producers and sellers have strong incentives to comply with the regulations – incentives that encourage self-enforcement and are often more effective than is the threat of criminal sanctions on consumers. In their own self-interest, the legitimate producers and sellers are also in alliance with the state against any illicit market.

Regulation of psychoactive drug markets for health purposes has taken three main forms. One form is the system of prescriptions that applies to most medicinal psychoactive drugs as well as to other potentially harmful drugs, which is linked to the international conventions and related control structures. In principle, including a substance in this system involves the decision that use of that substance for pleasure is unlawful, although actual practice, in leaving the decision on access largely in the doctor's hands, may depart from this principle.

A second form of regulation consists of a *specific* control structure and regulations for marketing a particular class of psychoactive drugs. This form is widely used for alcohol, particularly in countries where alcoholic beverages have only recently become available. Several alcohol control systems (including agencies with specific roles) have been set up to minimize the social as well as the health problems related to drinking. Such systems are not usually under the jurisdiction of health authorities. Although some such agencies have lost sight of their original objective, experimental and legislative

studies have shown that various dimensions of their control regimes, such as individual rationing, restrictions on the number of outlets, restricted opening-times and minimum drinking ages, can reduce levels of consumption and also modify patterns of use so as to reduce the harmful consequences of drinking. The Committee recommended that the health sector should coordinate with alcohol control agencies to promote public health interest. It has been proposed that alcohol control systems could be adapted and used for other psychoactive drugs; for instance, in some countries proposals have been made to put tobacco under the alcohol control system or to set up a parallel system.

A third form of regulation is the use of *general* health or marketing regulation structures to control or influence availability. This form of regulation is widely used for tobacco and for over-the-counter pharmaceuticals, including those containing limited quantities of controlled drugs, and tends to be more flexible than either of the preceding forms. For both tobacco and over-the-counter pharmaceuticals, health authorities often have jurisdiction on the composition of the preparation as sold, with the aim of minimizing the harm from use (e.g. limiting tar in cigarettes). Enforcement of other restrictions, for instance a minimum purchasing age, is often not under health authority jurisdiction.

The role of price controls (including taxes) in controlling the levels of consumption of psychoactive drugs is also important. This measure can be applied whatever the control system, and in fact decisions on such taxes are usually taken outside the health sector. While, by definition, part of the demand for a dependence-producing drug will be relatively unaffected by its price, it has been repeatedly demonstrated that increases in the price of alcohol and tobacco reduce consumption, especially among young people. Higher prices for these products tend to limit harmful use and discourage new recruits, as well as increasing tax revenues for the government. Apart from the degree of public support, the main limit on this intervention is that too high a price may encourage users to purchase the products from illicit markets.

5.1.2 *Regulation of traditional use of naturally occurring psychoactive drugs*

In the context of its pre-review of psychoactive drugs (see section 10), the Committee discussed the advisability of prohibiting under the international conventions plant products containing psychoactive substances that are traditionally used by indigenous populations. Such products are used by populations in various parts of the world and they usually have only mild psychoactivity in the form used. A few of these have come under the scope of the international controls, and in the Committee's opinion there are a number of others with similar pharmacological profiles. However, the Committee felt that the social problems resulting from the prohibition of these products under the international controls might outweigh any health benefits. Several instances were cited in which prohibition of drugs with traditional patterns of use had caused unforeseen

problems. The Committee suggested that, if regulatory control of these products was considered appropriate, a national control system might be used to regulate the market, such as many countries use for alcohol. In view of the range of such substances and the variety of patterns of traditional use, the Committee recommended that WHO should consider studying these patterns of use and their health and social implications with the aim of identifying appropriate measures to reduce any harmful consequences, and making recommendations concerning international control provisions.

5.1.3 *Regulation and the rational use of medicinal psychoactive drugs*

Data from reports of the International Narcotics Control Board (INCB) show marked differences in the medical use of opioids between different countries. For example, opioid use in 1986-1990 in one country in Western Europe was 10 times as high as in a neighbouring country, when measured in terms of the per-capita consumption. Such variations between countries might be due to differences in the prevalence rate of certain diseases, the training of physicians, the regulation of the prescribing practices of physicians, or cultural attitudes towards the treatment of pain and other symptoms of disease.

The Committee felt that there was a great need to ensure, in seeking to reduce the non-medical use of therapeutic psychoactive drugs, that patients with legitimate medical needs are not prevented from being treated with adequate amounts of appropriate medications. Evidence suggests that medical needs for opioids are not being fully satisfied (*18*), particularly among patients with cancer, who may require large doses of opioids to obtain optimal pain relief (*19*).

The Committee recommended that WHO should promote the appropriate use of opioids for the relief of pain through education of health care professionals (nurses, pharmacists, physicians), health authorities and the general public to ensure that patients with legitimate medical needs receive adequate treatment. As discussed in section 2.2.1, the manifestation of withdrawal syndromes in cancer patients given opioid analgesics is not by itself sufficient evidence of dependence. The Committee noted that INCB reports on the use of narcotic analgesics had indicated that progress has been made in increasing the appropriate use of such medications in certain countries. However, there are still many areas of the world where patients continue to suffer needless pain because of the reluctance of health care workers to provide adequate amounts of opioid analgesics.

The Committee also recognized that care must be exercised in the prescribing of other therapeutic medications that can produce dependence. The benefit derived from the use of amfetamines for the treatment of obesity, for example, is not generally considered to be great enough to justify the risk of dependence and associated toxicity. A similar case might be made for the use of benzodiazepines for the long-term treatment

of anxiety or sleep disorders. The Committee recommended that, where a dependence-producing medication is being considered as a treatment, the physician should weigh the possible therapeutic benefits against the risks of dependence and associated toxicity. Appropriate education of nurses, pharmacists and physicians should ensure that such medications are used in a manner that will optimally benefit the patient.

5.2 Educational approaches to prevention

Educational approaches to the prevention of drug use and drug-related problems have been used in many countries. Common approaches have included educational programmes for schoolchildren and public information campaigns on electronic and other media. Evaluations of the short-term effects of such approaches suggest that while they may increase knowledge of the problems associated with the use of tobacco, alcohol and other drugs, they are not as likely to influence attitudes or behaviour. It is possible that there are long-term positive effects of such campaigns, but it seems unlikely in the absence of short-term effects. Effects on behaviour are more likely when other activities or factors support the messages of the programme or campaign. For instance, educating schoolchildren about the effects of tobacco use seems to have been more effective in discouraging uptake of smoking in societies where smoking is no longer considered to be socially acceptable.

General principles of communication can be applied to increase the effectiveness of educational approaches aimed at reducing drug use or drug-related problems. The message should be clear and unambiguous to the intended audience, and should come from a credible source of information. The message should also provide specific advice, rather than general, and as far as possible the information should be new to the audience and should be capable of provoking discussion or action.

Most importantly, educational approaches should not be planned and carried out as isolated activities. To be effective, such approaches should be regarded as an element in an integrated plan of action involving other strategies.

5.3 Community approaches

In a number of countries, recent years have seen a strong emphasis on action at the community level to prevent drug use and drug-related problems. Basing preventive interventions in the community brings preventive action to the level of people's everyday lives and actions, and contributes to WHO's emphasis on strengthening primary health care. Action at the community level is also important since communities often bear the main burden of dealing with the harmful use of drugs and drug-related problems.

Community approaches have ranged from autonomous grassroots efforts to what has been essentially a sponsored professional effort, where a

government has offered resources to coalitions of community health and social agencies that have proposed to plan and coordinate community responses to drug-related problems. Often grassroots activities have occurred in response to a crisis in the community and then ceased; however, there have been instances of community-level groups uniting to form an organization to deal with drugs and drug-related problems. The most effective strategy may lie between these two extremes in terms of community ownership, where a community worker or team located in the community promotes community action on drug-related problems and issues. It is advisable that such a community worker or team be in regular communication with colleagues in other communities and with sources of technical assistance.

Much of the work of the community worker will involve establishing agreements on community activities with and between interested parties in the community. These will usually include primary health care and other community health workers, who often have a particularly clear view of the various drug-related problems in the community. The community worker needs, on the one hand, to be flexible and opportunistic and, on the other, to keep a clear eye on the overall goals of reducing harmful use of drugs and drug-related problems. A variety of approaches should be used, aimed not only at providing information and education about drugs and drug-related problems, but also at modifying the community environment through regulation (see section 5.1), providing alternative recreations and pursuits to drug use, and influencing public opinion in the community about drug use and problems and their prevention and handling.

5.4 Environmental approaches

The decision to use drugs on a particular occasion, the form and extent of drug use, the behaviour that accompanies and follows drug use, and the consequences of drug use are all largely influenced by the physical and social context of the occasion. For example, drink-driving casualties can be prevented if a person who has been drinking can get home without driving. Consequently, environmental approaches can be effective in preventing drug-related problems. By their nature, such approaches have a more direct effect on problems related to single drug-using events than on problems related to the cumulative pattern of use; however, a repeated effect on single drug-using events can lead to an effect on the cumulative pattern.

Environmental approaches require detailed studies on the patterns of drug use, the development of drug-related problems, and on potential cofactors in causing the problems (see section 4.1).

A popular approach to the prevention of drug use and drug-related problems is the provision of alternative activities and pursuits. Often the programmes that result teach useful skills or provide useful services, and thus have a strong justification regardless of their effect on drug use. Evidence for a significant effect on drug use itself, however, is limited.

5.5 Deterrence approaches

As noted in section 5.1.1, efforts to deter legitimate suppliers from illegal activities are frequently more effective than efforts to deter potential customers from illegal activities.

One aim of criminal law is to deter a forbidden behaviour. A criminal law can be viewed as relatively ineffective if many people are caught breaking it and are thus subject to arrest and punishment. From this perspective, the crowding of prisons with drug offenders in many countries is evidence of the ineffectiveness of criminal laws in those societies in deterring participation in the illicit drug market. In some countries, the use of prison as a deterrent to the possession of illicit drugs has also worsened the problem of overcrowding of prisons. "Civil punishments" for drug use, such as the threat of job loss if a urine test is positive for drugs, will have the same deterrent effect.

General deterrence studies indicate the conditions under which a criminal law is most likely to be effective: punishment for breaking the law is relatively quick and relatively certain, and the penalty is seen to be appropriate to the crime. The most effective recent approach to deterring drink-driving has been to carry out an intensive and continuing programme of random checks among drivers to test their breath for alcohol content. In some countries, however, such a programme would be seen as an unacceptable infringement on privacy rights. In view of the varied needs of individuals and attitudes to what is and what is not acceptable in different cultures and societies, there is a need to look beyond deterrence towards alternative approaches.

5.6 Public opinion

The structure of public opinion about drugs often undermines the effectiveness of rational drug control policies.

For example, the widespread acceptability of cigarette smoking in almost all societies has made tobacco smoking a familiar and companionable behaviour, and one that can be fitted into almost all routine daily activities. In many societies, drinking has also become established as a socially acceptable behaviour, often associated with other activities, and so familiar that it may not even be noticed. The situation is often supported by a number of vested interests in the society. For example, the industries that market tobacco and alcohol products argue that, as producers of legal products, they have a right to promote their products without restraint.

In such circumstances, priority should be given to educating the public not only about the problems related to smoking and drinking but also about the purposes and effectiveness of preventive measures. Proposing new regulatory or other preventive measures frequently promotes public debate, which, because it raises the public's awareness, may be a more important preventive measure than the proposed measure itself.

Conversely, a lack of knowledge about illicit drugs can contribute to excessive public concern and lead to ill-considered policy-making. Public health workers and policy-makers face the task of discouraging potentially counterproductive over-reactions, and of keeping a place for ex-drug users in society, while still effectively discouraging the harmful use of drugs. Emphasizing the problems that result from the use of drugs that are legal and accepted in the society tends to underline the generally hazardous nature of psychoactive drug use, and thus becomes a way of promoting preventive measures.

6. Treatment responses to harmful use of psychoactive substances

6.1 The importance of treatment

There is a widespread need to strengthen the treatment response to psychoactive drug use. At present, the extent and quality of care available to drug users are often inadequate, particularly because some service providers may regard drug users as unworthy of help. Furthermore, members of the drug user's family, whether parents, partner or children, are likely to experience a variety of adverse social, economic or health consequences of drug use. The longer the affected person continues untreated, the greater will be the burden of family suffering. Ready availability of help for the drug user is thus in the interests of the family, as well as of the user. The family also has a right to support and assistance.

Although the target populations, goals and delivery mechanisms for treatment are in many ways distinct from those for prevention, in other aspects the two components are synergistic. For example, early intervention or education of drug users delivered in the primary care setting can make a highly significant contribution to prevention, while treatment of established dependence can contribute to the prevention of morbidity, social disadvantage or mortality. The importance of treatment services in contributing to the prevention of HIV transmission among intravenous drug users is referred to in section 6.3.4.

Failure to provide adequate treatment for drug-related problems is likely to prove costly to health services and to the community. For example, those engaged in the harmful use of drugs will, if untreated, continue to cause costs to health and social services of every kind, put strains on prisons through their inappropriate diversion to the penal services, and cause indirect social costs through loss of productivity.

Furthermore, a community that provides adequate treatment for drug users and their families is making a public statement that such problems are to be taken seriously and with due commitment. A treatment service, informed health professionals (especially primary care staff) and ex-drug users can all act as agents of change and help to increase community awareness.

6.2 The need for a multiple and integrated treatment response

6.2.1 *The need for a diverse response*

There are many different types of psychoactive drugs, each of which will have its own characteristic problems and patterns of use. Similarly, the drug users will vary widely in age and ethnic background, and will include the homeless or itinerant as well as people living in fixed dwellings. The presentation of the drug user to the health service may be early or late, with or without a high degree of dependence. There may be a wide and varied need for treatment of social, physical and mental problems related to drug use. The overall treatment response must therefore be designed in a flexible, patient-oriented, and family-oriented manner, so that the treatment offered to the individual drug user accurately matches that individual's needs, rather than the needs of any one perceived stereotype.

6.2.2 *Primary health care*

In planning the treatment response to drug-related problems, emphasis should be put on developing primary care and community-oriented services. General practitioners, primary health care workers, pharmacists, social workers, medical or psychiatric assistants, and other community health agents should be trained to screen and detect drug use, to make contact with drug users, to encourage them to seek help or continue treatment, and to deliver care. Self-help organizations such as Alcoholics Anonymous, Al-Anon, and Narcotics Anonymous should also be involved.

6.2.3 *General medical and psychiatric services*

The initial presentation of harmful use or dependence is often to general medical services – for instance, casualty departments – or to general psychiatric services. Enhancing the capacity of doctors, nurses, midwives and other health care professionals in these settings to detect and deal with drug-related problems, or to make appropriate referrals, is therefore an important element of service development.

6.2.4 *Specialized services*

Despite the emphasis given in this report to the role of primary care and general health services in response to the harmful use of drugs and dependence, the potential contribution to be made by specialized services should not be undervalued. Nevertheless, exclusive reliance on specialist services would be unproductive, and it would be unhelpful to isolate such services from health workers at other levels. There will be some drug users for whom a phase of intensive or prolonged specialist care will be indicated, many instances where care can be shared between general and specialist services, and many other instances where specialists can provide technical assistance or medical back-up to primary care workers, or provide referral services to general hospitals.

6.2.5 *Treatment within the penal system*

The Committee noted that studies had been conducted on treatment for drug users within the prison system. While the Committee welcomed these studies, it felt that, whenever feasible, it was more in the interests of health to direct such persons out of prisons and into more positive kinds of treatment programmes. Within different jurisdictions various treatment programmes have been mandated by courts. The Committee recommended that, whenever compulsion is employed (whether through courts or through health legislation), mechanisms to safeguard the human rights of drug users should be in place, as should mechanisms to reintegrate ex-drug users into the community.

6.2.6 *Treatment services in the community context*

The emphasis given in this report to the role of primary care and general health services in the treatment of dependence and other drug-related problems implies that treatment services should be community-oriented. Accordingly, attention should be given to how the treatment services are to be responsive to community needs, support community aims, and draw support from all aspects of the community. The community should be informed what treatment is on offer and what it seeks to achieve, so that drug users are encouraged to seek help and the stigma associated with treatment is removed. Such an approach should assist the reintegration and rehabilitation of treated drug users in the community. It is also important that treatment services establish contact with schools, places of further education, employers and professional organizations to ensure that ex-drug users have access to employment, education and training. The special needs of community health workers who have themselves developed drug-related problems may also need to be considered.

6.3 Health service planning

6.3.1 *The need for planning*

As already stressed, the harmful use of drugs and dependence pose complex problems for many sectors of the health and social services. Whatever the national level of development, an optimum deployment of available resources to meet this situation will be achieved only by careful planning. This implies the establishment of an epidemiological base, the assessment of needs, the setting of targets and priorities, and the establishment of evaluation and monitoring activities. At both national and local level, the planning of responses to drug-related problems should not only be integrated with general health and social care, but should also involve other sectors.

The general issue of research and evaluation needs is dealt with in section 7. Here, it may simply be noted that continuous research and evaluation should be an integral part of health services for drug users.

6.3.2 *Planning in relation to the problems posed by different types of drugs*

At the primary level, the responses to different types of drugs are integrated because there is only one practitioner or team to deal with all types of drug-related problems as presented in individual drug users and their families. Even so, it may be necessary to emphasize the need for a variety of treatment activities directed at the full range of drugs, including nicotine, alcohol, medicinal psychoactive drugs and inhalants. At a more specialized level, although a degree of integration and sharing of expertise and facilities is still highly desirable, specialized services may need to be separately planned and developed for different types of drugs.

6.3.3 *Professional training*

Whatever the proven efficacy of any given treatment approach, optimum results will be achieved only if personnel are adequately trained. Training must therefore be an integral part of service planning. The main requirement is for widespread teaching of simple screening and counselling skills for use in primary care and general health services. The need to teach advanced skills for specialist treatments should not, however, be ignored; a methadone treatment programme, for instance, will only be as good as the training, commitment and competence of its staff.

6.3.4 *Planning needs related to the emergence of HIV*

Many countries are currently having to reorient their treatment services so as to deal with the problems posed by HIV. In view of the risk of transmission of the virus through intravenous drug use, and through sexual contact, priority should be given to reviewing treatment services for drug users so as to ensure that they are appropriate to the evolving problems posed by HIV and AIDS. In some countries, sterile needles and syringes and condoms have been provided. It is expected that an expansion of properly controlled oral methadone treatment will, where acceptable, also reduce HIV transmission.

It will be increasingly necessary to provide hospice facilities for drug users who are manifesting terminal complications of HIV infection.

6.3.5 *Planning services in developing countries*

In spite of resources often being scarce, over recent years many developing countries have made great advances in health service planning, with emphasis on primary care development. Drug-related problems are becoming increasingly common in the developing world – for instance, due to the use of alcohol in large parts of Africa, cocaine and alcohol in Central and South America, and opioids in Asia, and cigarette smoking in almost all countries. With many other demands on health care, there is a risk that drug-related problems may be accorded only low priority in these countries. In planning and developing treatment services, however, it is

essential to include a primary care response to drug-related problems, especially since they are likely to interact with and exacerbate many other types of health and social problems.

6.4 What can be expected of treatment?

Individual drug users, their families, health professionals, planners and communities need to understand what can and cannot be expected from treatment of dependence and other drug-related problems. If a balanced and informed view is not established, there will be the risk of either too great optimism or unfounded pessimism.

6.4.1 *The essentials of the treatment process*

Treatment for drug use has certain common elements. It assists the drug user to see his or her problems from a different perspective, enhances self-reliance, empowers the individual to make choices and work for change, confers self-esteem and gives hope. At the same time, it must ensure access to physical and psychiatric care and social assistance, and be oriented towards the family as well as the individual.

6.4.2 *The need to take a long-term view*

In some cases, a simple and short-term intervention will result in an immediate improvement, and the frequent efficacy of simple interventions given in the primary care setting is becoming increasingly apparent. However, in many others, treatment will have to be regarded as a long-term or even a life-time process, with the occasional relapse. The aim of treatment services in such instances cannot be to "cure" patients immediately, but rather to improve their health or social functioning gradually, to encourage them to try again, or to avoid some of the most serious consequences of drug use. This does not imply that practitioners should assume that treatment is unsuccessful in such patients. On the contrary, treatment should be viewed as supporting the natural and long-term processes of change and recovery.

6.4.3 *Harm minimization*

The concept of harm minimization or harm reduction has recently become popular in some countries. This concept is directed towards the achievement of intermediate goals as a half-way stage to achievement of the drug-free ideal, and the employment of strategies that decrease the risk of health and social consequences of drug use, such as nicotine replacement for cigarette smokers or methadone maintenance for opioid users.

6.4.4 *The development of treatment services*

In the same way that treatment of the drug user should be regarded as a long-term process with intermediate goals, so the development of treatment services should occur in stages. Different countries will develop

services in different ways. Some countries have, for instance, invested heavily in specialist services at the initial stage, and have subsequently found that such services cannot by themselves meet the total needs of the population. In other countries, the initial response has been through primary care services, with support from specialist services developed at a later stage. For treatment services to be successful, they should be planned on the basis of an assessment of the total needs of the population. While it may not be possible to satisfy all the various needs during the initial stage of development of the service, the aim should be to employ a variety of treatment methods appropriate to the different needs of drug users and the different stages of treatment, rather than any single approach applied in isolation.

7. Research and evaluation

The Committee noted that a wide range of research recommendations directed to WHO had been made at its previous meetings. These included recommendations for epidemiological studies to develop instruments for determining the incidence and prevalence of harmful use of psychoactive drugs, dependence and other drug-related problems. Recommendations had also been made for research to identify and study the interaction between the main biological, psychological, social and economic factors leading to the harmful use of psychoactive drugs. The Committee noted the importance of such research for the development of effective prevention and treatment interventions, which are needed urgently throughout the world, particularly in view of the emergence of AIDS and its association with psychoactive drug use. Such interventions should include measures to decrease the sharing of needles and syringes among intravenous drug users, as well as measures to reduce any use of psychoactive substances that leads to high-risk sexual activities. The Committee noted that such interventions could also be regarded as strategies to reduce the spread of AIDS.

The constraints of evaluating interventions in practice mean that careful thought needs to be given to the research methods to be used. An appropriate experimental design will permit the evaluation of the effectiveness of an intervention, though even a "natural" – unplanned – experiment can provide valuable insights. Where possible, a number of complementary research methods, both qualitative and quantitative, should be used.

The Committee recognized that research on prevention and treatment interventions had not always been appropriate to intervention practice, and this had limited the usefulness of such research to the practitioner. Accordingly, it recommended that such research should be matched to intervention practice by more careful selection of research methods and also by more appropriate dissemination of research findings among practitioners dealing with drug-related problems.

The Committee noted the role of WHO in the training of researchers, particularly in developing countries, in all the disciplines relevant to the study of the harmful use of psychoactive drugs. Concern was expressed, however, about the training of researchers to use techniques and procedures that exceed the resources of their country of origin.

The Committee felt that some form of evaluation should be incorporated in both treatment and prevention interventions as a matter of routine. Recent studies on evaluation have highlighted the importance of using research resources to assist the planning and implementation of treatment and prevention interventions, rather than focusing the majority of resources on measurement of outcome. Such research activity, often described as formative evaluation, includes: defining the objectives of the intervention, evaluating previous interventions aimed at reaching similar objectives, analysing the context in which the intervention will be implemented, monitoring the implementation of the intervention using measurable intermediate goals, and using feedback from those involved in the intervention to improve it.

Formative evaluation should ensure that only those approaches that are cost-effective are developed. Formative evaluation should not, however, discourage the development of innovative approaches to the treatment and prevention of drug-related problems.

The Committee recognized that, when research resources were limited, they would be most effectively used in formative evaluation, as described above. However, when possible, evaluation should also aim to assess the outcome and to describe the process of the intervention. Outcome evaluation can use the measurable targets set as part of the formative evaluation process. Often the long-term goal of the intervention, such as a reduction in drug-related harm, is not an appropriate measurable target for a small-scale, short-term intervention, and intermediate goals will need to be used.

8. The need for an integrated national policy on psychoactive drugs

In the context of both national and international policy-making, the health sector may often be overshadowed by financial and other sectoral interests. One of the reasons for this is that many factors influence the health of individuals and the general public more than the actual provision and promotion of health care. Such factors include general standards of living (such as housing, income and education), exercise and leisure, diet, use of dependence-producing substances, general social support and environmental health. The control of dependence-producing drugs and the minimizing of the health consequences of their use should be an important objective of government policy. The establishment of priorities and clear objectives is, however, complicated by the variety of influences competing for the political agenda.

In some countries, for example, there may be no government policy limiting the promotion and distribution of tobacco, solvents and alcohol. The growth in tobacco consumption may be low on the overall political agenda as an issue requiring control policies. Government policies may also be inconsistent – the promotion of alcohol and tobacco may be unrestricted while the use of drugs that have less serious consequences may be illegal. It is often difficult for health-related issues to compete with financial and political considerations in the determination of social policy, particularly because of the range of interests involved in the promotion and distribution of licit psychoactive drugs. Nevertheless, governments should balance the revenue from sales and taxes on such products against the longer-term health consequences of consumption.

A rational drug control policy is an essential tool for fostering health promotion, irrespective of the legal status of individual drugs, and the absence of such a policy will result in considerable public health costs. It is important, however, that such policies not only emphasize the public health benefits of controlling psychoactive drugs, including health promotion, but also give due attention to the rights and responsibilities of individuals, including responsibility for the consequences of their behaviour.

9. Recommendations

9.1 Integration of approaches

1. The Committee commended WHO on its integrated approach to the problems presented by the use of tobacco and the harmful use of alcohol and other psychoactive drugs, and recommended that prevention and treatment services should, wherever possible, be concerned with the harm produced by all of these drugs.

2. The development of treatment services for drug-related problems should be integrated with that of the mental health services, and the primary and general health services, and resources allocated accordingly to maximize their effectiveness. For instance, many activities relating to prevention, treatment and follow-up are best carried out in a primary care setting.

3. To the extent possible, demand reduction programmes should be based on a comprehensive approach to all potentially harmful psychoactive drugs. Thus, attention must be paid not only to illicit drugs, but also to alcohol and tobacco, medicinal psychoactive drugs and volatile solvents to ensure that a reduction in health problems due to illicit drug use will not be offset by an increase in problems due to the use of other drugs. The Committee recommended that WHO should collect and disseminate information in this area.

4. Intersectoral collaboration needs to be encouraged. The sectors involved will vary between countries, but will be likely to include a wide

range of government agencies, nongovernmental organizations, community organizations and the community itself. Achieving policy goals in this area will also require collaboration between health and non-health sectors, as well as between the public and private sectors. WHO should draw attention to successful intersectoral collaborative efforts that might serve as models.

9.2 Definitions and use of terms

The relation of the terms and definitions used in the international drug control conventions and procedures to present-day public health terms and concepts should be studied. The information obtained should be used in revising the specifications for the data needed for scheduling drugs under the international conventions.

9.3 Health promotion and the prevention of drug use and drug-related problems

1. The Committee noted that many published reports have evaluated the effects of particular programmes or interventions to prevent drug use and drug-related problems. Such information should be taken into account in developing government policies on alcohol, tobacco and other psychoactive drugs. Nongovernmental organizations play a crucial role in the development of such policies and are likely to become increasingly important in many countries as the size of the state health sector shrinks. These organizations have, in many parts of the world, increased public participation as part of a community approach to the prevention of drug-related problems. The Committee therefore recommended that WHO should collaborate with such organizations to facilitate their understanding of effective strategies to prevent drug use and drug-related problems and of their potential role in the development of policies.

2. The Committee recognized the commercial promotion of alcohol and tobacco as an issue of considerable concern, and one that is likely to reduce the effectiveness of efforts to prevent problems related to the use of these drugs. Increasing global media networks make national attempts to control such commercial promotion difficult. However, the Committee recommended that Member States should consider prohibiting such advertising, particularly on radio and television and in cinemas. Furthermore, the Committee recommended that WHO liaise with other relevant international organizations to ensure that adequate consideration is given to the health consequences of advertising and to ways of broadcasting health-relevant messages internationally.

9.4 Treatment services

1. WHO should assist its Member States in strengthening their treatment services for drug users. Such services should regard treatment as a

long-term process that seeks to motivate, enable or empower the individual concerned to deal constructively with his or her own problems.

2. WHO should encourage the development of treatment programmes that are responsive to the complete range of needs of individual drug users and their families.

3. Treatment services for drug users can exist and operate properly only within a community context. Such services need to inform the community about what treatment is on offer and what it seeks to achieve, so that drug users are encouraged to seek help and the stigma associated with treatment is removed. They should also assist the reintegration and rehabilitation of treated drug users in the community. Although treatment services should be based on primary care, they should also collaborate with other community-oriented services and self-help groups, general medical and psychiatric services, and specialist services. The Committee recommended further study of experiences in this kind of integrated health care response to drug-related problems.

4. WHO should support its Member States in developing treatment services that can reduce the transmission of HIV through needle-sharing or sexual activity among drug users. The Committee realized that cultural sensitivities were involved, but given the appalling nature and scale of potential dangers for drug users, their partners and, in the case of pregnant women, their unborn children, urged that WHO should encourage open debate and flexibility in dealing with these problems. The Committee recommended treatment with oral methadone, where appropriate. On the basis of the current evidence, however, it considered that the prescription of injectable drugs should not be recommended for the treatment of drug-related problems.

9.5 Training

1. WHO should consider developing guidelines for keeping government officials and health service administrators up to date about the broader social and cultural issues involved in the supply of and demand for dependence-producing drugs, and the difficulties associated with treating drug-dependent individuals. Such guidelines should help to ensure that these officials cooperate with the health professionals responsible for treatment and rehabilitation programmes, and could be supplemented with appropriate training.

2. The education of health care professionals as well as health managers, administrators and policy-makers in relevant aspects of the harmful use of drugs is crucial to the development and implementation of comprehensive preventive and treatment policies and the provision of resources. For instance, doctors, nurses and pharmacists should be

taught about the rational use of medicinal psychoactive drugs during their professional training. In-service training also has a crucial role to play in the control of such drugs by ensuring that these staff are kept up to date with any changes and developments in recommended prescribing practices. Accordingly, the Committee recommended that WHO should promote training opportunities and regional cooperation in the provision of training facilities for all those working in the health sector.

3. The Committee recognized that a number of strategies are effective in reducing drug-related harm. Implementing these strategies will require intersectoral collaboration to ensure that all sectors are working towards the same goal. Health workers have a crucial role to play in facilitating understanding of effective strategies and encouraging their implementation by all sectors. Priority should therefore be given to increasing their capacity to implement these strategies. WHO should also promote the development and implementation of training activities for health workers that are appropriate to the priorities and needs of particular countries.

4. The Committee recommended that evaluation techniques, including those concerned with formative evaluation, be incorporated into WHO's training activities on the prevention of drug-related problems, in order to enhance the cost-effectiveness of those activities.

9.6 Regulatory control

1. Studies are required on the impact of international and national controls on the use of psychoactive drugs in medicine. While some studies have analysed the impact of the control of benzodiazepines under the Convention on Psychotropic Substances, 1971, more information is needed to guide the decisions of the Committee when making recommendations to WHO regarding the international control measures to be applied to individual drugs under that convention and the Single Convention on Narcotic Drugs, 1961.

2. Studies are required on the determinants of the differences in national levels of consumption, for medical and research purposes, of various controlled drugs. Apart from the possible implications for national drug control policies, such studies will yield useful information for the deliberations of the Committee and other relevant bodies.

3. The Committee recognized the need for health concerns, including those related to the use of licit drugs such as alcohol and tobacco, to be more strongly taken into account in regional and international trade agreements, and recommended that WHO should discuss these issues with relevant international organizations.

9.7 Research

1. The development and implementation of strategies to prevent problems related to the use of alcohol, tobacco and other psychoactive drugs will be facilitated by collaborative research studies that use a formative evaluation approach. Collaboration between countries with similar experiences of drug-related problems and similar drug control systems will be most likely to be effective. Studies carried out over several years and involving the participants in regular meetings and other strategies to exchange information would provide training opportunities for both researchers and practitioners, which would be of particular value to developing countries.
2. The overcrowding of prisons with those arrested for possession of small quantities of controlled drugs who are in need of treatment for drug dependence is costly and rarely effective. WHO should promote research directed at exploring the feasibility and consequences of programmes that divert those arrested for drug misuse from the penal system to the health care system.
3. WHO should encourage research aimed at decreasing the spread of HIV infection among drug users through needle-sharing and other high-risk behaviours. Furthermore, where effective procedures are found, WHO should initiate discussions to promote their adoption where necessary.
4. The harmful use of solvents and inhalants for their psychoactive effects is a growing problem in many areas of the world, which has been worsened by their widespread availability. WHO should encourage its Collaborating Centres and Member States to initiate studies on the toxicity and dependence potential of solvents and inhalants, as well as on the psychosocial and cultural factors leading to their harmful use. Such studies will permit the development of effective prevention strategies.
5. The Committee noted that the health implications of coca-leaf chewing have not been officially reviewed by WHO since 1953. Because this traditional use of coca leaf is still prevalent in certain regions of the world, the dependence-producing properties of chewed coca leaf, its social role, and the health consequences of its use should be studied.

9.8 National policies and programmes

The primary goal of national demand reduction programmes should be to minimize the harm associated with the use of alcohol, tobacco and other psychoactive drugs. The ultimate goal of these programmes will be to prevent all such harm; however, in the early stages of their implementation, the goal may be to reduce the harm to society. While some countries may decide to aim for complete eradication of the use of a particular drug, others may see such an aim as impractical or even undesirable. The

Committee recommended that, for maximum effectiveness, national policies should be oriented to explicitly defined "harm minimization" goals, with both short-term and long-term objectives.

9.9 Human rights and ethical issues

1. WHO should review ethical and human rights issues relating to the status of drug users, their families and others who may be affected by drug use, and encourage appropriate action by its Member States on such issues. Particular attention should be paid to issues raised by compulsory treatment, the protection of rights within the penal system, data protection, rights of access to treatment and social assistance, child custody, the implications of drug-testing in the workplace, and the protection of research volunteers.
2. The Committee recommended that health administrators and the health education, treatment and research sectors should guard against any inappropriate influence of the alcohol, tobacco and pharmaceutical industries on their activities. Editors of scientific journals could help in this respect by requiring authors of scientific reports to follow specific guidelines for disclosing their sources of funding.

10. Pre-review of psychoactive substances

The assessment by WHO of a psychoactive substance and its recommendation on international control measures to be applied under the Single Convention on Narcotic Drugs, 1961 (as amended by the 1972 protocol), or the Convention on Psychotropic Substances, 1971, have in recent years been carried out in accordance with guidelines adopted by the Executive Board of WHO in 1986. By decision of the Executive Board in January 1990, these guidelines have been revised to take account of the experience gained, to streamline the assessment procedure, and to specify clearly the criteria for the selection of substances for a critical review. Under the "Revised guidelines for the WHO review of dependence-producing psychoactive substances for international control" (*20*), WHO will not undertake a critical review of a substance unless it has received a notice from a party to the international conventions or a request from the United Nations Commission on Narcotic Drugs to do so, or has information that the substance in question may fulfil the criteria for inclusion in one of the schedules of the conventions. Selection of substances for a critical review, formerly undertaken by the WHO Programme Planning Working Group under the previous guidelines, has become part of the function of the Expert Committee, which will continue

to conduct the critical review. The same principle will apply to a "re-review" (a second or further review) of substances already under control in one of the schedules.

10.1 Review procedure

The review procedure defined in the revised guidelines would require two meetings of the Committee, one each for the pre-review and critical review. This would apply even when there had been an official notification by a party to the international conventions or an explicit request for a review from the United Nations Commission on Narcotic Drugs. The time required for completion of the review would depend upon how often the Committee met, but would be at least 3-4 years.

The Committee was of the opinion that a pre-review would be unnecessary if the substance was officially notified by a party to the international conventions or if such a review was explicitly requested by the United Nations Commission on Narcotic Drugs. If the review was initiated by WHO, however, a pre-review by the Committee should be maintained. In recommending that the revised guidelines should be amended accordingly, the Committee stressed that care should be taken to allow sufficient time for the WHO Secretariat to collect and consolidate the necessary information for a critical review. Adequate time should also be allowed for the Secretariat to notify interested parties and collect their comments.

10.2 Pre-review of individual substances[1,2]

Prior to the meeting of the Expert Committee, the WHO Secretariat carried out a preliminary assessment of ten substances to be reviewed by the Committee and compiled relevant information about the substances in a pre-review document. The Committee's assessment of these substances was based on the criteria given in the revised guidelines (*20*).

10.2.1 *Aminorex (INN)*

Chemical name: 2-amino-5-phenyl-2-oxazoline (as in INN list); 4,5-dihydro-5-phenyl-2-oxazolamine.

Previous review

Inclusion in the original Schedules of the Convention on Psychotropic Substances, 1971, was considered but not accepted.

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[1] The term drug abuse is used in this section since it is part of the language of the international conventions.

[2] Where an International Nonproprietary Name (INN) exists, this is given, together with the chemical name(s) for the substance, as contained in the lists of INN published in the *WHO chronicle* (up to the end of 1986) and, since 1987, in *WHO drug information*.

Conclusion

Aminorex is chemically and pharmacologically similar to 4-methylaminorex, which is included in Schedule I of the Convention on Psychotropic Substances, 1971. On the basis of this information and reports of illicit trafficking and abuse of aminorex in the USA, the Committee recommended the drug for critical review.

10.2.2 *Brotizolam (INN)*

Chemical name: 2-bromo-4-(*o*-chlorophenyl)-9-methyl-6*H*-thieno[3,2-*f*]triazolo[4,3-*a*][1,4]diazepine (as in INN list).

Previous review

Brotizolam was reviewed at the twenty-sixth and twenty-seventh meetings of the Committee, which did not recommend scheduling (*16*, *17*).

Conclusion

Although the pharmacological profile, data from dependence studies in animals and clinical experience indicated a significant dependence potential, brotizolam was not recommended for scheduling at the twenty-seventh meeting of the Committee, because of the absence of evidence of actual abuse at that time (*17*). More recent evidence indicates that brotizolam was abused by high-school students in Hong Kong in 1990, and information from INTERPOL has also confirmed its abuse in Belgium. There have been two reported cases of abuse of brotizolam in Germany. On the basis of these reports of actual abuse and data concerning its dependence potential, the Committee recommended brotizolam for critical review.

10.2.3 *Coca leaf*

Previous review

Coca-leaf chewing was reviewed at the third and fourth meetings of the Committee, which concluded that it was a form of "addiction" (*21*, *22*). The background document used for this assessment was the United Nations Report of the Commission of Enquiry on the Coca Leaf (*23*), which was based on a study conducted in 1949-50. Since then, there has been no official evaluation of coca-leaf chewing by WHO.

International control

The coca leaf, as well as cocaine and ecgonine and its esters and derivatives, are at present controlled under Schedule I of the Single Convention on Narcotic Drugs, 1961. The Convention required that coca-leaf chewing "be abolished within 25 years from the coming into force of [the] Convention" (i.e. by December 1989).

Conclusion

Despite the target of "abolishing" coca-leaf chewing by December 1989, this traditional use of coca leaves is still prevalent in certain parts of

the world. The Committee was of the opinion that the coca leaf is appropriately scheduled under the Single Convention on Narcotic Drugs, 1961, since cocaine is readily extractable from the leaf. The Committee did not recommend coca leaf for critical review.

10.2.4 *Etryptamine (INN) or α-ethyltryptamine*

Chemical name: 3-(2-aminobutyl)indole (as in INN list); α-ethyl-1*H*-indole-3-ethanamine.

Previous review

Etryptamine has not been reviewed by WHO.

Conclusion

Etryptamine is chemically similar to the hallucinogenic tryptamines included in Schedule I of the Convention on Psychotropic Substances, 1971. An animal study and clinical observations indicate that etryptamine also produces hallucinogenic effects at high doses. On the basis of this pharmacological similarity and reports of its abuse in the USA, the Committee recommended etryptamine for critical review.

10.2.5 *Flunitrazepam (INN)*

Chemical name: 5-(*o*-fluorophenyl)-1,3-dihydro-1-methyl-7-nitro-2*H*-1,4-benzodiazepine-2-one (as in INN list).

Previous review and international control

Flunitrazepam is at present controlled under Schedule IV of the Convention on Psychotropic Substances, 1971. It was reviewed at the twenty-seventh meeting of the Expert Committee (*17*), which recommended that WHO should continue to keep this drug under surveillance to determine whether it merited being placed under critical review for possible re-scheduling.

Conclusion

The pharmacological profile, data from dependence studies in animals, and clinical experience indicate that flunitrazepam has significant dependence potential. Furthermore, when adjusted for the level of production, the number of reports of illicit activities associated with flunitrazepam is higher than for any other benzodiazepine. On the basis of the data concerning illicit activities, the Committee recommended flunitrazepam for critical review.

10.2.6 *Mesocarb (INN)*

Chemical name: 3-(α-methylphenethyl)-*N*-(phenylcarbamoyl)sydnone imine (as in INN list).

Previous review

Mesocarb has not been reviewed by WHO.

Conclusion

Mesocarb is chemically similar to fenetylline (which is currently controlled under Schedule II of the Convention on Psychotropic Substances, 1971) in that it contains an amfetamine moiety. Although no data from animal studies or clinical data are available on the dependence potential of mesocarb, it has been detected in drug-tests on athletes in recent Olympic games. Information from the International Narcotics Control Board also indicates that mesocarb has been abused in Africa. The Committee noted that studies were planned to assess the likelihood of abuse of mesocarb on the basis of its pharmacological similarity to stimulant drugs already controlled under the Convention on Psychotropic Substances, 1971, and recommended that a critical review should be conducted if positive results were obtained from these tests.

10.2.7 ***Methcathinone***

Chemical name: 2-methylamino-1-phenylpropanone.

Previous review

Methcathinone has not been reviewed by WHO.

Conclusion

Although the chemical structure and pharmacological action of methcathinone are similar to those of cathinone and amfetamines (which are controlled under Schedule II of the Convention on Psychotropic Substances, 1971), no data on its dependence potential in animals or humans or on its actual abuse are available. Accordingly, the Committee did not recommend methcathinone for critical review.

10.2.8 ***Tramadol (INN)***

Chemical name: (±)-*trans*-2-[(dimethylamino)methyl]-1-(*m*-methoxyphenyl)cyclohexanol (as in INN list).

Previous review

Tramadol has not been reviewed by WHO.

Conclusion

Tramadol is a synthetic opioid analgesic, which has a long duration of action, and has rarely been associated with the development of tolerance. Its analgesic effect is antagonized by nalorphine. In non-dependent drug users who were taking opioids for non-medical purposes, tramadol given intramuscularly at 75 mg and 150 mg did not differ from a placebo, although a dose of 300 mg produced an opioid-like effect. However, the highest dose of tramadol did not produce significant "liking" scores, morphine and benzedrine group (MBG) scale scores, or miosis, and no significant abuse has been reported. On the basis of its low abuse liability, tramadol was not recommended by the Committee for critical review.

10.2.9 *Triazolam (INN)*

Chemical name: 8-chloro-6-(*o*-chlorophenyl)-1-methyl-4*H*-*s*-triazolo-[4,3-*a*]-[1,4]benzodiazepine (as in INN list).

Previous review and present control

Triazolam is at present controlled under Schedule IV of the Convention on Psychotropic Substances, 1971. It was reviewed at the twenty-seventh meeting of the Expert Committee (*17*), which did not recommend re-scheduling of this substance.

Conclusion

The pharmacological profile, data from dependence studies in animals, and clinical experience indicate that triazolam has significant dependence potential. There have been numerous clinical reports of adverse mental reactions to triazolam. These reports are currently being studied to re-evaluate the benefit/risk ratio of triazolam in comparison to that of other benzodiazepines. The Committee recommended that a critical review should be undertaken if these studies indicated that triazolam had a lower therapeutic usefulness than previously considered.

10.2.10 *Zipeprol (INN)*

Chemical name: α-(α-methoxybenzyl)-4-(β-methoxyphenethyl)-1-piperazineethanol (as in INN list).

Previous review

Zipeprol has not been reviewed by WHO.

Conclusion

Zipeprol is an antitussive possessing bronchospasmolytic and mucolytic activity. Although no evidence of dependence potential has been found in animal studies, clinical data and reports of actual abuse indicate that the drug has some opioid-like effects. On the basis of reports of its actual abuse in Italy and, more recently, in southern France, as well as information about the health consequences of using this drug, zipeprol was recommended by the Committee for critical review.

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